

DOMINICAN REPUBLIC



HEALTH & CLIMATE CHANGE **COUNTRY PROFILE 2021**

Small Island Developing States Initiative

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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 the Dominican Republic 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

STRENGTHEN THE IMPLEMENTATION OF THE CLIMATE AND HEALTH STRATEGIC ACTION PLAN

Clarify and articulate institutional roles, and incorporate the necessary budget items to carry out the defined activities in national climate change instruments.

2

INCLUDE THE CLIMATE VARIABILITY FACTOR IN INTEGRATED RISK MANAGEMENT AND EARLY WARNING SYSTEMS

Establish integrated risk monitoring that includes a preventive approach to climate variability, which should contribute to the strengthening of the platform for dialogue and decision-making.

3

IMPROVE ACCESS TO INTERNATIONAL FINANCING FOR ADAPTATION TO CLIMATE CHANGE IN THE HEALTH SECTOR

Improve access to the sources of additional financing to help promote policy implementation and expand risk monitoring and early warning systems.

4

IDENTIFY THE CO-BENEFITS OF MITIGATION ACTIONS OF CLIMATE CHANGE IN THE HEALTH SECTOR

Identify the co-benefits of existing mitigation measures in the well-being of mental and physical health of Dominicans.

5

BUILD HEALTH INFRASTRUCTURE RESILIENT TO CLIMATE CHANGE

Prevent the devastating impacts of climate change on access and provision of health services, including a commitment to sustainable low emission practices to promote a recovery environment and mitigate the impacts of climate change.

WHO RESOURCES TO SUPPORT ACTION ON THESE KEY RECOMMENDATIONS:

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

BACKGROUND

The Dominican Republic is a developing country, considered middle income, which occupies two-thirds of the island of Hispaniola, between the Caribbean Sea and the Atlantic Ocean. The territory of the Dominican Republic consists of steep mountains and highlands, interspersed with fertile valleys. The climate, typically tropical, presents great diversity due to the orographic characteristics of the territory, spacing from the perhumid of the areas exposed to the trade winds, to the arid- pre-desert of the leeward areas to the main mountain chains. Seasonal variations in rainfall are observed, with severe storms experienced from June to October. The majority of the population lives along the coast (1). The Dominican Republic is one of the most exposed countries in the world to disasters caused by natural phenomena and, as such, is particularly vulnerable to climate change. Natural disasters have had a huge financial impact in the Dominican Republic, since individual hurricanes have cost up to 14% of gross domestic product (GDP) in damages (2).

Climate change is anticipated to increase the risk of extreme weather events, variations in precipitation, sea level rise, destruction of marine habitats, and rising temperatures. For human health, these changes could have significant direct and indirect detrimental effects, among which are: impacts in terms of food and water insecurity, in the generation and supply of electricity, population displacement, death, injuries and mental health due to extreme weather events, loss of livelihoods and the spread of vector-borne and waterborne diseases.

The Government of the Dominican Republic recognizes the country's vulnerability to climate change and is actively working to increase its resilience. In 2015, the government submitted its Nationally Determined Contribution (NDC) to the UNFCCC. Adaptation to climate change is identified as a constitutional priority in its NDC. Health is identified as a key sector to address the greatest vulnerabilities to climate change and it is also recognized that public health is severely affected by extreme weather events, with future climate changes that represent major threats to the population's health (3).

HIGHEST PRIORITY CLIMATE-SENSITIVE HEALTH RISKS FOR DOMINICAN REPUBLIC

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 the Dominican Republic

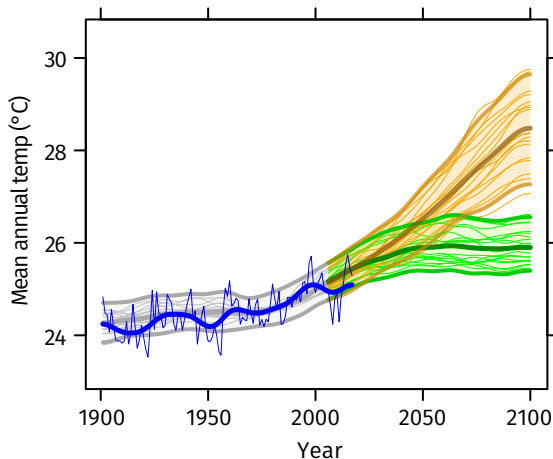
Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5).

