

Climate Compatible Tourism Adaptation Options for Belize Policy Brief



KEY MESSAGES

- ◆ If Belize's tourism industry is to continue expanding and remain robust in the face of climate change it will need to implement climate compatible tourism adaptation options.
- ◆ These options are centered on a variety of strategies developed globally, with direct relevance for SIDS countries, and target the tourism sector, government and financial sectors.
- ◆ Only by incorporating these adaptation options into national level policies such as the National Climate Change Policy and Integrated Coastal Zone Management, will Belize be able to adapt its tourism sector to cope with the impacts from climate change”.

Introduction

The Belize Tourism Industry is one of the cornerstones of the Belizean economy. This industry is heavily dependent on the country's natural and cultural assets, in particular its marine resources including the Belize Barrier Reef. Based on a vulnerability assessment of the Belize tourism sector, 80% of visitors to Belize seek out reef-based activities (Richardson, 2007). The projected expansion of the Belize tourism industry is for destinations along the coast, on the cayes and associated with the reef, and relies heavily on Belize's coastal and reef assets. These natural assets are increasingly threatened by climate change, in particular the beaches and reef. This situation is not unique to Belize, with Small Island Developing States (SIDS) being the most vulnerable to climate change owing to their unique geographic placement (low-lying coasts), their dependence on tourism and their economic realities – developing countries. Belize is classified as SIDS and as a tropical, coastal state its' tourism sector is vulnerable to climate change arising from four major impacts: increased air and sea surface temperatures; changes in precipitation; sea level rise; and increased frequency and severity of storms. In contrast to the direct impacts, the indirect effects of climate induced environmental change are likely to be mostly negative. Indirect impacts from climate change includes changes in water availability, biodiversity loss, reduced landscape aesthetic, altered agricultural production, increased natural hazards, coastal erosion and inundation, damage to infrastructure and the increasing incidence of vector-borne diseases, all of which will impact tourism to varying degrees (UNWTO, 2008).

Vulnerability and Adaptation

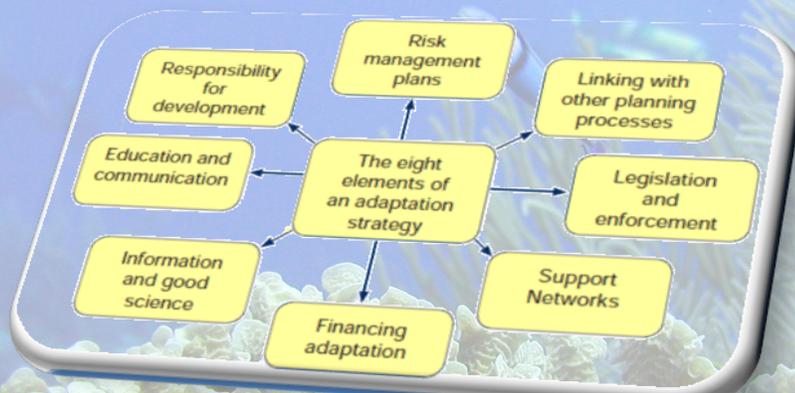
Based on a 2007 tourism vulnerability assessment, 45-70% of the tourism sector is vulnerable to the effects of climate change due to the nature of the destinations and attractions (Richardson, 2007). The only feasible option available to SIDS countries is for adaptation to climate change. Climate adaptation is defined as “..... an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities” (UNWTO 2008, p.81). Adaptation is a very detailed and long-term process that requires updated information, policy changes and financial investments. Belize needs to begin immediately so that it can be in a position to address these projected impacts from climate change, in particular to its tourism industry. The process of adaptation must involve the government, private sector, academia and local communities.

In order to achieve adaptation there must be the required adaptive capacity to do so. “Adaptive capacity is the ability or potential of a system to respond successfully to climate variability and change, and includes adjustments in both behavior and in resources and technologies” (Brooks & Adger, 2005). Based on Belize's Second National Communication to the UNFCCC, Gordon and Green (2011) concluded that Belize has limited capacity for its tourism sector to adapt to the impacts of climate change due in large part to the unsustainably high level of public debt. However within the tourism sector and government ministries responsible for natural resources and land use there is significant capacity to develop adaptation measures.

Climate change has the potential to affect a country's sustainable development in multiple ways, including water resources, energy, health, agriculture and biodiversity, all of which will impact the tourism industry. There are four guiding principles for adaptation that are very relevant for tourism. Adaptation must be placed in a national development context to ensure that it is a high priority and factored into all levels of planning – development of policies and strategies. Secondly, there is the need to build upon current adaptive experience to cope with future climate variability.

The tourism sector has had extensive experience coping with change and climate variability to date. In developing adaptive capacity it is important to recognize that adaptation occurs at different levels, of particular importance is the local level, which is where the on-the-ground implementation occurs by industry stakeholders. So their buy in to the process of adaptation is key to success. Finally it must not be forgotten that adaptation is an on-going process that often takes many years and needs to be an iterative process of implementing and evaluating strategies as climate conditions continue to evolve. The process of adaptation has been summarized into eight key steps or elements that form an adaptation strategy (Figure 1).

