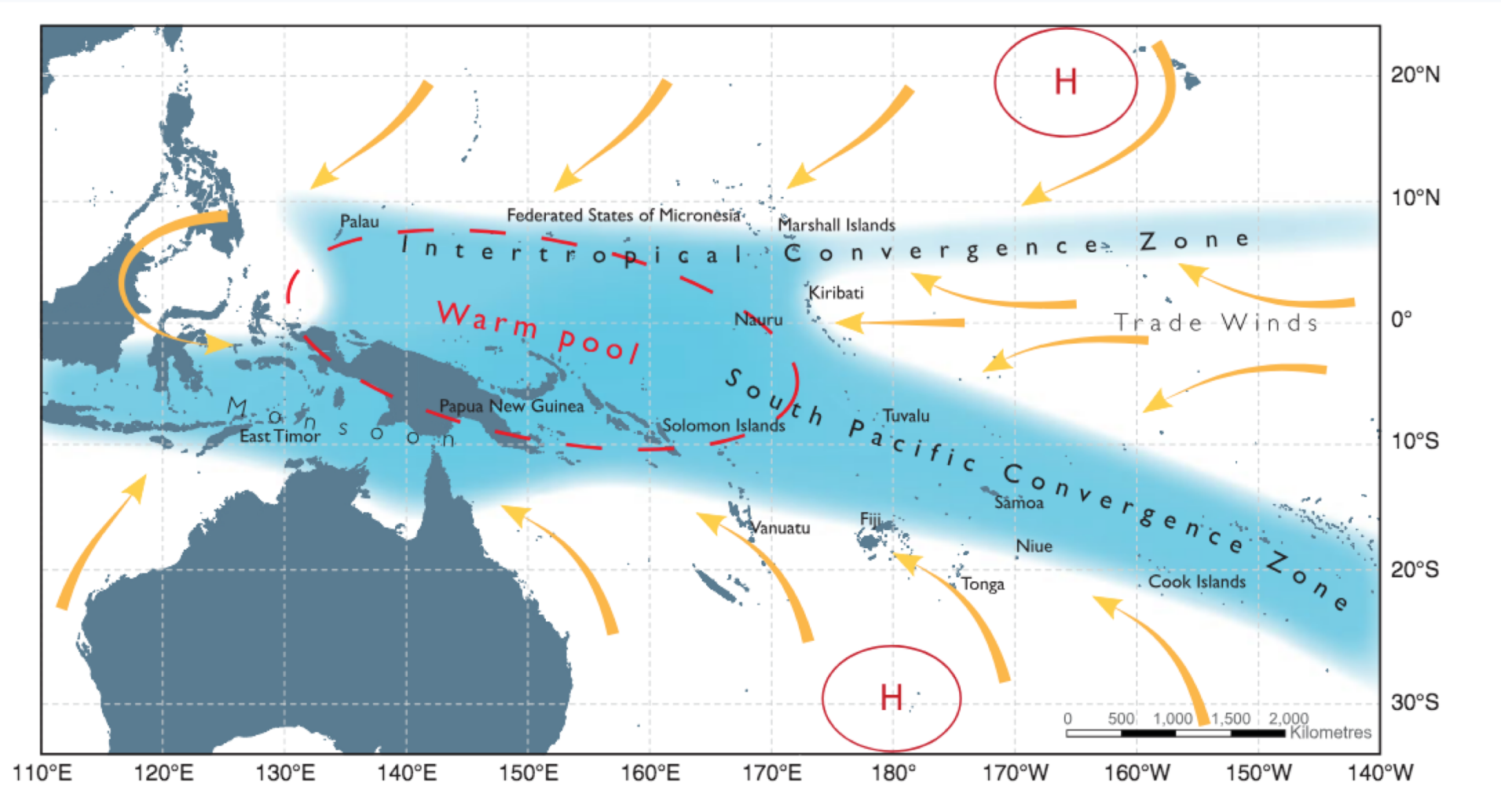


Pacific Climate Change and Health Overview

Pacific climatic setting

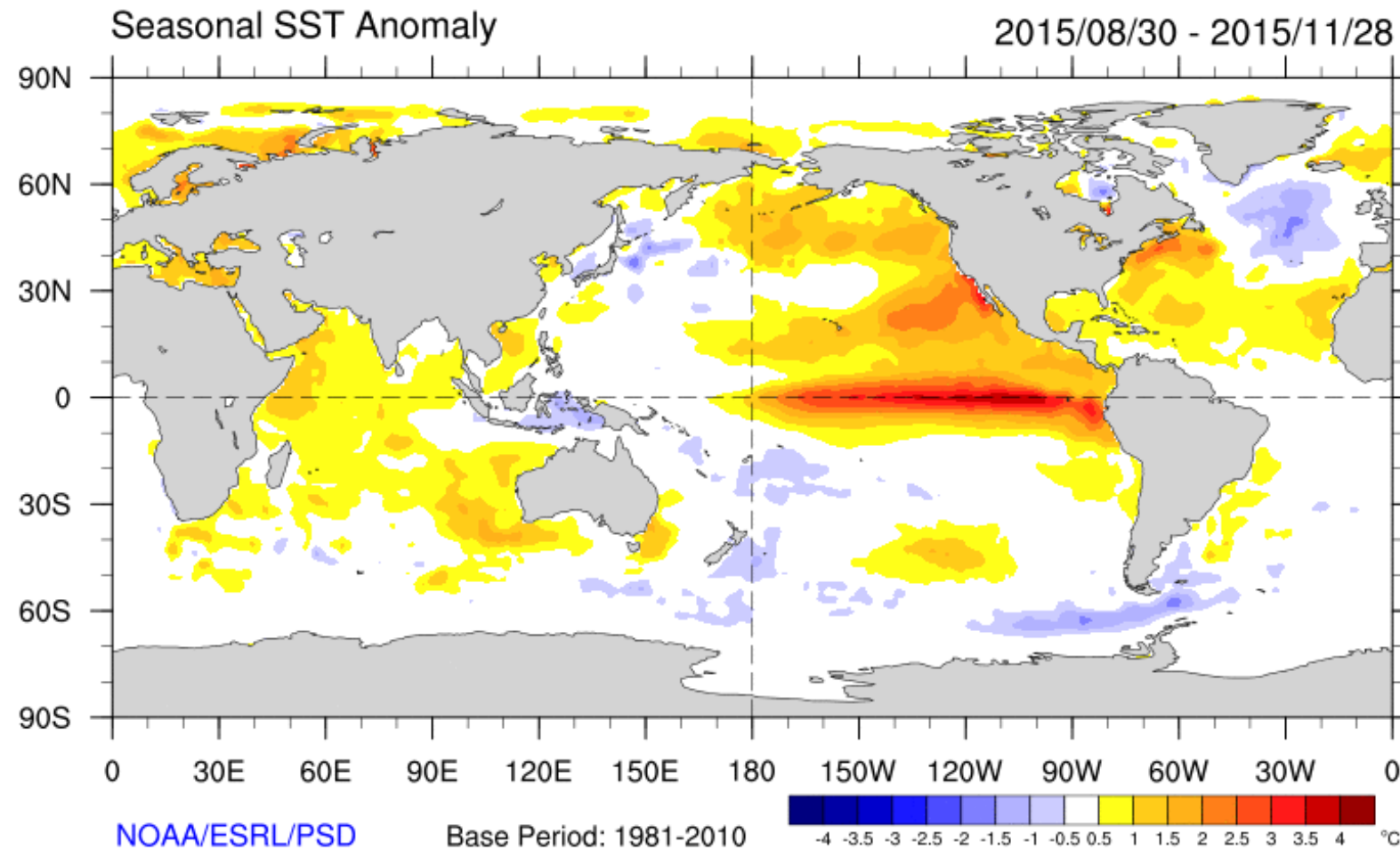


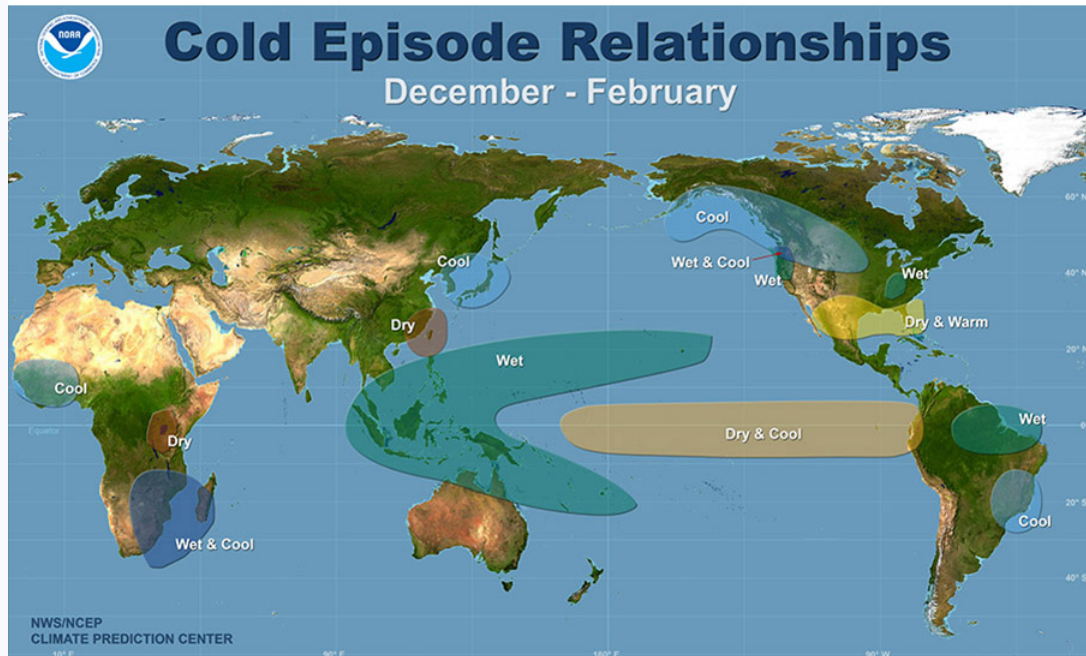
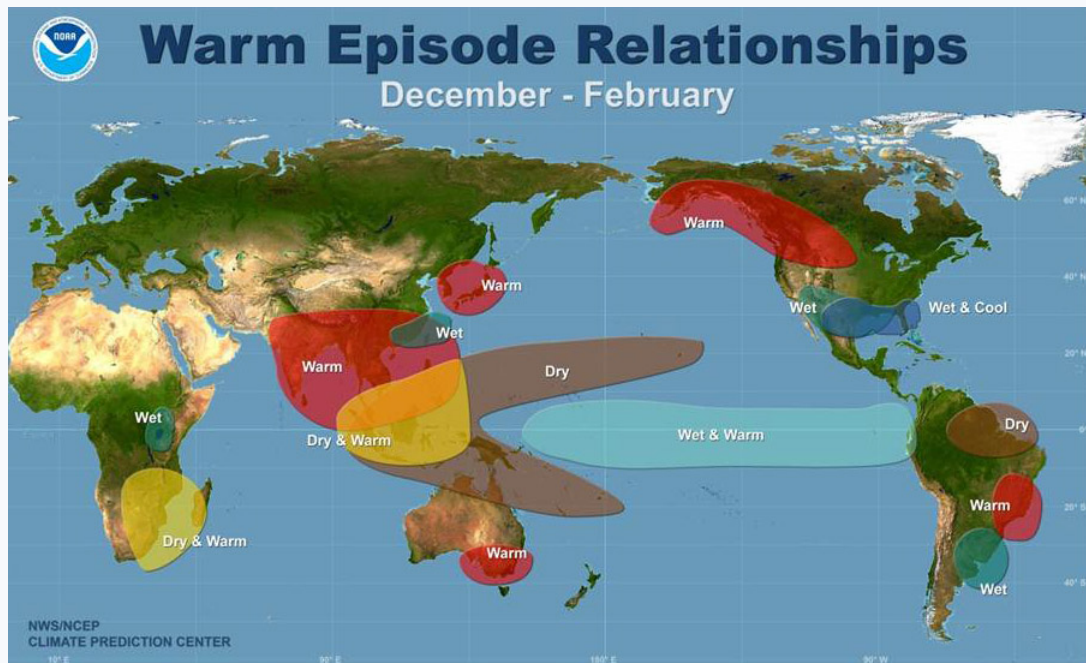
Source: Australian Bureau of Meteorology-CSIRO (2011)

Pacific weather extremes

Weather Extreme	Impacts
Drought	Water supply deficits; crop damage
Extreme high rainfall	Flooding; soil erosion
Tropical storms	Wind; high rainfall; coastal flooding
Extra-tropical storm waves	Coastal flooding
Heat waves	Human health; crop damage

