ANTIGUA AND BARBUDA

HEALTH & CLIMATE CHANGE

COUNTRY PROFILE 2020

Small Island Developing States Initiative

World Health Organization
United Nations Framework Convention on Climate Change
PAHO

CONTENTS

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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 may be exacerbated by climate change. Some of the 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 23rd Conference of the Parties (COP23) to the UNFCCC, held 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, however, that, in order to protect the most vulnerable from climate risks and to gain the health co-benefits of mitigation policies, building resilience must happen in parallel with the reduction of carbon emissions by countries around the world.

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 October 2018, ministers of health gathered in Grenada to develop a Caribbean 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.

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

KEY RECOMMENDATIONS

1 DEVELOP AND IMPLEMENT A HEALTH AND CLIMATE CHANGE STRATEGY/ PLAN FOR ANTIGUA AND BARBUDA

Develop and implement a national health and climate change plan, ensuring that adaptation priorities are specified, health co-benefits from mitigation and adaptation measures are considered, necessary budget requirements are allocated, and regular monitoring and review of progress will support its full implementation. Involve departments and ministries responsible for health and health-determining sectors, as well as private sector, nongovernmental organizations and civil society stakeholders in the development and implementation of the plan.

2 ASSESSING HEALTH VULNERABILITY, IMPACTS AND ADAPTIVE CAPACITY TO CLIMATE CHANGE

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

3 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 capacity to prepare country proposals.

4 BUILD CLIMATE-RESILIENT HEALTH CARE FACILITIES

Measures can be taken to prevent the potentially devastating impacts of climate change on health service provision, including; conducting hazard assessments, climate-informed planning and costing, strengthening structural safety, contingency planning for essential systems (electricity, heating, cooling, ventilation, water supply, sanitation services, waste management and communications). A commitment towards low-emission, sustainable practices to improve system stability, promote a healing environment and to mitigate climate change impacts can also be taken.

5 DEVELOP INTERSECTORAL PARTNERSHIPS TO ADDRESS FOOD AND WATER SECURITY AND SAFETY CHALLENGES

Alliances can be formed between the Ministry of Health and the Environment and ministries/ departments responsible for food and water safety and security (e.g. public works, agriculture, trade) and monitoring and response to meteorological and environmental threats (e.g. Meteorological Services and National Office of Disaster Services). These may be supplemented by international and local partnerships to develop and implement strategies to address food and water vulnerabilities to climate change and develop vibrant and effective models of operation and structural resilience.

WHO RESOURCES TO SUPPORT ACTION ON THESE KEY RECOMMENDATIONS:
https://www.who.int/activities/building-capacity-on-climate-change-human-health/toolkit/

BACKGROUND

Antigua and Barbuda is a Small Island Developing State (SIDS) in the Caribbean Sea *(1)*. The climate is tropical maritime, wet and dry, with minimal seasonal variation except for the hurricane season, which runs from approximately June to November *(1,2)*. Tourism is the country's dominant sector, accounting for around 80% of GDP and approximately 70% of employment; the sustainability of this sector is largely reliant upon Antigua and Barbuda's natural resources *(1)*.

As a SIDS, Antigua and Barbuda is considered highly vulnerable to climate change impacts, including sea level rise, increasing temperatures, changing precipitation patterns, and extreme weather events. Human health and well-being are also threatened by climate change, with particular threats being water insecurity (due to saltwater intrusion of freshwater aquifers); economic insecurity; heat stress; spread of vector-borne, waterborne and foodborne diseases; and death and injury from extreme weather events. With the country's economy being so reliant on tourism, threats to Antigua and Barbuda's natural environment and infrastructure could have serious implications for the country's economy and thus the social and economic development of its population.