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

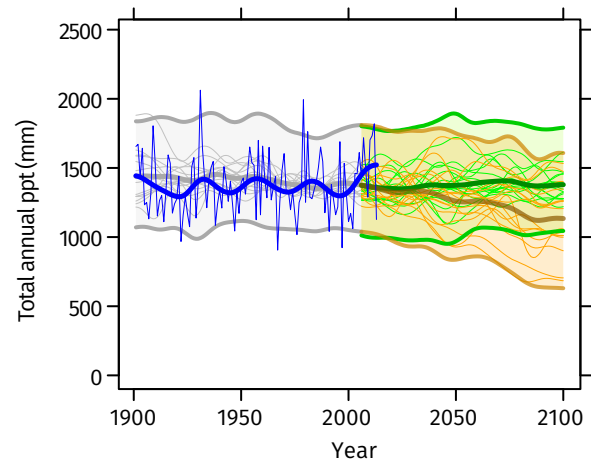
FIGURE 1: Mean annual temperature, 1900–2100



Under a high emissions scenario, the mean annual temperature is projected to rise by about 3.2°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 1.0°C.

Decrease in total precipitation

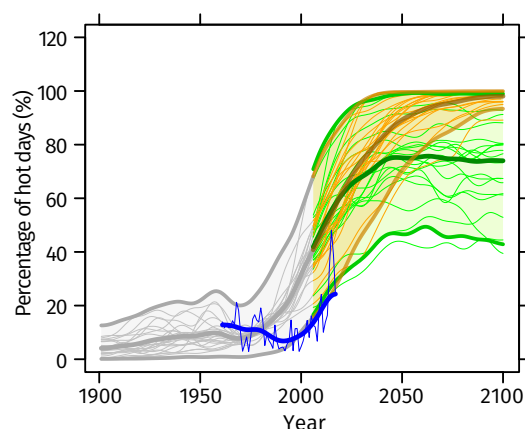
FIGURE 2: Total annual precipitation, 1900–2100



Total annual precipitation is projected to decrease by about 16% on average under a high emissions scenario, although the uncertainty range is large (-43% to +4%). If emissions decrease rapidly, there is little projected change on average, with an uncertainty range of -8% to +9%.

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 10% of all observed days on average in 1981–2010. Under a high emissions scenario, about 95% of days on average are defined as 'hot' by the end-of-century. If emissions decrease rapidly, about 75% of days on average are 'hot'. Note that the models overestimate the observed increase in hot days (about 25% of days on average in 1981–2010 rather than 10%). Similar increases are seen in hot nights^d (not shown).

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.

Under a high emissions scenario, SPI12 values are projected to decrease to about -0.6 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.

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

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

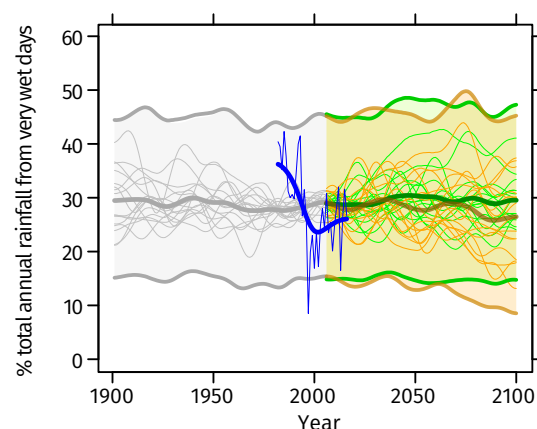
^d A 'hot day' ('hot night') is a day when maximum (minimum) temperature exceeds the 90th percentile threshold for that time of the year.

^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.

