Developing a Sustainable Approach to Ecosystems Management

Using the Renewable Energy Challenge as an inflection point of Transformation

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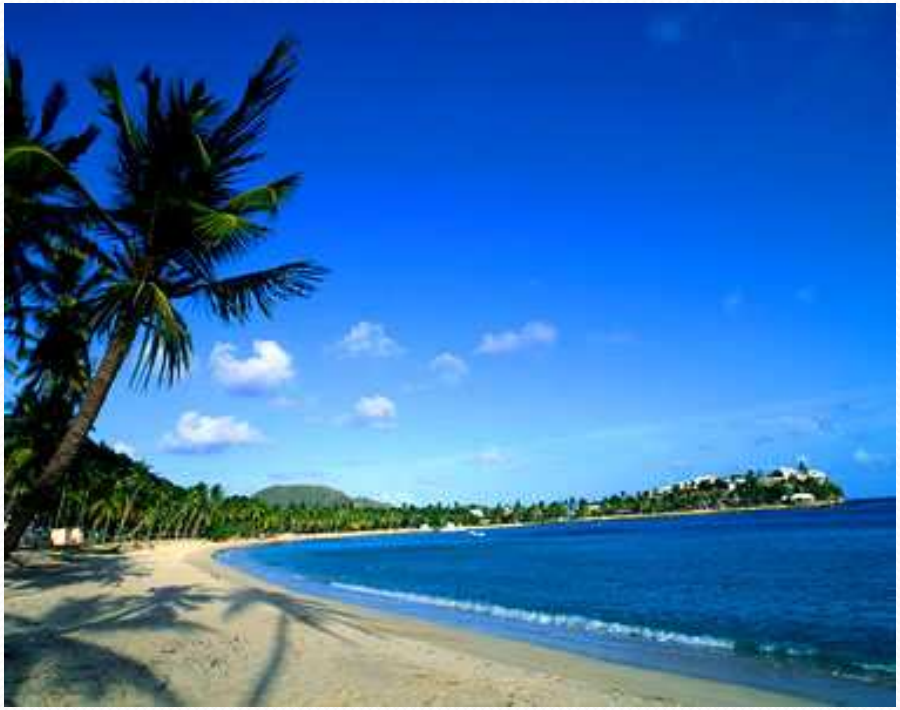
AGENDA

- Snapshot of Antigua
- Major Challenges
- Lessons Learned
- Sustainable Financial Management Approach
- Implications for SIDs and LDCs