The Government of Antigua and Barbuda recognizes the current and future threats of climate change and is working to adapt to these impacts. The water sector has been identified as a priority for adaptation, owing to risks of decreasing freshwater supply and saltwater intrusion of aquifers *(1)*. In 2015, the government of Antigua and Barbuda published its Nationally Determined Contribution (NDC). Its NDC highlights the threats to the health sector, particularly due to the spread of vector-borne and waterborne diseases; in response, the government has committed to protecting all waterways, to reduce flood risk and protect human health, by 2030. Furthermore, the health co-benefits of mitigation and adaptation are recognized *(3)*.

HIGHEST PRIORITY CLIMATE-SENSITIVE HEALTH RISKS FOR ANTIGUA AND BARBUDA

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	✓
Air pollution	
Allergies	✓
Diffuse effects	
Mental/psychosocial health	✓
Noncommunicable diseases	✓
Mitigation actions to reduce emissions through sustainable procurement	
Mitigation measures to reduce emissions of health facilities	
Mitigation measures by coordinating with other sectors	

Source: Adapted and updated from the PAHO *Health and Climate Country Survey 2017 (4).*

CLIMATE HAZARDS RELEVANT FOR HEALTH

Climate hazard projections for Antigua and Barbuda

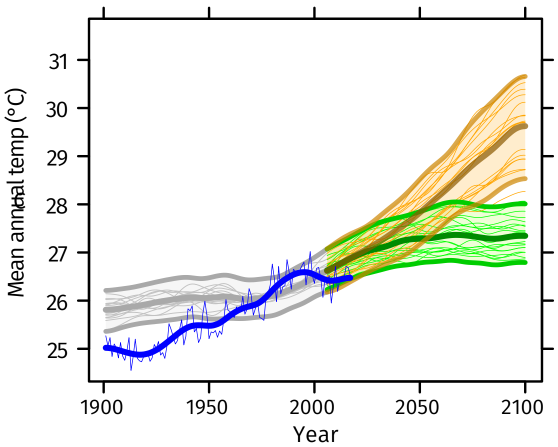
Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5). The climate model projections given below present climate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

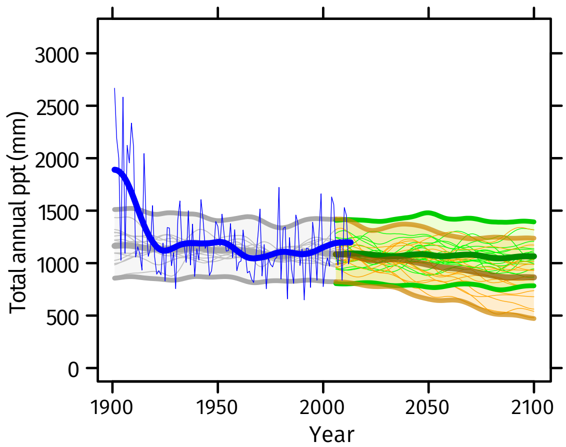
FIGURE 1: Mean annual temperature, 1900–2100



Under a high emissions scenario, the mean annual temperature is projected to rise by about 2.8°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 0.9°C.

Decrease in total precipitation

FIGURE 2: Total annual precipitation, 1900–2100



Total annual precipitation is projected to decrease by about 20% on average under a high emissions scenario, although the uncertainty range is large (-48% to +6%). If emissions decrease rapidly there is little projected change on average: with a decrease of 3% and an uncertainty range of -17% to +7%.

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.

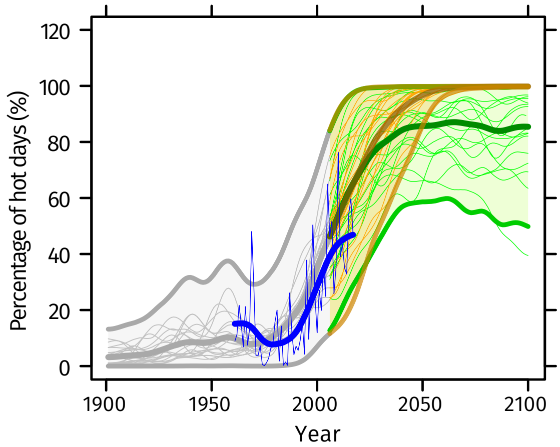
[b] Analysis by the Climatic Research Unit, University of East Anglia, 2018.

