Climate Change and Natural Disasters in Small Island Developing States

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1. The Key Challenges

- *A high exposure to natural disasters*....
- *Compounded by development trends*....
- *And exacerbated by climate change*....
A High Exposure to Natural Hazards

In the Pacific Island Region

US$112 billion
Value of infrastructure, buildings and cash crops at risk from natural disasters
A High Exposure to Natural Hazards

In the Caribbean

Annual damages to infrastructure from natural disasters estimated at US$0.5-1 billion/year

Recurrent disasters contribute to high levels of debt
A High Exposure to Natural Hazards

SIDS account for two thirds of the countries with highest relative annual disaster losses
Compounded by Development Trends

Last Week’s Disaster

Current settlement (2010)

Original settlement (1950)

Area at risk from sea storms and river flooding

Loss of coastline

São Tomé and Príncipe
Caribbean countries spend about US$1 billion a year on infrastructure maintenance just to keep their 75,000 km road network open.
And Exacerbated by Climate Change

Estimated Cost of Climate Change in the Caribbean (in the absence of adaptation) in US$ Billions

<table>
<thead>
<tr>
<th></th>
<th>2025</th>
<th>2050</th>
<th>2075</th>
<th>2100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cost</td>
<td>$10.7</td>
<td>$21.9</td>
<td>$33.7</td>
<td>$46.2</td>
</tr>
<tr>
<td>% of 2007 GDP</td>
<td>5.0%</td>
<td>10.3%</td>
<td>15.9%</td>
<td>21.7%</td>
</tr>
</tbody>
</table>

Source: Bueno et al. (2008)
And Exacerbated by Climate Change

Estimated future increase in probable losses due to climate change, in the Pacific Island Region
# Exacerbated by Climate Change

The longer the wait, the less the opportunity for adaptation to reduce risk...

<table>
<thead>
<tr>
<th>Key Risk</th>
<th>Timeframe</th>
<th>Risk for Current &amp; High Adaptation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present</td>
<td>Very Low</td>
</tr>
<tr>
<td></td>
<td>Near-term (2030-2040)</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Long-term (2080-2100)</td>
<td>Very High</td>
</tr>
</tbody>
</table>

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Source: IPCC Working Group II, Chapter 29, Small Islands
The “Hidden” Challenges – Institutional Incentives
Between 2011-2014, Samoa had to manage 12 different projects in disaster risk management and climate change adaptation…
2. The Opportunities

*Tabwea Teitiniman in Tarawa Lagoon, Kiribati*
Recognize that Prevention Pays Off…

<table>
<thead>
<tr>
<th>Climate Proofing Investment</th>
<th>Costs of Climate Proofing as % of Initial Costs</th>
<th>Costs of Reconstruction as % of Initial Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road (Kosrae)</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Buildings (Tonga)</td>
<td>&gt;10%</td>
<td></td>
</tr>
<tr>
<td>Deepwater Port (Dominica)</td>
<td>12%</td>
<td>41%</td>
</tr>
<tr>
<td>Law School (Jamaica)</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>Bridge (St. Lucia)</td>
<td>11%</td>
<td>17%</td>
</tr>
<tr>
<td>Hotel (St. Thomas)</td>
<td>0.1%</td>
<td>19%</td>
</tr>
</tbody>
</table>
But it requires upfront investment....

<table>
<thead>
<tr>
<th>Sector</th>
<th>Building Back Better Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>1.10-1.35</td>
</tr>
<tr>
<td>Schools</td>
<td>1.10-1.50</td>
</tr>
<tr>
<td>Hospitals</td>
<td>1.10-1.50</td>
</tr>
<tr>
<td>Agriculture/Livestock and Fisheries</td>
<td>1.10-1.40</td>
</tr>
<tr>
<td>Infrastructure</td>
<td></td>
</tr>
<tr>
<td>Industrial Facilities</td>
<td>1.10-1.40</td>
</tr>
<tr>
<td>Commerce and Trade</td>
<td>1.10-1.35</td>
</tr>
<tr>
<td>Water and Sanitation</td>
<td>&gt;1.00*</td>
</tr>
<tr>
<td>Transport</td>
<td>&gt;1.00*</td>
</tr>
<tr>
<td>Electricity</td>
<td>&gt;1.00*</td>
</tr>
<tr>
<td>Communications</td>
<td>&gt;1.00*</td>
</tr>
</tbody>
</table>

Disaster assessment experience suggests it costs 10-50% more to build back better after a disaster. For infrastructure sectors, building or moving infrastructure to more resilient standards can be even higher.

