IMPACT OF CLIMATE CHANGE ON DOMINICA

ISSUES, CHALLENGES AND INITIATIVES

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OUTLINE

- Objectives
- Geography of Dominica
- Some predicted future effects of climate change
- Issues and challenges which increase Dominica’s vulnerability to climate change
- Recent initiatives to adapt to climate change
- Mainstreaming Climate Change into National Development Strategies
- Conclusion
OBJECTIVES

- To demonstrate that the geographic characteristics of Dominica predispose the island to natural disasters and increase the impacts of climate change
- To highlight strategies that Dominica has initiated to increase the island’s resilience and establish a path of sustainable development
GEOGRAPHY OF DOMINICA

• Located at 61°25’ W longitude and 15° 25’ between

• Area of 754 square kilometers (289.9 sq mls)

• Largest English speaking island in the lesser Antilles

• 25 miles long and 16 miles wide
- Rugged mountainous interior - tallest peak is 4,747 ft
- Annual rainfall of 508 cm (200 in) in the mountainous interior
- 365 rivers and streams
- 70% of the population clustered in settlements on a narrow coastal strip
- Some inland communities located in steep, unstable areas prone to slippage
SOME PREDICTED FUTURE IMPACTS OF CLIMATE CHANGE

- A global rise in temperature of between 1.1ºC and 6.4ºC by 2100;
- Sea level rise up to 10 inches by 2025;
- More intense hurricanes resulting in intense rains and flash floods;
- 50% less rainfall in the tropics. Severe water shortages within 25 years – Widespread crop failures.
INCREASED VULNERABILITY TO FLASH FLOODS DUE TO MOUNTAINOUS TERRAIN

- During heavy, intense and prolonged rainfall in the mountainous interior, streams and ravines rapidly transform into raging, waters.

- Flood waters result in costly damage to property, and infrastructure and threaten lives.
Record level flooding associated with Hurricane Ophelia in 2011, resulted in millions of dollars in damage
Vulnerability of Coastal Communities to Sea Level Rise

- Due to the rugged interior, about 70 percent of the island’s population live in the low lying coastal strip.

- A large amount of critical infrastructure and services are also located on the coast.

- Property and infrastructure suffer extensive and costly damage annually during sea surge associated with sea level rise.
FLOODING IN THE CITY OF ROSEAU DURING STORM SURGE ASSOCIATED WITH HURRICANE OMAR IN 2008
INLAND COMMUNITIES VULNERABLE TO FLASH FLOODING AND LANDSLIDES

- Some inland communities on steep slopes are extremely vulnerable to landslide during heavy, prolonged rains.

- These sometimes result in loss of lives. In 2010 three members of a family were buried in their home under a massive landslide.

- Landslides also result from road construction on steep slopes.
VULNERABILITY TO HURRICANES DUE TO LOCATION

- Dominica is located in the hurricane belt
- The island has been hit on several occasions by hurricanes and tropical storms of varying intensities

Tracks of major storms and hurricanes 1989 and 1995

[Map showing tracks of major storms and hurricanes 1989 and 1995]
## Impact of Hurricanes and Tropical Storms on Dominica

<table>
<thead>
<tr>
<th>Year</th>
<th>Name of Storm</th>
<th>Main Sectors Impacted</th>
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<tbody>
<tr>
<td>1979</td>
<td>H. David</td>
<td>Housing, agriculture, hospitality, social, utilities (39 lives lost)</td>
</tr>
<tr>
<td></td>
<td>H. Frederick</td>
<td>Housing, Agriculture</td>
</tr>
<tr>
<td>1980</td>
<td>H. Allen</td>
<td>Agriculture</td>
</tr>
<tr>
<td>1984</td>
<td>H. Klaus</td>
<td>Coastal settlements, Hospitality</td>
</tr>
<tr>
<td>1989</td>
<td>H. Gabrielle</td>
<td>Coastal settlements, infrastructure</td>
</tr>
<tr>
<td></td>
<td>H. Hugo</td>
<td>Agriculture, Forest, housing, coastal settlements</td>
</tr>
<tr>
<td>1995</td>
<td>TS. Iris</td>
<td>Forest, Agriculture</td>
</tr>
<tr>
<td></td>
<td>H. Luis</td>
<td>Housing, Agriculture, hospitality, utility, social, communication, forest, beaches (1 life lost)</td>
</tr>
<tr>
<td></td>
<td>H. Marilyn</td>
<td>Agriculture, housing, coastal settlements</td>
</tr>
<tr>
<td>1999</td>
<td>H. Lenny</td>
<td>Coastal settlements, infrastructure: roads, sea defenses</td>
</tr>
<tr>
<td>2007</td>
<td>H. Dean</td>
<td>Coastal settlements, infrastructure, housing</td>
</tr>
<tr>
<td>2008</td>
<td>Omar</td>
<td>Coastal settlements and infrastructure</td>
</tr>
</tbody>
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IMPACT OF RISING TEMPERATURES

