“Climate Change Impacts and Adaptation for Coastal Transport Infrastructure in Caribbean SIDS”

Perspectives on Climate Change and Disaster Risk Management in Coastal Transport Infrastructure in the OECS

By

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PERSPECTIVES ON CLIMATE CHANGE AND DISASTER RISK MANAGEMENT IN COASTAL TRANSPORT INFRASTRUCTURE IN THE OECS

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THE ORGANISATION OF EASTERN CARIBBEAN STATES (OECS)
SEA PORTS IN THE OECS

• Caribbean sea ports are effectively segregated into three categories:
  o global hub ports,
  o sub-regional hub ports
  o service ports
• All OECS (main) ports fall into the latter category
• There are also smaller ports and terminals serving, among others:
  o yachts
  o small fishing vessels
  o ferries

AIRPORTS IN THE OECS

• Airports in the OECS fall into the following categories:
  o International/Regional
  o Regional/Domestic
  o Private
AIRPORTS IN THE OECS

<table>
<thead>
<tr>
<th>MEMBER STATE</th>
<th>NUMBER OF AIRPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anguilla</td>
<td>1</td>
</tr>
<tr>
<td>Antigua &amp; Barbuda</td>
<td>3</td>
</tr>
<tr>
<td>British Virgin Islands</td>
<td>4</td>
</tr>
<tr>
<td>Dominica</td>
<td>2</td>
</tr>
<tr>
<td>Grenada</td>
<td>3</td>
</tr>
<tr>
<td>Martinique*</td>
<td>1</td>
</tr>
<tr>
<td>Montserrat</td>
<td>1</td>
</tr>
<tr>
<td>St. Kitts and Nevis</td>
<td>2</td>
</tr>
<tr>
<td>Saint Lucia</td>
<td>2</td>
</tr>
<tr>
<td>Saint Vincent and the Grenadines</td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

VALUE & CONTRIBUTION OF AIR & SEA PORTS

- Passenger arrivals/departures
- Goods import and export
- Goods storage
- Revenue collection (“35 vs <4”)
- Direct employment
- Support for key economic sectors, including: tourism, commerce, agriculture
- Support FDI
- Support food security
- Provide a link to the outside world
ECONOMIC CONTRIBUTION OF AIR TRAVEL: FDI (2009)

FDI stock as % GDP

Source: IATA, Oxford Economics in Oxford Economics 2011

ECONOMIC CONTRIBUTION OF AIR TRAVEL/TOURISM (2009)

Antigua & Barbuda: 13.1% of GDP
Saint Lucia: 32.5%
Grenada: 17.1% of GDP

Source: Oxford Economics, 2011
CLIMATE CHANGE THREATS

- Storms
- Sea Level Rise
- Coastal Flooding
- Elevated Temperatures
- Drought

World Ports & Tropical Cyclones 1990-2008
Source: Becker et al 2011
EXPOSURE

• All sea ports at risk by virtue of location
• Several airports at risk due to location near the sea and/or in flood-prone locations, e.g.:
  • Hewanorra and GFL Charles, Saint Lucia
  • Douglas-Charles, Dominica

OECS RESPONSE TO DATE

• Few climate-focused structural measures have been implemented to date and sometimes reactive:
  • Port Zanté cruise ship terminal, Saint Kitts & Nevis (3rd time around)
  • New cruise ship berth at Pt. Seraphine, Port Castries?
  • Argyle International, Saint Vincent & Grenadines?
  • Study for Hewanorra International, Saint Lucia
OECS RESPONSE TO DATE

• Photovoltaic installations at:
  o Robert Bradshaw Airport, St. Kitts
  o V. C. Bird International, Antigua
  o Argyle Airport, St. Vincent

CHALLENGES

• Planning horizon for port development typically 5-10 years while lifespan of infrastructure much longer (30-50 years for seaports).
• Many OECS sea ports constructed when CC was not a serious consideration
• Transport infrastructure development is costly
• Air and sea ports often heavily reliant on external utilities (water, electricity)
• Roads and bridges connecting to airports are often themselves vulnerable
APPROACHES TO BUILDING RESILIENCE

- Adopt longer planning horizons for port development
- Use appropriate science in planning and design
- Site new air and sea ports to minimise climate risk
- Reduce reliance on external utilities through improved water storage, energy efficiency and use of renewable energy
- Design and build/rebuild in support infrastructure (roads, etc.)
- Diversify transport options to the extent possible (e.g. ferry services)
- Develop continuity-of-business (COB) plans

PARTING MESSAGES

- Air and sea transport are vital to the socio-economic wellbeing of OECS Member States and the absence of alternative forms of international connectivity underscores the importance of associated infrastructure

- Climate change poses significant risks to coastal transport infrastructure

- Opportunities exist for building resilience in coastal transport infrastructure

- Building resilience will require a non-traditional, long-term and holistic approach

- Proactive adaptation more cost-effective than reactive measures
THANK YOU