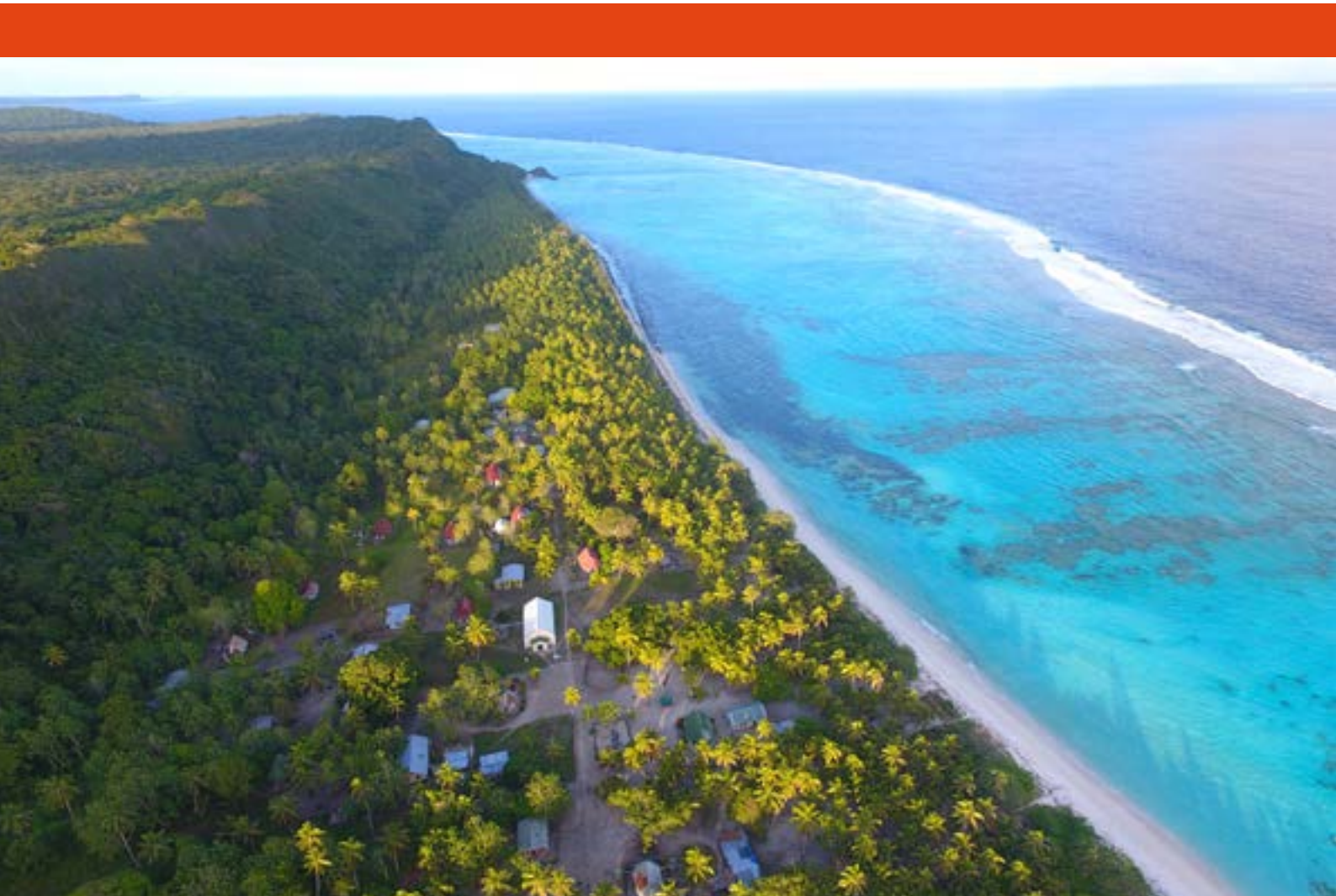


FIJI



HEALTH & CLIMATE CHANGE **COUNTRY PROFILE 2021**

Small Island Developing States Initiative



United Nations
Framework Convention on
Climate Change

CONTENTS

1 EXECUTIVE SUMMARY

2 KEY RECOMMENDATIONS

3 BACKGROUND

4 CLIMATE HAZARDS RELEVANT FOR HEALTH

7 HEALTH VULNERABILITY TO CLIMATE CHANGE

9 HEALTH IMPACTS OF CLIMATE CHANGE

11 HEALTH SECTOR RESPONSE: MEASURING PROGRESS

Acknowledgements

This document was developed in collaboration with the Ministry of Health and Medical Services Fiji, the World Health Organization (WHO) and the United Nations Framework Convention on Climate Change (UNFCCC). Financial support for this project was provided by the Norwegian Agency for Development Cooperation (NORAD) and the Wellcome Trust.



EXECUTIVE SUMMARY

Despite producing very little greenhouse gas emissions that cause climate change, people living in small island developing States (SIDS) are on the front line of climate change impacts. These countries face a range of acute to long-term risks, including extreme weather events such as floods, droughts and cyclones, increased average temperatures and rising sea levels. Many of these countries already have a high burden of climate-sensitive diseases that are then exacerbated by climate change. As is often the case, nations at greatest risk are under-resourced and unprotected in the face of escalating climate and pollution threats. In recent years, the voice of the small island nation leaders has become a force in raising the alarm for urgent global action to safeguard populations everywhere, particularly those whose very existence is under threat.

Recognizing the unique and immediate threats faced by small islands, WHO has responded by introducing the WHO Special Initiative on Climate Change and Health in Small Island Developing States (SIDS). The initiative was launched in November 2017 in collaboration with the United Nations Framework Convention on Climate Change (UNFCCC) and the Fijian Presidency of the COP23 in Bonn Germany, with the vision that by 2030 all health systems in SIDS will be resilient to climate variability and climate change. It is clear that building resilience must happen in parallel with the reduction of carbon emissions by countries around the world in order to protect the most vulnerable from climate risks and to gain the health co-benefits of mitigation policies.