- Drought conditions occur during the dry season between Feb - April
- Irrigation projects done in major agriculture producing areas and increased use of greenhouses
- Reduced yields in some crops
- Increased occurrence of some diseases eg. leptospirosis
- Near extinction of some wildlife eg. mountain chicken
STRATEGIC INTERVENTIONS TO MITIGATE THE IMPACTS OF CLIMATE CHANGE

- Preparation of a National land Use Policy and National Physical Development Plan which will incorporate climate change
  - CDB Grant US$.5 mill
  - PPCR (GIS and land capability mapping)
  - Canadian Institute of Planners (2 interns)
  - Counter Funding (Communication and local staff)
  - GCCA (OECS)
  - GCCA – (CCCCC)

- A 2012-2020 Low Carbon Climate Resilient Development Strategy has been prepared and presented to regional and international agencies for funding
EXPECTED OUTPUTS OF THE NATIONAL LAND USE POLICY

A NATIONAL LAND USE POLICY AND COMPLEMENTARY POLICY STATEMENTS related to hazard risk reduction, disaster mitigation and climate change adaptation; agricultural and other land use zoning, ecotourism and agro tourism development; river and settlement buffers; integrated watershed and coastal zone management

INSTITUTIONAL STRENGTHENING: Physical Planning Division and other institutions responsible for implementing the National Land Use Policy and Plan;

STRENGTHEN/HARMONIZE INSTITUTIONAL LINKAGES between implementing agencies of land use related laws.

A POLICY IMPLEMENTATION MONITORING AND EVALUATION FRAMEWORK/SYSTEM
EXPECTED OUTPUTS OF THE NATIONAL PHYSICAL DEVELOPMENT PLAN

• A Comprehensive National Physical Development Plan for the next 20 years accompanied by a development strategy, consistent with the National Land Use Policy;
• A National Zoning Map which incorporates natural resource management, integrated watershed management, hazard mitigation and climate change adaptation into land use planning;
• A zoning ordinance that specifies proposed land uses and manages development activity;
• A revised transportation network which incorporates hazard risk reduction and climate change mitigation;
• Changes to the legislative, Regulative and Institutional framework to achieve the objectives of the land use plan;
• A strategic environmental appraisal (SEA) of the land use plan and policy;
• An investment and implementation plan identifying priority projects and cost estimates
Mainstreaming Climate Change into the NLUP and NPDP

- Climate change specialist to conduct Vulnerability and Capacity Assessments (VCA) focused on the needs of Physical Development Planning
- Develop a capacity building action plan for climate change mainstreaming
- Conduct consultations with all stakeholders to disseminate results of VCA and build awareness from the bottom up
- Work closely with other consultants to integrate the findings of VCA into the NLUP and NPDP
- Incorporate CC into the policy implementation monitoring and evaluation framework/system
DOMINICA’S LOW CARBON CLIMATE RESILIENT DEVELOPMENT STRATEGY

Key Pillars – Drawn from Dominica Medium-term Growth and Social Protection Strategy (GSPS)

POVERTY REDUCTION, ECONOMIC GROWTH, SOCIAL/CULTURAL PROTECTION AND SUSTAINABLE DEVELOPMENT

Low-Carbon Development Pathway
- Harnessing of renewable energy resources (geothermal, solar, wind, hydro)
- Promotion of Green Communities (energy conservation, solar LED street lights, greening public spaces, waste to energy conversion)
- Reducing greenhouse gas emissions through energy efficiency, improved connectivity and waste management
- Protection of carbon sinks
- Development of biofuels to reduce petroleum imports
- Sustainable financing for low carbon technologies and energy conservation
- Development of energy efficiency and low-carbon management services and technologies

Climate Resilient Development Pathway
- Promotion of Food Security through Climate Resilient Agricultural/Fisheries Development
- Comprehensive Risk Management Framework and Sustainable Climate Change Financing
- Enhancing Ecosystem/Infrastructure Resilience and Promotion of Sustainable Human Settlements

Key: Monitoring, Evaluation and Continuous Improvement
CONCLUSION

Due in part to its geographic characteristics, Dominica is extremely vulnerable to climate change impacts. Therefore, deliberate action must be taken inorder to build the country’s resilience and establish a path of sustainable development.
Thank You... Questions??