And more resources towards prevention …

Of the total disaster-related global aid to SIDS in 1999-2010, only 10 percent went towards prevention and preparedness…

Total ODA Assistance to Small Island Developing States (1999-2010)
US$ 41.5 billion

Disaster-related global aid (including relief, reconstruction, prevention, and preparedness)
US$ 3.94 billion

Prevention-related global aid (Ex-ante disaster prevention and preparedness)
US$ 0.4 billion
What is the World Bank doing?

World Bank Disaster Risk Management and Adaptation Portfolio in Small Island States (FY11-FY14) in US$ Million

<table>
<thead>
<tr>
<th>Total No. of Projects</th>
<th>Total</th>
<th>Africa</th>
<th>Pacific</th>
<th>Caribbean</th>
<th>Maldives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>71</td>
<td>5</td>
<td>35</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>Total Commitments (US$ Million) *</td>
<td>582.7</td>
<td>14.9</td>
<td>169.8</td>
<td>394.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Annual Commitments (US$ Million)</td>
<td>145.6</td>
<td>3.7</td>
<td>42.5</td>
<td>98.6</td>
<td>1</td>
</tr>
<tr>
<td>No. of SIDS Engaged**</td>
<td>26</td>
<td>3</td>
<td>11</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>

* Reflects commitments which are considered DRM and adaptation co-benefits
** Does not include regional initiatives or British Virgin Islands

The World Bank now allocates US$145 million per year to disaster risk management and climate adaptation – 22 percent of its total funding to SIDS.
Assessing Risks

Example: the Pacific Catastrophe Risk Assessment and Financing Initiative (PICRAFI) mapped more than 2 million buildings.

Being small is a key advantage, as progress can be monitored in SIDS – e.g. decrease in % of population and km of roads at high risk.
Reducing the Risk

1. Diminish vulnerability of key assets

*Examples:* Jamaica, Belize, St. Lucia, Dominica are all starting resilience programs to incorporate climate resilience into key infrastructure…
A similar program is starting in the Pacific

2. Integrate risk in spatial planning

*Examples:* Sao Tome and Principe and Samoa communities have both identified safer “expansion areas” for future settlement expansion

3. Enabling policies
The model of the Caribbean Catastrophe Insurance Facility (CCRIFI), is being replicated in the Pacific and Indian Ocean Island Regions. By pooling the risk across multiple countries, premiums can be lowered. The World Bank and GFDRR have supported these initiatives through Technical Assistance and intermediation with reinsurance markets.

- Anguilla
- Antigua and Barbuda
- The Bahamas
- Barbados
- Belize
- Bermuda
- Cayman Islands
- Dominica
- Grenada
- Haiti
- Jamaica
- Saint Kitts and Nevis
- Saint Lucia
- Saint Vincent and the Grenadines
- Trinidad and Tobago
- Turks and Caicos

8 Payouts between 2007 & 2012 totalling US$32,179,470
Managing Residual Risks

- Tonga, St. Lucia and St. Vincent received emergency funds from the Crisis Response Window in 2014.

- Seychelles is considering a Catastrophic Deferred Drawdown Option (CAT-DDO)

- Managing residual risk can also involve better contingency and operation and maintenance funds.
Building Institutional Capacity

1. Strengthening fiduciary capacity of a central unit
   Central coordinating unit (at Ministries of Finance/Planning or Office of President) prepared for direct access to global funds

2. Using resilience as an integrator for island-wide development
   National Adaptation Plans as a process rather than a stand-alone document

3. Learning by doing
   Combining capacity building with investments
Since IDA allocations are limited, we are exploring potential interest from partners to scale up this initiative...
To conclude...

1. SIDS economies are highly vulnerable to natural disasters
2. The longer the wait, the harder it will be to reduce risk
3. Prevention is more effective than response…
4. There are already programs that combine investment with capacity building
5. And allow for progress to be measured..
6. But they need to be scaled up
7. To prevent fragmentation of capacity…
8. And place resilience at the core of SIDS development
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