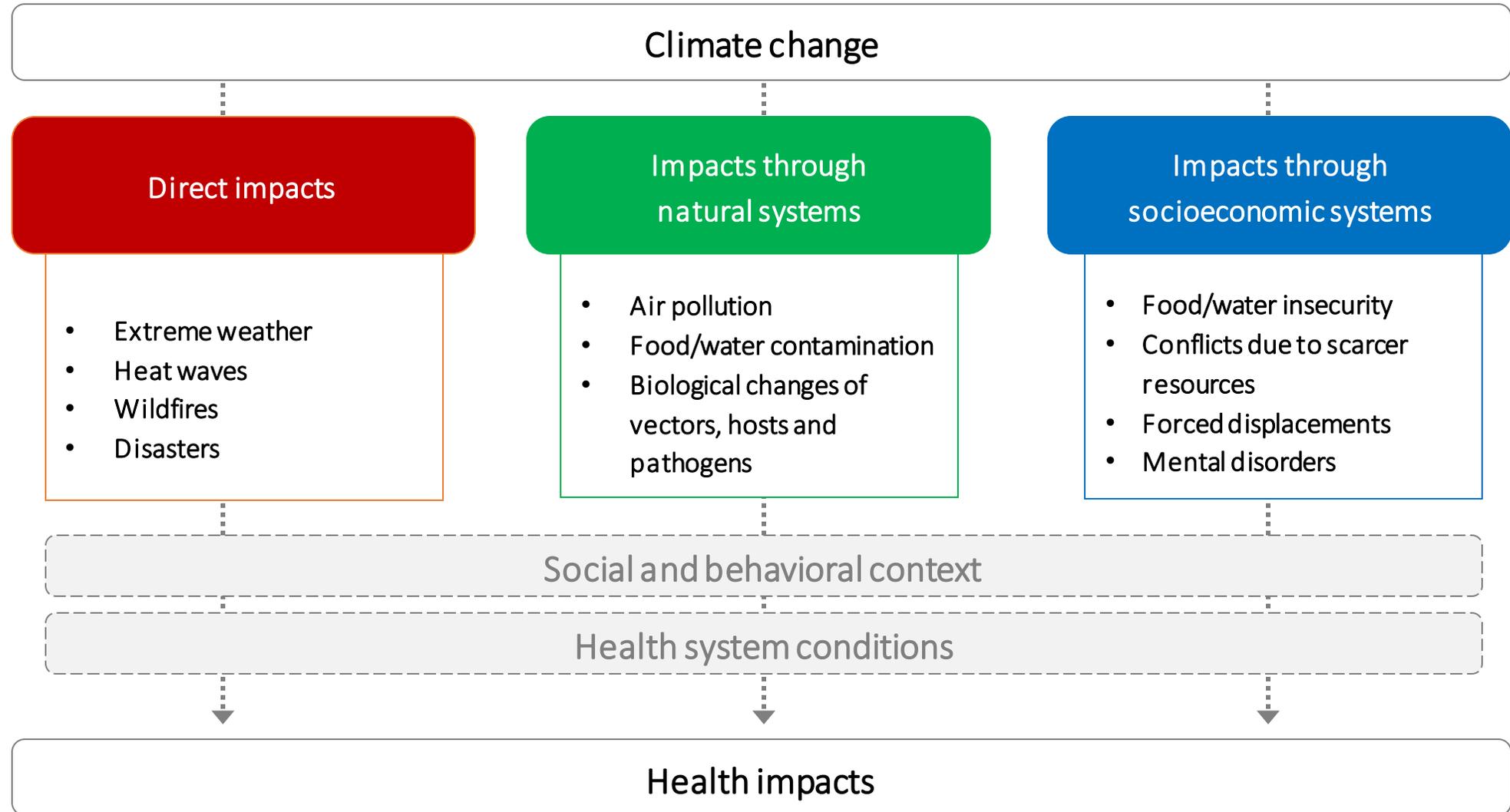


*Public Health
Adaptation and
Mitigation to Climate
Change*

Hon. Nickolas Steele
Minister of Health and Social
Security and International
Business of Grenada



Drivers of change, response and effects



#ClimateChange

WHETHER YOU LIVE IN A...



Rural village



Small island or coastal town



Big city

CLIMATE CHANGE THREATENS YOUR HEALTH

Drought, floods and heat waves will increase.



Vector-borne diseases, like malaria and dengue virus will increase with more humidity and heat.