The WHO Special Initiative on Climate Change and Health in SIDS aims to provide national health authorities in SIDS with the political,

technical and financial support required to better understand and address the effects of climate change on health.

A global action plan has been developed by WHO that outlines four pillars of action for achieving the vision of the initiative: empowerment of health leaders to engage nationally and internationally; evidence to build the investment case; implementation to strengthen climate resilience; and resources to facilitate access to climate finance. In March 2018, Ministers of Health gathered in Fiji to develop a Pacific Islands Action Plan to outline the implementation of the SIDS initiative locally and to identify national and regional indicators of progress.

As part of the regional action plan, small island nations have committed to developing a WHO UNFCCC health and climate change country profile to present evidence and monitor progress on health and climate change. In the Western Pacific region in particular, the SIDS initiative is a joint effort with For the Future: Towards the Healthiest and Safest Region. It highlights climate change, environment and health as a thematic priority for WHO's work in the Region. The goal is to ensure that countries and communities in the Region have the capacity to anticipate and respond to the health consequences of the changing climate and environment, with the health sector taking a lead role in cross-sectoral, multi-stakeholder efforts.

This WHO UNFCCC health and climate change country profile for Fiji provides a summary of available evidence on climate hazards, health vulnerabilities, health impacts and progress to date in the health sector's efforts to realize a climate-resilient health system.

KEY RECOMMENDATIONS

1

STRENGTHEN THE IMPLEMENTATION OF THE CLIMATE CHANGE AND HEALTH STRATEGIC ACTION PLAN FOR FIJI

Fiji has an approved national Climate Change and Health Strategic Action Plan 2016–2020, which is being implemented within limited resources.

2

ASSESS HEALTH VULNERABILITY, IMPACTS AND ADAPTIVE CAPACITY TO CLIMATE CHANGE

Conduct a national assessment of climate change impacts, vulnerability and adaptation for health, including climate resilient and environmentally sustainable health care facilities. Ensure that results of the assessment are used for policy prioritization and the allocation of human and financial resources in the health sector.

3

STRENGTHEN INTEGRATED RISK SURVEILLANCE AND EARLY WARNING SYSTEMS

Integrate foodborne and waterborne diseases, nutrition, injuries and mental health issues related to climate change into existing monitoring systems and improve the use of meteorological information in these systems.

4

ADDRESS BARRIERS TO ACCESSING INTERNATIONAL CLIMATE CHANGE FINANCE TO SUPPORT HEALTH ADAPTATION

The main barriers have been identified as a lack of information on the opportunities and a lack of connection by health actors to climate change processes.

WHO RESOURCES TO SUPPORT ACTION ON THESE KEY RECOMMENDATIONS:

<https://www.who.int/activities/building-capacity-on-climate-change-human-health/toolkit/>

BACKGROUND

The island nation of the Republic of Fiji in the South Pacific Ocean is an upper middle-income country rich in natural resources. The oceanic tropical marine climate means the country experiences warm weather all year round with minimal temperature extremes and variable rainfall that is slightly higher in the warmest months. Most of the land comprises volcanic islands, and the country experiences a range of natural hazards including earthquakes, landslides, cyclones, flooding and storm surges (1).

Though Fiji contributes minimally to global greenhouse gas emissions, this small island developing state is vulnerable to the effects of climate change. Fiji is already experiencing rising sea levels, coastal erosion, water shortages, salination of water supplies, depleted fishery stocks, large-scale flooding and an increase in vector-borne diseases (1) – all of which will likely increase as the effects of climate change become more pronounced. Furthermore, internal displacement as a result of climate is already being experienced in Fiji.

The Fiji Ministry of Health has been working to increase its capacity to monitor, assess and respond to hydro-meteorological disasters and climate sensitive diseases to reduce the health risks associated with climate change. Fiji has committed to reducing emissions by up to 30% against a business as usual level, and increasing electricity generation through renewable energy from 60% (2013) to 100% by 2030 (1).

HIGHEST PRIORITY CLIMATE-SENSITIVE HEALTH RISKS IN FIJI

Direct effects	
Health impacts of extreme weather events	✓
Heat-related illness	
Indirect effects	
Water security and safety (including waterborne diseases)	✓
Food security and safety (including malnutrition and foodborne diseases)	✓
Vector-borne diseases	✓
Zoonoses	✓
Respiratory illness	
Disorders of the eyes, ears, skin and other body systems	✓
Diffuse effects	
Disorders of mental/psychosocial health	✓
Noncommunicable diseases	✓
Health systems problems	✓
Population pressures	

Source: Table adapted from WHO Regional Office for the Western Pacific (2015) (2).



CLIMATE HAZARDS RELEVANT FOR HEALTH

Climate hazard projections for Fiji

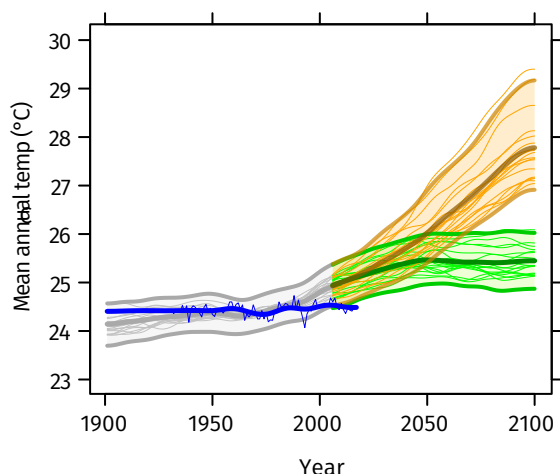
Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5).

