Socio-economic Impacts of Natural Disasters in the Caribbean
"Our mission is to deepen the understanding of and contribute to solutions to the development challenges facing the Caribbean by conducting research and analysis and providing sound policy advice and technical assistance to Caribbean Governments with a focus on growth with equity and an appreciation of the region's vulnerability".
ECLAC’s work programme is guided by the imperative of the MDGs

- Eradicate extreme poverty and hunger
- Achieve universal primary education
- Promote gender equality
- Reduce child mortality
- Improve maternal health
- Combat HIV/AIDS and other diseases
- Ensure environmental sustainability
- Develop a global partnership for development
Global Platform for SIDS

- Conference on Small Island Developing States
- Barbados Plan of Action (1994)
- Mauritius Strategy (2005)
Mauritius Strategy for SIDS

“Small island developing States are located among the most vulnerable regions in the world in relation to the intensity and frequency of natural and environmental disasters and their increasing impact, and face disproportionately high economic, social and environmental consequences …..

SIDS are already experiencing major adverse effects of climate change…

Adaptation to adverse impacts of climate change and sea-level rise remains a major priority ….”
Vulnerabilities of Small Island Developing States

- **Economic**
  - Open economies
  - Vulnerability to changes in global trade regimes
  - Small domestic markets
  - Limited institutional capacity
  - Inadequate skills base

- **Social**
  - Settlements located in vulnerable areas
  - Poverty
  - Unemployment

- **Ecological**
  - Fragile natural resource base
  - Vulnerable coasts
  - Waste management challenges
  - Particularly susceptible to natural disasters
Disasters:

- Highlight the challenges caused by the interface of human societies with the natural environment

- Retard development and upset development plans

- Have become more costly in real terms. Disaster costs were 15 times higher in 1990-1999 than between 1950-1959 ($652 and $38 billion, respectively in 1998 dollars)

- Have wide ranging social effects. Between 1994-2003, 2.6 billion people globally were affected by natural disasters

- Emphasize the unique vulnerability of small societies
ICT and the New Development Paradigm

Widespread use of the Internet and the technologies associated with it called into question some of the traditional assumptions associated with small size and the vulnerability associated with this and pointed to the need for an alternative development paradigm.

(ECLAC, 2001)

Those questions were soon answered, emphatically!!!
Grenada 2001-2006

- 2001 - 9/11, economic recession
- 2002 - Tropical Storm Lilly
- 2004 - Hurricane Ivan
- 2005 - Hurricane Emily
- 2006 - High Oil prices

Source: Grenada Budget Speech 2006.
### Grenada: Estimated affected population due to Hurricane Ivan

<table>
<thead>
<tr>
<th>Parish</th>
<th>Total population</th>
<th>Population</th>
<th>Population affected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>St. George's</td>
<td>37,057</td>
<td>17,893</td>
<td>19,164</td>
</tr>
<tr>
<td>St. John’s</td>
<td>8,591</td>
<td>4,314</td>
<td>4,277</td>
</tr>
<tr>
<td>St. Mark’s</td>
<td>3,994</td>
<td>1,965</td>
<td>2,029</td>
</tr>
<tr>
<td>St. Patrick</td>
<td>10,674</td>
<td>5,256</td>
<td>5,418</td>
</tr>
<tr>
<td>St. Andrew’s</td>
<td>24,749</td>
<td>12,311</td>
<td>12,438</td>
</tr>
<tr>
<td>St. David’s</td>
<td>11,486</td>
<td>5,770</td>
<td>5,716</td>
</tr>
<tr>
<td>Carriacou</td>
<td>6,081</td>
<td>2,972</td>
<td>3,109</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>102,632</strong></td>
<td><strong>50,481</strong></td>
<td><strong>52,151</strong></td>
</tr>
</tbody>
</table>
Guyana

Macro-Socio Economic Assessment of the Damage and Losses Caused by the January-February 2005 Flooding
Main findings of the assessment

37 % of the population severely affected

$93 billion in total impact

Impact equivalent to 59% of GDP
### Summary of effects on the social sector

**Guyana 2005**

#### Education (Millions of G$)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total damages</td>
<td>371.70</td>
</tr>
<tr>
<td><strong>Direct effects</strong></td>
<td>352.10</td>
</tr>
<tr>
<td>i. Damage to schools</td>
<td>303.70</td>
</tr>
<tr>
<td>ii. Damage to school furniture and equipment</td>
<td>39.00</td>
</tr>
<tr>
<td>iii. Damage to libraries*</td>
<td>9.40</td>
</tr>
<tr>
<td><strong>Imported Component</strong></td>
<td>35.20</td>
</tr>
<tr>
<td><strong>Total Indirect effects</strong></td>
<td>19.60</td>
</tr>
<tr>
<td>i. Cleaning of Schools</td>
<td>19.50</td>
</tr>
<tr>
<td>ii. Losses from use as shelters</td>
<td>0.10</td>
</tr>
</tbody>
</table>