Basic necessities will be disrupted...



FOOD

Hunger and famine will increase as food production is destabilised by drought.



AIR

Pollution and pollen seasons will increase leading to more allergies and asthma.



WATER

Warmer waters and flooding will increase exposures to diseases in drinking and recreational waters.

Between 2030 and 2050 climate change is expected to cause

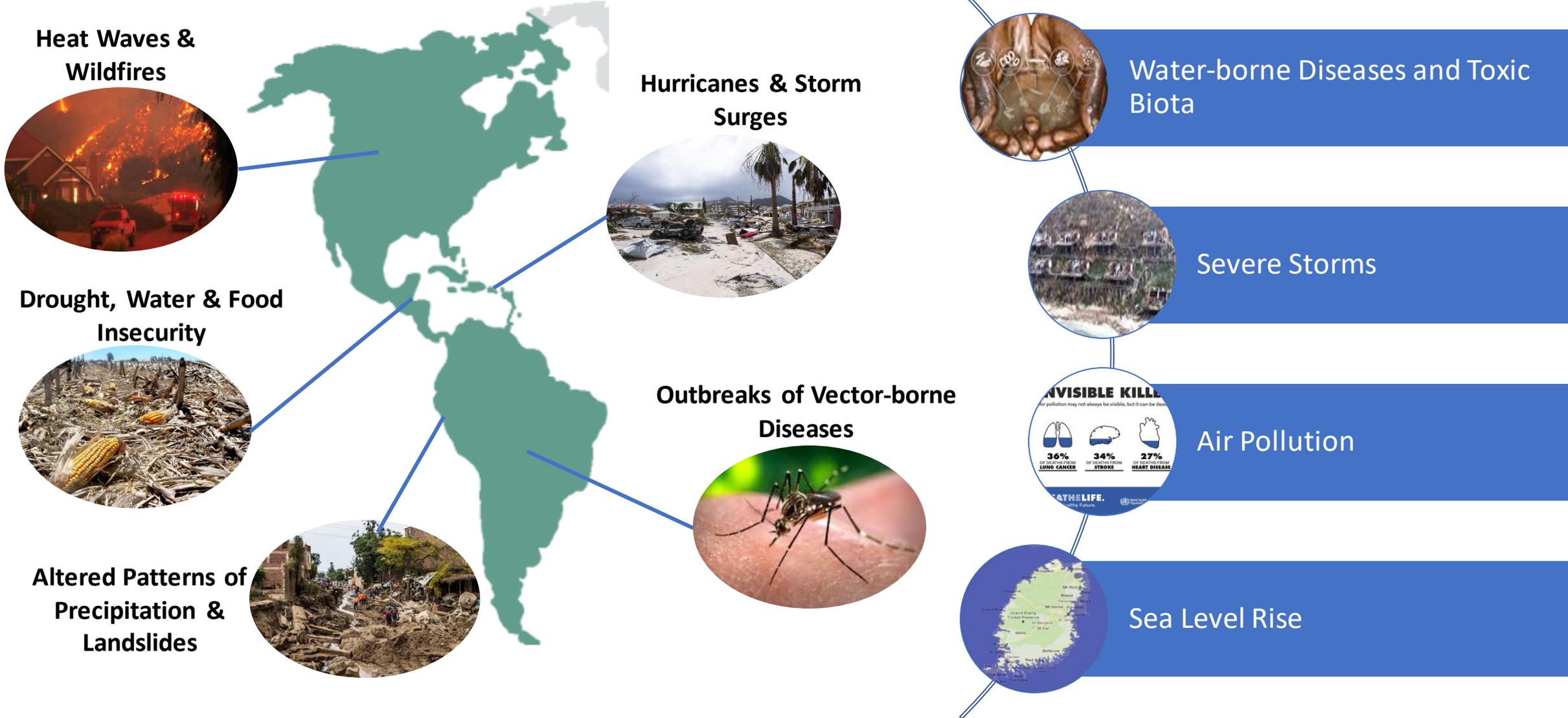
250 000 ADDITIONAL DEATHS PER YEAR

due to malaria, malnutrition, diarrhoea and heat stress.