The climate model projections given below present climate hazards under a high emissions scenario, Representative Concentration Pathway 8.5 (RCP8.5 – in orange) and a low emissions scenario (RCP2.6 – in green).^a The text describes the projected changes averaged across about 20 global climate models (thick line). The figures^b also show each model individually as well as the 90% model range (shaded) as a measure of uncertainty and the annual and smoothed observed record (in blue).^c In the following text the present-day baseline refers to the 30-year average for 1981–2010 and the end-of-century refers to the 30-year average for 2071–2100.

Modelling uncertainties associated with the relatively coarse spatial scale of the models compared with that of small island states are not explicitly represented. There are also issues associated with the availability and representativeness of observed data for such locations.

Rising temperature

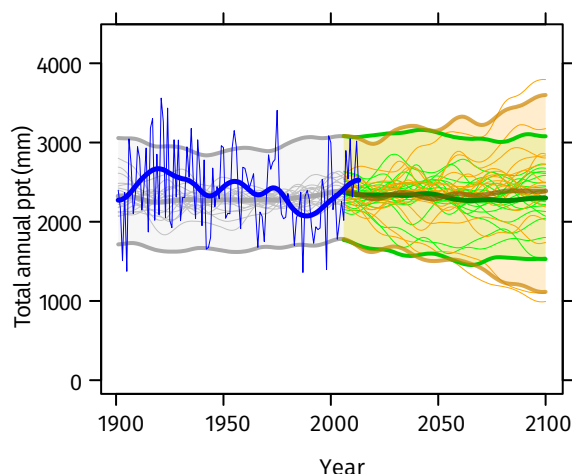
FIGURE 1: Mean annual temperature



Under a high emissions scenario, the mean annual temperature is projected to rise by about 2.7°C on average by the end-of-century (i.e. 2071–2100 compared with 1981–2010). If emissions decrease rapidly, the temperature rise is limited to about 0.7°C.

Little change in total precipitation

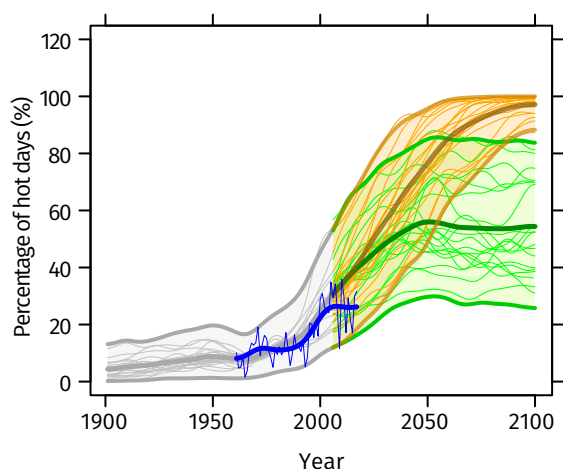
FIGURE 2: Total annual precipitation



Total annual precipitation is projected to remain almost unchanged on average under a high emissions scenario, although the uncertainty range is large (-47% to +31%). If emissions decrease rapidly there is little projected change on average, with an uncertainty range of -23% to +9%.

More high temperature extremes

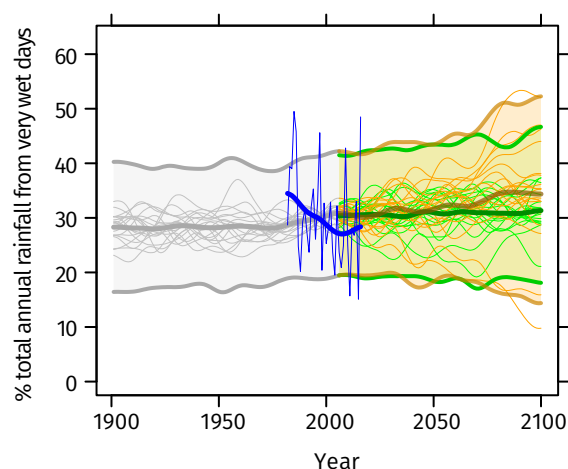
FIGURE 3: Percentage of hot days ('heat stress')



The percentage of hot days^d is projected to increase substantially from about 20% of all days on average in 1981–2010 (10% in 1961–1990). Under a high emissions scenario, almost 100% of days on average are defined as 'hot' by the end-of-century. If emissions decrease rapidly, about 55% of days on average are 'hot'. Note that for the last few years the models tend to overestimate the observed increase in hot days. Similar increases are seen in hot nights (4) (not shown).

Small increase in extreme rainfall

FIGURE 4: Contribution to total annual rainfall from very wet days ('extreme rainfall' and 'flood risk')

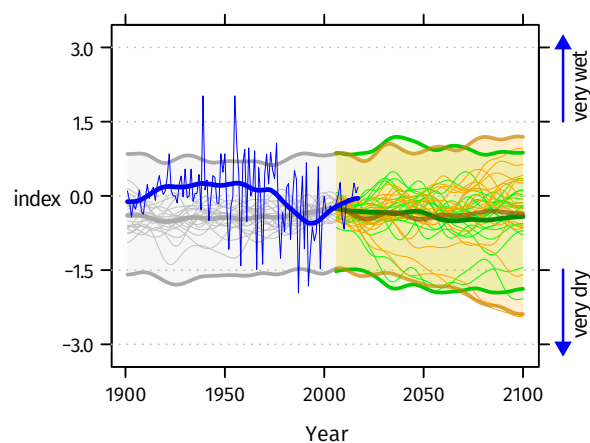


Under a high emissions scenario, the proportion of total annual rainfall from very wet days^e about 30% for 1981–2010) could increase a little by the end-of-century (to about 35% on average with an uncertainty range of about 15% to 50%), with little change if emissions decrease rapidly. These projected changes are accompanied by little or no change in total annual rainfall even under a high emissions scenario (see Figure 2).