El Niño of 2015-2016—largest on record

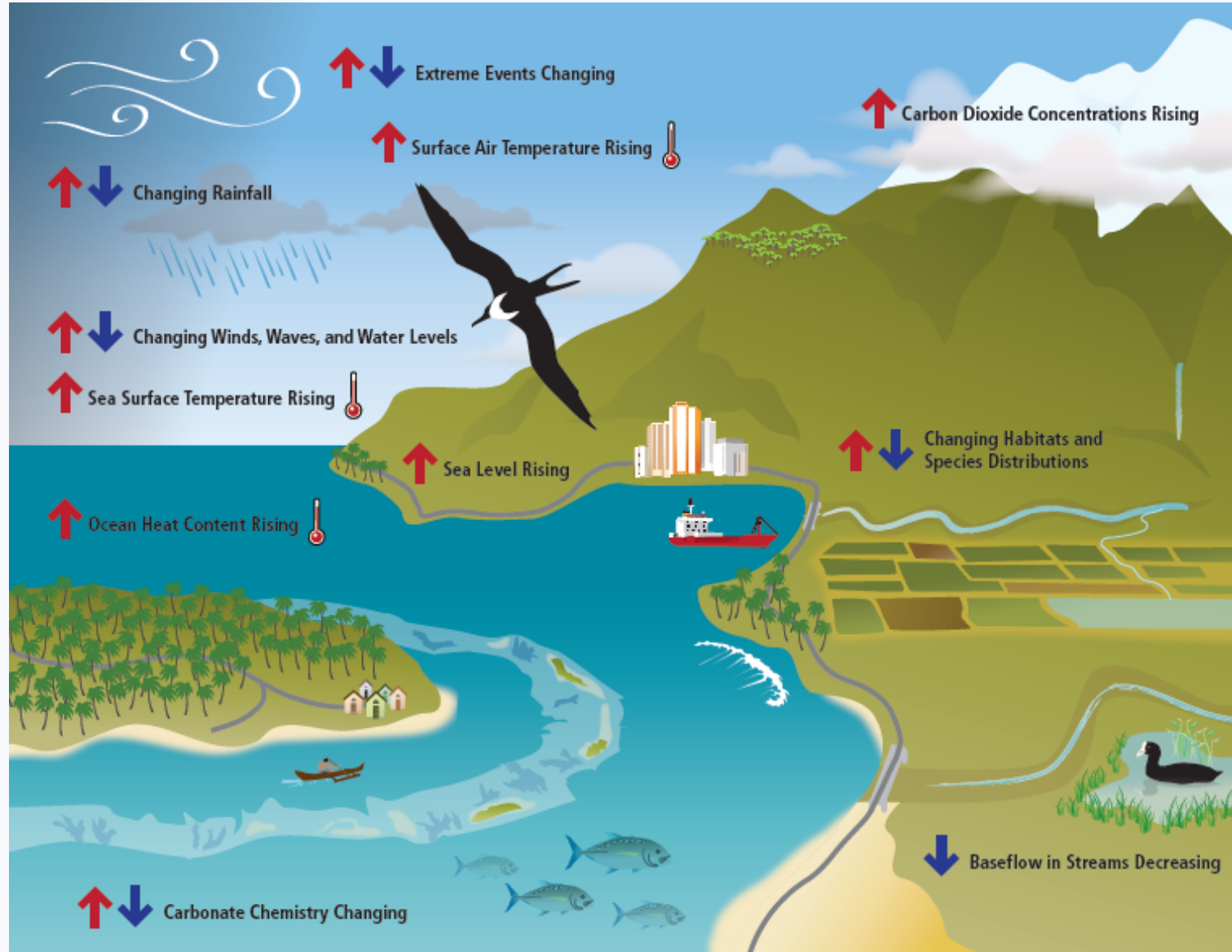


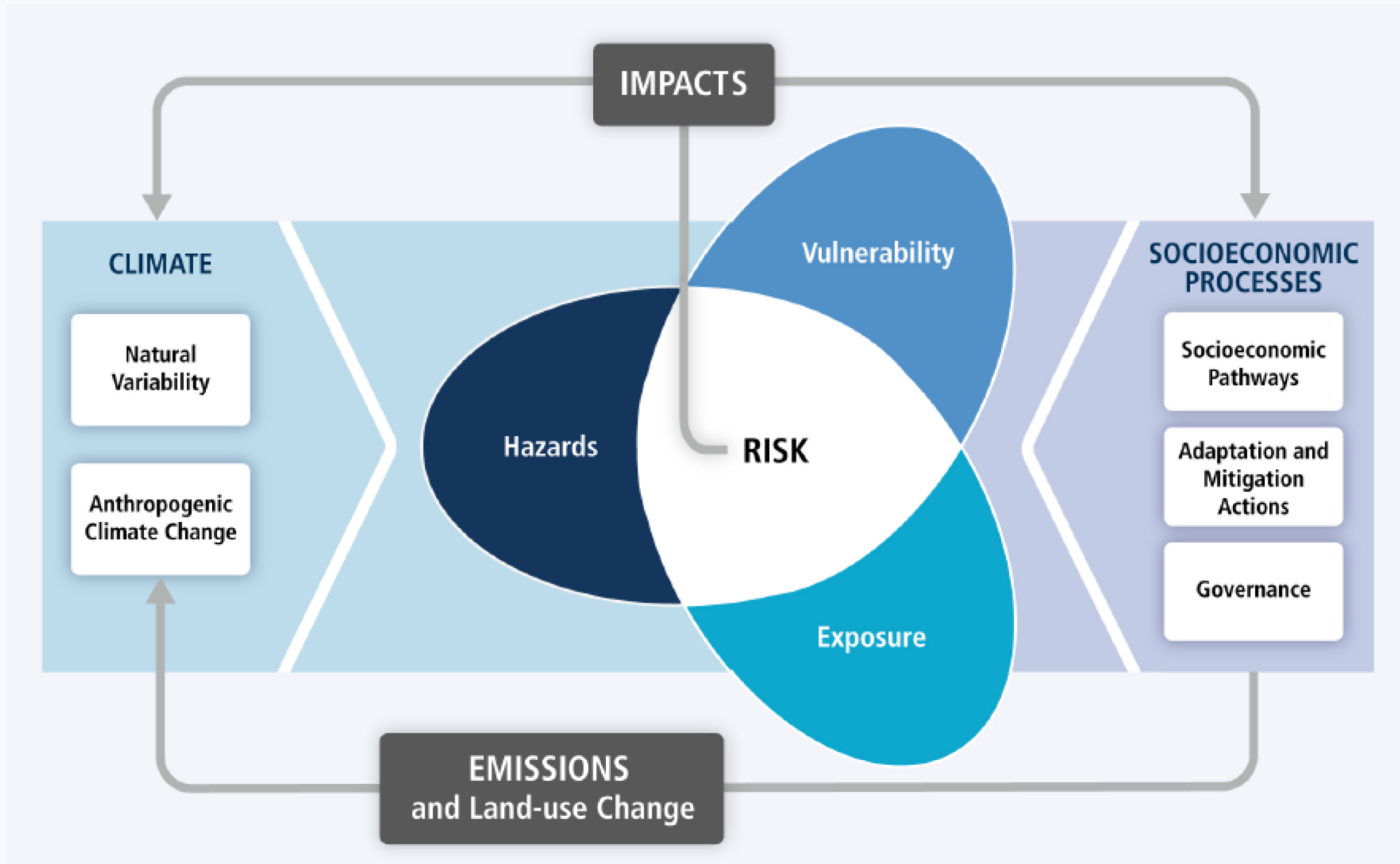


Future El Niño impacts

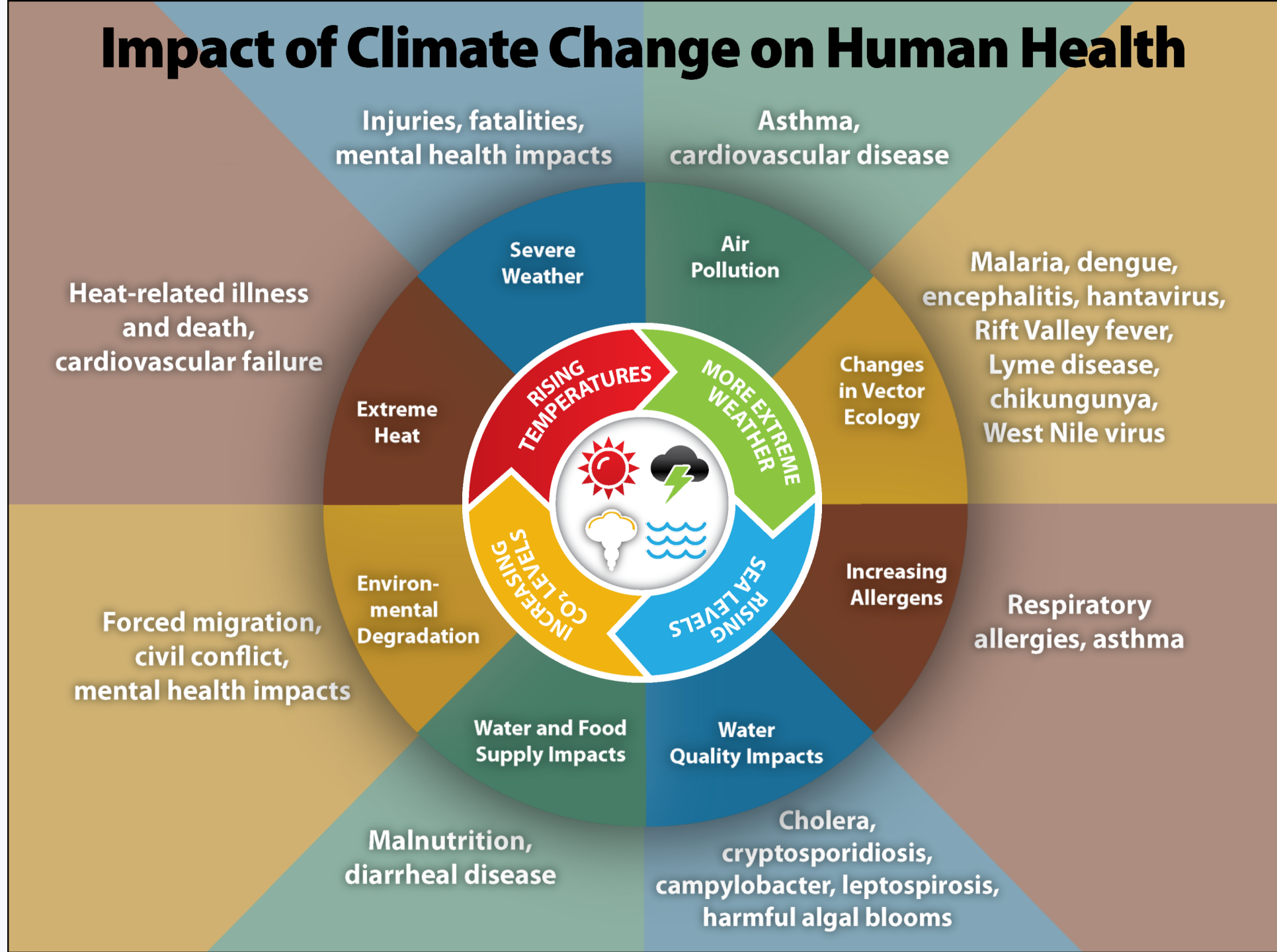
As average ocean temperatures continue to warm, the impacts from El Niño events will worsen

