

UNCTAD National Workshop Saint Lucia
24 – 26 May 2017, Rodney Bay, Saint Lucia

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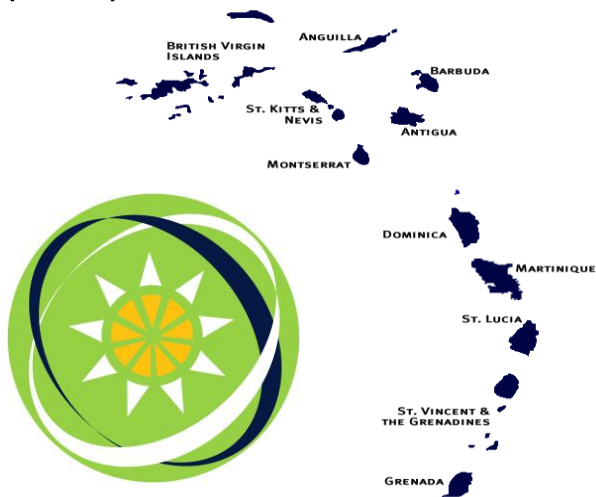
PERSPECTIVES ON CLIMATE CHANGE AND DISASTER RISK MANAGEMENT IN COASTAL TRANSPORT INFRASTRUCTURE IN THE OECS



**UNCTAD National Workshop Saint Lucia "Climate Change Impacts and
Adaptation for Coastal Transport Infrastructure in Caribbean SIDS",
24th – 26th May 2017**

E. Crispin d'Auvergne, Organisation of Eastern Caribbean States (OECS) Commission

THE ORGANISATION OF EASTERN CARIBBEAN STATES (OECS)



SEA PORTS IN THE OECS

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



AIRPORTS IN THE OECS



- Airports in the OECS fall into the following categories:
 - International/Regional
 - Regional/Domestic
 - Private

AIRPORTS IN THE OECS

MEMBER STATE	NUMBER OF AIRPORTS
Anguilla	1
Antigua & Barbuda	3
British Virgin Islands	4
Dominica	2
Grenada	3
Martinique*	1
Montserrat	1
St. Kitts and Nevis	2
Saint Lucia	2
Saint Vincent and the Grenadines	6
TOTAL	25

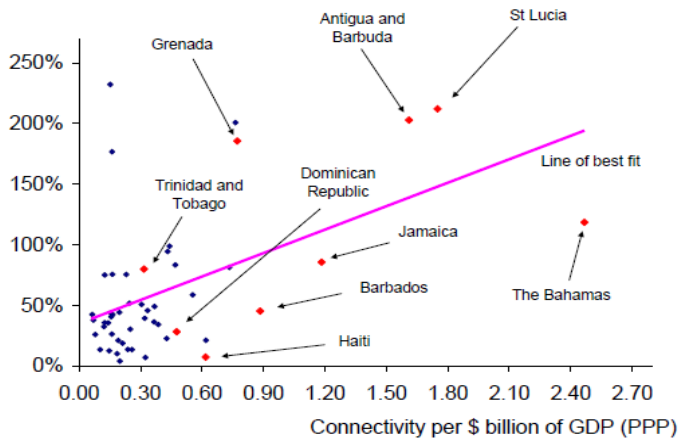
VALUE & CONTRIBUTION OF AIR & SEA PORTS

- 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



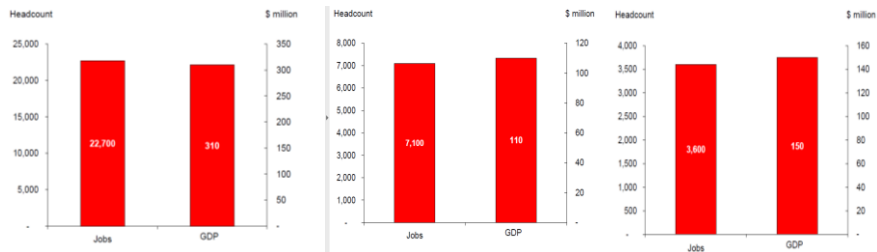
ECONOMIC CONTRIBUTION OF AIR TRAVEL: FDI (2009)

FDI stock as % GDP



Source: IATA, Oxford Economics in Oxford Economics 2011

ECONOMIC CONTRIBUTION OF AIR TRAVEL/ TOURISM (2009)



Saint Lucia: 32.5%

Grenada: 17.1% of GDP

Antigua & Barbuda: 13.1%
of GDP

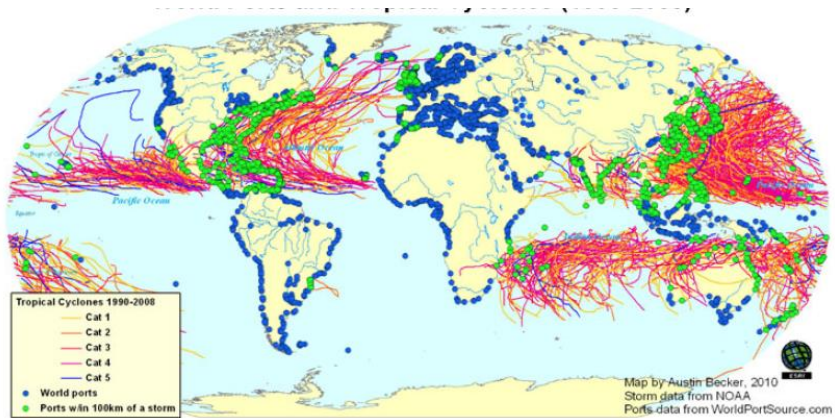
Source: Oxford Economics, 2011

CLIMATE CHANGE THREATS

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



CLIMATE CHANGE THREATS



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:
 - Robert Bradshaw Airport, St. Kitts
 - V. C. Bird International, Antigua
 - Argyle Airport, St. Vincent



Photo: Government of Antigua & Barbuda

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