FIGURE 5: Standardized Precipitation Index ('drought'), 1900–2100

The Standardized Precipitation Index (SPI) is a widely used drought index which expresses rainfall deficits/excesses over timescales ranging from 1 to 36 months (here 12 months, i.e. SPI12).^f It shows how at the same time extremely dry and extremely wet conditions, relative to the average local conditions, change in frequency and/or intensity.

SPI12 values for Fiji show little projected change from an average of about -0.4, indicating little change on average in the frequency and/or intensity of wet episodes and drought events, though year-to-year variability remains large. A few models indicate larger decreases (more frequent/intense drought events) or increases (more frequent/intense wet events).



NOTES

^a Model projections are from CMIP5 for RCP8.5 (high emissions) and RCP2.6 (low emissions). Model anomalies are added to the historical mean and smoothed.

^b Analysis by the Climatic Research Unit, University of East Anglia, 2018.

^c Observed historical record of mean temperature is from CRU-TSv3.26 and total precipitation is from GPCC. Observed historical records of extremes are from JRA55 for temperature and from GPCC-FDD for precipitation.

^d A 'hot day' ('hot night') is a day when maximum (minimum) temperature exceeds the 90th percentile threshold for that time of the year.

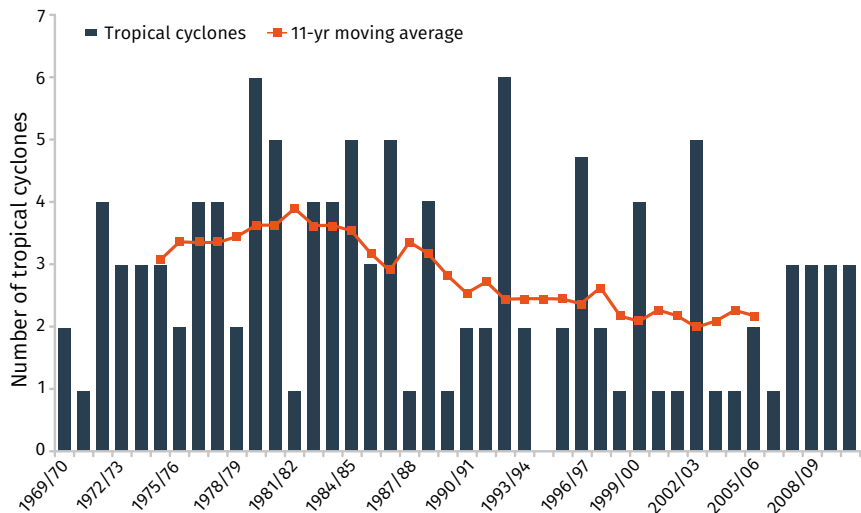
^e The proportion (%) of annual rainfall totals that falls during very wet days, defined as days that are at least as wet as the historically 5% wettest of all days.

^f SPI is unitless but can be used to categorise different severities of drought (wet): above +2.0 extremely wet; +2.0 to +1.5 severely wet; +1.5 to +1.0 moderately wet; +1.0 to +0.5 slightly wet; +0.5 to -0.5 near normal conditions; -0.5 to -1.0 slight drought; -1.0 to -1.5 moderate drought; -1.5 to -2.0 severe drought; below -2.0 extreme drought.

Tropical cyclones

Tropical cyclones normally affect Fiji between November and April, although during El Nino years tropical cyclones can also occur in October and May. Between 1969/70 and 2010/11, 117 tropical cyclones crossed the Fiji Exclusive Economic Zone (EEZ) (Figure 6). This represents an average of 28 cyclones per decade. Interannual variability in the number of tropical cyclones in the Fiji EEZ is large (3).

FIGURE 6: Time series of the observed number of tropical cyclones developing within and crossing the Fiji EEZ per season. The 11-year moving average is in orange



Source: Australian Bureau of Meteorology and CSIRO. Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports, 2014 (3).

POTENTIAL FUTURE CHANGES IN TROPICAL CYCLONES: A GLOBAL PERSPECTIVE (4-11)^a

<p>Total number</p> <p>↑ Increase ↓ Decrease</p>	<p>Intensity</p>	<p>Frequency of category 4 and 5 events</p>	<p>Average precipitation rates near storm centre</p>
---------------------------------------------------------	-------------------------	----------------------------------------------------	-------------------------------------------------------------

Sea level rise

Sea level rise is one of the most significant threats to low-lying areas on small islands and atolls. Research indicates that rates of global mean sea level rise are almost certainly accelerating as a result of climate change. The relatively long response times to global warming mean that sea level will continue to rise for a considerable time after any reduction in emissions.

0.4–0.9 m

Further rise in Fiji by 2090 (3)^b

High emissions scenario (RCP8.5). With variation in models and emissions scenarios.

Impacts of sea level rise include

Coastal erosion	Ecosystem disruption
Higher storm surges	Population displacement
Water contamination and disruption	Mental health

^a Information and understanding about tropical cyclones (including hurricane and typhoons) from observations, theory and climate models has improved in the past few years. It is difficult to make robust projections for specific ocean basins or for changes in storm tracks. Presented here is a synthesis of the expected changes at the global scale.

^b Estimates of mean net regional sea level change were evaluated from 21 CMIP5 models and include regional non-scenario components (adapted from WGI AR5 Figure 13–20). The range given is for RCP4.5 annual projected change for 2081–2100 compared to 1986–2005.

HEALTH VULNERABILITY TO CLIMATE CHANGE

SDG indicators related to health and climate change

Many of the public health gains that have been made in recent decades are at risk due to the direct and indirect impacts of climate variability and climate change. Achieving Sustainable Development Goals (SDGs) across sectors can strengthen health resilience to climate change.

