SAO TOME AND PRINCIPE

HEALTH & CLIMATE CHANGE

COUNTRY PROFILE 2021

Small Island Developing States Initiative

World Health Organization

United Nations Framework Convention on Climate Change

CONTENTS

Acknowledgements

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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 are then exacerbated by climate change. As is often the case, nations at greatest risk are often 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 though 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 which 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, representatives of Indian Ocean SIDS gathered in Mauritius to develop an action plan to outline the implementation of the SIDS initiative locally and to identify national and regional priorities.

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 Sao Tome and Principe 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 COMPLETE AND IMPLEMENT THE CLIMATE CHANGE AND HEALTH STRATEGIC ACTION PLAN FOR SAO TOME AND PRINCIPE

Sao Tome and Principe is developing a climate change and health strategic action plan. Its full implementation will be supported by 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.

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

Some international funding is currently being accessed to aid with health and climate change initiatives. However, barriers to accessing further funding have been identified as a lack of information on the opportunities and a lack of capacity to prepare country proposals. Additional funding would help to further the implementation of policies and to support health system resilience to climate change such as strengthening integrated risk surveillance and early warning systems.

3 BUILD CLIMATE-RESILIENT AND ENVIRONMENTALLY SUSTAINABLE HEALTH CARE FACILITIES

Measures can be taken to prevent the potentially devastating impacts of climate change on health care facilities and health service provision while decreasing the climate and environmental footprint of health care facilities. A commitment towards climate resilient, environmentally sustainable health care facilities can improve system stability, promote a healing environment and mitigate climate change impacts.

WHO RESOURCES TO SUPPORT ACTION ON THESE KEY RECOMMENDATIONS:

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

BACKGROUND

Sao Tome and Principe is a volcanic archipelago, with two islands and several small islets, located in the Gulf of Guinea west of the African coast *(1,2)*. The climate of Sao Tome and Principe is tropical, with a rainy season from October to May. It is highly dependent upon imports for its goods, although agriculture (in particular cocoa) makes up a significant proportion of the country's economy *(2)*. The tertiary sector is also an important contributor to Sao Tome and Principe's economy. Nonetheless, poverty remains high[a] *(1)*. The population's high poverty rates and low economic growth make it especially vulnerable to climate change.

Sao Tome and Principe is particularly threatened by increasing temperatures, changes to precipitation patterns, sea level rise, and extreme weather events. Such changes pose substantial risks to the health of Sao Tome and Principe's population, including heat stress, food and water insecurity, spread of water- and vector-borne diseases, and loss of livelihood.

The high vulnerability of Sao Tome and Principe is recognized by its government, who submitted its Nationally Determined Contribution (NDC) in 2015. The Sao Tome and Principe NDC highlights that the health sector will be detrimentally affected by climate change if measures are not taken to help it adapt and improve its resilience *(3)*.

HIGHEST PRIORITY CLIMATE-SENSITIVE HEALTH RISKS FOR SAO TOME AND PRINCIPE

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: Table adapted and updated from *Human Health and Climate Change in Pacific Island Countries,* WHO Regional Office for the Western Pacific (2015), p 25 *(4)*.

[a] National estimates may be available. Please see Family Budget Inquiry (IOF) for 2017.

CLIMATE HAZARDS RELEVANT FOR HEALTH

Climate hazard projections for Sao Tome and Principe

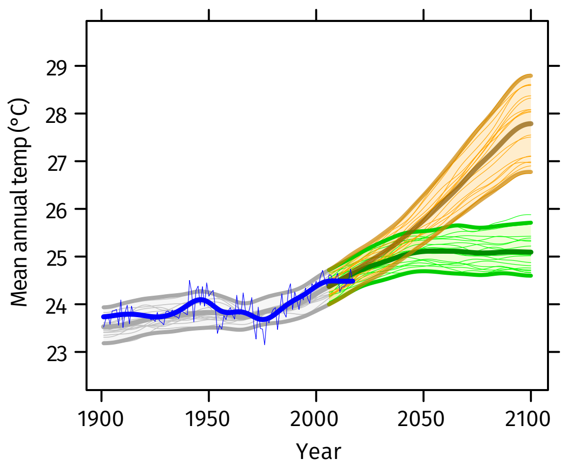
Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5).

The climate model projections 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

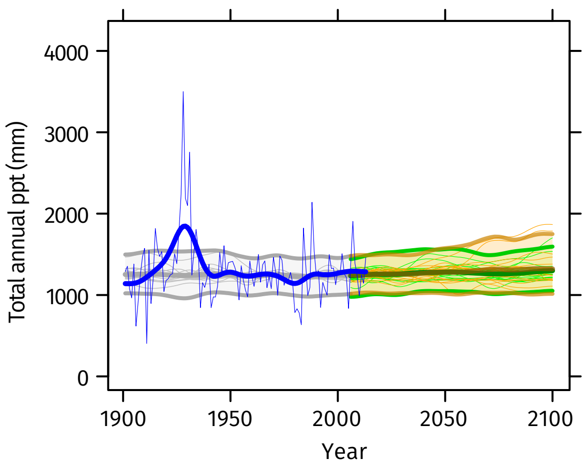
FIGURE 1: Mean annual temperature, 1900–2100



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°C.