Figure 1: Essential Elements of an Adaptation Strategy



Source: Tompkins et al. 2005 - "Surviving Climate Change in Small Islands"

Global Adaptation Strategies

There are a variety of adaptation strategies that have been identified, compiled and presented globally for different conditions and economic realities. These adaptation strategies have been compiled from recommendations from public, private, NGO and research institutions based on their research or experience. These tools are currently in use at the global level by tourism stakeholders to address climate variability at destinations. It is rare that individual climate adaptations will suffice for a country and often adaptation involves multiple strategies specific to the destination. Then there are special situations that call for specific adaptation strategies: coping with two of the major climate change impacts (extreme events and changing availability of environmental resources) and for two of the most vulnerable destination types – mountains and islands, and the need for adaptation at the national policy level. In this case we will focus only on islands in the context of SIDS.

Table I Portfolio of climate adaptations utilized by tourism stakeholders

Type of Adaptation	Tourism Operators/ Businesses	Tourism Industry Associations	Governments and Communities	Financial Sector
Technical	-Slope contouring -Rainwater collection and water recycling systems -Cyclone-proof building design and structure	-Enable access to early warning equipment (e.g. radios) to tourism operators -Develop websites with practical information on adaptation measures	-Reservoirs, and desalination plants - Fee structures for water consumption -Weather fore-casting and early warning systems	-Require advanced building design or material (fire resistant) standards for insurance -Provide information material to customers
Managerial	-Water conservation plans -Low season closures -Product and market diversification -Regional diversification in business operations -Redirect client away from impacted destinations	-Use of short-term seasonal forecasts for the planning of marketing activities -Training programs on climate change adaptation -Encourage environmental management with firms (e.g. via certification)	-Impact management plans (e.g., 'Coral Bleaching Response Plan') -Convention/ event interruption insurance -Business subsidies (e.g., insurance or energy costs)	-Adjust insurance premiums or not renew insurance policies -Restrict lending to high risk business operations
Policy	-Hurricane interruption guarantees -Comply with regulation (e.g. building code)	-Coordinated political lobbying for GHG emission reductions and adaptation mainstreaming -Seek funding to implement adaptation projects	-Coastal management plans and set back requirements -Building design standards (e.g., for hurricane force winds)	-Consideration of climate change in credit risk and project finance assessments
Education	-Water conservation education for employees and guests	-Public education campaign (e.g., 'Keep Winter Cool')	-Water conservation campaigns -Campaigns on dangers of UV radiation	- Educate/inform potential and existing customers

Source: adapted from *Climate Change and Tourism: Responding to Global Challenges*, UNWTO-UNEP-WMO (2008)

The background of the entire page is a vibrant underwater photograph of a coral reef. The water is a clear, bright blue, and the coral is diverse in shape and color, ranging from soft, brain-like corals to more rigid, branching structures. The lighting is natural, creating a sense of depth and clarity.

For destinations like Belize, that are vulnerable to extreme events such as hurricanes, tourism depends on intact ecosystems and infrastructure and this threat provides an incentive to ensure that tourism infrastructure are designed and built to withstand climate change impacts without severe economic loss. Adaptation strategies in such locations may include building or retrofitting infrastructure to be hurricane proof. Early warning systems are also another important adaptation strategy to ensure proper preparation and planning to weather and extreme event. Another commonly implemented adaptation strategy is the use of insurance against extreme weather events to absorb climate related risks that cannot be avoided by other adaptation measures. There needs to be coordination between insurance companies and the tourism sector to ensure that proper measures (improving building structure, emergency plans, staff training, etc.) are in place to reduce uncertainty and risk. One final key strategy in adapting to extreme weather events is to promote awareness of the impacts of climate change and the need for preparedness for natural disasters through capacity building and strategies for disaster risk management.

In Belize, our tourism depends heavily on the coral reefs along our coast. Conserving this biodiversity and maintaining ecosystem structure of the coral reefs are important climate change adaptation strategies to ensure that functions such as shoreline protection and services such as fisheries and recreation are continuously available in relation to the tourism industry's demands. For small islands and coastal destinations, water supply is a challenging aspect of managing the tourism industry and requires adaptive strategies in response to changing climate conditions.

Overall adaptation strategies for the tourism industry in Belize include: product and market diversification from marine to inland destinations. Education and awareness programs also need to be developed to share practical information on adaptation measures with the tourism industry and the public, such as web based tools (website, social media, etc.) with practical information on adaptation measures. Training programs on climate change adaptation must be provided to tourism operators and tourism industry association. Research into the awareness of businesses and tourists re: climate change and identification of knowledge gaps needs to be done. An important point to note with adaptation strategies is that for these strategies to be successful they need to be presented and supported at the national level through national policy or frameworks such as an Integrated Coastal Zone Management approach or a National Climate Adaptation Policy.

Policy Recommendations

For the Belize Tourism Industry to fully adapt to climate change there must be mainstreaming of climate change adaptation strategies into national policies and sectoral plans. Such adaptation options must be a standard component of any response to climate change, and in particular for the tourism sector when planning for development.