Indicators of a changing climate in the Pacific Islands





Impact of Climate Change on Human Health

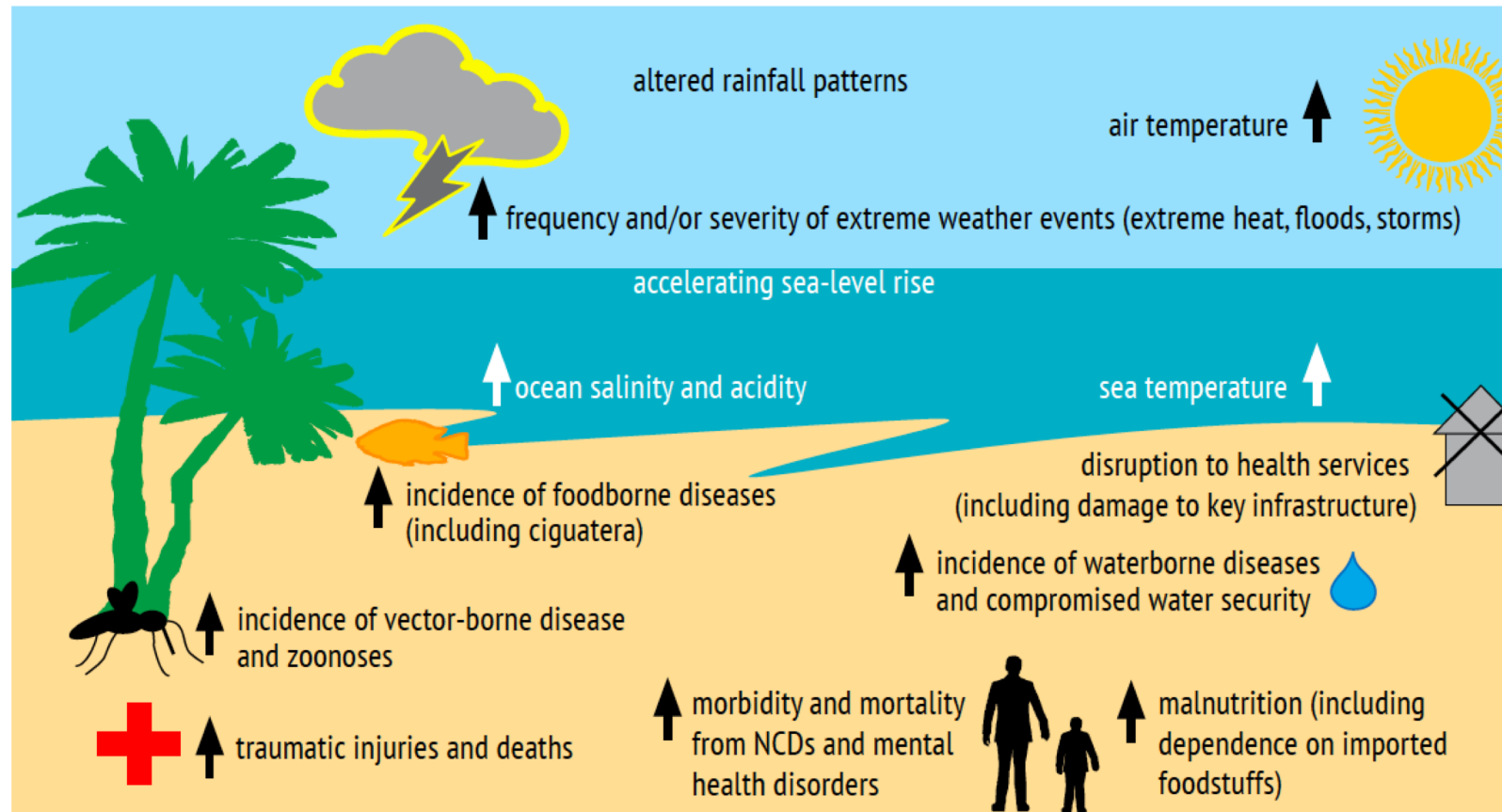


Climate change impacts on health

The highest priority climate-sensitive health risks in Pacific island countries include:

- trauma from extreme weather events;
- heat-related illnesses;
- compromised safety and security of water and food (food and water-borne diseases);
- vector-borne diseases;
- zoonoses;
- respiratory illnesses;
- psychosocial ill health;
- non-communicable diseases;
- population pressures; and,
- health system deficiencies

Pathways by which climate change may affect human health in the Pacific islands



Pathways for health impacts

- direct and indirect exposures
- social disruption
- detrimental impacts on economic and human developments