[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.

More high temperature extremes

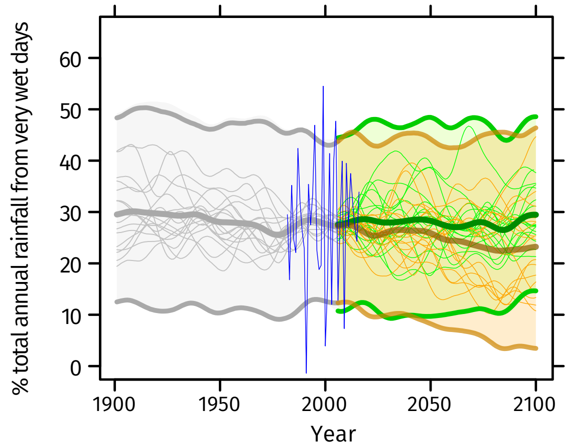
FIGURE 3: Percentage of hot days ('heat stress'), 1900–2100



The percentage of hot days[d] is projected to increase substantially from about 25% of all observed 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 85% of days on average are 'hot'. Note that the models tend to overestimate the observed increase in hot days (about 30% of days on average in 1981–2010 rather than 25%). Similar increases are seen in hot nights[d] (not shown).

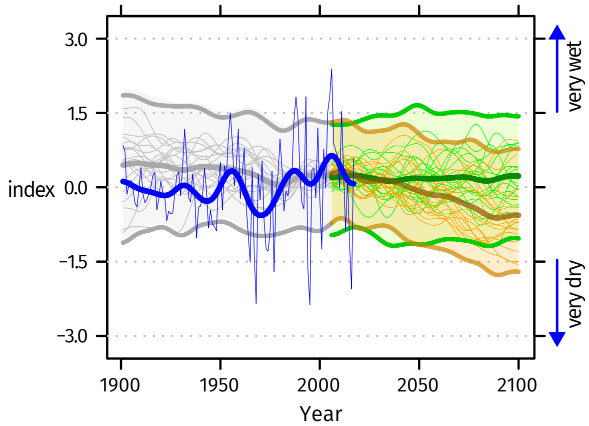
Little change in extreme rainfall

FIGURE 4: Contribution to total annual rainfall from very wet days ('extreme rainfall' and 'flood risk'), 1900–2100



Under a high emissions scenario, the proportion of total annual rainfall from very wet days[e] (about 28% for 1981–2010) could decrease a little by the end-of-century (to about 23% on average with an uncertainty range of about 5% to 45%), with little change if emissions decrease rapidly. Total annual rainfall is projected to decrease (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). Under a high emissions scenario, SPI12 values are projected to decrease to about -0.5 on average by the end of the century (2071–2100), with a number of models indicating substantially larger decreases and hence more frequent and/or intense drought. Year-to-year variability remains large with wet episodes continuing to occur into the future.[f]

These findings underscore the importance of the government's commitment to adapting the water sector. Drought is already a common experience in Antigua and Barbuda. The probability of at least one (moderate or serious or severe drought) in a year is 45.1%, and in 5 years is 95.0%. For severe droughts alone, the probability of at least one in a year is 15.1% and at least one in 5 years 56.0% *(5).*

In recent years Antigua and Barbuda has experienced significant drought conditions. The year 2015 was the driest on record at rainfall stations in many Caribbean islands, including Antigua, and drought conditions with some short periods of relief persisted until August 2016. The 2014–16 drought periods led to decreases in agricultural production and reduced local food supply in Antigua and Barbuda. Water shortages forced water rationing. The Potworks Dam in Antigua was only 10% full by the end of 2014, and by the end of 2015, consumption of desalinated water was greater than 90%, compared with the normal 60% *(6).*

[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 categorize 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 have made landfall in Antigua and Barbuda on multiple occasions. Hurricanes can occur from June to November; historically, the most likely time is mid-August to mid-September. On average, there is a 33% chance of at least one hurricane affecting (passing within 120 miles) of Antigua and Barbuda in any given year or roughly once every three years *(7)*.

