

# Programme to promote Rainwater Harvesting in the Caribbean

Pilot Project funded by

The United Nations Environment Programme

Executed by

The Caribbean Environmental Health Institute

**Christopher Cox**  
Programme Director

**Antigua and Barbuda**  
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# Presentation outline

- Background
- Regional RWH Programme
- Antigua and Barbuda National RWH Programme

# RWH in the Caribbean

- The Caribbean region has less available water per capita compared to other SIDS regions
  - Caribbean SIDS have only 13.3 % of the Indian Ocean island group's existing resources and 1.7 % of the South Pacific island group's existing resources (UNEP 1999)
- Main source of water for three centuries
- An estimated 500,000 people across the region depend on RWH to varying degrees
- Virgin islands, Turks and Caicos, and the Grenadines are heavily reliant on RWH systems
  - Islands characterized by small land area, no perennial streams and little significant ground water reserve

# Why invest in RWH?

- RWH increasingly attractive as water availability declines due to competing uses
- Conservation of water from existing surface sources is of top priority – reduce sole reliance on these sources
- Stakeholders to benefit include:
  - Households – ease stress due to short-fall (increasing population, lifestyle changes) during dry months
  - Industry – enable maintenance of production capacity
  - Agriculture – enable irrigation of arable lands in arid areas (extend growing season); livestock watering
  - Hospitality sector – enable hotel plant expansion without need for costly alternative technologies (e.g. desalination)
    - Potential for use in pools, washing, sanitation and irrigation
  - Institutions (schools, hospitals) - ease stress due to short-fall
    - washing, sanitation



# Why invest in RWH?

## Main selling points

- **Supply security**
  - Reduce reliance on intermittent potable water network
  - Reduce vulnerability after natural disaster
    - Augmented supply after natural disasters (notably hurricanes) when potable water infrastructure is disabled
- **Quality**
  - The physical and chemical properties of rain water are often better than ground or surface water
- **Cost**
  - RWH is a simple and low cost method. No additional distribution systems necessary

# **CEHI's Previous Collaboration with UNEP**

- **UNEP has worked with CEHI in 2005 in Grenada to develop a National Rainwater Harvesting Strategy**
- **A Regional RWH Programme was developed for the Caribbean**
- **A Draft RWH Handbook was developed**

# Regional RWH Programme

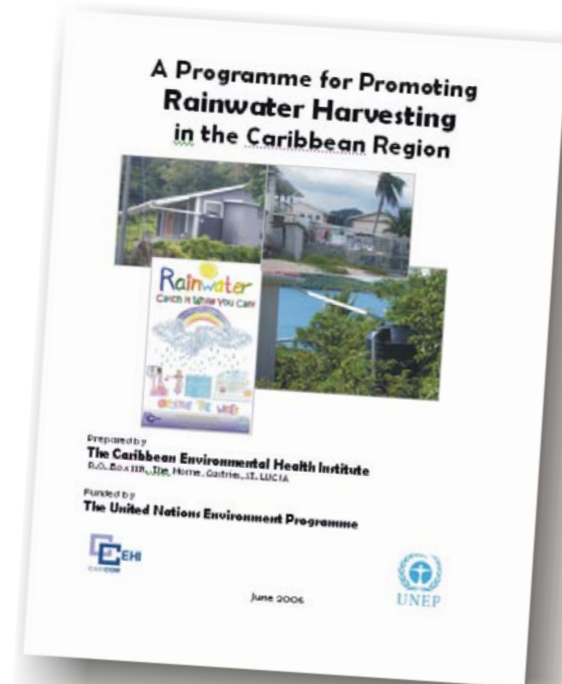
## National-level actions

### ■ Component 1: Awareness Raising

- Objectives
- To enhance positive public awareness on the practice of RWH
- To increase investment in RWH
- To promote RWH as a viable augmentation measure for conventional potable networks in water-stressed areas, and promote water conservation
- To foster best practices with respect to health and sanitation

### ■ Component 2: Capacity Building

- Objectives
- To develop and improve national competency in developing (design and construction) and operating RWH systems
- To train communities in operation and management of community RWH systems
- To train professionals in water governance





# Regional RWH Programme

## National-level actions

- **Component 3: Legislative and Policy Formulation**
  - Objectives
  - To promote integration of RWH within national IWRM plans through policy and legislative reform
  - To create an enabling environment to foster investment in RWH
- **Component 4: Infrastructural Development**
  - Objectives
  - To optimize RWH systems to increase the quantity and improve quality of water
  - To enhance capacity to manage and maintain communal RWH systems