1. NO POVERTY



Proportion of population living below the national poverty line (2013) (12)

34%

3. GOOD HEALTH AND WELL-BEING



3.5%

Current health expenditure as percentage of gross domestic product (GDP) (2016)(14)

64

Universal Health Coverage Service Coverage Index (2017)^a(13)

25.3

Under-five mortality rate per 1000 live birth (2017) (core capacity index score) (15)

6. CLEAN WATER AND SANITATION



Proportion of total population using at least basic drinking-water services (2017)^b(16)

94%

Proportion of total population using at least basic sanitation services (2017)^b(16)

95%



13. CLIMATE ACTION

Total number of weather-related disasters recorded between 2000 and 2018^c(17)

24

Highest total number of persons affected by a single weather-related disaster between 2000 and 2018^c(17)

545 558

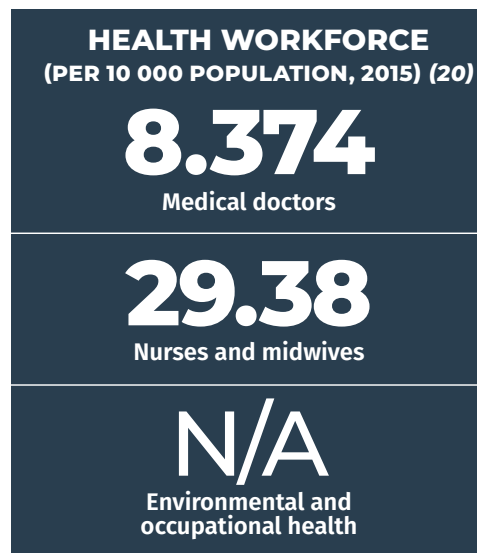
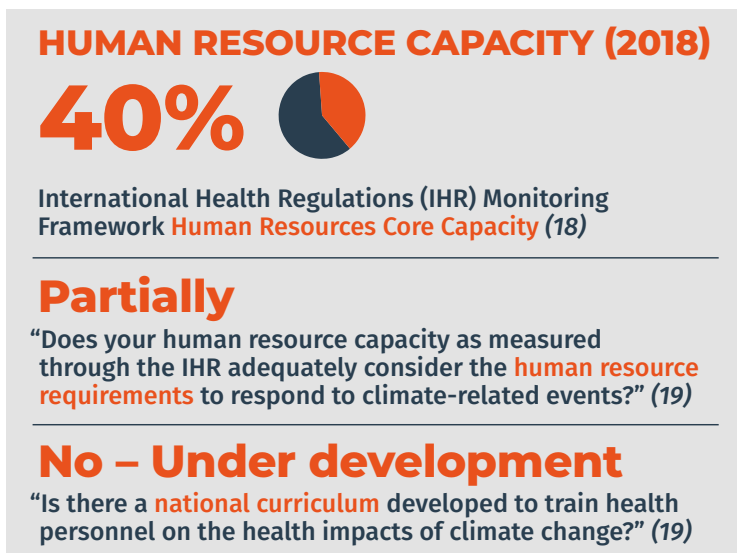
^a The index is based on low data availability. Values greater than or equal to 80 are presented as ≥ 80 as the index does not provide fine resolution at high values; 80 should not be considered a target.

^b Data for SDG6 safely managed drinking-water and sanitation services are not consistently available for all SIDS at this time, therefore 'at least basic services' has been given for comparability.

^c Data for SDG13.1 are currently not available. Alternative indicators and data sources are presented.

Health workforce

Public health and health care professionals require training and capacity building to have the knowledge and tools necessary to build climate-resilient health systems. This includes an understanding of climate risks to individuals, communities and health care facilities and approaches to protect and promote health given the current and projected impacts of climate change.



While there are no specific WHO recommendations on national health workforce densities, the ‘Workload Indicators of Staffing Need’ (WISN) is a human resource management tool that can be used to provide insights into staffing needs and decision making. Additionally, the National Health Workforce Accounts (NHWA) is a system by which countries can progressively improve the availability, quality and use of health workforce data through monitoring of a set of indicators to support achievement of universal health coverage (UHC), SDGs and other health objectives. The purpose of the NHWA is to facilitate the standardization and interoperability of health workforce information. More details about these two resources can be found at: <https://www.who.int/activities/improving-health-workforce-data-and-evidence>

Health care facilities

Climate change poses a serious threat to the functioning of health care facilities. Extreme weather events increase the demand for emergency health services but can also damage health care facility infrastructure and disrupt the provision of services. Increased risks of climate-sensitive diseases will require greater capacity from often already strained health services. In small island developing states, health care facilities are often in low-lying areas, subject to flooding and storm surges making them particularly vulnerable.



HEALTH IMPACTS OF CLIMATE CHANGE

Heat stress

Climate change is expected to increase the mean annual temperature and the intensity and frequency of heat waves, resulting in a greater number of people at risk of heat-related medical conditions. Heat waves, i.e. prolonged periods of excessive heat, can pose a particular threat to human, animal and even plant health, resulting in loss of life, livelihoods, socioeconomic output, reduced labour productivity, rising demand for and cost of cooling options, as well as contribute to the deterioration of environmental determinants of health (e.g. air quality, soil, water supply).

Heat stress impacts include:

- heat rash/heat cramps
- dehydration
- heat exhaustion/heat stroke
- death.

Particularly vulnerable groups are:

- the elderly
- children
- individuals with pre-existing conditions (e.g. diabetes)
- the socially isolated.