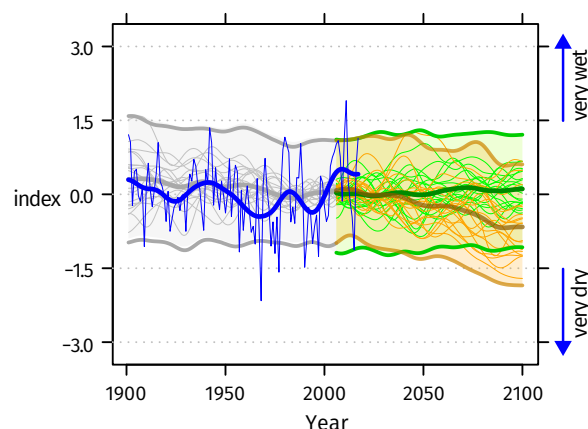
^f SPI is unitless but can be used to categorize different severities of drought(wet): above +2.0 extremely wet; +2.0 to +1.5 severely wet; +1.5 to +1.0 moderately wet; +1.0 to +0.5 slightly wet; +0.5 to -0.5 near normal conditions; -0.5 to -1.0 slight drought; -1.0 to -1.5 moderate drought; -1.5 to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

Little change in extreme rainfall

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



The proportion of total annual rainfall from very wet days^e (about 30% for 1981–2010) shows little change on average by the end-of-century although the uncertainty range is somewhat larger (about 10% to almost 50% under a high emissions scenario). Total annual rainfall is projected to decrease under a high emissions scenario (see Figure 2).



Future rainfall projections at a subnational level

Future climate scenarios based on historical climate data for the Dominican Republic provided by the National Meteorological Office (ONAMET) and analysed by experts from the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC), concluded :

- The conditions of total annual precipitation by 2050 may decrease by 15% on average throughout the national territory, aggravating the decrease to values of 17% by 2070, compared to the average of the baseline 1950–2000.^a
- The southern and western regions of the country will be the most affected by the decrease in rainfall by 2050 and 2070, while the eastern and northern regions could even show even small positive changes.^b
- The total monthly precipitation during the dry season may decrease drastically by 2050 and 2070.^c
- The beginning of the rainy season in May and June could present a sudden increase in the total accumulated rainfall.^d

The period of relative droughts between the months of July–August could be more intense.



NOTES

^a The consistency between the models under a radiative forcing of 8.5 W / m² on the conditions of decrease in annual rainfall totals is 87%.

^b The condition of decrease in total annual precipitation could be further accentuated by 2050/2070 in the regions of Ozama (18% / 20%), Valdesia (17.5% / 20%), Enriquillo (17% / 20%), Higuamo (16% / 18%) and Cibao Sur (15% / 17%). The other regions may experience changes of less than 15%. Only one model shows positive values by 2050 in Cibao Noroeste (1.3%), Cibao Norte (0.9%) and Yuma (0.1%) where it would only increase in Yuma (4.5%) by 2070.

^c On a timely basis and under any type of radiative forcing the models mostly coincide in a decrease in the total rainfall of up to 50% (Jimaní, La Unión, San Juan , Santiago and Santo Domingo) and decreases of between 10% and 30% (Arroyo Barril, Las Américas, Herrera, Punta Cana, Barahona and S. De la Mar) between the months of December and January–April period with respect to those presented in average in the past 3 decades.

^d There is a coincidence in the results of the models presenting increases of more than 100% (mainly in Herrera, Barahona and San Juan), while in the majority of cases there is also a great variability in the results. The case of Barahona stands out, where there is a great coincidence in the results on a decrease of around -120% compared to those presented on average in the past 3 decades.