# Regional RWH Programme

## Regional-level actions

- Lead regional agency – to be determined
- Partnerships - strengthen advocacy efforts, resource mobilization
- Website - dissemination of best practices in RWH
- Toolkit and handbooks - educational resources
- Integration with other regional programmes (e.g. FAO School Feeding and School Gardening programmes)
- Public awareness promotion;
- Monitoring of national RWH initiatives;
- Training and certification of resource persons (e.g. via CBWMP)
- Building capacity within agencies and develop skills bank
- Develop model RWH applications

# Public awareness

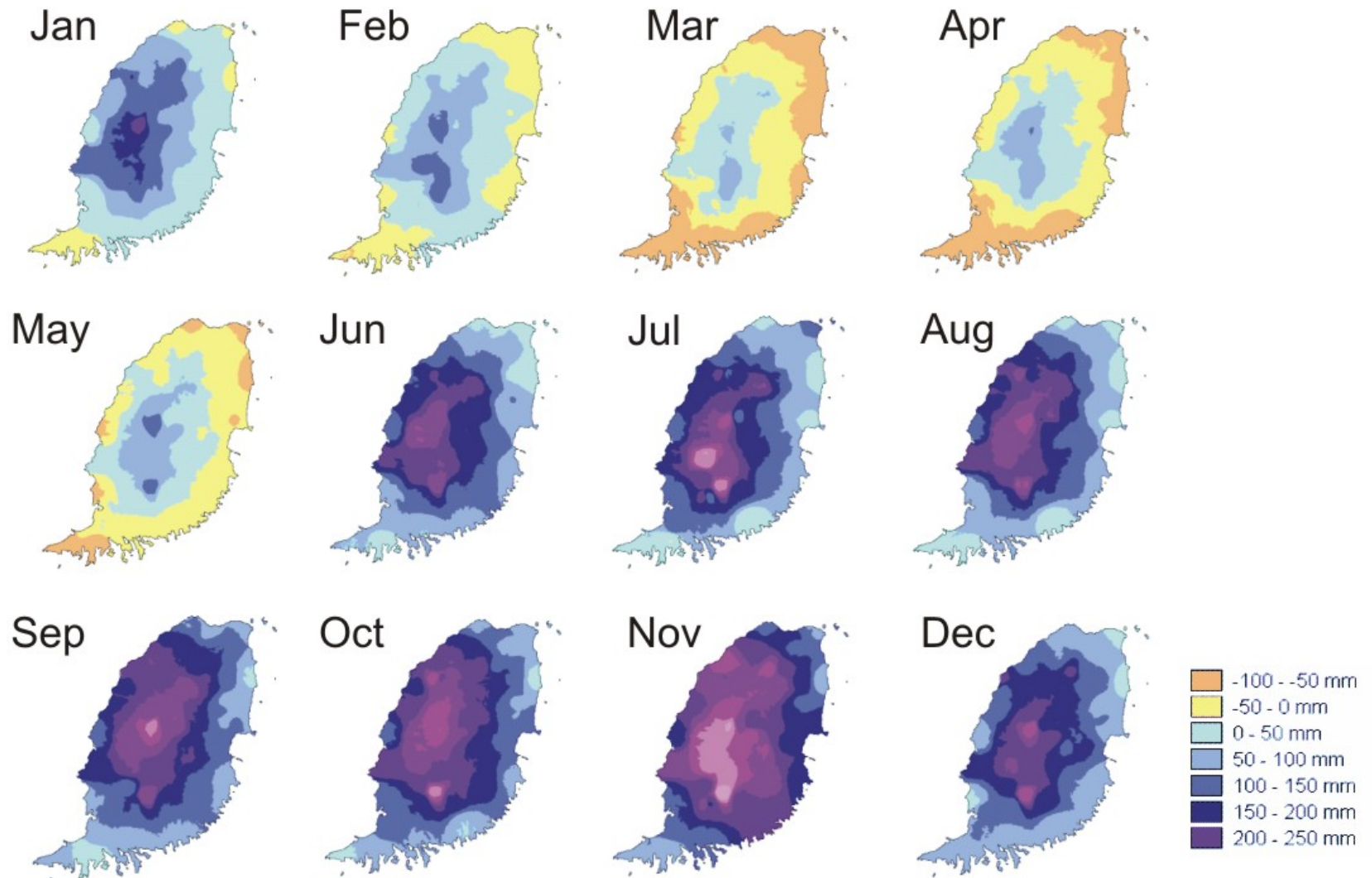
- Posters
- Technical brochure
- Feature video