#### Health (Millions of G$)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total damages</td>
<td>173.4</td>
</tr>
<tr>
<td><strong>Direct effects</strong></td>
<td>52.5</td>
</tr>
<tr>
<td>i. Damage to Health Centres</td>
<td>27.5</td>
</tr>
<tr>
<td>ii. Damage to furniture and equipment</td>
<td>20.1</td>
</tr>
<tr>
<td>iii. Damage to Hospitals</td>
<td>4.9</td>
</tr>
<tr>
<td><strong>Imported Component</strong></td>
<td>21</td>
</tr>
<tr>
<td><strong>Total Indirect effects</strong></td>
<td>120.9</td>
</tr>
<tr>
<td>i. Cleaning supplies for Health Facilities</td>
<td>23</td>
</tr>
<tr>
<td>ii. Establishment of temporary sites</td>
<td>2.1</td>
</tr>
<tr>
<td>Losses due to increased spending on drugs and medicines</td>
<td>73.1</td>
</tr>
<tr>
<td>Losses due to provision of increased public health services</td>
<td>19.9</td>
</tr>
<tr>
<td>v. Losses incurred due to increased transportation</td>
<td>2.7</td>
</tr>
</tbody>
</table>

#### Housing (Millions of G$)

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>55,120.80</td>
</tr>
<tr>
<td><strong>Direct effects</strong></td>
<td>54,842.50</td>
</tr>
<tr>
<td>i. Damage to housing</td>
<td>33,911.40</td>
</tr>
<tr>
<td>ii. Damage to furniture/equip</td>
<td>20,931.20</td>
</tr>
<tr>
<td><strong>Imported Component</strong></td>
<td>5,484.30</td>
</tr>
<tr>
<td><strong>Total Indirect effects</strong></td>
<td></td>
</tr>
<tr>
<td>i. Cleaning of Homes</td>
<td>278.20</td>
</tr>
</tbody>
</table>
Impact on the Social Sector

- Damage to social sector accounts for 35% of GDP.
- 99% of damage to the social sector is accounted for by the housing sector.
- Damage to the housing sector accounts for 44% of national housing stock or 70,000 dwellings.
Guyana
Real GDP growth (1994-2005)
Pre- and Post-disaster scenarios

![Graph showing real GDP growth in Guyana from 1994 to 2005, with pre-disaster and post-disaster scenarios indicated.]
Disaster Management Cycle

Disaster Impact

Preparedness

Mitigation

Prevention

Emergency Phase

Response

Recovery

Development
The ECLAC Methodology
The procedure

**Part I**
Description
- What is it?
- Whom has it affected?
- Where?
- What has been done?

**Part II**
Assessment
- How much?
- Magnitude?
- What is required to go back

**Part III**
Rehabilitation and reconstruction
- What needs to be done?
The ECLAC Methodology - The assessment

**Part 1**
Social and productive sectors, infrastructure and environment

- Immovable Assets
  - Stocks
  - Direct losses
    - At the time of the disaster
  - Indirect losses
    - Following the disaster
    - 1 to 5 years

- Income foregone
  - Higher costs

**Part 2**
Macroeconomic effects

- GDP
- Fiscal Accounts
- Balance of payments
- Employment
- Prices

Secondary effects
Basic Requirements for Disaster-Related Information

- To reach a defined addressee
- To be relevant
- To be on time
- To be reliable
- To be multi-sourced
- To be understandable
- To be standardized
ICTs are a powerful tool to facilitate a qualitative flow of disaster-related information.

The application of ICT in disaster management is multi-dimensional and complex.
Conceptual Model for ICT in Disaster Management

Figure 1 Conceptual Model for ICT in Disaster Management. The model is composed of three approaches: The Cycle Approach, the Spatial Approach, and the Policy Approach.
Figure 2 The Cycle Approach.

This Partial Model Describes the Four Phases of the Disaster Management Cycle.
Figure 3 The Spatial Approach

This Partial Model Describes the Different Geographical Systems.
Policy Approach

Figure 4 The Policy Approach.

The Partial Model Integrates Four Requirements on Public Policies.
A recent ECLAC ICT Policymakers Seminar (Barbados Sept 2006) recommended that future work emphasize

- Data gathering for effective benchmarking of the Caribbean Information Society
- Digital content creation
- Maintenance of ICT profiles of each country
- Continue to facilitate dialogue through a Caribbean ICT Policy Makers Working Group
THANK YOU