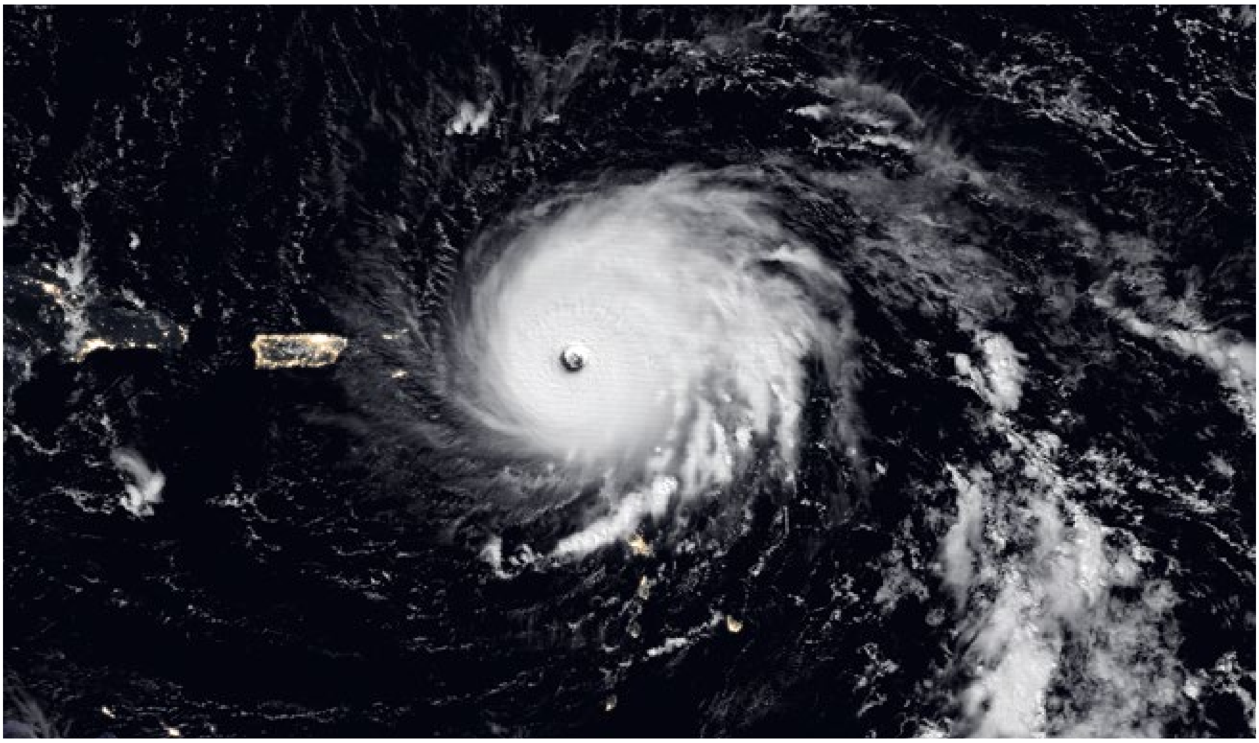
TABLE 1: Hurricanes that have affected Antigua and Barbuda, 1998–2018