Tropical cyclones

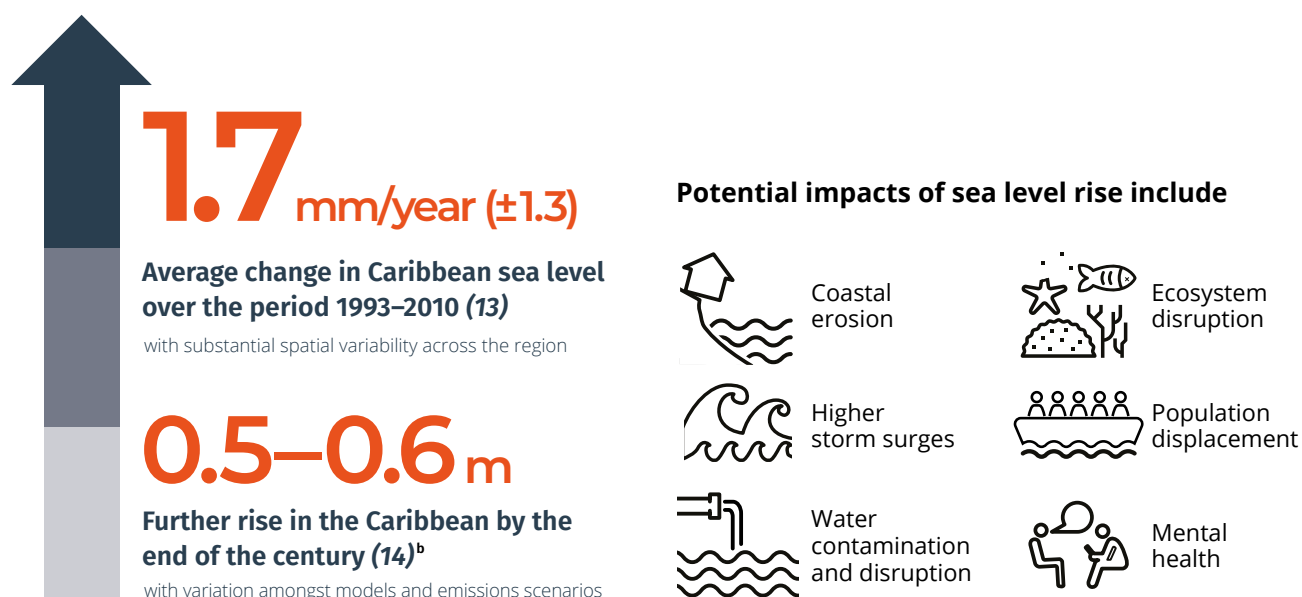
It is anticipated that the total number of tropical cyclones may decrease towards the end of the century. However, it is likely that human-induced warming will make cyclones more intense (an increase in wind speed of 2–11% for a mid-range scenario (i.e. RCP4.5 which lies between RCP2.6 and RCP8.5 – shown on pages 4–5) or about 5% for 2°C global warming). Projections suggest 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 rainfall rate would be exacerbated if tropical cyclone translation speeds continue to slow (5–12).

POTENTIAL FUTURE CHANGES IN TROPICAL CYCLONES: A GLOBAL PERSPECTIVE (5–12)^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 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.



^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.

Infectious and vector-borne diseases

The report “Impact of Climate Change on Human Health in the Dominican Republic: Case Study”, a contribution prepared in the framework of technical cooperation with the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) and the Support of the Technical Support Group/ECLAC of the Project Socio-Economic Impact of Climate Change and Policy Options in Central America and the Dominican Republic, Inter-American Development Bank (IDB)/Nordic Development Fund (NDF), within the framework of the Third National Communication on Climate Change (TCNCC), produced the following results on the national situation of vector-borne diseases (16).

In the Dominican Republic, dengue is endemic and occurs with greater intensity between the months of June and October, in the rainy season. All dengue virus serotypes have been isolated (17).

Malaria is endemic in the country and the causative agent in all cases is *Plasmodium falciparum*, sensitive to chloroquine treatment. The annual increase in the number of cases have been related to climatic phenomena. The number of cases decreased from 3525 in 2006 to 1838 in 2008.

In 2010, 1643 cases were detected, and 200 670 sheets were examined, resulting in a positive sheet index of 0.58%; 65% of the cases corresponded to the male sex and the most affected age group was 10–49 years (74%). Outbreaks were associated with movements of migrant groups of temporary workers linked to agriculture and construction. The national malaria control programme reports an upward trend since 2009 in the imported cases of malaria from people from Haiti.

