Pacific Climate Change and Health Overview
Pacific climatic setting

Source: Australian Bureau of Meteorology-CSIRO (2011)
## Pacific weather extremes

<table>
<thead>
<tr>
<th>Weather Extreme</th>
<th>Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drought</td>
<td>Water supply deficits; crop damage</td>
</tr>
<tr>
<td>Extreme high rainfall</td>
<td>Flooding; soil erosion</td>
</tr>
<tr>
<td>Tropical storms</td>
<td>Wind; high rainfall; coastal flooding</td>
</tr>
<tr>
<td>Extra-tropical storm waves</td>
<td>Coastal flooding</td>
</tr>
<tr>
<td>Heat waves</td>
<td>Human health; crop damage</td>
</tr>
</tbody>
</table>
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

- Extreme Events Changing
- Carbon Dioxide Concentrations Rising
- Changing Rainfall
- Surface Air Temperature Rising
- Changing Winds, Waves, and Water Levels
- Sea Surface Temperature Rising
- Changing Habitats and Species Distributions
- Sea Level Rising
- Ocean Heat Content Rising
- Baseflow in Streams Decreasing
- Carbonate Chemistry Changing

Source: Keener et al, 2012: PIRCA
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

Source: WHO 2015 Human Health and Climate Change in Pacific Islands
<table>
<thead>
<tr>
<th>CLIMATE-SENSITIVE HEALTH RISK</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Direct effects</strong></td>
<td></td>
</tr>
<tr>
<td>Health impacts of extreme weather events¹</td>
<td>Cook Islands</td>
</tr>
<tr>
<td>Heat-related illness²</td>
<td>Fiji</td>
</tr>
<tr>
<td><strong>Indirect effects</strong></td>
<td></td>
</tr>
<tr>
<td>Water security &amp; safety (including waterborne diseases³)</td>
<td>Kiribati</td>
</tr>
<tr>
<td>Food security &amp; safety (including malnutrition &amp; foodborne diseases⁴)</td>
<td>Marshall Islands</td>
</tr>
<tr>
<td>Vector-borne diseases⁵</td>
<td>Micronesia</td>
</tr>
<tr>
<td>Zoonoses⁶</td>
<td>Federated States</td>
</tr>
<tr>
<td>Respiratory illness⁷</td>
<td>Nauru</td>
</tr>
<tr>
<td>Disorders of the eyes, ears, skin and other body systems⁸</td>
<td>Niue</td>
</tr>
<tr>
<td><strong>Diffuse effects</strong></td>
<td></td>
</tr>
<tr>
<td>Disorders of mental/psychosocial health⁹</td>
<td>Palau</td>
</tr>
<tr>
<td>Noncommunicable diseases (NCDs)¹⁰</td>
<td>Samoa</td>
</tr>
<tr>
<td>Health systems problems¹¹</td>
<td>Solomon Islands</td>
</tr>
<tr>
<td>Population pressures¹²</td>
<td>Tonga</td>
</tr>
<tr>
<td></td>
<td>Tuvalu</td>
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<td></td>
<td>Vanuatu</td>
</tr>
</tbody>
</table>
Figure 15. Conceptual model summarizing the pathways between climate change and NCDs (dotted arrows represent hypothetical links)

- Lack of physical activity → Obesity
- Obesity → Increased consumption of high-calorie, energy-dense foods
- Increased consumption of high-calorie, energy-dense foods → Dependence on imported foods
- Dependence on imported foods → Lack of locally grown, nutritious foods
- Lack of locally grown, nutritious foods → Compromised food security
- Compromised food security → Probable detrimental impacts of climate change, including higher temperatures, altered rainfall patterns, sea-level rise, storms, etc.
- Probable detrimental impacts of climate change, including higher temperatures, altered rainfall patterns, sea-level rise, storms, etc. → Diabetes, circulatory diseases, other NCDs

Source: WHO 2015 Human Health and Climate Change in Pacific Islands
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
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)
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

[Image of documents]

United Nations Framework Convention on Climate Change

Conference of the Parties

United Nations

Transforming Our World:
The 2030 Agenda for Sustainable Development

Sendai Framework for Disaster Risk Reduction 2015 - 2030
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.
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