Name	Date	Year	Central wind speed	AWG	24Rn	Stage	Type of Strike
Georges	21 Sep	1998	100	99	113.4	H3	Direct hit
Jose	20–21 Oct	1999	85	70	132.5	H2	Direct hit
Lenny	18–20 Nov	1999	110	51	241.8	H3	Direct hit
Debby	22 Aug	2000	70	31	21.3	H1	Hit
Dean	17 Aug	2007	110	46	14.6	H3	None
Omar	16 Oct	2008	115	42	147.4	H4	None
Earl	29–30 Aug	2010	90	56	174.7	H2	Hit
Gonzalo	13 Oct	2014	67	78	26.7	H1	Direct hit
Irma	5–6 Sep	2017	155	54	23.7	H5	Hit
Jose	9 Sep	2017	130	25	30	H4	Hit
Maria	19 Sep	2017	140	48	48.6	H5	Brushed

Source: Antigua and Barbuda Meteorological Services (2019) *(8)*

Notes:
All data above refer to cyclones at the time of impact on Antigua only
CWS Max wind speed in knots around the centre of the cyclone
AWG Max wind gust experienced at V. C. Bird International Airport, Coolidge
24Rn Max 24-hour rainfall measured at 8 a.m. or 1200 UTC
Stage category of the hurricane when it affected Antigua
Direct hit: The cyclone centre passed over land or at most 15 nautical miles from land
Hit: The cyclone centre passed between 15 and 65 nautical miles from land
Brushed: The cyclone centre passed between 65 and 105 nautical miles from land
None: The cyclone passed over 105 nautical miles from land but still caused storm conditions

FIGURE 6: Hurricane Irma over Barbuda, 2017



Source: NASA Earth Observatory (2017), "Hot Water Ahead for Hurricane Irma." from https://earthobservatory.nasa.gov/images/90912 *(9)*

The year 2017 was exceptional as Antigua and Barbuda was affected by three major hurricanes: Irma, Jose and Maria. Hurricane Irma was the strongest storm ever to hit the Caribbean Leeward Islands. It reached its maximum intensity on 5 September 2017 and continued with this intensity – with windspeed of 155 knots (178 mph/ 287 kmph) – when it made landfall on Barbuda on 6 September *(9)*. This hurricane damaged or destroyed almost all infrastructure in Barbuda, forcing evacuation of the population *(10)*. By the end of 2018, only some residents of Barbuda had returned. The recovery needs assessment conducted in partnership with the World Bank concludes that the total damage of the hurricanes Irma and Maria for Antigua and Barbuda comes to EC$ 367.5 million (US$ 136.1 million), while losses amount to approximately EC$ 51.2 million (US$ 18.9 million). Recovery needs amount to EC$ 600.1 million (US$ 222.2 million) *(11)*.

It is anticipated that the total number of tropical cyclones may decrease towards the end of the century. However, it is likely that human-induced warming will make cyclones more intense (an increase in wind speed of 2–11% for a mid-range scenario (i.e. RCP4.5 which lies between RCP2.6 and RCP8.5 – shown on pages 4/5) or about 5% for 2˚C global warming). There are better than even odds that the most intense events (category 4 and 5) will become more frequent (although these projections are particularly sensitive to the spatial resolution of the models). It is also likely that average precipitation rates within 100 km of the storm centre will increase – by a maximum of about 10% per degree of warming. Such increases in the rainfall rate would be exacerbated if tropical cyclone translation speeds continue to slow *(12–20)*.

A synthesis of expected changes at the global scale is presented below.

POTENTIAL FUTURE CHANGES IN TROPICAL CYCLONES: A GLOBAL PERSPECTIVE *(12-20)*[a]

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 global mean sea level rise rates 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.

1.7 mm/year (±1.3)

Average change in Caribbean sea level over the period 1993–2010 *(21)*

with substantial spatial variability across the region

0.4–0.5 m

Further rise in the Caribbean by the end of the century *(22)*[b]

with variation amongst models and emissions scenarios

Potential 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 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 isolate.

Data on heat stress are not systematically collected as part of health surveillance in Antigua and Barbuda.