ILLUSTRATION 1 : Diseases associated with climatic variations (TCNCC, 2017) (15)

EXISTENCE AND INCREASE IN THE
DOMINICAN REPUBLIC OF
THE FOLLOWING DISEASES



ZIKA



DENGUE



CHIKUNGUNYA

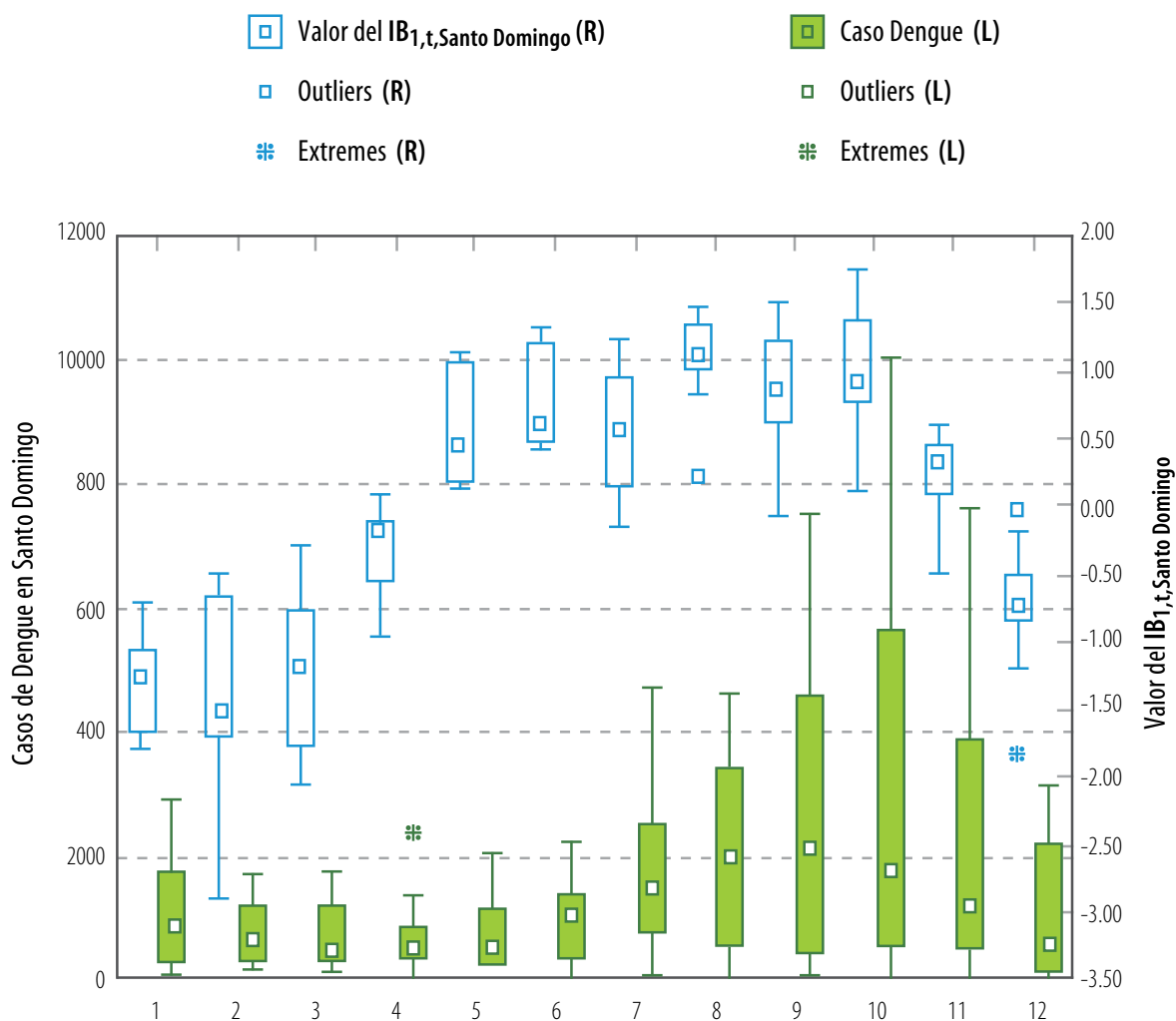
**DUE TO THE CHANGE IN
TEMPERATURE AND THE AVERAGE
AND EXTREME PRECIPITATION**

Dengue is currently the main viral disease transmitted by arthropods in terms of morbidity and mortality. Dengue viruses are transmitted mainly by *Aedes aegypti* mosquitoes and to a lesser extent by *Aedes albopictus*. Symptomatic infections can be mild, moderate and severe, which can lead to death. The geographical distribution of dengue largely reflects the distribution of the vector. The geographical expansion and magnitude of the disease in recent decades has paralleled rapid population growth, unplanned urbanization and the unprecedented increase in population mobility.

Climate is an important determinant of the temporal-spatial distribution of dengue. It is known that elevated temperatures increase the speed of development of the larvae and consequently of the adult mosquito, which can lead to an increase in the rate of bite and the rate of replication of the virus in the mosquito, which leads to vectors. They become infective sooner and itch more frequently. Variability in rainfall influences the availability of vector breeding sites and consequently the abundance of the vector. Humidity influences the half-life of the vector and potentially the transmission. The existence of four dengue serotypes, the duration of cross-protection between serotypes, the phenomenon of ADE (antibody-dependent amplification) also influence the dynamics of transmission and the severity of the disease.

The authorities of the Ministry of Public Health reported that in the first quarter of 2016 at least 10 cases of Zika had already been confirmed through the Center for Disease Control in Atlanta, United States of America (MISPAS, 2016) (18). The Zika virus – also transmitted by the *Aedes aegypti* mosquito – is the same that transmits dengue and chikungunya.

