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

**Addressing the challenge of climate  
change adaptation and resilience  
building for key international  
transportation assets: Perspectives**

**By**

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# Addressing the Challenge of Climate Change Adaptation & Resilience Building for Key International Transportation Assets: Perspective

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## CTO Member Countries

+	ANGUILLA	+	GRENADA	+	SAINT LUCIA
+	ANTIGUA & BARBUDA	+	GUYANA	+	ST. MAARTEN
+	BAHAMAS	+	HAITI	+	SAINT MARTIN
+	BARBADOS	+	JAMAICA	+	ST. VINCENT & THE GRENADINES
+	BELIZE, CENTRAL AMERICA	+	MARTINIQUE	+	TRINIDAD & TOBAGO
+	BRITISH VIRGIN ISLANDS	+	MONTserrat	+	TOBAGO
+	CAYMAN ISLANDS	+	PUERTO RICO	+	TURKS & CAICOS ISLANDS
+	CUBA	+	ST. EUSTATIUS	+	U.S. VIRGIN ISLANDS
+	CURACAO	+	ST. KITTS & NEVIS	+	VENEZUELA
+	DOMINICA	+	NEVIS		



## Transport Infrastructure

*“As with the arguments regarding economics, ... having a reliable and efficient transport infrastructure is a key factor in a region’s economic welfare”.*

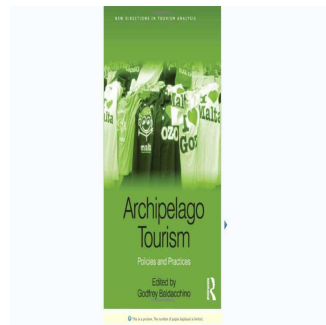
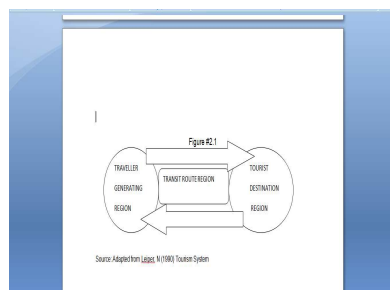
(Sorupia,2005:1775)



3

## Climate Change & International Transportation Assets in Perspective - Tourism

- *The very definition of international tourism requires modes of transportation.*
- *Archipelagoes are special cases.*



4

## Economic Importance of International Transport to Travel & Tourism

- Tourism is one of the fastest growing and most resilient socio-economic sectors
  - Contributed 10.2% of world GDP (US\$7.6 trillion dollars)
  - 1 in 10 jobs
  - 6.6% of total global exports
  - Approx. 30% of total trade in services
- Caribbean:
- 4.7% total GDP
  - 4.2% of direct employment
  - 20.7% of total exports
  - 12.3% of total investments

Source: WTTC



5

## Economic Importance of International Transport to Travel & Tourism

- “International tourist arrivals worldwide are expected to increase by 3.3% a year between 2010 and 2030 to reach 1.8 billion by 2030, according to UNWTO’s long term forecast Tourism Towards 2030.” WTO, 2015
- Based on ICAO’s forecasts, aircraft departures are expected to grow to 60 million by 2030.” (ICAO)



6



## Economic Importance of Transportation Assets & Tourism

- The Caribbean is the most tourism dependent region in the world. (UNWTO)
- The Caribbean is the world's most popular cruise destination. The region received 33.7% of all cruise deployments in 2016
- 24.2 million passengers globally cruised in 2016 (FCCA, 2017)

Region 2016 Deployed	Capacity Share
Caribbean/Bahamas	33.7%
Mediterranean	18.7%
Europe w/o Mediterranean	11.7%
Asia	9%
Australia/New Zealand/S. Pac.	6.1%
Alaska	4.1%
South America	2.7%
Other Markets	13.8%



## Caribbean Tourism Performance 2012 -2016

- Source:CTO
- **Note:** Total cruise passenger arrivals as given above represent the sum of arrivals at individual destinations. However, because most cruise ships stop at more than one destination, this figure is considerably larger than the number of cruise passengers visiting the region.

	2012	2013	2014	2015	2016
<b>Total StayOver Visitors ('000)</b>	24,165.3	24,928.3	26,561.8	28,404.8	29,565.6
<b>Total Cruise Passengers('000)</b>	21,982.5	22803.3	25380.8	25,878.4	26,403.9
<b>Visitor Expenditure (Estimates, US\$ millions)</b>	29,704.9	30,997.3	32,621.9	34,473.4	36,043.2



## Economic Importance of International Transport to Caribbean Tourism

- For 2016, consistent with increases in stay-over and cruise visits, total visitor expenditure is estimated to have increased by approximately 3.5% to reach US\$35.5 billion.
- There were over one million more visitors in 2016 than in 2015, to reach 29.3 million, reflecting continuous growth for the seventh straight year.
- There were 26.4 million cruise passengers to the region in 2016. A 4.3% increase year on year.