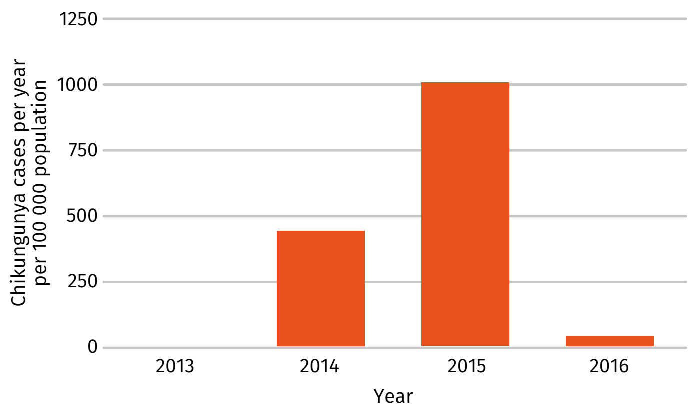
Infectious and vector-borne diseases

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.

In the Caribbean, most cases of vector-borne are transmitted by Aedes aegypti mosquitoes *(23)*. These mosquitoes reproduce more rapidly in warmer temperatures. Mosquito-breeding sites often proliferate in groundwater in periods of high precipitation, and in water storage receptacles in dry or drought periods *(24,25)*. This mosquito is responsible for the transmission of the vast majority of cases of chikungunya, dengue and Zika in the Caribbean.

Antigua Barbuda remains vulnerable to disease outbreaks. Figure 7 shows when the chikungunya epidemic began in Antigua Barbuda in 2014, with cases rising to 1005.5 per 100 000 population at the peak of the epidemic in 2015 *(26)*. A Zika epidemic affected Latin American and Caribbean countries heavily in 2015 and 2016; the incidence of Zika in Antigua and Barbuda by the end of 2016 was 509.6 per 100 000 population *(27)*. Furthemore, dengue is endemic to Antigua and Barbuda and, following the chikungunya and Zika epidemics, once again became the most prevalent mosquito-borne disease. In January 2020, there were 396.1 cases per 100 000 population in Antigua Barbuda *(28)*.

FIGURE 7: Chikungunya cases per year per 100 000 population (2013–2016) in Antigua Barbuda *(26)*. Population data is for 2016 *(29)*



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 noncommunicable diseases.

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 overburdened health systems, and this risk is distributed unevenly, with some population groups experiencing greater vulnerability.

NONCOMMUNICABLE DISEASES IN ANTIGUA AND BARBUDA

67

Healthy life expectancy (2016) *(30)*

N/A

Adult population considered **undernourished** (2015–17 3-year average) *(31)*

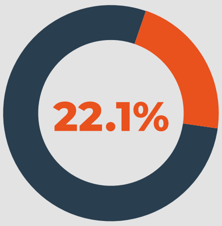
19.1%

Adult population considered **obese** (2016) *(32)*

11.8%

Prevalence of **diabetes** in the adult population (2014) *(33)*

MOTHER AND CHILD HEALTH



Iron deficiency anaemia in women of reproductive age (2016) *(34)*

Wasting in children under five years of age *(35)*

Stunting in children under five years of age *(35)*

Overweight in children under five years of age *(35)*

[a] Estimates from the UNICEF/WHO/World Bank Group joint child malnutrition estimates – levels and trends (2019 edition) are not available. National estimates may be available but may use different methodologies. Please see Data from the Chief Nutrition Officer, Antigua and Barbuda, representing children under five years of age attending community clinics for more information *(36)*.

HEALTH VULNERABILITY AND ADAPTIVE CAPACITY

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[a] *(37)*

N/A

3. GOOD HEALTH AND WELL-BEING

73

Universal Health Coverage Service Coverage Index (2017)[b] *(39)*

4.3%

Current health expenditure as percentage of gross domestic product (GDP) (2016)[c] *(40)*

7.4

Under-five mortality rate per 1000 live births (2017) *(41)*

6. CLEAN WATER AND SANITATION

Proportion of total population using **at least basic drinking-water services** (2017)[d] *(42)*

97%

Proportion of total population using **at least basic sanitation services** (2017)[d] *(42)*

88%

13. CLIMATE ACTION

Total number of hurricanes recorded between 2000 and 2018[e] *(43)*

8

Highest total number of persons affected by a single weather-related disaster between 2000 and 2018[e] *(44)*

25 800

[a] Poverty data from the World Bank Group for Antigua Barbuda are not available. National data may be available but may use different methodologies. See the Caribbean Development Bank Country Poverty Assessment, of share of population living below the poverty line *(38)*.

