



## Fact Sheet #4: Fresh Water and Tourism

### What's the Situation?

Water scarcity is one of the most significant problems faced by humanity -- and climate change and tourism are both contributors. Only 3% of the Earth's water is fresh, of which 70% is frozen in the polar ice caps.<sup>1</sup> Despite these limitations:

- Global water use has tripled in the last 50 years;<sup>2</sup>
- Demand for water is growing at twice the rate of the world's population;<sup>3</sup>
- In a growing number of tourism destinations, demand for water exceeds supply from sustainable sources;<sup>4</sup> and
- Climate change is expected to account for about 20% of the increase in water scarcity worldwide this century.<sup>5</sup>

In Grenada and elsewhere, climate change is affecting the supply and quality of fresh water through salt water infiltration, extreme floods and droughts, and intense storms. During the October 2009 to January 2010 drought, Grenada recorded its lowest rainfall averages in the past 25 years.<sup>6</sup> As a result, soil moisture decreased, leading to a 150% increase in reported bush fires.<sup>7</sup> The agricultural sector has also reported salt water intrusion into ground water, which has led to a needed mapping of known and little-known available fresh water sources.

Grenada's main water supply comes from four sources: the upland watersheds of rivers, ground water, rainwater, and desalination.<sup>8</sup> Water consumption in Grenada was estimated as 130 liters per day per person in 2000,<sup>9</sup> and demand has increased over the last 15 years, due to increased population, standard of living, and growing tourism development. Indeed, fresh water is a critical input for the tourism industry.

### Negative Tourism Impacts

Excessive use of water in hotels, spas, and golf courses is often viewed as a sign of luxury in the tourism industry. Indeed, in Jamaica, each tourist uses 4 to 10 times more water daily than each local resident<sup>10</sup>, and it was estimated in Costa Rica that one golf course uses daily as much water as a town of 10,000 people.<sup>11</sup> A study conducted by the UN and the government of Grenada found that in northern Grenada, there were 98 available hotel rooms in 2012, with a unit consumption of 678 litres/bed per night. The number of hotel rooms in northern Grenada is expected to grow to 1,098 by 2028, causing a jump in water consumption over 10 times.<sup>12</sup>

What's more, Grenada's tourism development, coupled with population growth, have contributed to reduced stream and river flow volumes, siltation of dams and reduced groundwater replenishment rates. It is crucial for hotels and other tourism businesses to employ sustainable water-usage and treatment practices as well as recycling to lessen negative impacts on the already strained fresh water supply.

### Tourism Solutions

In Grenada and elsewhere, the tourism industry is employing a number of innovative and practical systems to lessen its impact on the fresh water crisis. Tangible examples include:

- **Calabash Hotel, Grenada:** At Calabash, water and electricity metre readings are conducted daily and communicated with staff at morning meetings. Sink and shower "greywater" is treated and reused in gardens, and swimming pools are treated with salt instead of harmful chemicals. Since 2004 when the resort began to proactively reduce water usage, Calabash has moved from high and erratic consumption to, in 2014, much lower overall consumption which continued to decline through the high season.<sup>13</sup>
- **Spice Island Resort, Grenada:** Spice Island utilizes a desalination plant to process water from the ocean during the dry season. The resort has installed 1.5 gallon per minute low-flow faucets in bathrooms and on a number of kitchen sinks. Spice Island monitors its water usage daily, and has empowered employees to be an "Environmental Agent", providing them with training and education about the importance of sustainable tourism practices.<sup>14</sup>
- **Blue Horizons Resort, Grenada:** Blue Horizons has installed low flow toilets that only use 1.5 gallons of water per flush, compared with previous systems using 5 gallons. Guest rooms have self-cleaning showers with restricted flow of less than 3 gallons per minute. A storage tank collects rainwater, which is treated and used for laundry. As in many hotels, guests are encouraged to reuse towels and bedding. The gardens are planted with drought resistant species such as bougainvillea, buttercup, oleander, and palm trees, so less water is needed for irrigation. In 2012, the hotel reduced water consumption from the previous year by 9%.<sup>15</sup>
- **Skyviews, Inc.:** In the Caribbean, the tourism mapping company Skyviews has launched a voluntary sustainability program in partnership with the Center for Responsible Travel (CREST), which allows member businesses to do an annual audit of water usage and management, along with four other sustainability components. Criteria are based on international benchmarks suggested by the Global Sustainable Tourism Council. If a tourism business shows exemplary work in any of the five core areas, they achieve a symbol on the map to showcase their responsible practices. This program allows companies to understand best practices and where they can improve, empowering them to make positive changes to combat climate change. The first map featuring this sustainability program was produced for Grenada.<sup>16</sup>Grenada, of course, is not alone. Facing the impacts from both tourism and climate change, many other destinations, particularly on coastlines and islands, are adapting measures to conserve fresh water. Here are a couple of examples:
- **Dead Sea Spa Hotel, Jordan:** Realizing the strain the tourism industry has on very limited water resources in Jordan, this hotel has not only significantly reduced water consumption, but helped to show that saving water is good for the bottom line. Grey water from sinks and showers is processed and used in toilets. Up to 80% of waste water is recycled, which is up to 5500 cubic meters per year, saving the hotel an estimated EUR 20,000 per year.<sup>17</sup>