ILLUSTRATION 2: Seasonal variation pattern of dengue cases according to climate variability described by the Economics of Climate Change in Central America and the Dominican Republic (ECC CARD) for the Third National Communication from the Dominican Republic to the United Nations Framework Convention on Climate Change (TCNCC) (15).



Noncommunicable diseases, food and nutrition security

The majority of SIDS 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 THE DOMINICAN REPUBLIC

65.2
Healthy life expectancy
(2016) (19)

10.4%
Adult population considered
undernourished (2015–17,
3-year average) (20)



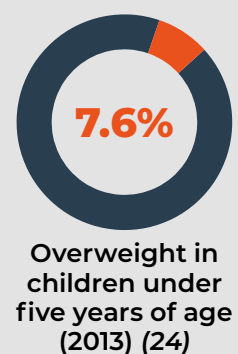
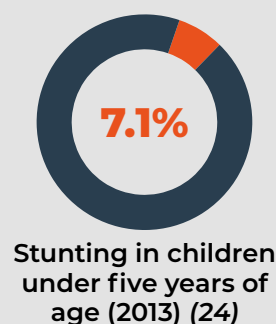
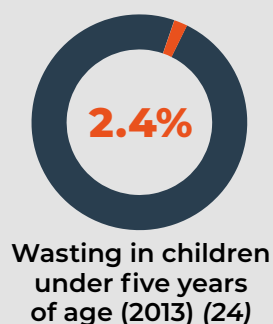
26.9%
Adult population considered
obese (2016) (21)



9.3%
Prevalence of **diabetes**
in the adult population (2014) (22)



MOTHER AND CHILD HEALTH



On food security, the TCNCC project carried out an analysis of the impact of future climate scenarios. Changing precipitation patterns, extreme rainfall events and intensively exploited water resources are likely to increase challenges in future water supplies for rain-fed agriculture. Furthermore, the livelihoods of rural populations are often dependent upon fragile environments, making these groups particularly vulnerable to the impacts of climate change on natural resources (15).



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 (2016) (25)

30.5%

3. GOOD HEALTH AND WELL-BEING



6.2%
Current health expenditure as percentage of gross domestic product (GDP) (2016)^b (27)

74

Universal Health Coverage Service Coverage Index (2017)^a(26)

30
Under-five mortality rate (per 1000 live births) (2017) (28)

6. CLEAN WATER AND SANITATION



Proportion of total population using at least basic drinking-water services (2017)^c (29)

97%

Proportion of total population using at least basic sanitation services (2017)^c (29)

84%



13. CLIMATE ACTION

Total number of weather-related disasters recorded between 2000 and 2018^d (30)

28

Highest total number of persons affected by a single weather-related disaster between 2000 and 2018^d (30)

2.8 MILLION

^a The index is based on high 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.

