



Hot Topic- Climate Change & Coastal Zones & Communities



Climate change threats to the coastal zone...

What is climate change?

Our climate is changing because as human beings we have increased the amount of certain gases, called greenhouse gases, in our atmosphere.

We burn oil, coal and gas to produce energy for homes, factories and businesses and for our transportation needs. Burning these fossil fuels also produces greenhouse gases like Carbon Dioxide, Methane and Nitrous Oxide.

Excess greenhouse gases in our atmosphere are trapping too much heat around the earth. This heat makes our earth warmer, like a greenhouse. This is what is known as global warming. It is this increase in temperature over time which results in climate change. Sea level rise and coastal inundation (flooding) are two effects of climate change which are of serious concern to Jamaica's coastal zones and communities.

Threat

Impact

Rising sea surface temperatures

Coral bleaching
Damaged reefs
Possible migration of some species of fish to cooler waters

Severe weather events and intense hurricanes

Flooding of coastal communities especially from storm surge.
Damage to coastal infrastructure
Beach erosion
Mangrove destruction

Storm surge and sea level rise

Coastal Flooding
Saline (salt water) intrusion into coastal water resources

What's in Jamaica's coastal zone?

The coastal zone may be simply defined as that transitional area between the land and sea. The coastal zone includes beaches and wetlands. Jamaica's coastal zone has important infrastructure including our ports, airports, oil refinery, road and electricity networks, and many towns and cities. It also includes important tourism related infrastructure (hotels and attractions). Coastal wetlands are valuable habitats for fish and other marine life. Coastal zones provide a buffer from flooding due to storm surges due to hurricanes.

90% of Jamaica's Gross Domestic Product (GDP) is earned within Jamaica's coastal zone from tourism, industry, fisheries, and agriculture. Tourism, the largest and most important sector of the Jamaican economy, is the key activity in the island's coastal areas. Coastal areas face daily pressure from natural forces such as wind, waves, tides and currents, and from human activities, such as beach sand removal and inappropriate construction of shoreline structures. Some coastal areas are highly susceptible to erosion.

Jamaica should consider...

Adaptation to climate change for coastal zones management falls into three categories :

- **Retreat** – Retreating would mean moving away from the risks posed by a changing climate in a coastal area and relocating the relevant infrastructure or settlements to preserve life and property
- **Accommodate-** Accommodating means taking measures to modify existing infrastructure and settlements to take into account the expected climate change impacts on the area
- **Protect-** Protection means establishing protective measures which will help the existing infrastructure or settlement cope with climate change impacts in their existing state

Other recommendations provided in Jamaica's Second National Communication to the United Nations Framework Convention on Climate Change include:

- 1 Revising setback guidelines for buildings to ensure that structures are not built too close to shoreline to contribute to erosion of coastal resources or to be threatened by storm surge and erosion
- 2 Implementing hazard early warning systems for coastal communities
- 3 Beach nourishment (Replenishing an eroding shoreline/beach with sand from elsewhere)
- 4 Satellite monitoring of reefs to learn more about reef vulnerability (and develop better protection and management plans) in the context of climate change

Sources:

Simpson, M. C., Clarke, J. F., Scott, D. J., New, M., Karmalkar, A., Day, O. J., Taylor, M., Gossling, S., Wilson, M., Chadee, D., Fields, N., Stager, H., Waithe, R., Stewart, A., Georges, J., Sim, R., Hutchinson, N., Ruddy, M., Matthews, L., and Charles, S. (2012). **CARIBSAVE Climate Change Risk Atlas (CCCRA) - Jamaica**. DFID, AusAID and The CARIBSAVE Partnership, Barbados, WI

Climate Studies Group, Mona (CSGM), 2012: **State of the Jamaican Climate 2012: Information for Resilience Building (Full Report)**. Produced for the Planning Institute of Jamaica (PIOJ), Kingston Jamaica.

The Second National Communication of Jamaica To The United Nations Framework Convention on Climate Change 2011
<http://unfccc.int/resource/docs/natc/jamnc2.pdf>

Sea Level rise...

For small islands, sea level rise is a big problem. The sea level has risen in the Caribbean at about 3.1mm/year from 1950 to 2000. The Inter-governmental Panel on Climate Change (IPCC) suggests that by the end of the century sea levels will be 0.35m -0.59m higher. More recent research suggests that this is a conservative estimate and that sea level rise could approach 2 m.

One recent study (CARIBSAVE 2011) shows that for Jamaica, a 1 metre rise in sea level places 8% of the major tourism properties at risk. A two metre rise in sea level would put 18 percent of these properties at risk. If there is 100m of coastal erosion, half of Jamaica's resorts would be at risk. The study suggests that 100% of port lands, 20% of airport lands and approximately 2% of Jamaica's road networks would likely be inundated with a 1m rise in sea levels. Sea turtle nesting sites are also at risk, with over a half of these sites at risk with 100m of beach erosion.

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