9

## Key Considerations

- Accessibility is critical to international travel.
- Affordability is key to continued growth and competitiveness.
- Regional dependency on a large number of imports to support the tourism sector.
- Transport infrastructure is necessary to drive growth and development of the tourism sector.



10

## The Reality of Caribbean Tourism & Climate Change

- . “Addressing pollution from aircraft is an important element of U.S. efforts to address climate change. Aircraft are the third largest contributor to GHG emissions in the U.S. transportation sector, and these emissions are expected to increase in the future,” said Janet McCabe, EPA’s Acting Assistant Administrator for Air and Radiation. “EPA has already set effective GHG standards for cars and trucks and any future aircraft engine standards will also provide important climate and public health benefits.” ( July 25, 2016. [www.epa.gov](http://www.epa.gov))



11

## Economic Implications of Climate-Related Disruptions - Airlines Serving the Caribbean

- **America Airlines**
  - Losses of US\$75 million in Q3 due to Hurricanes Harvey, Irma and Maria. They had to close thirty (30) of the stations and had the most cancellations of any of the top six airlines serving the Caribbean.
  - Eight thousand (8,000) flights were cancelled due to bad weather
- **United Airlines**
  - Pre-tax losses of US\$185 million for Q3. Had to close hub in Houston for four (4) days due to Harvey. They did not report the exact number of flights cancelled.
- **Southwest Airlines**
  - Losses of US\$100 million in revenue and cancelled five thousand (5,000) flights due to Harvey, Irma and earthquakes in Mexico in September
- **Spirit Airline**
  - Losses of US\$40 million in revenue due to the three hurricanes. They had to cancel one thousand, six hundred and fifty (1,650) flights. During this time they also had some pilot disputes.
- **Delta Airlines**
  - Losses of US\$120 million due to Hurricane Irma and the related cancellation and disruptions.
- **Jetblue Airways**
  - Losses of US\$44 million in revenue. There were two thousand, five hundred (2,500) flights cancelled in Q3. They are predicting an overall loss of between US\$70 to US\$90 million in Q4 as a result of the after effect of the hurricanes. Jetblue has also redeployed capacity from Puerto Rico to other leisure destinations in their programme. They project that by the end of 2018 they will return to the full Puerto Rico flight schedule. They have increased service to Florida and the Southern Caribbean.
- **KLM Royal Dutch Airlines**
  - No specific revenue losses and cancellations due to hurricanes reported. Updated restarted flights to St Maarten as of October 29<sup>th</sup> to the Princess Juliana Airport with two flights a week. This is less than the usual four flights a week pre- Hurricane Irma. These two flights now include stopovers in Curacao. They are also adding three extra flights a week to Curacao’s already seven flights a week.
- **LIAT**
  - Reported that they expect to end 2017 with a loss of US\$13.25 million due to the hurricane season. They anticipate a US\$4.6 million loss between October and December 2017. There were four hundred and eight (408) flights cancelled between June and September compared to only sixty-seven (67) for the same time period in 2016. This was as a direct result of not being able to fly into Dominica, St Maarten, Tortola or Puerto Rico. These markets account for 30% of total flights and 34% of total revenue. They anticipate that it will take nine to twelve (9-12) months for market recovery. (Source: airlines’ media compilation)



12



## Economic Implications of Climate-Related Disruptions

- The Caribbean Development Bank predicts that every **one per cent** (1%) reduction in tourist arrivals could cost US\$137 million in lost revenue.
- Post Hurricanes Irma and Maria data based on schedules provided to OAG by the airlines showed that in October the number of flights to the region fell by 6.7%, while seat capacity contracted by 4.1%.
- Among the worst hit destinations the frequency of flights were impacted:
  - Puerto Rico decreased by 25.1%
  - Dominica decreased by 13.7 per cent,
  - St. Maarten decreased by 12 per cent,
  - British Virgin Islands decreased by 11.2 per cent,
  - Anguilla decreased by 6.3 per cent
  - US Virgin Islands decreased by 5.6 per cent.Seat capacity to all of these destinations was consequently adversely affected with St. Maarten experiencing a near 50 per cent falloff.
- Some of these reductions were influenced by Hurricane Harvey, which hit the US mainland, but most were a direct result of Irma and Maria. (IATA, 2017)



13

## CTO Sustainable Tourism & Adaptation- Ongoing Initiatives



14



## The Caribbean Sustainable Tourism Policy Framework

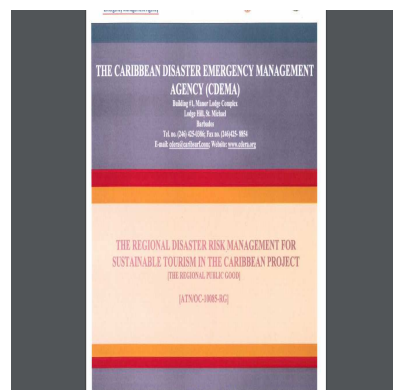
The Caribbean Sustainable Tourism Policy Framework is an output of the Caribbean Regional Sustainable Tourism Development Programme (CRSTDP); an intervention of the 8th European Development Fund (EDF) implemented in the period 2005 to 2008. This Policy Framework brings together in one document, broad policy guidelines to address the thematic areas identified during the stakeholder consultation as being critical to the sustainable development of tourism at the national level. Not only are these issues relevant to CTO member states, but they also have regional implications. Moreover, a regional approach to common challenges will give added value.