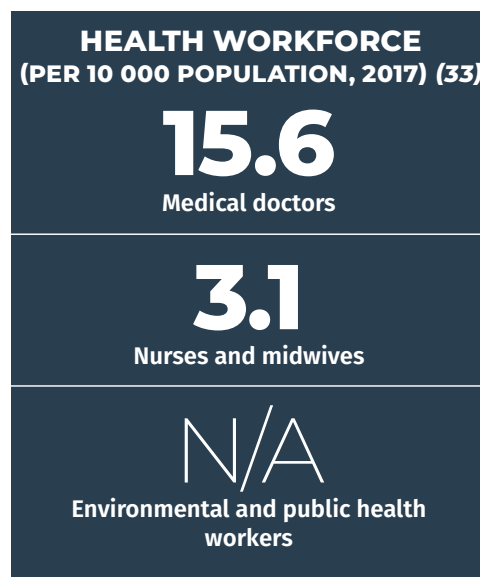
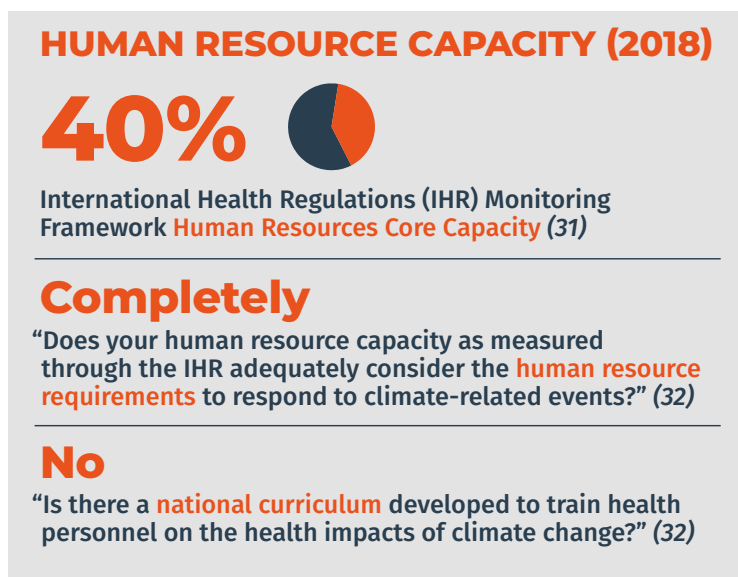
^b This indicator is not an SDG indicator.

^c 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.

^d 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 also 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.

0
Health centres

0
Hospitals

0
**Assessed
SMART health
facilities^a**

0
**Assigned
SMART health
facilities^a**

^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

EMISSIONS AND COMMITMENTS

Carbon footprint of the Dominican Republic

Greenhouse gas (GHG) emissions are relatively modest.

The National Inventory of Greenhouse Gases (INGEI) published in 2015, within TCNCC, resulted in the following estimate of total emissions for the reference year 2010 (34):

Time series by sector	1990	1994	1998	2000	2010
Energy	8469.3	14 788.78	15 868.81	18 090.66	21 138.54
Industrial processes	541.1	643.8	1045.7	811.06	1803.45
Agriculture	2280.12	2489.1	5211.49	5701.1	6812.21
Land use and forestry	-5555.99	-6504.22	Not included	-18 794.1	-3100.64
Waste	1305.78	2519.37	1615.59	1673.36	4390.53

These emissions are equivalent to approximately 3.28 tons of CO₂ equivalent per inhabitant of the Dominican Republic.

The NDCs are consistent with the target of reducing 25% of total emissions from 2010 by 2030, as established in the National Development Strategy law.



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 (32). Key indicators are aligned with those identified in the Caribbean Action Plan.

