

Climate Resilience and Island Emergency Policy: Adapting Hawaii's Preparedness Framework for Increasing Risk

Author: Warren Pulley, Founder & Executive Director, Island Security Policy Institute

Date: May 2026 · **Document:** ISPI-HI-08 · **Domain:** Emergency Preparedness, Climate Security & Island Resilience

EXECUTIVE SUMMARY

Climate change is increasing the frequency and intensity of the emergency events that expose Hawaii's island emergency management framework gaps — producing a compounding vulnerability that the 2026 Hawaii legislative session addressed through the climate resilience provisions of the state budget and the RISE bonds ballot measure. ISPI's research identifies five specific mechanisms through which climate change compounds island emergency vulnerability beyond the impacts documented for continental communities. This white paper examines those mechanisms and proposes the policy framework adaptations required to address them.

KEY FINDINGS

- Hawaii's wildfire risk is increasing due to documented climate-driven changes in rainfall patterns, invasive species spread, and temperature increases — expanding the geographic scope of the wildfire emergency management failures that Lahaina documented.
- Sea level rise and intensifying storm surge are increasing the vulnerability of Hawaii's coastal port infrastructure — the same infrastructure that supply chain singularity makes the most consequential single point of failure in Hawaii's emergency resilience framework.
- Intensifying hurricane seasons are increasing the frequency of severe weather events that disrupt maritime shipping routes and port operations — compounding supply chain singularity vulnerability.
- Hawaii's agricultural capacity — currently meeting less than 15% of state food needs — is both a climate vulnerability and a climate resilience investment opportunity: local food production reduces supply chain singularity exposure.

- The RISE bonds constitutional amendment on the November 2026 ballot would create a new financing mechanism specifically for resilient infrastructure — representing the most significant structural climate resilience policy development in recent Hawaii legislative history.

Five Climate-Island Compound Vulnerabilities

ISPI's climate security research identifies five mechanisms through which climate change compounds island emergency vulnerability in ways that are specific to island geographic conditions and absent from continental climate resilience frameworks.

Wildfire Risk Expansion

The August 2023 Lahaina wildfire occurred in a community not historically considered high wildfire risk. Climate-driven changes in Hawaii's rainfall patterns and invasive grass species spread are expanding the geographic scope of wildfire risk across communities that do not have emergency management frameworks calibrated for wildfire events.

Port Infrastructure Climate Vulnerability

Sea level rise, intensifying storm surge, and increasing extreme weather frequency are increasing the climate vulnerability of Hawaii's coastal port infrastructure — the same infrastructure that supply chain singularity makes Hawaii's highest-consequence single point of failure.

Maritime Supply Chain Disruption

Intensifying hurricane and tropical storm seasons are increasing the frequency of weather events that disrupt maritime shipping routes — compounding the supply chain singularity that already makes Hawaii uniquely exposed to supply disruption.

Water System Climate Stress

Climate-driven changes in Hawaii's rainfall patterns are producing both flooding and drought stress on Hawaii's water infrastructure — creating both supply and infrastructure management challenges that existing water systems were not designed to address.

Agricultural Capacity and Food Security

Hawaii's 85-90% food import dependency is a climate resilience vulnerability: every degree of climate disruption to global maritime shipping routes is a food security threat with no geographic alternative. Local food production investment is simultaneously an economic development investment, an emergency resilience investment, and a climate adaptation investment.

The Policy Framework Adaptations Required

Continental climate resilience frameworks focus primarily on infrastructure hardening, coastal protection, and disaster recovery — approaches that are appropriate for communities with geographic supply chain redundancy

and mutual aid access. Island climate resilience requires these investments plus three additional framework adaptations.

Pre-positioned reserve architecture at climate-projected disruption frequencies. If climate projections indicate that major port disruption events will occur at twice the current frequency by 2040, community reserve standards must account for that increased frequency — not the historical frequency that current standards were calibrated on.

Local production investment as climate resilience. Reducing food and pharmaceutical import dependency through local production investment directly reduces the severity of climate-driven supply disruption consequences.

Maritime mutual aid frameworks for climate events. Climate-driven emergencies that simultaneously affect multiple Pacific Island communities require pre-planned maritime mutual aid frameworks that can function when mainland resources cannot reach the affected area in time.

POLICY RECOMMENDATIONS

1. Adopt climate-projection-adjusted community reserve standards — revising Hawaii's emergency reserve architecture to account for projected increases in climate-driven supply disruption frequency.
2. Prioritize port infrastructure climate hardening as the single highest-consequence infrastructure investment for Hawaii's climate resilience framework.
3. Invest in local food production capacity as a climate resilience intervention — with a target of 25% local food supply by 2035 as a measurable supply chain singularity reduction goal.
4. Support the RISE bonds constitutional amendment as the structural financing mechanism for climate-resilient infrastructure investment across Hawaii counties.
5. Commission an independent Hawaii Climate Emergency Management Framework Assessment examining where existing plans account for climate-adjusted risk and where gaps exist.