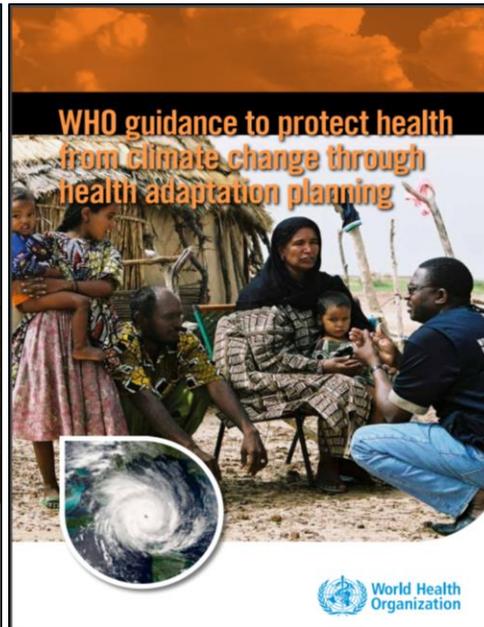
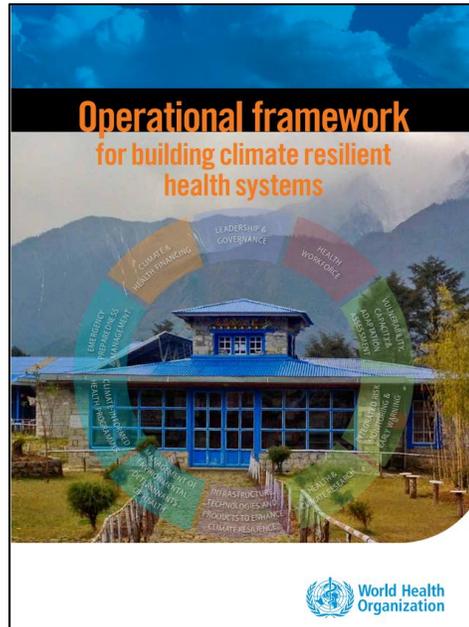
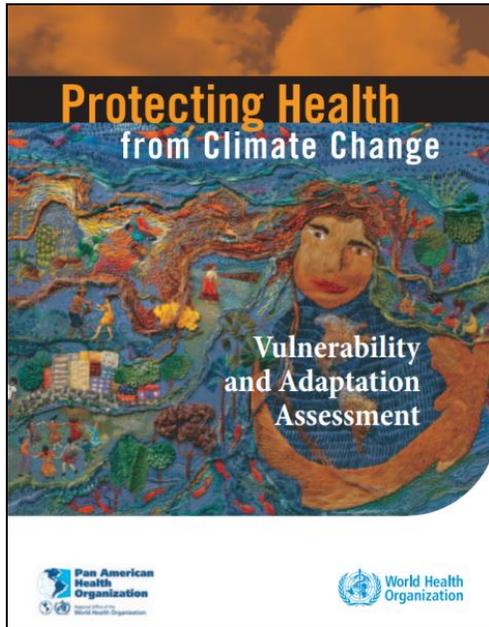


World Health Organization

Current and Future Climate Hazards for Health in the Americas



PAHO/WHO technical support for V&As and HNAPs



PAHO and the WHO have been providing support for Caribbean representatives to participate in international meetings and negotiations

PAHO and CARPHA provided training “Health in National Adaptation Plans for Climate Change” to Caribbean ministries of health and environment – in St Lucia, October 2017

- H-NAPs important for planning actions and for accessing the Green Climate Fund
 - Immediate opportunity for funds, through GCF *Readiness* (\$3M per country + \$1M per year to develop NAP and sectoral NAPs)

PAHO/WHO-UNFCCC Climate and Health Country Profiles

- Published: Brazil, Colombia, Jamaica, Mexico, Peru, USA
- Ongoing: Canada, Costa Rica, Dominica, Grenada, Panama
- Proposal: one profile per country, including current and new indicators

1 CURRENT AND FUTURE CLIMATE HAZARDS

Due to climate change, many climate hazards and extreme weather events, such as heat waves, heavy rainfall and drought, conditions more frequent and more intense in many parts of the world.

Outlined here are country-specific projections up to the year 2050 for climate hazards under a 'business as usual' high emissions scenario (in orange) compared to projections under a 'low-emissions' scenario with rapidly decreasing emissions (in green). Heat hazards caused by climate change will persist for many centuries.

2 CURRENT AND FUTURE HEALTH RISKS DUE TO CLIMATE CHANGE

Human health is profoundly affected by weather and climate. Climate change threatens to exacerbate today's health problems – specific from extreme weather events, cardiovascular and respiratory diseases, infectious diseases and malnutrition – whilst undermining water and food supplies, infrastructure, health systems and social protection systems.