Mediators of health impacts

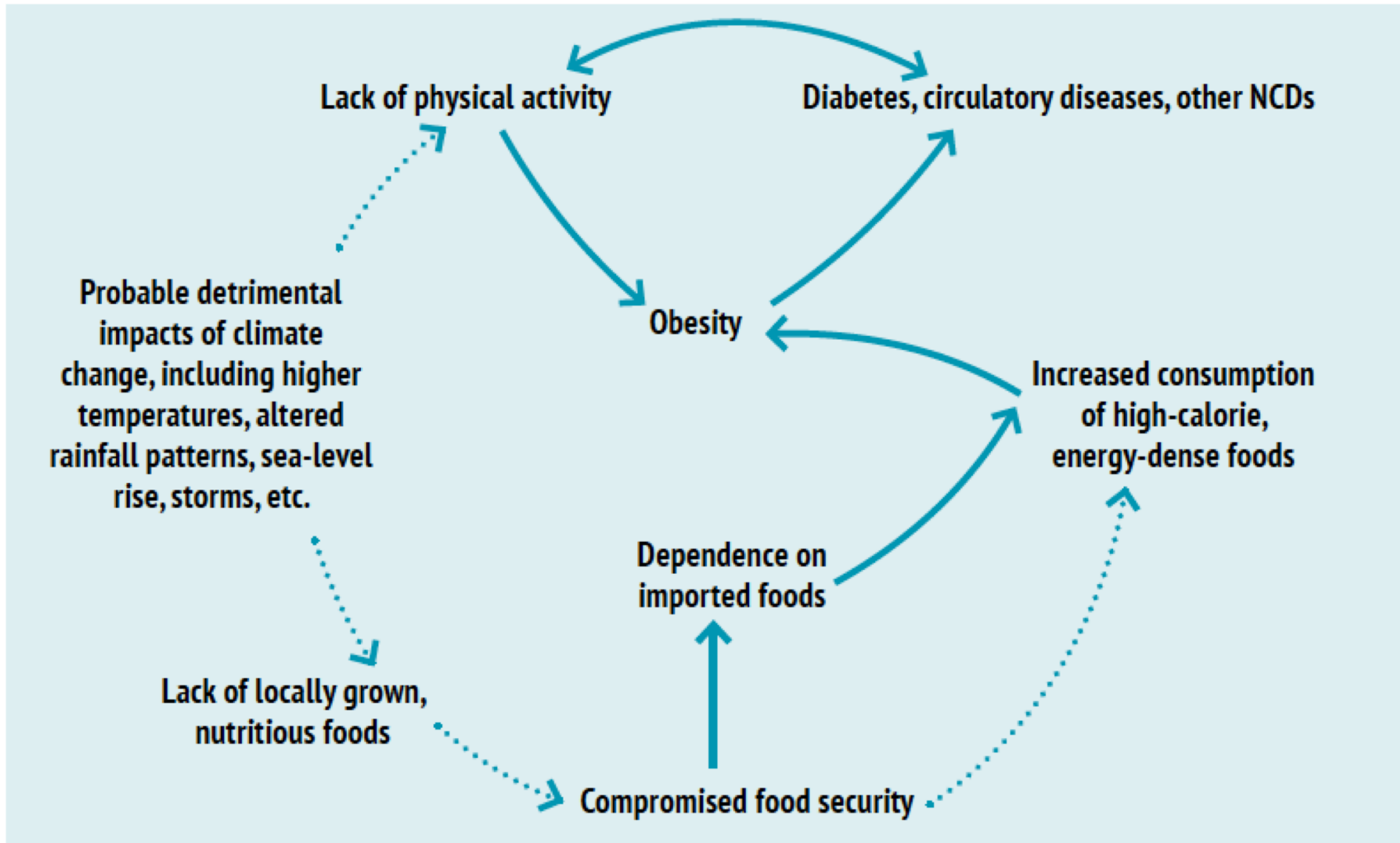
- sociopolitical strategies
- environmental measures
- health systems resilience
- economic development

CLIMATE-SENSITIVE HEALTH RISK	COUNTRY												
	Cook Islands	Fiji	Kiribati	Marshall Islands	Micronesia (Federated States)	Nauru	Niue	Palau	Samoa	Solomon Islands	Tonga	Tuvalu	Vanuatu
Direct effects													
Health impacts of extreme weather events ¹	x	x		x	x	x	x	x	x	x	x	x	x
Heat-related illness ²	x					x	x			x			x
Indirect effects													
Water security & safety (including waterborne diseases) ³	x	x	x	x	x	x	x	x	x	x	x	x	x
Food security & safety (including malnutrition & foodborne diseases) ⁴	x	x	x	x	x	x	x		x	x	x	x	x
Vector-borne diseases ⁵	x	x	x	x	x	x	x	x	x	x	x	x	x
Zoonoses ⁶		x			x			x					
Respiratory illness ⁷	x			x	x	x	x	x		x		x	x
Disorders of the eyes, ears, skin and other body systems ⁸		x		x			x			x		x	x
Diffuse effects													
Disorders of mental/ psychosocial health ^{a,9}		x		x	x	x		x		x		x	x
Noncommunicable diseases (NCDs) ^{a,10}		x		x	x		x	x		x	x	x	x
Health systems problems ^{a,11}		x	x										
Population pressures ¹²			x										



Human health and climate change in Pacific island countries

Figure 15. Conceptual model summarizing the pathways between climate change and NCDs (dotted arrows represent hypothetical links)



Health impacts of extreme weather events

- Cascading public health consequences during and after events
 - Mortality
 - Physical Injury
 - Heat-Related Injury
 - Vector-Borne Diseases
 - Decompensation of Chronic Disease Symptoms
 - Diseases Related to Contaminated Water
 - Mental Health
 - Population Displacement
 - Destruction of health infrastructure



Typhoon Maysak in Chuuk State



Typhoon Maysak in Yap State



Flooding in Pohnpei State



Sendai Framework for Disaster Risk Reduction 2015 - 2030



4 Priorities for action

1. Understanding disaster risk;
2. Strengthening disaster risk governance to manage disaster risk;
3. Investing for disaster risk reduction for resilience
4. Enhancing disaster risk preparedness for effective response and to “build back better” in recovery, rehabilitation, and reconstruction (at local, national, regional, and global levels)

Health adaptation: planning for climate change risks

What can the health sector do?

Reduce exposures

- Legislative policies
- Alterations in built environment
- Alterations in natural environment

Prevent onset of adverse outcomes

- Early warning systems
- Surveillance and monitoring
- Vector control programs
- Public education and outreach

