High-Level Roundtable on International Cooperation for Sustainable Development in Caribbean Small Island Developing States

The impact of climate change on Caribbean SIDS

Presented by
The Caribbean Community Climate Change Centre

26th March 2008
CLIMATE CHANGE
CARICOM PERSPECTIVE

• CARICOM countries’ contribution to global GHG emissions budget negligible.

• However particularly vulnerable to impacts of climate change.

• Already region vulnerable to present day risks from climate variability.

• Incumbent on region to build capacity to adapt to climate change.

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INITIATIVES IN PROGRESS

• Suite of activities designed to determine:
  – the extent of risk arising from climate change to which region will be exposed in future.
  – The vulnerability of the region’s natural and socioeconomic systems to climate change.
  – The impacts of CC on the natural and socioeconomic systems of the region.
  – Regional response to mitigate those impacts and costs for implementing.
  – Implementation of mitigative actions (ADAPTATION)
  – Building regional capacity to carry out the above actions
The Global Climate Projections

- Unequivocal evidence that the earth’s temperature is rising and attributable to anthropogenic activities – Green House Gases

- Projected trends through 2100
  - Rise in global temperatures of between 2 – 4.5°C
  - Sea level rise of between 11 -77 cm
  - Changed weather patterns
  - More intense extremes – drought, floods
  - More intense hurricanes

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CLIMATE TRENDS IN THE CARIBBEAN

- Past 3 decades trend of increasing mean temperature
- By end of 1970’s a significant warming detected in lower part of atmosphere
- Significant >> in minimum temp.(1.4 deg. since 1960)
- No. of warm days in region >>, no. of cold nights <<.
- Frequency of droughts >> since 1960 (Cuba)
- Frequency of occurrence of extreme events changing- Flooding & hurricane passage > in 1990’s
Indicative impacts

• Impact studies on vulnerable elements – some indications:
  • Less precipitation - less available water;
  • Changing weather patterns – agriculture adversely affected.
  • Sea level rise – coastal inundation, storm surge exaggeration (tourism, aquifers, agriculture, infrastructure, human settlement)
  • Increased intensity of hurricanes (human settlements, tourism, infrastructure, livelihoods.
  • Increased temperature (agriculture, health, coral reefs)

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Caribbean Climate: Temperature and Rainfall

- **Temperature trend**
  - Temperature records have shown an increase in the last century, with the 1990s being the warmest decade since the beginning of the 20th century.
  - 1998 also appears as the warmest year on record.

- **Rainfall trend**
  - Records have shown changing patterns.
  - Floods in some areas and droughts in other areas

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Hurricane Ivan over Grenada

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## INSURED LOSSES

<table>
<thead>
<tr>
<th>Storm</th>
<th>Class</th>
<th>Year</th>
<th>Estimated 1990 Insured Losses (000’s)</th>
<th>Estimated 1990 Insured Losses if Maximum Wind Speed Increases by</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Hugo</td>
<td>4</td>
<td>1989</td>
<td>$3,658,887</td>
<td>$4,902,705 34%</td>
</tr>
<tr>
<td>Alicia</td>
<td>3</td>
<td>1983</td>
<td>$2,435,589</td>
<td>$3,382,775 39%</td>
</tr>
<tr>
<td>Camille</td>
<td>5</td>
<td>1969</td>
<td>$3,086,201</td>
<td>$4,120,733 34%</td>
</tr>
</tbody>
</table>

Source: Clark, 1997.
SOME CLIMATE CHANGE-RELATED CONSEQUENCES

• Sea level rise:-
  – beach erosion
  – loss of mangrove
  – intrusion of salt water into aquifers

• Higher sea water temperatures:-
  – coral reef destruction

• More severe hurricanes
  – Damage to infrastructure

• Changes in rainfall patterns:-
  – More floods and land slides
  – More droughts

• Increased difficulty in achieving sustainable development

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SLR & Storm Surge

Coastal Impact of Storm Surge and Wave Action under a Sea Level Rise Scenario

Response Strategies:
- Retreat
- Accommodation
- Protection

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One of many flood events
Georgetown, Guyana

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Yellow tuna

Habitat becomes less favourable

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Habitat becomes less favourable

Dolphin fish

Coryphaena hippurus

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ENERGY

- Region economy highly Carbon intensive & not as competitive as it can be.
- Heavy outflow of foreign ex. to meet escalating energy bill.
- Endogenisation of regional energy sources coupled with effective demand and supply side management practices regarded as essential part of region’s adaptive strategy.
ENERGY

• Although region emits miniscule percentage of global emissions, opportunity to utilise the CDM mechanism under Kyoto to put energy sector on more sustainable footing.

• CDM projects in the areas of:
  – Energy efficiency
  – Renewable energy – solar, geothermal, wind, OTEC, biofuels, wave
  – Landfill gas (waste management)
  – Ethanol – transformation of sugar industry

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The CARICOM Climate Change Centre

• Recognizing the vulnerability to the impacts of climate change and climate variability on the economic development and social needs of the region:

  – The Heads of Governments of CARICOM in July 2002, endorsed the creation of a permanent capacity in the region to address climate change issues.

  – The Centre is mandated to coordinate the regional response to climate change and its efforts to manage and adapt to its projected impacts.

◆ Operational since January 2004

◆ Located in Belmopan, Belize