Exposure to Flooding due to Sea Level Rise	Without Adaptation	With Adaptation
Number of people exposed to flooding	27,900	100
Number of people exposed to flooding	58,000	100

KEY IMPLICATIONS FOR HEALTH

People also face inland river flood risk due to climate change. Under a high emissions scenario, it is projected that by 2100, 12,000 additional people may be at risk of river floods annually due to climate change and sea level rise due to sea level rise. This is a significant increase in the number of people exposed to flooding.

INFECTIOUS AND VECTOR-BORNE DISEASES

By 2070, approximately 25 million people are projected to be at risk of malaria in Peru – 7% of the country with 3 months or greater above threshold of suitability for disease transmission.

- Projections of climate indicators
- Current and future impacts on health
 - Vector-borne diseases
 - Heat-related mortality
 - #People affected by flooding
- National policies on mitigation and adaptation
- National milestones on the progress of the climate change agenda

CIMH, CARPHA and PAHO Caribbean Health Climatic Bulletin

Caribbean Health Climatic Bulletin

Vol 2 | Issue 3
September 2018

This Bulletin is a joint effort between the Caribbean Public Health Agency (CARPHA), the Pan American/World Health Organization (PAHO/WHO) and the Caribbean Institute for Meteorology and Hydrology (CIMH). It aims to help health professionals identify and prepare health interventions for favorable or inclement climate conditions in the Caribbean. The period covered is September 2018 to November 2018. It is recommended that health stakeholders should use the combination of monitoring (May 2018 - July 2018) and forecast (September 2018 - November 2018) climate information presented in this Bulletin in tandem with weather forecasts (1-7 days). This suite of information is intended to guide strategic and operational decisions related to health interventions and the management of health care systems.

What are the Key Climate Messages for September to November 2018?

- The period September to November usually marks the **wettest part of the year** in Belize and the Caribbean islands, with an annual peak in the frequency of wet days, wet spells and extreme wet spells. In the coastal Guianas, the **dry season** usually lasts until mid to late November. Meanwhile, the ABC Islands usually transition into their wet season at this time.
- **Temperatures** are usually initially high which, combined with a peak in air humidity, can feel **uncomfortable** until the end of September in northern parts of the region, and until October in the southern Caribbean. High temperatures are usual across the Guianas at this time.
- **Rainfall totals** from September to November are forecast to likely be the usual or drier across the ABC Islands, Belize, the Lesser Antilles and the Guianas (medium confidence). By contrast, The Bahamas and Cayman Islands are forecast to be at least as wet as usual (medium confidence).
- It is not unusual to have spells of moderate to heavy rainfall, i.e. wet spells, interspersed with dry spells during the late wet season. Most of the region is forecast to see a slightly lower number of **wet days** and **wet spells** than usual, reducing the potential for long-term flooding.
- At the same time, **flash floods** are a concern in the event of **extreme wet spells** in any area, but less likely so in the Guianas.
- Notwithstanding, a number of **dry spells** can still be expected in the ABC Islands, The Bahamas, northern and central portions of Belize, the Greater Antilles and the Guianas, but very few in the Lesser Antilles (high confidence).
- Region-wide, **drought** or excessive dryness is not forecast to be a major concern during this period (high confidence), but should be monitored closely in particular in northern Belize, the Cayman Islands and the Leeward.
- **Night-time and day-time temperatures** are forecast to be slightly cooler than in most recent years, making the September (and October) heat likely more tolerable than in recent years (medium confidence).
- **Heat waves** will become less likely towards November across the region (high confidence).
- The **tropical cyclone activity** of the 2018 Hurricane Season as a whole is unlikely to match last year's (high confidence). Although the credible forecasting sources suggest a below-normal to near-normal season as a whole (medium to high confidence), **preparedness** for the range of hazards brought about by tropical depressions, storms and hurricanes still **remains critical**.
- Episodes of **Saharan dust incursions** into the Caribbean usually are infrequent in this period, but can occur ahead of tropical weather systems. In the absence of drought this year, local dust levels should be on the low end.
- The **UV index** on sunny days will steadily decrease from around 10 to 8 in the north and from 12 to 10 in the south (on a scale from 1 to 12). For more information, see: <https://www.epa.gov/sunsafety/uv-index-scale-1>. Note that, despite the period marking the wet season in Belize and the Caribbean islands, many days in most areas have long sunny spells, increasing UV exposure.

What are the Health Implications for September to November 2018?