Response / treatment

- Medical training and awareness
- Treatment
- Emergency response

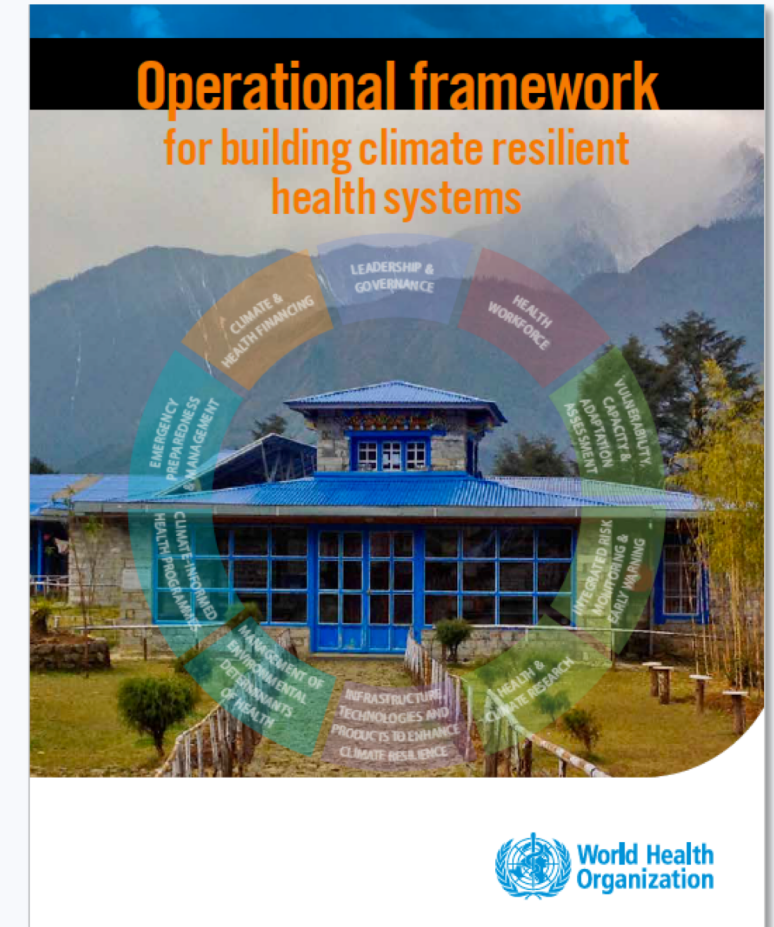
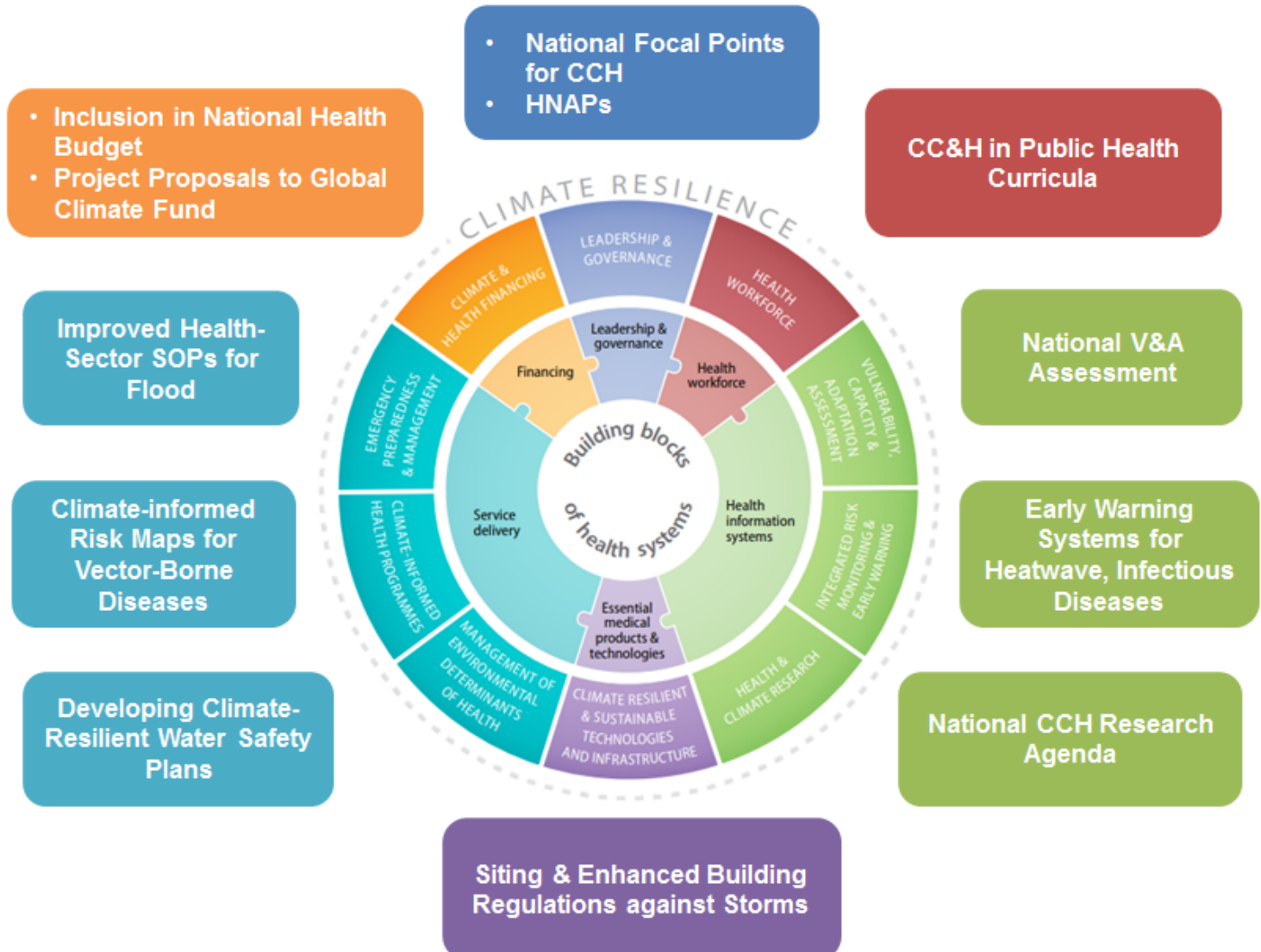
High priority health adaptation measures

- Ensuring health & safety considerations incorporated into adaptation across sectors
- Improving safety & security of food & water sources
- Improving sanitation & hygiene facilities
- Increasing resources for emergency risk management
- Developing early warning systems
- Climate-proofing health & safety infrastructure
- Enhancing surveillance
- Conducting environmental epidemiological research
- Developing new and improving current communication

Examples CCA for health in the Pacific

- **Guam Public Health and Mosquito Laboratories**
 - PCR testing capability for Dengue, Zika and Chikungunya
 - Testing extended to USAPI
 - Mosquito Surveillance and Control Program in it's infancy stage
 - One goal is to become a regional laboratory for the USAPIs and the Pacific region
- **CNMI Resilience Work Group**
 - Shifting focus beyond vulnerability toward adaptation
 - Engaging wide-range of stakeholders to develop long-term adaptation plan for a changing climate
 - Public Health / Healthcare system one of five sectors highlighted

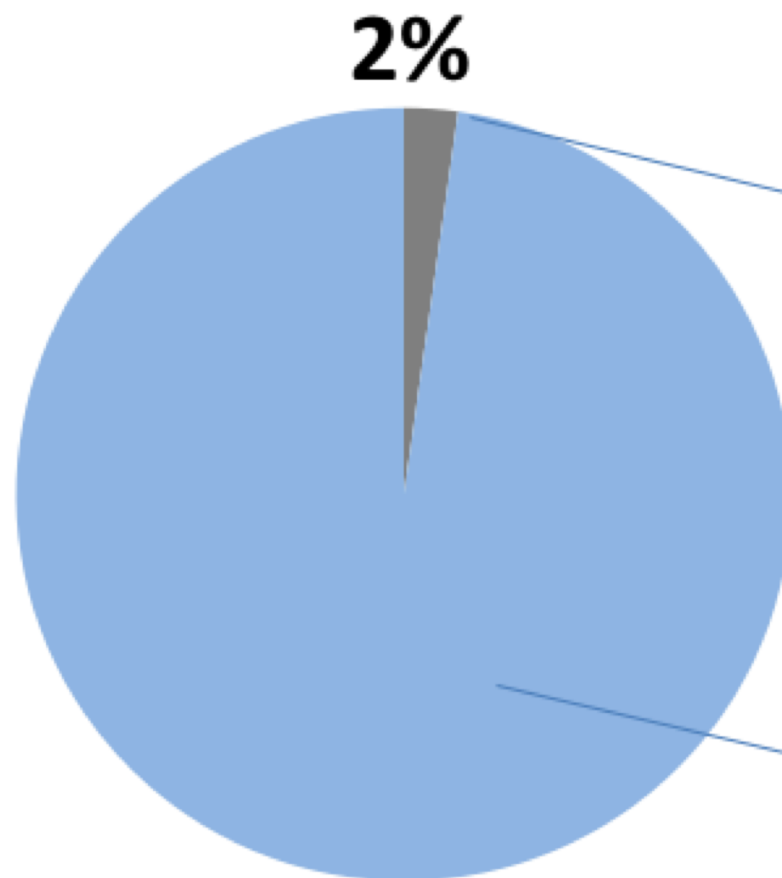
Building climate resilient health systems



Historically, the health sector has been under-represented in national and regional projects undertaken in the Pacific:

First projects in 2008; only 5% of all projects 1991-2009

Not included in the Pacific Adaptation to Climate Change (PACC) project (2008-2012)



