SAINT LUCIA

HEALTH & CLIMATE CHANGE

COUNTRY PROFILE 2020

Small Island Developing States Initiative

World Health Organization · United Nations Framework Convention on Climate Change · Pan American Health Organization / World Health Organization Americas · PAHO

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“Adapting, one individual,
one household,
one community,
one enterprise and
one sector at a time.”

—Saint Lucia Climate Adaptation Policy, 2015

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 Saint Lucia 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 INTEGRATED RISK SURVEILLANCE AND EARLY WARNING SYSTEMS

Creation of a mechanism for knowledge management for development will contribute to the generation and dissemination of information on climate-related hazards and risks for the general population and sub-population groups. This will provide an integrated and advanced warning system, identify and promote best practices in health co-benefit responses, and strengthen networking to increase the prospect of sustainability of response actions. Training and development of system tools will enable continuous data collection from national, regional and international sources, including meteorological data, analysis and dissemination.

2 IMPROVE RESILIENCE OF HEALTH SECTOR INFRASTRUCTURE AND OPERATIONS

SMARTING[a] is important to ensure facilities are safe and operate efficiently. Expansion of the SMARTING project to include facilities across the island, including the main public hospital, will ensure the overwhelming majority of the population (including women, children and persons with disabilities) can access quality health care in both pre- and post-disaster periods. The remaining twenty seven (27) health facilities will be upgraded to improve safety in service delivery and to ensure they can structurally, non-structurally, and functionally withstand climate-related events.

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

This will entail development of the climate change mitigation–adaptation project portfolio. Financial and technical resources will be secured to develop the local human resource capacity to design projects, including ensuring training and coaching to craft the projects to ensure mitigation–adaptation gaps identified in the National Adaptation Plan Stocktaking, Climate Risk and Vulnerability Assessment Report are addressed and to also ensure the project is consistent with the Climate Change Adaptation Policy (2015).

4 STRENGTHEN THE POLICY ENVIRONMENT TO UNDERSCORE HEALTH CO-BENEFITS IN MITIGATION STRATEGIES

This entails the revision of the Climate Change Adaptation Policy (2015) to incorporate health as a primary area of focus along with the current areas – economy, social systems and ecosystems. The revision of the policy will contribute to create a supportive environment for the development and implementation of health co-benefit projects.

[a] The Smart Hospital initiative builds on the Safe Hospital Initiative and focuses on improving hospitals resilience, strengthening structural and operational aspects and providing green technologies. Energy improvements include solar panels installations, electric storage batteries and low-consumption electrical systems, which, in addition to reducing energy consumption, reduce health sector carbon footprint in the environment and provide the hospital with energy autonomy, allowing it to continue running during emergencies and disasters.

WHO RESOURCES TO SUPPORT ACTION ON THESE KEY RECOMMENDATIONS:

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

BACKGROUND

Saint Lucia is a volcanic mountainous island, forming part of the Windward Islands, and bordered by the Caribbean Sea and Atlantic Ocean *(1,2)*. The heaviest rains usually fall between June and November, which typically come from tropical waves, depressions, storms and hurricanes, owing to its location within the Atlantic hurricane belt *(2)*. A significant proportion of Saint Lucia's population and its economic activities are located along the coast of the island. The country's economy has grown in recent years, owing largely to increasing tourism and construction activities *(3)*.

Climate change is projected to cause increased mean temperature, sea level rise, more extreme weather events, and changing precipitation patterns across Saint Lucia. With so much of the country's population and economic activity located along the coast, Saint Lucia is particularly vulnerable to the effects of climate change. Risks to the health of Saint Lucia's population include vector- and waterborne diseases, food insecurity, heat stress, respiratory illnesses, degradation of marine habitats, saline contamination of fresh water, and injuries and deaths from extreme weather events *(4)*.

The Government of Saint Lucia recognizes the threats posed by climate change and is committed to reducing its own greenhouse gas emissions, despite their small contribution to global emissions, and building resilience and implementing adaptation actions to counter the country's high vulnerability to climate change. Saint Lucia's nationally determined contribution (NDC) highlights the importance of the health co-benefits of climate mitigation and identifies human health as a key priority for adaptation implementation *(4)*.

HIGHEST PRIORITY CLIMATE-SENSITIVE HEALTH RISKS FOR SAINT LUCIA

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 (5)*.

CLIMATE HAZARDS RELEVANT FOR HEALTH

Climate hazard projections for Saint Lucia

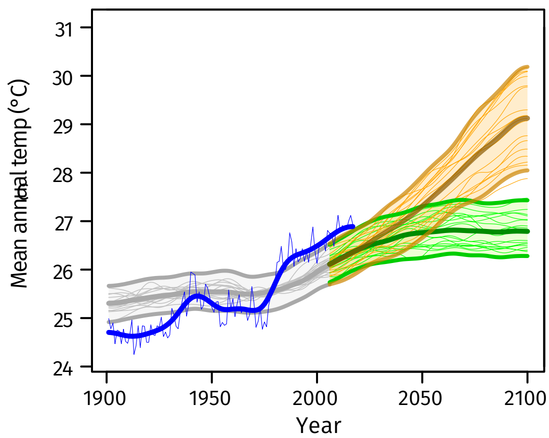
Country-specific projections are outlined up to the year 2100 for climate hazards under a 'business as usual' high emissions scenario compared to projections under a 'two-degree' scenario with rapidly decreasing global emissions (see Figures 1–5).