## Regional Disaster Risk Management For Sustainable Tourism in the Caribbean

### Regional Disaster Risk Management For Sustainable Tourism in the Caribbean Project Jan 2007 – Jun 2010

- The Caribbean Disaster Emergency Response Agency (CDERA) with the support of the Inter-American Development Bank (IDB) and in collaboration with the Caribbean Tourism Organization (CTO); CARICOM Regional Organization for Standards and Quality (CROSQ); and the University of the West Indies (UWI) implemented the Regional DRM for Sustainable Tourism in the Caribbean Project between January 2007 and June 2010.
- Under the DRM Framework, a Regional DRM Strategy and Plan of Action for the Tourism Sector was developed through the collective action of regional as well as national stakeholders in both the Tourism and disaster management sectors. Specifically, the Strategy addresses the elements of: mitigation, preparedness, response and recovery which include rehabilitation, and reconstruction.



## Caribbean Tourism Climatic Bulletin

### Caribbean Tourism Climatic Bulletin

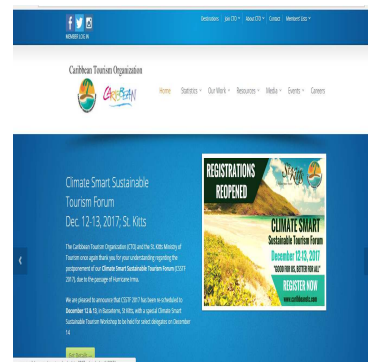
- The Caribbean Tourism Climatic Bulletin, a joint initiative of CTO, CHTA and the Caribbean Institute for Meteorology and Hydrology (CIMH), seeks to provide a broad overview of climate conditions and communicate tourism implications up to 6 months in advance, for use by the regional tourism (public and private sector) stakeholders.
- The bulletin responds to the need to develop initiatives to enhance tourism sector Resilience to climate change, aware of the very fragile nature of the industry and its susceptibility to external shocks foremost of which are climate and weather conditions intra-regionally as well as in source markets.
- Designed as a quarterly publication, climate information delivered through this medium will better position the region's tourism sector to become more resilient to climate change and extreme weather events while enhancing various aspects of tourism business operations, marketing and decision making.



17

## Climate Change Project

- *June, 2017* The Caribbean Tourism Organization (CTO) received a €460,000 grant from the Caribbean Development Bank (CDB) to implement a project to increase the Caribbean tourism sector's resilience to natural hazards and climate related risks.
- The project is in keeping with 2017 as the International Year of Sustainable Tourism for Development, which has been designated by the United Nations General Assembly.
- During the 19-month project implementation period, the CTO will support the region's tourism entities with policy formulation, the promotion of best practices in DRM and CCA, and the development of tools to enhance the tourism sector's knowledge and awareness of disaster risk reduction strategies and the potential impacts of climate variability and climate change (CVC).



18

- 2017 has been a major turning point in climate change impact on regional tourism. Unprecedented devastation.
  - loss of lives
  - loss of business
  - loss of infrastructure
  - loss of economic wellbeing



19

### State of the Tourism Industry Conference (SOTIC), Grenada, October 10 to 13, 2017

- **Recover & Rebuild** focused on the economic cost of the disasters, including the potential impact on gross domestic product, employment, the cost to rebuild and the recovery time. Key recommendations emerging from Recover & Rebuild will form part of a comprehensive document useful to the member states.



20

## Addressing the Challenges: A Tourism Perspective

- Build the capacity for adaptation and resilience building across the PPP.
- Assess the need for and best practices to adaptation and mitigation, using both global and location-specific research and evaluation activities  
e.g. projecting current and future climate change impacts;  
assessing vulnerabilities and evaluating resilience and adaptive capacity;  
and evaluating current and future adaptation and mitigation activities.
- Use a sectoral approach to address issues e.g coastal planning.
- Implement necessary policies specific to climate change impact and mitigation.
  
- **Take timely action**



21

- CTO, as the leading tourism agency for the Caribbean, recognizes that there is the need to ensure that all sectors of the tourism industry are on board with adaptive capacity in order to respond successfully to climate variability and change.



22

## CTO is Committed to Addressing Challenges

- *“Mainstreaming climate change adaptation (CCA) and disaster risk management (DRM) strategies in tourism development and planning is our duty to our member countries”* **CTO’s Secretary General Hugh Riley**



23

*Thank You*

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24