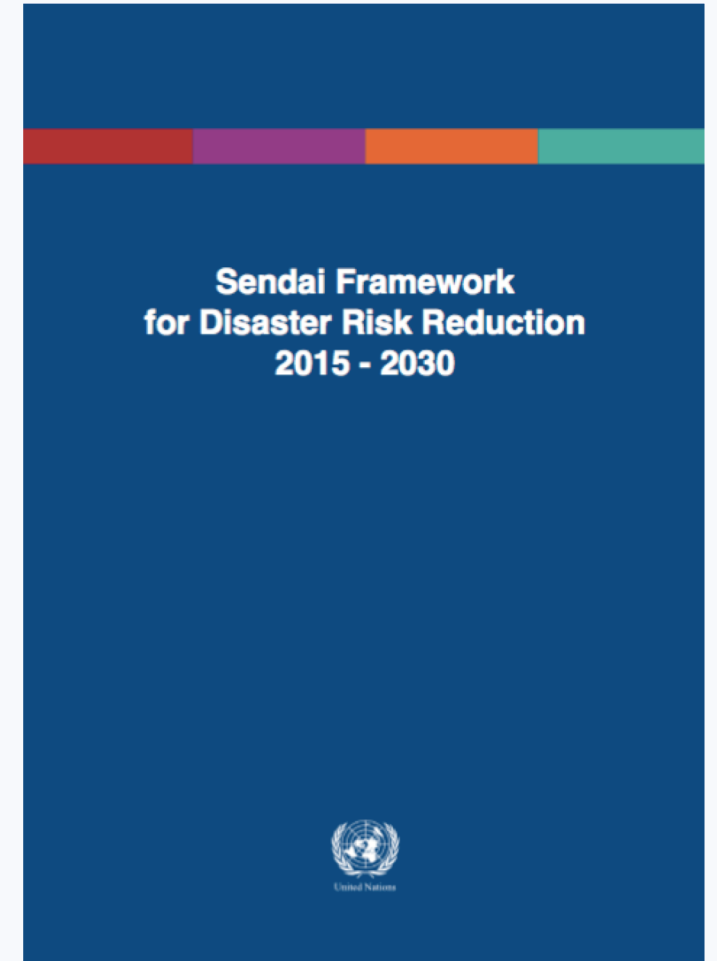
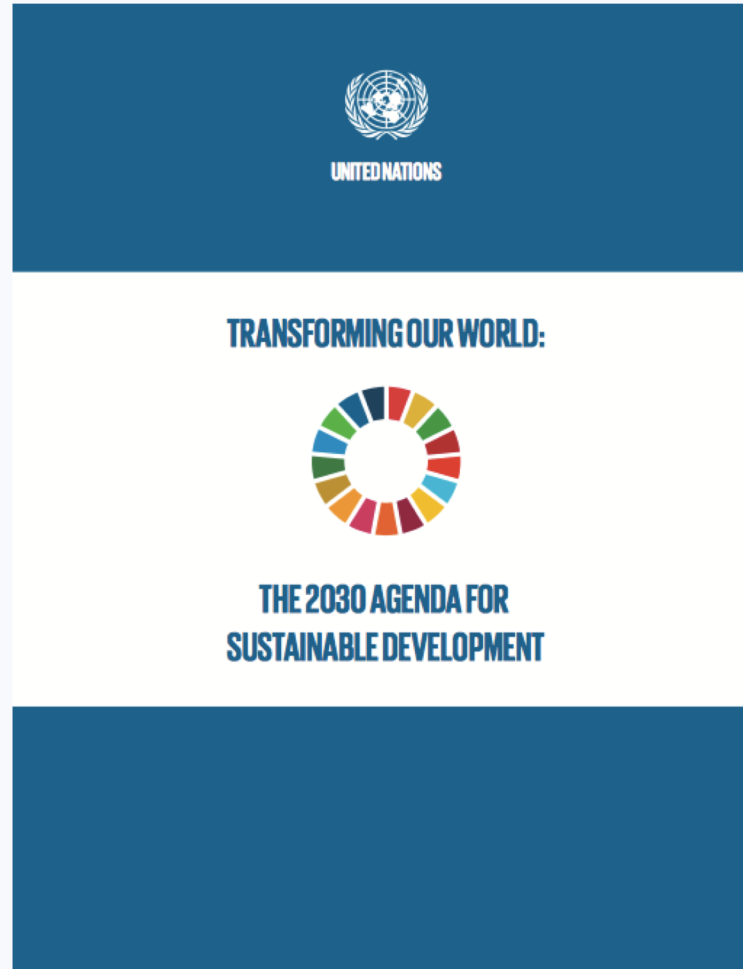
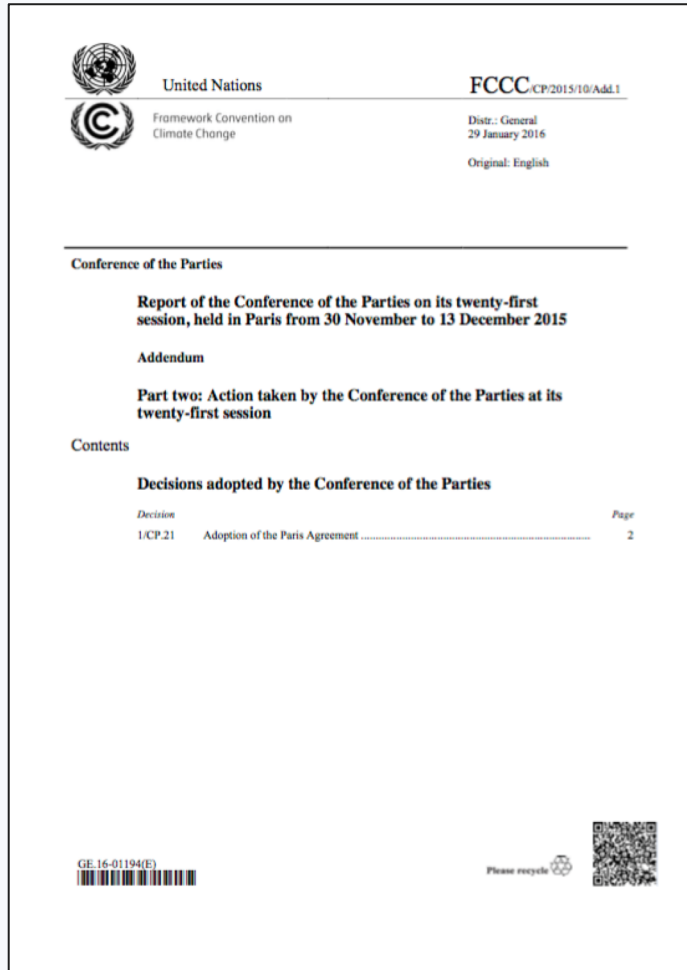
Plot Area

**Budget Allocated to
Health Projects in 2018:
\$23,861,124**

**Total Amount of Financial
Resources Allocated to
Climate Change:
\$1,040,700,000**

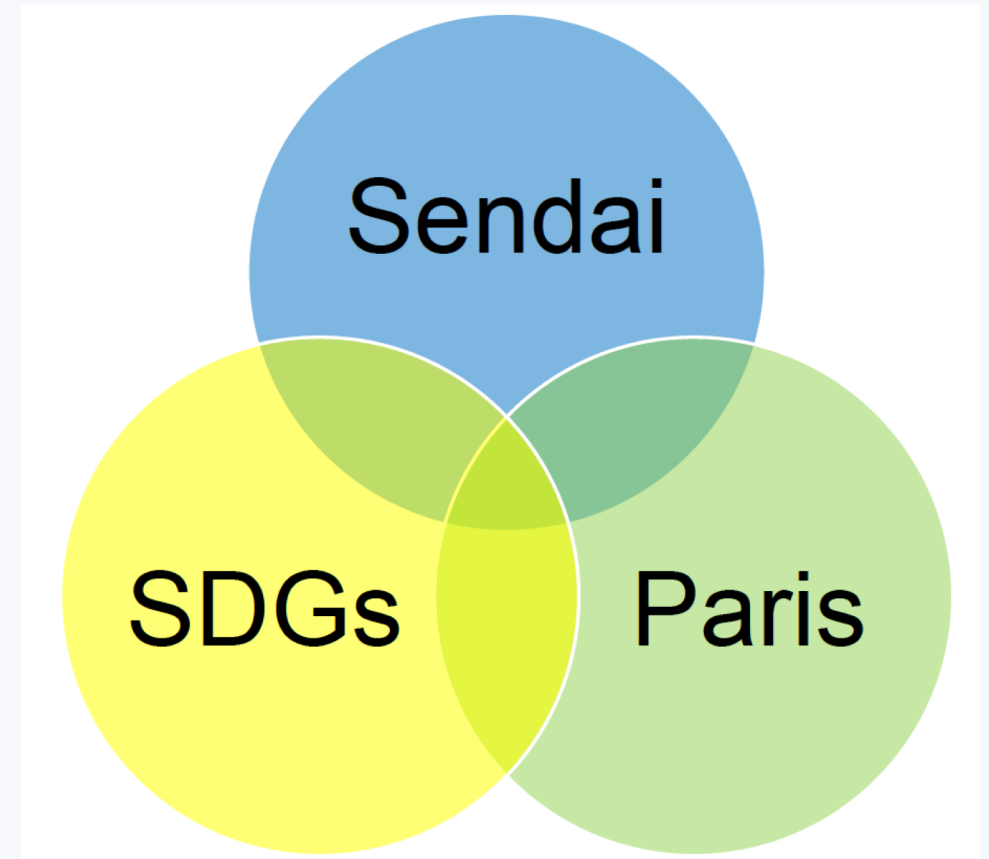
Source: Climate-related Development Finance
(OECD, 2016)