Non-communicable Diseases

- Excessive heat from high temperatures across the region (exacerbated by humid air across Belize and the Caribbean islands) will become less prevalent towards November. That said, especially during September (and October in the Guianas), **heat waves** can increase the risk of morbidity from heat stress in vulnerable persons, especially smaller children, the elderly, pregnant women and persons with NCDs such as diabetes and hypertension.
- Particularly in September (and October in the Guianas),

Vector-Borne Illness

- There is the possibility of skin infections due to contact with contaminated stagnant and/or flood waters particularly in any area across Belize and the Caribbean islands.
- The presence of stagnant water in the aftermath of a flood may promote the breeding of mosquitoes and increase the risk of associated mosquito borne diseases, such as

HEAT EXHAUSTION OR HEAT STROKE

Faint or dizzy

Excessive sweating

Cool, pale, clammy skin

Nausea or vomiting

Rapid, weak pulse

Muscle cramps

Throbbing headache

No sweating

Body temperature above 103°
Red, hot, dry skin

Nausea or vomiting

Rapid, strong pulse

May lose consciousness

- Get to a cooler, air conditioned place
- Drink water if fully conscious
- Take a cool shower or use cold compresses

CALL 9-1-1

- Take immediate action to cool the person until help arrives



Health economic assessment tool (HEAT) for walking and for cycling

Methods and user guide on physical activity, air pollution, injuries and carbon impact assessments

NWS Heat Index		Temperature (°F)															
		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
Relative Humidity (%)	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
	60	82	84	88	91	95	100	105	110	116	123	129	137				
	65	82	85	89	93	98	103	108	114	121	128	136					
	70	83	86	90	95	100	105	112	119	126	134						
	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131										
95	86	93	100	108	117	127											
100	87	95	103	112	121	132											

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

□ Caution
□ Extreme Caution
□ Danger
□ Extreme Danger

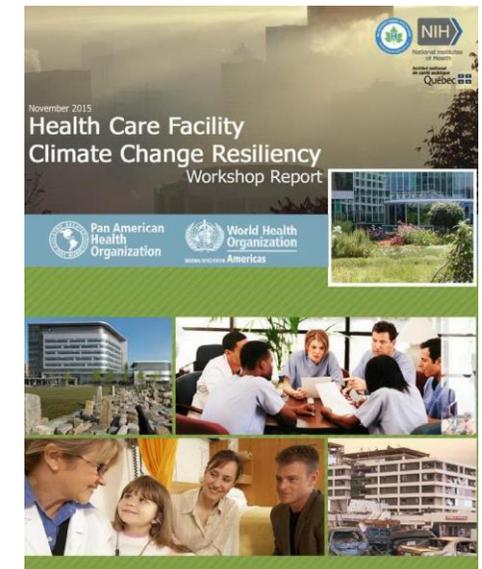
Increase Resilience of Health Care Facilities and Reduce Climate Footprint

- 77% of health facilities in the Americas are located in vulnerable zones for extreme events
- The “SMART Hospitals” initiative is supported by UK Aid and implemented following PAHO’s toolkit with Ministries of Health
- A health facility is “SMART” when they are safe, climate resilient and “Green”

- 2020: At least 50 health facilities in Belize, Dominica, Grenada, Guyana, Jamaica, Saint Vincent and the Grenadines and Saint Lucia will be “smarted”



Georgetown Hospital in Saint Vincent and the Grenadines after being “smarted”.



Grenada's First Climate Resilient Health Care Facility (PAH)



Welcome to Princess Alice
Smart Hospital



Providing safer,
greener health
facilities to deliver
care in disasters

Grenada's First Climate Resilient Health Care Facility (PAH) Before & After



2000-gallon water storage capacity



3-day water storage capacity, duplex pump & piping



Front entrance with only stair access



Disabled ramp & PV panels



Windows without hurricane shutters



Hurricane shutters, PV panels & solar water heater

Increase Resilience of Health Care Facilities and Reduce Climate Footprint



New Peebles Hospital in Virgin Islands withstands destruction of category 5 Hurricane Irma



Source: Pan American Health Organization

Princess Margaret Hospital in Dominica sustained severe damage after Hurricane Maria. Water and electricity quickly restored.



*Increase Resilience of
Health Care Facilities
and Reduce Climate
Footprint
The SMART Princess
Alice Hospital in
Grenada*

SAFE+GREEN+MAINTAINED = SMART



Thank You