Small increase in total precipitation

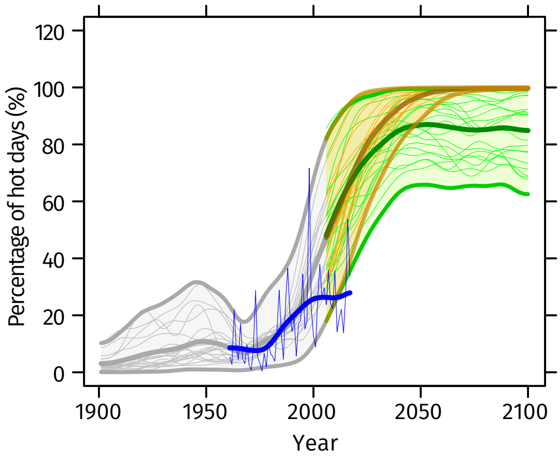
FIGURE 2: Total annual precipitation, 1900–2100



Total annual precipitation is projected to increase by about 7% on average under a high emissions scenario, although the uncertainty range is large (-10% to +44%). If emissions decrease rapidly, there is less projected change on average: an increase of 4% with an uncertainty range of -5% to +20%.

More high temperature extremes

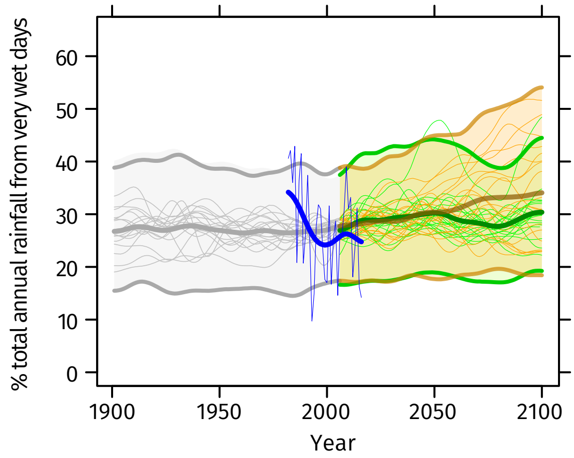
FIGURE 3: Percentage of hot days ('heat stress'), 1900–2100



The percentage of hot days[d] is projected to increase substantially from about 20% 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 over-estimate the observed increase in hot days (by about 7% on average for 1981–2010). Similar increases are seen in hot nights[d] (not shown).

Small increase in extreme rainfall

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

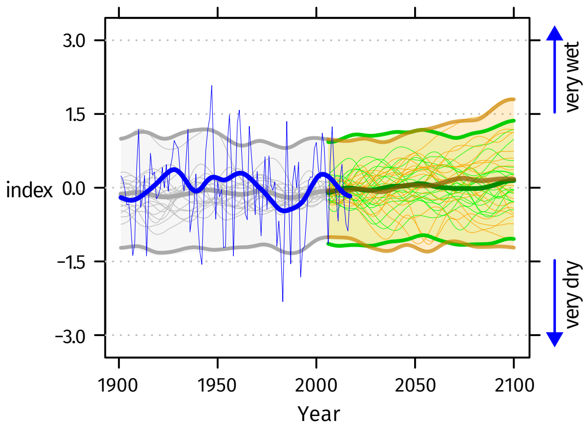


Under a high emissions scenario, the proportion of total annual rainfall from very wet days[e] (about 28% for 1981–2010) could increase a little by the end-of-century (to about 33% on average with an uncertainty range of about 20% to 50%), with little change if emissions decrease rapidly. These projected changes are accompanied by small increases in total annual rainfall 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 show little projected change on average, though year-to-year variability remains large. A few models indicate larger increases (more frequent/intense wet events).[f]



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 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.

[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.

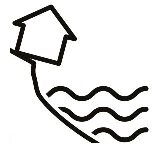
[e] The proportion (%) of annual rainfall totals that falls during very wet days, defined as days that are at least as wet as the historically 5% wettest of all days.

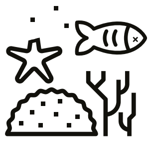
[f] SPI is unitless but can be used to categorize different severities of drought (wet): above +2.0 extremely wet; +2.0 to +1.5 severely wet; +1.5 to +1.0 moderately wet; +1.0 to +0.5 slightly wet; +0.5 to -0.5 near normal conditions; -0.5 to -1.0 slight drought; -1.0 to -1.5 moderate drought; -1.5 to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

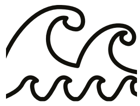
Sea level rise

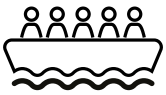
Sea level rise is one of the most significant threats to low-lying areas on small islands and atolls. Research indicates that rates of global mean sea level rise are almost certainly accelerating as a result of climate change. The relatively long response times to global warming mean that sea level will continue to rise for a considerable time after any reduction in emissions. The continuing rise in sea level means that higher storm surge levels can be expected regardless of any other changes in the characteristics of storm surges.

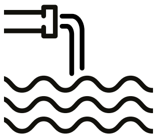
Potential impacts of sea level rise include


Coastal erosion


Ecosystem disruption


Higher storm surges


Population displacement


Water contamination and disruption


Mental health