Global frameworks

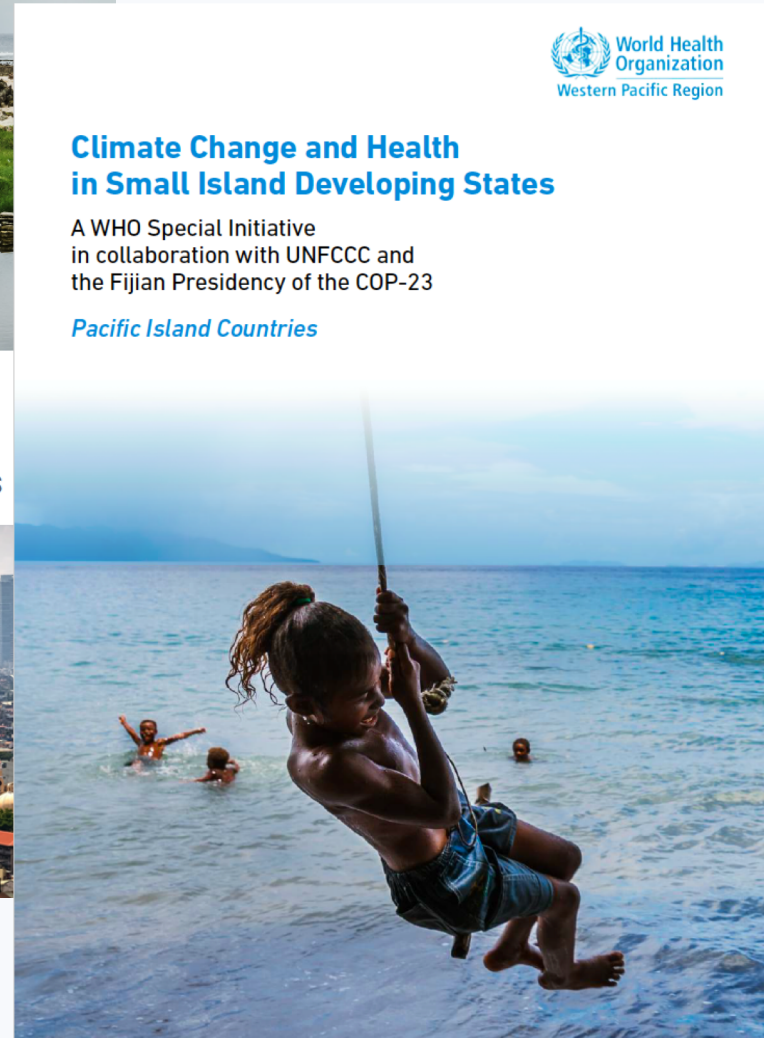


Opportunities for action

- The Sendai Framework, SDGs, and the Paris Agreement provide measurable opportunities to enhance capabilities to plan and prepare for, respond to, and recover from disasters and other public health emergencies
- They also offer opportunities to engage at the global level with stakeholders on guidance and policy issues that could impact state and local preparedness ds



WHO SIDS Initiative and Action Plan in the Pacific



- **Goal:**
 - By 2030, all health systems in SIDS will be resilient to climate variability and change.
- **Strategic Themes**
 - Empowerment
 - Evidence
 - Implementation
 - Resources

Integrating Climate Change Adaptation and Disaster Risk Management to Protect Health and Build Resilience in Pacific Islands

20-25 May 2018
Honolulu, HI



Workshop Co-Chairs

- **Nancy D. Lewis**

- Adjunct Senior Fellow
- East-West Center
- Honolulu, HI USA

- **Kristie Ebi**

- Professor
- University of Washington
- Seattle, WA USA

- **Henry F. Diaz**

- Adjunct Associate Professor
- University of Hawaii-Manoa
- Honolulu, HI USA

Background

- Climate change is affecting the Pacific Islands and their populations through rising temperatures, changing precipitation, and a growing number of extreme weather and climate events: droughts, floods, storm surge, and sea level rise.
- Pacific Island countries are globally ranked among the most vulnerable to climate change.
- Vector and water borne diseases that may be affected by climate, Pacific Islands populations experience very high rates of non-communicable diseases, including obesity, diabetes, and hypertension
- There is a need to develop a research agenda to build resilient communities and health systems in the Pacific Islands that considers the health risks of climate change, in the context of limited resources, the inherent isolation of islands, and demographic and socioeconomic challenges underscores.

Expected outcomes

- A clearer understanding of how climate variability, including extreme weather and climate events, impacts the health-water nexus throughout the Pacific Islands to inform identification of research gaps and the potential for developing early warning systems and long-term strategies for resilience.
- A research action agenda focusing on North-South research partnerships to support North-South and South-South cooperation with country-to-country and community-to-community mentoring.
- Research to support effective implementation across spatial and temporal scales with respect to aligning climate change adaptation and disaster risk management, including monitoring and evaluation.

Breakout discussion groups

1. ENSO/El Niño experiment
2. Implementation science and monitoring & evaluation
3. Funding: mechanisms, processes, opportunities
4. Building climate and disaster resilient health system in Pacific Islands

Workshop recurring themes

- Focus on success factors
- Assessment fatigue
- Systems-based approaches
- Different types of knowledge (traditional)
- Context-specific (diversity of the pacific)
- Resilience vs. Vulnerability - strong islands and islanders - “warriors” mentality
- Learning by doing
- Influence and power
- Expansive geographies
- National vs. regional activities
- Political will
- Country-level expertise
- Not vulnerable; have vulnerabilities

Major takeaways and next steps

- The current climate change and health adaptation-related projects are insufficient to protect and promote population health in a changing climate
- Resources are available to assist decision-makers, public health practitioners, and other stakeholders (e.g. frameworks and assessments)
- Building regional collaboration and capacity (e.g. “Communities of Practice”) can facilitate building climate resilient health systems
- Integration of climate/weather data with health data can lead to early warning systems and improved disaster risk management
- Continued dialogue and action is needed, particularly around accessing resources and funding for implementation, communication, and evaluation of health adaptation strategies

Additional resources

- [WHO Climate Change Training Modules](#)
- [Sendai Framework for Disaster Risk Reduction 2015-2030](#)
- [WHO Operational Framework for Building Climate Resilient Health Systems](#)
- [WHO Human Health and Climate Change in Pacific Island Countries](#)