[b] 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.

[c] This indicator is not an SDG indicator. This indicator does not include expenditure that is part of the Medical Benefits Scheme.

[d] Data for 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. In Antigua and Barbuda, basic drinking-water and sanitation services are widely available, but periodic water outages affect most people. Therefore many people collect rain water.

[e] 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.

HUMAN RESOURCE CAPACITY (2018)

60%

International Health Regulations (IHR) Monitoring Framework Human Resources Core Capacity *(45)*

Partially

"Does your human resource capacity as measured through the IHR adequately consider the human resource requirements to respond to climate-related events?" *(46)*

No

"Is there a national curriculum developed to train health personnel on the health impacts of climate change?" *(46)*

HEALTH WORKFORCE (PER 10 000 POPULATION, 2017) (47)

27.6
Medical doctors

31.2
Nurses and midwives

N/A
Environmental and occupational health and hygiene professionals

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 SIDS, health care facilities are often in low-lying areas, subject to flooding and storm surges making them particularly vulnerable.

Mount St John Medical Centre
Source: http://millreeffund.org/wp-content/uploads/2013/03/MSJMC2-1024x650.jpg

27
Health centres *(48)* [a]

1
Hospital *(48)* [a]

6
Assessed SMART health facilities [b,c]

0
Designated SMART health facilities [b,c]

[a] There are 27 health centres, of which the one in Barbuda remains severely damaged since the passage of Hurricane Irma in 2017. The Barbuda centre, called the Hannah Thomas Hospital, was an eight-bed facility, which now only provides day care facilities. It is being reconstructed with assistance from the United Nations Development Programme. The total population in 2011 was 84 816 *(48).*

[b] The hospital, called the Mount St John Medical Centre, and five major health centres have been assessed as SMART health care facilities. The hospital has been designated as safe (resilient in the face of weather and other natural disasters), but not yet as SMART. SMART health care facilities also require significant climate mitigation measures such as use of renewable energy. A Global Environment Facility project is assisting with establishing solar panels at the Mount St John Medical Centre. The health care centres have not yet achieved Safe or SMART status. One of the challenges is their location. Forty per cent of health centres are located on coastlines and are therefore vulnerable to tsunamis and coastal erosion.

[a] See SMART Hospitals Toolkit - Health care facilities are smart when they link their structural and operational safety with green interventions, at a reasonable cost-to-benefit ratio. https://www.paho.org/disasters/index.php?option=com_content&view=article&id=1742:smart-hospitals-toolkit&Itemid=1248&lang=en

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 *(46)*. Key indicators are aligned with those identified in the Caribbean 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: N/A Year: N/A	
Content and implementation	
Are health adaptation priorities identified in the strategy/plan?	N/A
Are the health co-benefits of mitigation action considered in the strategy/plan?	N/A
Performance indicators are specified	N/A
Level of implementation of the strategy/plan	N/A
Current health budget covers the cost of implementing the strategy/plan	N/A

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

[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).

National progress

A National Adaptation Plan is in draft form and has three main areas of focus; infrastructure, finance and protected areas. It does not have a specific health section or focus.

A national health and climate change strategy has not been developed to date. The Ministry of Health and the Environment (MOHE) comprises two major divisions: the Central Board of Health and the Department of Environment. The Central Board of Health has had little focus on climate-related health issues and the response to environmental and climate issues has been spearheaded by the Department of Environment. This department has worked on the development of renewable energy sources, including solar and windmill power for health institutions. It has also facilitated the acquisition of weather stations used by Antigua and Barbuda Meteorological Services.