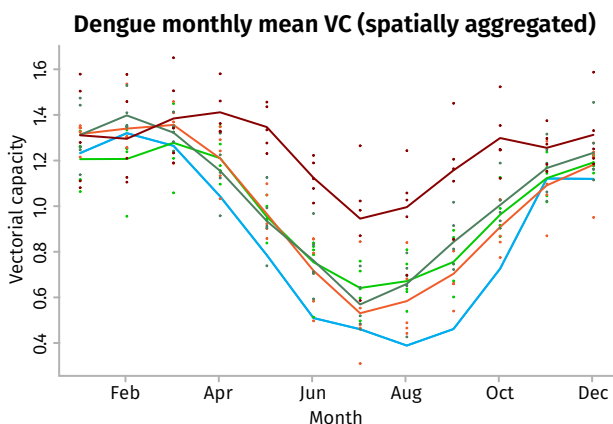
Infectious and vector-borne diseases

Some of the world's most virulent infections are also highly sensitive to climate: temperature, precipitation and humidity have a strong influence on the life-cycles of the vectors and the infectious agents they carry, and influence the transmission of water- and foodborne diseases (21,22).

Small island developing States (SIDS) are vulnerable to disease outbreaks. Climate change could affect the seasonality of such outbreaks, as well as the transmission of vector-borne diseases. Figure 7 presents modelled estimates for Fiji of the potential risk of dengue fever transmission under high and low emission scenarios.^a The seasonality and prevalence of dengue transmission may change with future climate change, but Fiji is consistently highly suitable for dengue transmission under all scenarios and thus vulnerable to outbreaks (23–26).^{b,c}

FIGURE 7: Monthly mean vectorial capacity (VC) in Fiji for dengue fever. Modelled estimates for 2015 (baseline) are presented together with 2035 and 2085 estimates under low emissions (RCP2.6) and high emissions (RCP8.5) scenarios

- 2015, baseline
- 2035, low emissions scenario RCP2.6
- 2035, high emissions scenario RCP8.5
- 2085, low emissions scenario RCP2.6
- 2085, high emissions scenario RCP8.5



^a A suite of mathematical models was systematically developed, then applied and interpreted by a team of researchers at Umeå University (Sweden) to assess the potential for mosquito-borne disease outbreaks (e.g. dengue, chikungunya, Zika and malaria) in terms of climate-dependent VC. The baseline year is 2015, Climatic Research Unit CRU-TSv4.01. Future projections are represented for two emissions futures (Representative Concentration Pathways: RCP2.6, RCP8.5), five climate change projections (Global Climate Models: gfdlcm2m, hadgem2-es, ipsl-cm5a-lr, miroc-esm-chem, noresm1-m). (2018) Umeå University, Sweden.

^b Given the climate dependence of transmission cycles of many vector-borne diseases, seasonality of epidemic risk is common; however, many SIDS, due to tropical latitudes, tend to have less seasonality than more temperate areas.

^c The actual occurrences/severity of epidemics would be quite different for each disease in each setting and could depend greatly on vector- and host-related transmission dynamics, prevention, surveillance and response capacities that are not captured in this model.

Noncommunicable diseases, food and nutrition security

Small island developing States (SIDS) face distinct challenges that render them particularly vulnerable to the impacts of climate change on food and nutrition security including: small, and widely dispersed, land masses and populations; large rural populations; fragile natural environments and lack of arable land; high vulnerability to climate change, external economic shocks, and natural disasters; high dependence on food imports; dependence on a limited number of economic sectors; and distance from global markets. The majority of SIDS also face a 'triple-burden' of malnutrition whereby undernutrition, micronutrient deficiencies and overweight and obesity exist simultaneously within a population, alongside increasing rates of diet-related NCDs.

Climate change is likely to exacerbate the triple-burden of malnutrition and the metabolic and lifestyle risk factors for diet-related NCDs. It is expected to reduce short- and long-term food and nutrition security both directly, through its effects on agriculture and fisheries, and indirectly, by contributing to underlying risk factors such as water insecurity, dependency on imported foods, urbanization and migration and health service disruption. These impacts represent a significant health risk for SIDS, with their particular susceptibility to climate change impacts and already over-burdened health systems, and this risk is distributed unevenly, with some population groups experiencing greater vulnerability.

NONCOMMUNICABLE DISEASES IN FIJI

61.3

Healthy life expectancy (2016) (27)

4.4%

Adult population considered **undernourished** (2015–17 3-year average) (28)

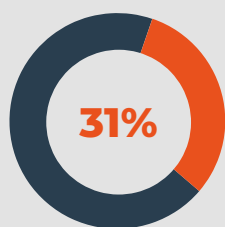
30%

Adult population considered **obese** (2016) (29)

16.6%

Prevalence of **diabetes** in the adult population (2014) (30)

MOTHER AND CHILD HEALTH



Iron deficiency anaemia in women of reproductive age (2016) (31)



Wasting in children under five years of age (32)^a



Stunting in children under five years of age (32)^a



Overweight in children under five years of age (32)^a






^a Recent estimates from the UNICEF–World Health Organization–World Bank Group. Joint Child Malnutrition Estimates, Levels and Trends (32) are not available. National estimates or figures may be available but may be derived using different methods. Please see: Ministry of Health and Medical Services. 2014–2015 National Nutrition Survey.



HEALTH SECTOR RESPONSE: MEASURING PROGRESS

The following section measures progress in the health sector in responding to climate threats based on country reported data collected in the 2018 WHO health and climate change country survey (19). Key indicators are aligned with those identified in the Small Island Developing State Action Plan.

Empowerment: Supporting health leadership

National planning for health and climate change







Has a national health and climate change strategy or plan been developed?^a	
Title: Climate Change Health Strategic Action Plan (CCHSAP) Year: 2016–2020	
Content and implementation	
Are health adaptation priorities identified in the strategy/plan?	
Are the health co-benefits of mitigation action considered in the strategy/plan?	
Performance indicators are specified	
Level of implementation of the strategy/plan	Medium
Current health budget covers the cost of implementing the strategy/plan	



=yes, =no, O=unknown, N/A=not applicable, TBA=to be advised

^a In this context, a national strategy or plan is a broad term that includes national health and climate strategies as well as the health component of national adaptation plans (H-NAPs).