- **Si Como No Hotel, Spa and Wildlife Refuge, Costa Rica:** Carefully and respectfully integrated into the surrounding jungle, this hotel has protected more than 30 acres of forest, helping to maintain the natural environment and safeguard against water runoff. The hotel collects rainwater for laundry, and has reduced water consumption by 35% from this measure alone. Well water is used to irrigate gardens in the summer, and indigenous landscaping reduces the water demand through the dry season. Water saving showerheads and faucets are used throughout the hotel, and hot water is provided by a solar heater for the hotel, Jacuzzi, restaurant, and kitchen.<sup>18</sup>
- **Puntacana Resort & Club, Dominican Republic:** This resort features the first golf course in the Caribbean to use *paspalum*, a grass seed that can be watered using sea water.<sup>19</sup>

<sup>1</sup> Stockholm International Water Institute, "Water Resources and Scarcity," 2012, <http://www.siwi.org/media/facts-and-statistics/1-water-resources-and-scarcity/>

<sup>2</sup> United Nations Environment Programme, "Global Environment Outlook 5, 2009," [http://www.unep.org/geo/pdfs/geo5/GEO-5\\_WATER-small.pdf](http://www.unep.org/geo/pdfs/geo5/GEO-5_WATER-small.pdf)

<sup>3</sup> United Nations Water, "Water Scarcity", 2013,

[http://www.unwater.org/fileadmin/user\\_upload/unwater\\_new/docs/A4%20template%20%28water%20scarcity%29.pdf](http://www.unwater.org/fileadmin/user_upload/unwater_new/docs/A4%20template%20%28water%20scarcity%29.pdf)

<sup>4</sup> Richard Tapper, et al, "The Impact of the Tourism Industry on Freshwater Resources in Countries in the Caribbean, Mediterranean, North Africa, and other Regions," The Travel Foundation, April 8, 2011,

[http://www.thetravelfoundation.org.uk/images/media/Tourism\\_water\\_resources\\_in\\_destinations\\_report\\_Aug\\_2011.pdf](http://www.thetravelfoundation.org.uk/images/media/Tourism_water_resources_in_destinations_report_Aug_2011.pdf)

<sup>5</sup> Project 2050, <http://p2050.com/>

<sup>6</sup> During that period, recorded rainfall ranged between 19 – 37% of normal. Source: Caribbean Institute for Meteorology and Hydrology, "Drought Impacts and Early Warning Signs in the Caribbean: The Drought of 2009 – 2010," November 2010,

<https://www.wmo.int/pages/prog/drr/events/Barbados/Pres/4-CIMH-Drought.pdf>

<sup>7</sup> Caribbean Institute for Meteorology and Hydrology, "Drought Impacts and Early Warning Signs in the Caribbean: The Drought of 2009 – 2010," November 2010, <https://www.wmo.int/pages/prog/drr/events/Barbados/Pres/4-CIMH-Drought.pdf>

<sup>8</sup> CARIBSAVE, "Climate Change Risk Profile for Grenada," March 2012, [dms.caribbeanclimate.bz](http://dms.caribbeanclimate.bz)

<sup>9</sup> CARIBSAVE, "Climate Change Risk Profile for Grenada," March 2012, [dms.caribbeanclimate.bz](http://dms.caribbeanclimate.bz)

<sup>10</sup> Richard Tapper, et al, (2011), p. 27

<sup>11</sup> Center for Responsible Travel, "The Goose with the Golden Eggs", Film, 2012, [www.responsibletravel.org](http://www.responsibletravel.org).

<sup>12</sup> Division of Sustainable Development of the UN Department of Economic and Social Affairs and Ministry of Environment, Foreign Trade and Export Development of Grenada, "Climate Change Adaptation in Grenada: Water Resources, Coastal Ecosystems and Renewable Energy," 2012, [https://sustainabledevelopment.un.org/content/documents/UNDESA%20Grenada\\_web%20version.pdf](https://sustainabledevelopment.un.org/content/documents/UNDESA%20Grenada_web%20version.pdf)

<sup>13</sup> Zack Samuel, "Why We Did It: The Calabash Story," (Presentation at 3<sup>rd</sup> Symposium for Innovators in Coastal Tourism, July 2014, Grenada)

<sup>14</sup> Green Globe, "Spice Island Beach Resort, Grenada, among Top 10 Greenest Hotels in the Caribbean," September 2013,

<http://greenglobe.com/latest-news/spice-island-beach-resort-grenada-among-top-10-greenest-hotels-in-the-caribbean-by-caribbean-journal/>

<sup>15</sup> Green Globe, "Blue Horizons Garden Resort, Grenada, Awarded Prestigious Green Globe Re-Certification," 2012, <http://greenglobe.com/latest-news/blue-horizons-garden-resort-grenada-awarded-prestigious-green-globe-re-certification/>

<sup>16</sup> Skyviews, Inc., 2014, <http://bluegreenmatters.org/>

<sup>17</sup> Deutsche Welle, "Conserving Water in the Dead Sea," 2012, <http://www.dw.de/conserving-water-in-the-dead-sea/a-16165088>

<sup>18</sup> Si Como No, <http://www.sicomono.com/>

<sup>19</sup> Puntacana Resort & Club, "La Cana, a Punta Cana Golf Course," <http://www.puntacana.com/la-cana-golf-club.html>