Empowerment: progress in leadership and governance

National planning for health and climate change

Has a national health and climate change strategy or plan been developed? ^a	X
Title: N/A	
Year: N/A	
Content and implementation	
Are health adaptation priorities identified in the strategy/plan?	X
Are the health co-benefits of mitigation action considered in the strategy/plan?	X
Performance indicators are specified	X
Level of implementation of the strategy/plan	X
Current health budget covers the cost of implementing the strategy/plan	N/A

✓=yes, X=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).

Capacity building

During the annual operational programming (AOP), the health sector developed actions for the articulation of work on climate change adaptation and mitigation. In 2015, within the framework of the TCNCC, and with an institutional alliance with the Ministry of Health and Social Security and the ECLAC, a training programme was carried out with the support of the Technological Institute of Santo Domingo (INTEC), aimed at evaluating the impact of climate change on people's health.

The TCNCC also contributed to updating the National Adaptation Plan to Climate Change (PNACC 2015–2030), which includes considerations resulting from the health and climate change training programme.

The development of a complete health chapter adapted to the PNACC is planned for the year 2020, as well as the reactivation of a technical group formed under the TNCCC called "Health and Climate Group". It is

expected to address studies of climate vulnerability in health, such as developing work in synergy with the National Health Service for the implementation of actions in hospital centers. This goes hand in hand with the development of safe hospitals (35).

The impact on climate change issues has taken another course being part of the process of importance for the sector such as:

- Participation in the Climate Coalition July 2019.
- Participation in Graduates of Public Policies and Climate Change.
- Participation in the Biennial update report (BUR) Report.
- Participation in the national plan NDC.
- Gender and Climate Change Action Plan (35).

ILLUSTRATION 3: Summary Strategic Axis 3 Health and Climate Change TCNCC (15)

Vulnerability of the health sector: The fifth IPCC report (1994b) stated, with a high level of confidence, that vector-borne diseases will multiply in all altitudes and latitudes of the Latin American region, and the Caribbean (LAC) due to changes in temperature and average and extreme precipitation. In the Dominican Republic the existence and increase of several of these diseases such as Zika, Chikungunya and Dengue have been observed. According to projections for the coming years, it is expected, a high probability, an expansion over time and an increase in dengue cases due to the favorable conditions for the appearance of the virus and therefore an increase in the probability of cases, that have already begun to appear in various provinces of the country. It has been proven that the climate determined by means of indexes constitutes an important determinant of numerous ecosystems (natural, human, etc.) therefore any significant variation that it experiences, will bring changes in the load of microorganisms, vectors, reservoirs and susceptible humans, generating in turn, changes in epidemiological patterns and ecological indicators, bringing with it an increased risk of numerous diseases, mostly infectious.
Objective: to strengthen national and local health systems to protect human health from risks related to climate change
Focus areas: 1) awareness and education; 2) to strengthen the capacity of prevention, recovery and response of the health services; 3) to Focus areas: 1) awareness and education; 2) strengthen the capacity of prevention, recovery and response of the health services; 3) promote that, in the short, medium and long term, issues related to health and climate change are incorporated into national health plans; 4) to strengthen research, generation and dissemination of knowledge regarding the health risks associated with climate change; 5) to promote inter-institutional and intersectoral interdisciplinary alliances; 6) to strengthen and promote the capacity of health systems to design, implement, monitor and evaluate adaptation measures

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?	
Policy prioritization Human and financial resource allocation	None Minimal Somewhat Strong Level of influence of assessment results

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)	✗	✗	✗
Vector-borne diseases	✓	✗	✓
Foodborne diseases	✓	✗	✓
Waterborne diseases	✓	✗	✓
Nutrition (e.g. malnutrition associated with extreme climatic events)	✗	✗	UNKNOWN
Injuries (e.g. physical injuries or drowning in extreme weather events)	✗	✗	✗
Mental health and well-being	✗	✗	✗
Airborne and respiratory diseases	✓	✗	✓

✓=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	✓	✓	✓
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?

X

If yes, from which sources?

☐ Green Climate Fund (GCF)

☐ 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	X	Lack of country eligibility	
Lack of connection by health actors with climate change processes	X	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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