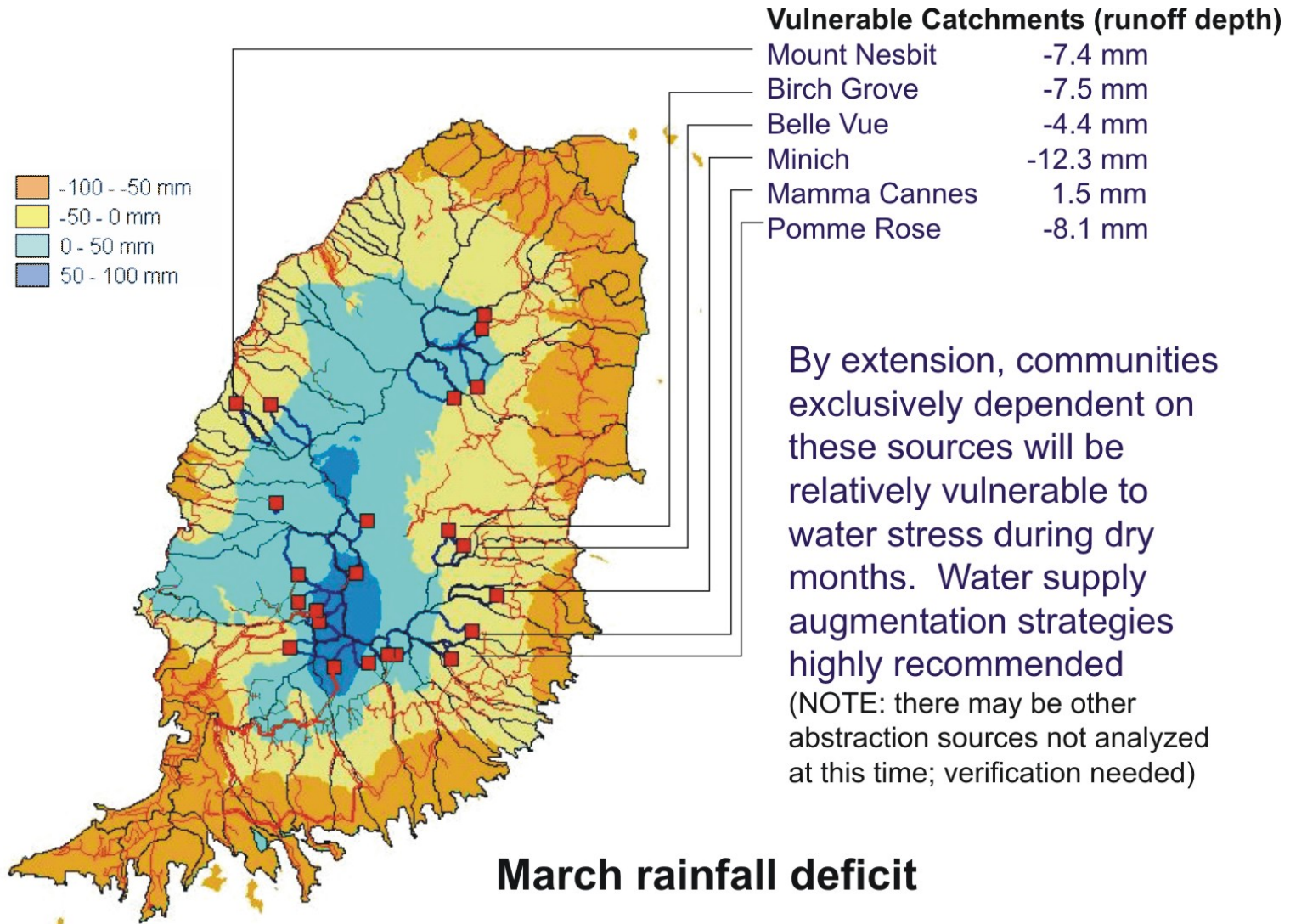
# Water Availability Mapping

- Objective: map areas on mainland Grenada subjected to moisture deficit
- Based on simplified water balance
  - Determine the depth of runoff from water catchment areas (areas upstream of NAWASA intakes)
- Three analytical steps
  1. Determine spatial variability in monthly rainfall
  2. Determine spatial variability in evapotranspiration (ET)
  3. Determine spatial variability in water deficit
- Catchments with low yield/runoff (during dry months) – downstream communities expected to experience shortfalls – **PROMOTE RWH!**

# Water Availability Mapping



# Water Availability Mapping



# Objectives of the Antigua & Barbuda Project

- To raise awareness at the public and policy makers level
- Capacity building at both individual and institutional levels
- Development of infrastructure
- Development of maps to reflect the impact of climate change on water resources under various climate change scenarios

# ANU RWH Pilot

- **Antigua and Barbuda selected:**
  - Opportunity to share experiences already in place in Antigua and Barbuda for the benefit of other Caribbean countries
  - Opportunity to raise the awareness of best practices already in place in ANU for other proponents





# Rainwater Harvesting Initiative

## 2008 - 2009

- National Symposium
- Training Seminars (2) for RWH practitioners
- Selection of two (2) demonstration models – low income household and small business
  - These models would be provided with assistance in order to improve their RWH systems. The process (technical specifications and costs) would be documented
- Showcase seminar
- RWH Handbook
- Water Availability Mapping