Snapshot of Antigua

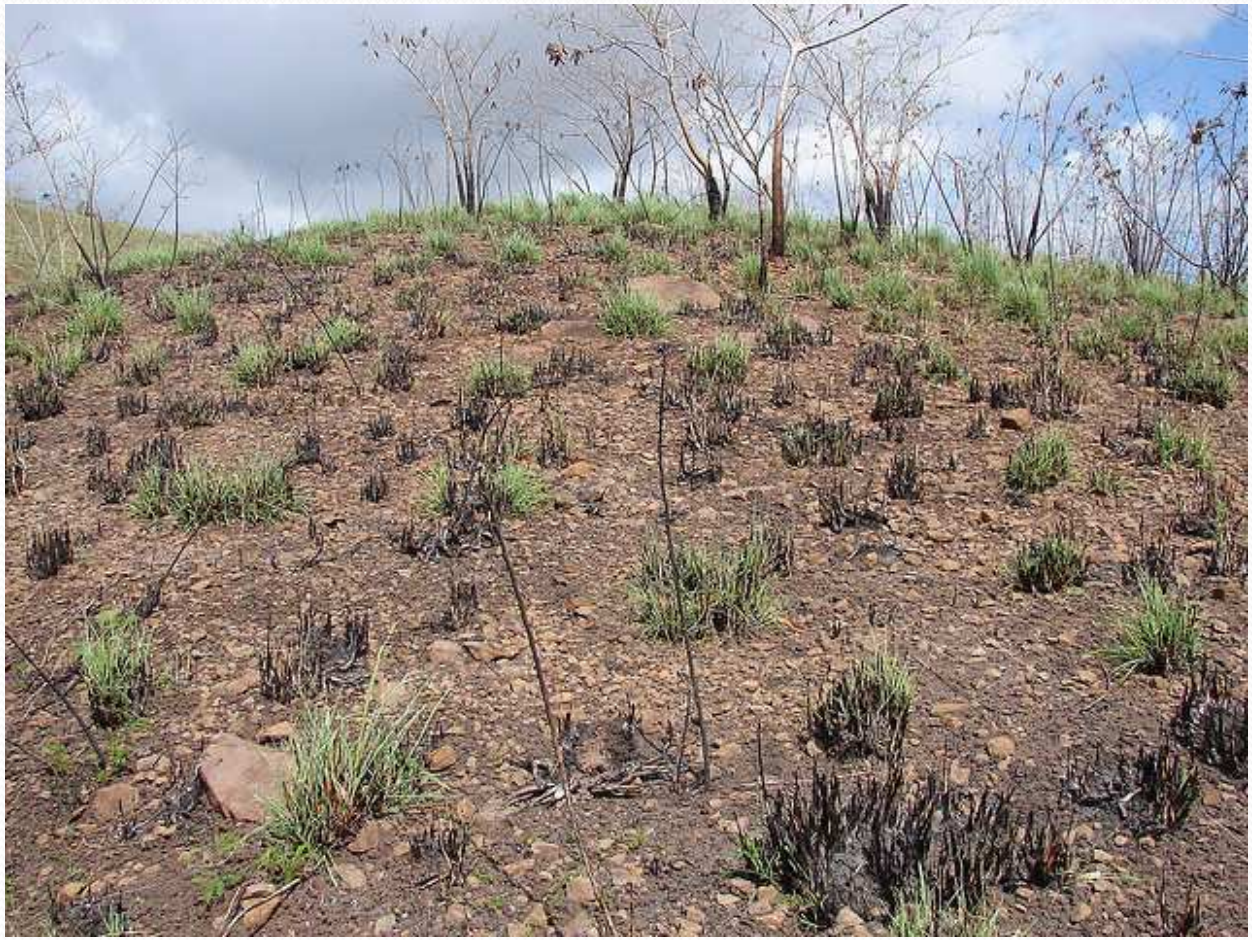


- Location: **Eastern Caribbean**
- Size: **170 sq miles**
- Population: **85,000**
- GDP: **USD$1.176 mill**
- GDP Per Capita:**US$12,733**
- Major Economic Sectors: **Tourism, Financial Services**

Major Challenges: Water Resource

- Reduced and variable average annual rainfall:
  - Average: 1000 mm
  - Heavy rains: 400m in one day
- 40% of water is from ground or wells (**drought susceptible**)
- 60% of potable water is generated from desalination of sea water which in turn depends on electricity
- Invasion by the fire ecotype citronella (lemon grass)
  - Increased erosion
  - Lower rate of well recharge
  - undermining of catchment infrastructure

Effects of burning of Citronella



Major Challenges: Protected Areas

- Marine and Land
- Underfunded by about $5 mill per year
- Pressure for unplanned touristic development
- Lack of protected areas management capacity, regulations, and enforcement
- Biodiversity data gaps necessary to advance managerial priorities inclusive of biodiversity protection and ecosystem services

Major Challenges: **Food Security**

- High imports: US$300 mill annually
- 90% of produce is grown in watershed areas
- Stronger and more frequent storms regularly destroy trees planted around catchment areas as watershed as well as grass planted in and around these areas to slow evaporation
- Water outside of the watershed areas is six times more expensive to produce (fossil fuel effect)

Major Challenges:
Electricity Challenge

- Per capita ghg emission is above the world average (5.06t)
- Antigua and Barbuda spends about 12 percent of its GDP on energy
- The import of oil products consumes about one-third of the country's foreign exchange
- The Fuel Oil component of electricity is US$0.29 per kwh, $0.49 total price

Lessons Learned

- Project type funding approach is unsustainable
  - Benefits only begin in the late stages of the cycle
  - Incremental cost not easily taken up by cash challenged governments

Our Approach

- Creation of a self-sustaining financial mechanism: SIRF Fund (Sustainable Island Resource Framework Fund)
- Use a mix of grant, loans, levy etc to generate Renewable Energy
  - Proceeds used for adaptation, biodiversity, watershed management
  - Creation of windows similar to the GCF
- RE asses have a 25 year life span vs 4-year project cycle
- Pilot: By GEF

Our Approach

Business Case

- 1.5 MW Pilot, $0.165 per kwh
  - 13% return on Equity
  - 5% return on assets
  - 100,000 tons of GHG avoided
  - Payback in 6.3 years
  - **20 years of dedicated resources for ecosystem services and development vs 4 years of a project**

Implications for SIDs, LDCs

- Transformation will only come via sustainable financial approach
- Portion of RE should be used for ecosystem protection
- Approach must be systemic since issues are cross-cutting
- Business case orientation to addressing ecosystem challenges