Planning for Sustainable Coastal Management Outcomes: Advancing Resilience to Sea Level Rise in CNMI

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Aspen Global Climate Institute Workshop
PLANNING FOR CHANGE

Annual Number of High Water Hours, Saipan 1980-2020

Key Issues for Managers and Policymakers

- Changing air temperatures — 161 days have melted, while the frequency of cool nights has increased in the CNMI. Air temperatures will continue in all future warming scenarios.

- Stronger tropical storms and typhoons — Tropical cyclone intensity is expected to increase. While tropical cyclones are expected to decrease in number in the future, those that do form are more likely to be intense (higher category), delivering higher wind speeds and more rainfall. The CNMI experienced more frequent storms in 2020.

- Threats to reefs and biodiversity — sea level rise in the CNMI and is expected to become devastating by exacerbating high tide and wave flooding, storm surges, and coastal erosion. More frequent and intense coastal flooding and erosion are anticipated to affect infrastructure and ecosystems in the coming decades, and sea levels rise continue.

- Human health and safety — More extreme storms and heatwaves, increased risk of fatalities, transmission of diseases, and declining ecosystems affect human health and safety. Local populations and global action to significantly cut greenhouse gas emissions can greatly reduce these health impacts.

- Equity considerations — Climate change is expected to affect many aspects of life in the CNMI, and some groups will be affected disproportionately. Those who are already vulnerable, such as children, elderly people, people with pre-existing medical conditions, and low-income communities, are at greater risk from extreme weather and climate events.

- Coral reef bleaching and loss — Coral reefs are warming, causing coral bleaching that is already taking place. Coral reefs and ocean ecosystems contribute more than $500 million annually to the CNMI economy. In the next few decades, more frequent coral bleaching and ocean acidification will combine with existing stresses to threaten the deployed industry for coral reefs.

- Uncertainty about rainfall/evaporation — Global and regional climate model outputs are variable for the Marianas Islands region show a range of possible future precipitation changes, from as much as 7% lower to as much as 20% higher in the CNMI overall in the long term.

- Risks to fresh water — Higher temperatures can increase the demand for water and decrease the supply of freshwater available. The contribution of potential increased pumping and sea-level rise is expected to bring significant contamination into wells that supply drinking water.

- Threats to ecosystems and biodiversity — Changes in temperature, rainfall, and tropical cyclone characteristics promote the spread of invasive species and reduce the ability of tropical hardwoods to support new and protected species. Invasions that enhance biodiversity and improve ecosystem resilience can support communities in adapting to climate variability and change.

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<thead>
<tr>
<th>Indicator</th>
<th>How has it changed?</th>
<th>Projected future change</th>
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</thead>
<tbody>
<tr>
<td>Sea level</td>
<td>↑</td>
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<td>High water frequency</td>
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"Adopted Flood Scenario" considers 3.16M of SLC
APPLYING SMART, SAFE GROWTH

- Planning & project scoping
- Addressing opportunities for SSG in hazard mitigation and CIP
- Working with FEMA/EPA to fine-tune SSG Matrix and provide supplemental guidance
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THANK YOU!
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