GOJ/EU/UNEP CLIMATE CHANGE ADAPTATION
& DISASTER RISK REDUCTION PROJECT

Hot Topic- Climate Change & **Sea Level Rise**

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 on land and sea over time which results in climate change. Sea Level Rise is one of the impacts of climate change.

Sea Level Rise

Sea level rise refers to a gradual rise in the level of the surface of the sea with respect to the land. The rise in sea level is associated with two phenomena:

1. **Thermal Expansion** i.e. as ocean water gets warmer it expands and this contributes to rising sea levels.

2. **Ice Sheet, Ice Cap and Glacier Melt** i.e. warmer temperatures are causing the melting of glaciers and polar ice and this puts more water into the oceans.

Impacts

- Over long periods, sea level rise will cause progressive retreat that will require mitigation through sea-walls and offshore breakers
- Coastal aquifers which are a main source of water supply may become useless due to saline (salt water) intrusion
- Sea level rise will increase the impacts related to storm surge as waves are likely to be higher
- Wetlands are at risk of sea level rise that may affect vegetation changes and affect spawning fish stock which grown in wetland areas

Trends

Global sea level rise over the 20th century is estimated to have been 0.17- + 0.05m, similar to that of the Caribbean region. Further melting of polar ice caps and glaciers are expected to accelerate sea level rise.

Projections

It is estimated that future sea levels for Jamaica will increase under various scenarios by 2100 from a low of 0.18m to high of 0.59m and 1.4m. This will retard coastal development and influence displacement among population settlements.

Projected increases in sea level rise from the Intergovernmental Panel on Climate Change Fourth Assessment Report (IPCC AR4)

Scenario	Global Mean Sea Level Rise by 2100 relative to 1980-1999	Caribbean Mean Sea
IPPC B1 Scenario	0.18-0.38	0.13-0.43
IPPC A1B Scenario	0.21-0.48	IPPC A1B Scenario
IPPC A2 Scenario	0.23-0.51	IPPC A2 Scenario
Rahmstorf, 2007	Up to 1.4m	Rahmstorf, 2007

Sources:

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

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