Intersectoral collaboration to address climate change

Is there an agreement in place between the ministry of health and other sectors in relation to health and climate change policy?

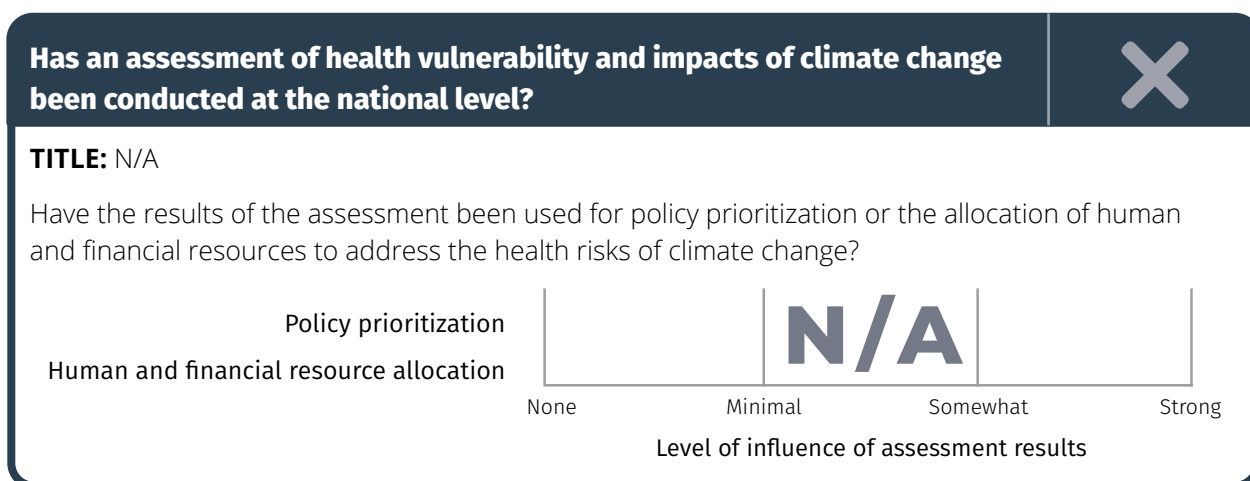
Sector	Agreement in place ^a
Transportation	
Electricity generation	
Household energy	
Agriculture	
Social services	
Water, sanitation and wastewater management	

=yes, =no, O=unknown, N/A=not applicable, TBA=to be advised

^a Specific roles and responsibilities between the national health authority and the sector indicated are defined in the agreement.

Evidence: Building the investment case

Vulnerability and adaptation assessments for health



Implementation: Preparedness for climate risks

Integrated risk monitoring and early warning

Climate-sensitive diseases and health outcomes	Monitoring system in place ^a	Monitoring system includes meteorological information ^b	Early warning and prevention strategies in place to reach affected population
Thermal stress (e.g. heat waves)	N/A	N/A	N/A
Vector-borne diseases	✓	✓	✓
Foodborne diseases	✕	✕	✓
Waterborne diseases	✕	✕	✓
Nutrition (e.g. malnutrition associated with extreme climatic events)	✕	✕	✓
Injuries (e.g. physical injuries or drowning in extreme weather events)	✕	✕	✓
Mental health and well-being	✕	✕	✓

✓=yes, ✕=no, O=unknown, N/A=not applicable

^a A positive response indicates that the monitoring system is in place, it will identify changing health risks or impacts AND it will trigger early action.

^b Meteorological information refers to either short-term weather information, seasonal climate information OR long-term climate information.


Emergency preparedness

Climate hazard	Early warning system in place	Health sector response plan in place	Health sector response plan includes meteorological information
Heat waves	N/A	N/A	N/A
Storms (e.g. hurricanes, monsoons, typhoons)	✓	✓	✗
Flooding	✓	✓	✗
Drought	✓	✓	✗

✓=yes, ✗=no, O=unknown, N/A=not applicable

Resources: Facilitating access to climate and health finance

International climate finance

Are international funds to support climate change and health work currently being accessed?		
If yes, from which sources?		
<input type="checkbox"/> Green Climate Fund (GCF)	<input checked="" type="checkbox"/> Global Environment Facility (GEF)	<input type="checkbox"/> Other multilateral donors
<input type="checkbox"/> Bilateral donors	<input checked="" type="checkbox"/> Other: <u>WHO, UNDP</u>	

Funding challenges

Greatest challenges faced in accessing international funds	
Lack of information on the opportunities	Lack of country eligibility
Lack of connection by health actors with climate change processes	Lack of capacity to prepare country proposals
Lack of success in submitted applications	None (no challenges/challenges were minimal)
Other (please specify): <i>The recognition given to prioritizing the climate change impacts on health</i>	Not applicable