The Green Climate Fund National Designated Authority is the Director of the Department of Environment and Ambassador for Climate Change. Antigua and Barbuda is accredited by the Green Climate Fund and is developing a project, known as the GCF Build Project, to strengthen infrastructural resilience across the country. The project is expected to have health benefits including reduction of injury during severe weather events and increased resilience and storage capacity for the water supply. A National Disaster Plan is in place but some of its provisions, such as implementation of the 2010 Organisation of Eastern Caribbean States Building Code, have not been enforced. The Government is debating how to implement the Code in light of the experiences of infrastructural damage from Hurricane Irma. The National Disaster Plan mentions health but no specific plans for this sector are included. Within the MOHE, there is a doctor who works part-time as Disaster Coordinator. The MOHE and PAHO have developed a draft Disaster Management Plan but this has not yet been approved.

The MOHE and entities addressing health-determining sectors, such as the Ministry of Agriculture and Antigua and Barbuda Meteorological Services, have not established strong working relationships. Meteorological and environmental data (such as heat and vector indices) are not yet systematically integrated into national health planning.

Intersectoral collaboration to address climate change

Is there an agreement in place between the ministry of health and this sector which defines specific roles and responsibilities in relation to links between health and climate change policy?

Sector[a]	Agreement in place
Transportation	✗
Electricity generation	✗
Household energy	✗
Agriculture	✗
Social services	✗
Water, sanitation and wastewater management	✓

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

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

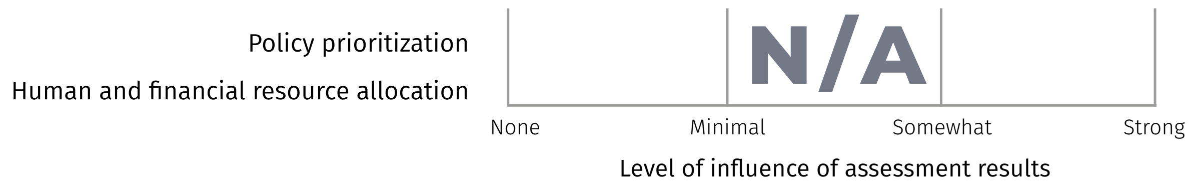
Evidence: Building the investment case

Vulnerability and adaptation assessments for health

Has an assessment of health vulnerability and impacts of climate change been conducted at the national level?	✗

TITLE: N/A

Have the results of the assessment been used for policy prioritization or the allocation of human and financial resources to address the health risks of climate change?



There are no immediate plans for a vulnerability and adaptation assessment to be done in Antigua and Barbuda.

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)	✓[c]	✓	✓
Vector-borne diseases	✓[d]	✓	✓
Foodborne diseases	✓	✗	✓
Waterborne diseases	✓	✗	✓
Nutrition (e.g. malnutrition associated with extreme climatic events)	✓[e]	✗	✓
Injuries (e.g. physical injuries or drowning in extreme weather events)	✗[f]	✗	✓
Mental health and well-being	✓[g]	✗	✓
Airborne and respiratory diseases	✓[h]	✓	N/A

✓=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.
[c] By the Meteorological Office
[d] By the Vector Control Unit
[e] Weight and height of children and body mass index of adults are measured at some clinics.
[f] These are reported but there is no monitoring system.
[g] Numbers of inpatients and outpatients are measured.
[h] Monitoring is syndromic.

Emergency preparedness

Climate hazard	Early warning system in place	Health sector response plan in place	Health sector response plan includes meteorological information
Heat waves	✔	✔	✘
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?

- [x] Green Climate Fund (GCF)
- [x] Global Environment Facility (GEF)
- [ ] Other multilateral donors
- [ ] Bilateral donors
- [ ] Other: ______

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):		Not applicable	

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