# Partners

- Antigua Public Utilities Authority
- Central Board of Health
- Ministry of Communications and Works
- UNEP
- Environmental Division

# National Symposium (Jan 2008)

- Open to a broad cross section of the public and private sector
- Kickstarted the IWRM process in Antigua and Barbuda
- Designed to raise awareness of the importance of investment in RWH particularly in the context of increased water scarcity associated with the impacts of climate change



# Capacity Building

- Two technical seminars will be conducted for practitioners
- Training on configuration, installation/retro fitting appropriate RWH systems on building structures, paved and ground surfaces

# Demonstration Models

## Low Income Household

- Must have a RWH system in place
- Project will provide funds for the improvement of the infrastructure

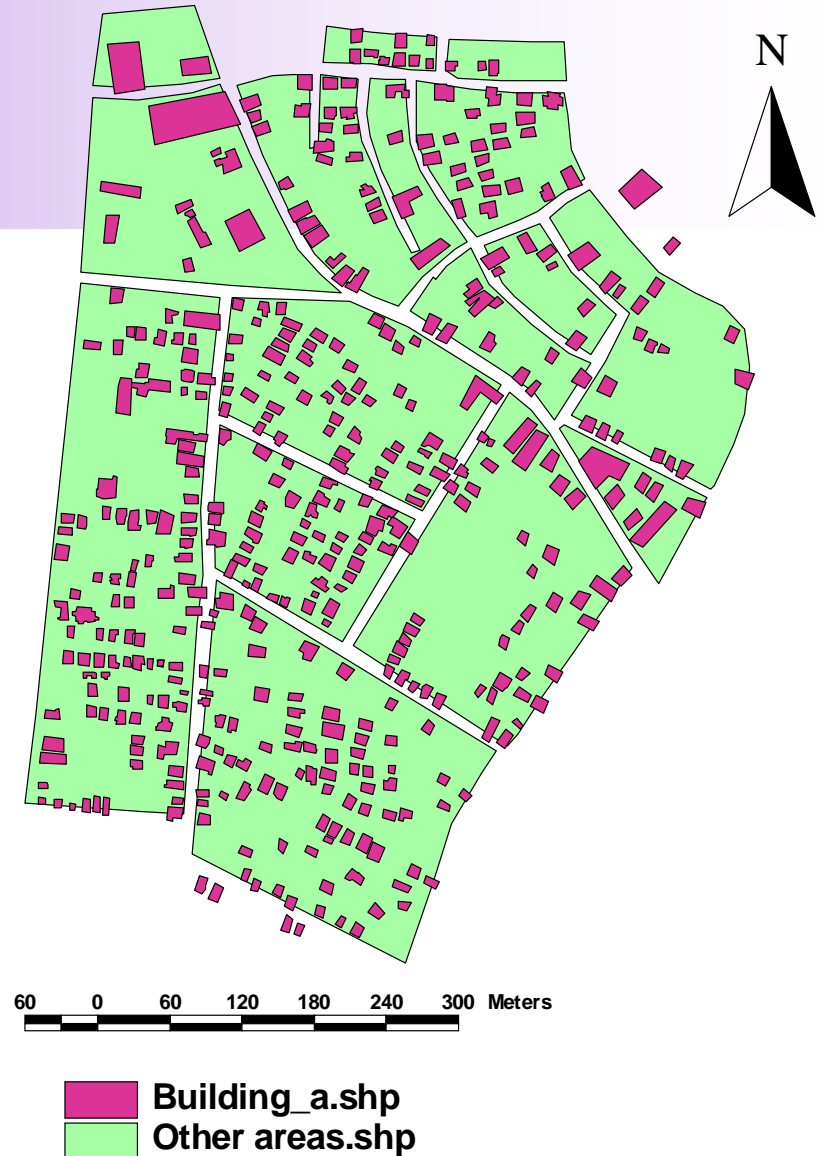
## Small Business

- Preferably agro processing
- Must use RWH in the production process
- Project will provide funds for the improvement of the infrastructure



# Mapping

- Develop GIS maps indicating climate change impact on water resources for different climate change scenarios
- Involve modelling projected changes in rainfall inputs and temperature regimes
- Used to estimate changes in the overall budget for the island



# Caribbean RWH Handbook

- A RWH technical handbook will be produced (will reflect the work done in Antigua and Barbuda)
- These handbooks will be distributed to other countries in the Region



# Thank You!



<http://cehi.org.lc/rainwaterharvest.htm>

**Caribbean Environmental Health Institute**

The Morne, PO Box 1111, Castries, St. Lucia

Tel: 758 452-2501; Fax: 758 453-2721

Email: [cehi@candw.lc](mailto:cehi@candw.lc); Web site: [www.cehi.org.lc](http://www.cehi.org.lc)