The following are adaptation strategies that must be included in a National Climate Change Policy and Plan and factored into the current National Climate Resilience Investment Plan (NCRIP).

- ◆ Incorporate adaptation options against climate change impacts into existing management plans for coastal and wetland attractions, especially marine protected areas;
- ◆ Strategic planning for inland tourism development zones to provide alternatives to coastal tourism;
- ◆ Assistance with emergency planning and management of hurricane shelters for yachts & other recreational craft, in particular Placencia;
- ◆ Upgrade procedures for Environmental Impact Assessments to incorporate hazard risk and climate change vulnerability assessment (add climate change to the Terms of Reference).
- ◆ Training of National Agencies in monitoring climate change effects on coastal resources, natural systems beneficial to tourism and natural attractions (beaches, reefs, mangroves, wetlands)
- ◆ Improve socio-economic data collection systems to measure direct and indirect climate change impacts on environmental goods & services benefiting tourism, e.g. scuba diving and visits to attractions
- ◆ Design & implement standards for minimum floor level heights and other flood resistant measures for buildings in coastal & flood plain areas
- ◆ Providing technical assistance in design standards for marina piers and bulkheads
- ◆ Build technical and administrative capacity for managing coastal areas

Some specific adaptation options for Belize's Tourism Industry based on the climate change impacts predicted for the Caribbean and SIDS are outlined below.

Adaptation Options	Climate Change Impact Addressed
Tourism product and market diversification	Warmer temperatures; Sea level rise
Enhanced design (including flood prone areas and CAT 3 hurricane force winds) and siting standards (building code, setbacks)	Warmer temperatures; Changes in precipitation; Increasing frequency and intensity of extreme storms
Preserve and restore structural complexity and biodiversity of vegetation in estuaries, seagrass beds, and mangroves	Increases in sea surface temperatures; Changes in precipitation
Protect ecologically "critical" areas such as nursery grounds, spawning grounds, and areas of high species diversity	
Disaster preparedness and evacuation planning	Increasing frequency and intensity of extreme storms; Change in precipitation
Access to early warning equipment (e.g. radios) for tourism operators	
Training of tour guides as first responders, and/or building a fleet of emergency responders	
Weather forecasting and early warning systems	
Disaster risk management	
Upgraded and climate resilient critical infrastructure (roads, airports, sea ports, coastal defenses, and building facilities)	Increasing frequency and intensity of extreme storms; Change in precipitation; Sea level rise
Adjustable insurance premiums	
Extreme event risk exposure coverage	
Rainwater collection and water recycling systems	Changes in precipitation
Desalination systems on small cays	
Water conservation campaign and plans targeting employees and guests	
Drainage and watershed management to reduce flooding and erosion risks	
Lending incentives for water conservation projects	
'Soft' coastal protection - restoration of mangroves, beach nourishment, planting vegetation, reef protection	Sea level rise
Beach erosion and water quality monitoring programs	
Allow coastal mangroves and wetlands to migrate inland (e.g., through setbacks, density restrictions, land purchases)	
Consideration of climate change in credit risk and project finance assessments	
Remove shoreline hardening structures such as bulkheads, dikes, and other engineered structures to allow for shoreline migration	
Public education campaign – best practices for in-water activities	Increase in sea surface temperatures; Changes in marine biodiversity
Reduce tourism pressures on coral	Sea surface temperature rise
Coral Bleaching Response Plan	
Bleaching and beach water quality monitoring programs	
Marine biodiversity, coral reef, mangrove, seagrass and water quality monitoring programs	Changes in marine biodiversity
Effective PA management and conservation of coastal ecosystems to preserve functions and enhance resilience	
Integrated Coastal Zone Management plan (ICZM) – using an integrated approach to achieve sustainability	Across all climate change impacts

The main barriers to implementation of climate adaptation strategies have been: low awareness, especially among the Industry, lack of coordination between government, lack of integration of climate change aspects into existing legislation and policy, insufficient enforcement and poor environmental management practices.

The feasibility of implementing these adaptation strategies in Belize must be explored through consultations with key government and industry players in an effort to incorporate these recommended adaptation strategies into the national climate change policy and adaptation strategies being planned in Belize. This information will feed into recommendations for policy gaps to address climate compatible tourism development for Belize.

References

BROOKS, N. & ADGER, W.N. (2005) *Assessing and enhancing adaptive capacity*. In B. Lim and E. Spanger-Siegfried (Eds.) *Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures*, pp 165-181. UNDP-GEF. Cambridge University Press.

GORDON, A. & GREEN, E. (2011) *Belize Second National Communication to the Conference of the Parties of the United Nations Framework Convention on Climate Change*.

RICHARDSON, R.B. (2007) *Tourism in Belize: Vulnerability and Capacity Assessment*. Submitted for the Second National Communication to the United Nations Framework Convention on Climate Change – Belize.

UNWTO (2008) *Climate Change and Tourism: Responding to Global Challenges*. World Tourism Organization and United Nations Environment Programme.

Biography

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