REFERENCES

1. Fiji's Intended Nationally Determined Contribution. Government of Fiji. (https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Fiji%20First/FJI_iNDC_Final_051115.pdf, accessed 4 November 2019).
2. Human health and climate change in Pacific island countries. Manila: WHO Regional Office for the Western Pacific; 2015 (http://iris.wpro.who.int/bitstream/handle/10665.1/12399/9789290617303_eng.pdf, accessed 27 May 2019).
3. Climate variability, extremes and change in the western tropical Pacific: new science and updated country reports 2014. Pacific–Australia Climate Change Science and Adaptation Planning Program Technical Report. Melbourne: Australian Bureau of Meteorology and Commonwealth Scientific and Industrial Research Organisation; 2014 (<https://www.pacificclimatechangescience.org/publications/reports/climate-variability-extremes-and-change-in-the-western-tropical-pacific-2014/>, accessed 27 May 2019).
4. Christensen et al. Climate Phenomena and their Relevance for Future Regional Climate Change. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Stocker et al (eds). Cambridge: Cambridge University Press; 2013.
5. Knutson et al. Global projections of intense tropical cyclone activity for the late twenty-first century from dynamical downscaling of CMIP5/RCP4.5 scenarios, *Journal of Climate*. 2015;28:7203–7224.
6. Kossin JP et al. The poleward migration of the location of tropical cyclone maximum intensity. *Nature*. 2014;509:349–352.
7. Kossin JP. A global slowdown of tropical-cyclone translation speed. *Nature*. 2018;558:104–108.
8. Sobel et al. Human influence on tropical cyclone intensity. *Natural Hazards*. 2016;353:242–246.
9. Sugi et al. Projections of future changes in the frequency of intense tropical cyclones, *Climate Dynamics*. 2017;49:619–632.
10. Walsh et al. Tropical cyclones and climate change. *WIREs Climate Change*. 2016;7:65–89.
11. Yoshida et al. Future changes in tropical cyclone activity in high-resolution large-ensemble simulations. *Geophysical Research Letters*. 2017; 44:9910–9917.
12. Poverty data. Washington (DC): World Bank Group; 2019 (<https://data.worldbank.org/topic/poverty>, accessed 21 March 2019).
13. Global Health Observatory. Universal health coverage portal. Geneva: World Health Organization; 2017 (<http://apps.who.int/gho/portal/uhcoverview.jsp>, accessed 17 May 2019).
14. Global Health Expenditure Database. Geneva: World Health Organization; 2019 (<https://apps.who.int/nha/database>, accessed 17 May 2019).
15. UN Inter-agency Group for Child Mortality Estimation. Child mortality estimates. New York: United Nations Children's Fund; 2018 (<http://www.childmortality.org>, accessed 20 November 2018).
16. WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP). Geneva/New York: World Health Organization/United Nations Children's Fund; 2019 (<https://washdata.org/data>, accessed 1 August 2018).
17. Emergency Events Database (EM-DAT). Louvain: Centre for Research on the Epidemiology of Disasters, Université catholique de Louvain; 2019 (<https://www.emdat.be>, accessed 25 April 2019).
18. International Health Regulations (2005) Monitoring Framework. State Party Self-Assessment Annual Reporting tool (e-SPAR). Geneva: World Health Organization; 2019 (<https://extranet.who.int/e-spar>, accessed 9 May 2019).
19. WHO Climate and Health Country Survey as part of the WHO UNFCCC Health and Climate Change Country Profile Initiative. Geneva: World Health Organization; 2018 (<https://www.who.int/globalchange/resources/countries/en/>, accessed 17 January 2020).
20. WHO Global Health Workforce Statistics, December 2018 update. Geneva: World Health Organization; 2018 (<http://www.who.int/hrh/statistics/hwfstats/>, accessed 14 May 2019).
21. Atlas of health and climate. Geneva: World Health Organization and World Meteorological Organization; 2012.
22. Hales S, Kovats S, Lloyd S, Campbell-Lendrum D (editors). Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s. Geneva: World Health Organization; 2014 (https://apps.who.int/iris/bitstream/handle/10665/134014/9789241507691_eng.pdf, accessed 27 May 2019).
23. Quam, Mikkel B. Imported infections' importance: global change driving dengue dynamics [dissertation]. Umeå: Umeå University; 2016.
24. Liu-Helmersson J. Climate change, dengue and Aedes mosquitoes: past trends and future scenarios [dissertation]. Umeå: Umeå University; 2018.
25. Liu-Helmersson J, Quam M, Wilder-Smith A, Stenlund H, Ebi K, Massad E et al. Climate change and Aedes vectors: 21st century projections for dengue transmission in Europe. *EBioMedicine*. 2016;7:267–77.
26. Rocklöv J, Quam MB, Sudre B, German M, Kraemer MU, Brady O et al. Assessing seasonal risks for the introduction and mosquito borne spread of Zika virus in Europe. *EBioMedicine*. 2016; 9:250–6.
27. Global Health Observatory data repository. Healthy life expectancy (HALE) at birth. Geneva: World Health Organization; 2019 (https://www.who.int/gho/mortality_burden_disease/life_tables/hale/en/, accessed 9 May 2019).
28. The state of food security and nutrition in the world 2018: building climate resilience for food security and nutrition. Rome: Food and Agriculture Organization of the United Nations; 2018 (<http://www.fao.org/3/i9553en/i9553en.pdf>, accessed 27 May 2019).
29. Global Health Observatory data repository. Prevalence of obesity among adults, BMI ≥ 30 , crude estimates by country. Geneva: World Health Organization; 2017 (<http://apps.who.int/gho/data/node.main.BMI30C>, accessed 9 May 2019).
30. Global report on diabetes. Geneva: World Health Organization; 2016 (https://apps.who.int/iris/bitstream/handle/10665/204871/9789241565257_eng.pdf, accessed 27 May 2019).
31. Global Health Observatory. Prevalence of anaemia in women. Geneva: World Health Organization; 2019 (<http://apps.who.int/gho/data/node.main.ANEMIA3>, accessed 30 May 2019).
32. UNICEF–World Health Organization–World Bank Group. Joint Child Malnutrition Estimates, Levels and Trends. Geneva: World Health Organization; 2019.

WHO/HEP/ECH/CCH/21.01.01

© World Health Organization and the United Nations Framework Convention on Climate Change, 2021

Some rights reserved. This work is available under the CC BY-NC-SA 3.0 IGO licence

All reasonable precautions have been taken by WHO and UNFCCC to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall WHO and UNFCCC be liable for damages arising from its use.

Most estimates and projections provided in this document have been derived using standard categories and methods to enhance their cross-national comparability. As a result, they should not be regarded as the nationally endorsed statistics of Member States which may have been derived using alternative methodologies. Published official national statistics, if presented, are cited and included in the reference list.

Design by Inis Communication from a concept by N. Duncan Mills

Photos: Ministry of Health and Medical Services Fiji