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

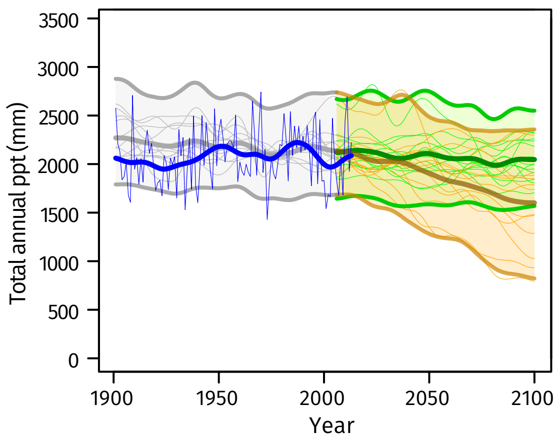
FIGURE 1: Mean annual temperature, 1900–2100



Under a high emissions scenario, the mean annual temperature is projected to rise by about 2.9°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.

Decreasing total precipitation

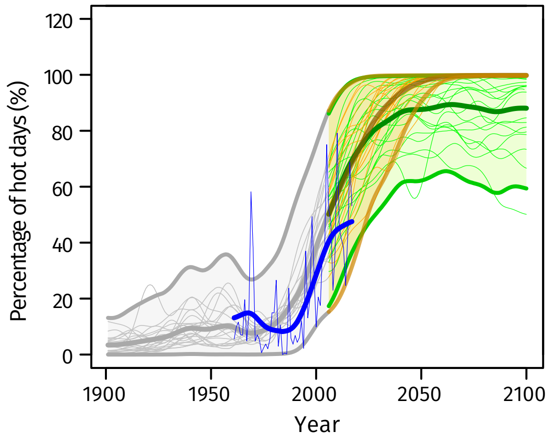
FIGURE 2: Total annual precipitation, 1900–2100



Total annual precipitation is projected to decrease by about 22% on average under a high emissions scenario, although the uncertainty range is large (-52% to +3%). If emissions decrease rapidly there is little projected change on average: a decrease of 5% with an uncertainty range of -15% to +5%.

More high temperature extremes

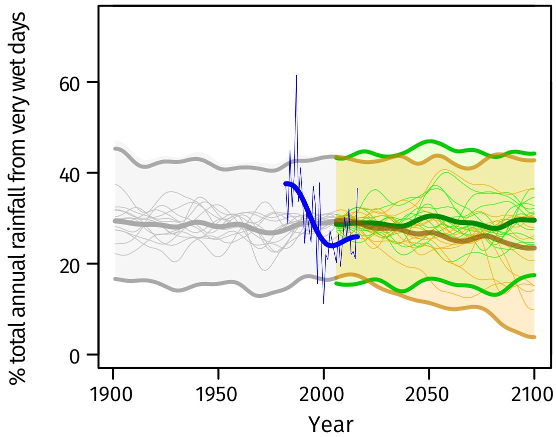
FIGURE 3: Percentage of hot days ('heat stress'), 1900–2100



The percentage of hot days[d] is projected to increase substantially from about 23% 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 90% 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 23%). Similar increases are seen in hot nights[d] (not shown).

Little change in extreme rainfall

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

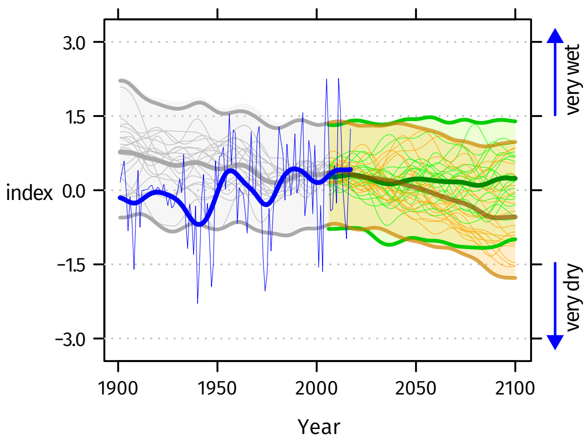


The proportion of total annual rainfall from very wet days[e] (about 30% for 1981–2010) could decrease a little by the end-of-century (to around 25% on average with an uncertainty range of about 5% to 45%), with little change if emissions decrease rapidly. Total annual rainfall is projected to decrease (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.

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.



NOTES

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

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

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

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

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

[f] SPI is unitless but can be used to categorize different severities of drought (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

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 *(6–13)*.[a]

POTENTIAL FUTURE CHANGES IN TROPICAL CYCLONES: A GLOBAL PERSPECTIVE *(6–13)*[a]

↓ Total number

↑ Intensity

↑ Frequency of category 4 and 5 events

↑ Average precipitation rates near storm centre

↑ Increase ↓ Decrease

The season for tropical cyclones in Saint Lucia is between June and November. Saint Lucia faces a high risk of tropical cyclones and landslides and ranks 5th among small states for climate-induced events. Among 182 countries in the Climate Risk Index, Saint Lucia was in the top 10% of countries that suffered losses to climate-related natural hazards during 1997–2016 *(14)*. Between 1980 and 2010, six major tropical cyclones along with three other climate-related natural hazards crossed or had effects on Saint Lucia's Exclusive Economic Zone (EEC) *(14)*. Four of the tropical cyclones occurred between 1999 and 2010.

Event	Year	Number of people affected	Damages and losses in % of GDP
Hurricane Allen	1980	80 000	69.3
Unnamed storm	1983	3000	0.8
Hurricane Gilbert	1988	...	0.7
Tropical Storm Debbie	1994	750	14.2
Hurricane Lenny	1999	200	2.2
Hurricane Ivan	2004	...	0.3
Hurricane Dean	2007	...	3.5
Hurricane Tomas	2010	172 370	28.4