

# CDPMN: Enhancing Existing Drought and Flood Plans

Adrian R. Trotman

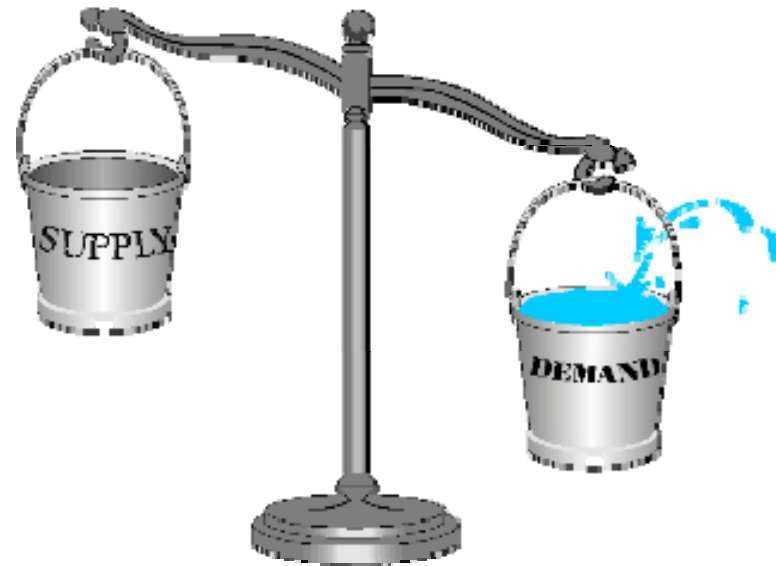
Caribbean Institute for Meteorology and Hydrology

**CARIWIN Regional Seminar**

**14-15 January, 2010**

**Georgetown, Guyana**

# DROUGHT



**Drought** is a natural hazard originating from a deficiency of precipitation that results in a water shortage for some activities or some groups.

**Drought** : a deficiency of precipitation (**intensity**) from expected or “normal” that extends over a season or longer period of time (**duration**) . . .

**Meteorological drought**

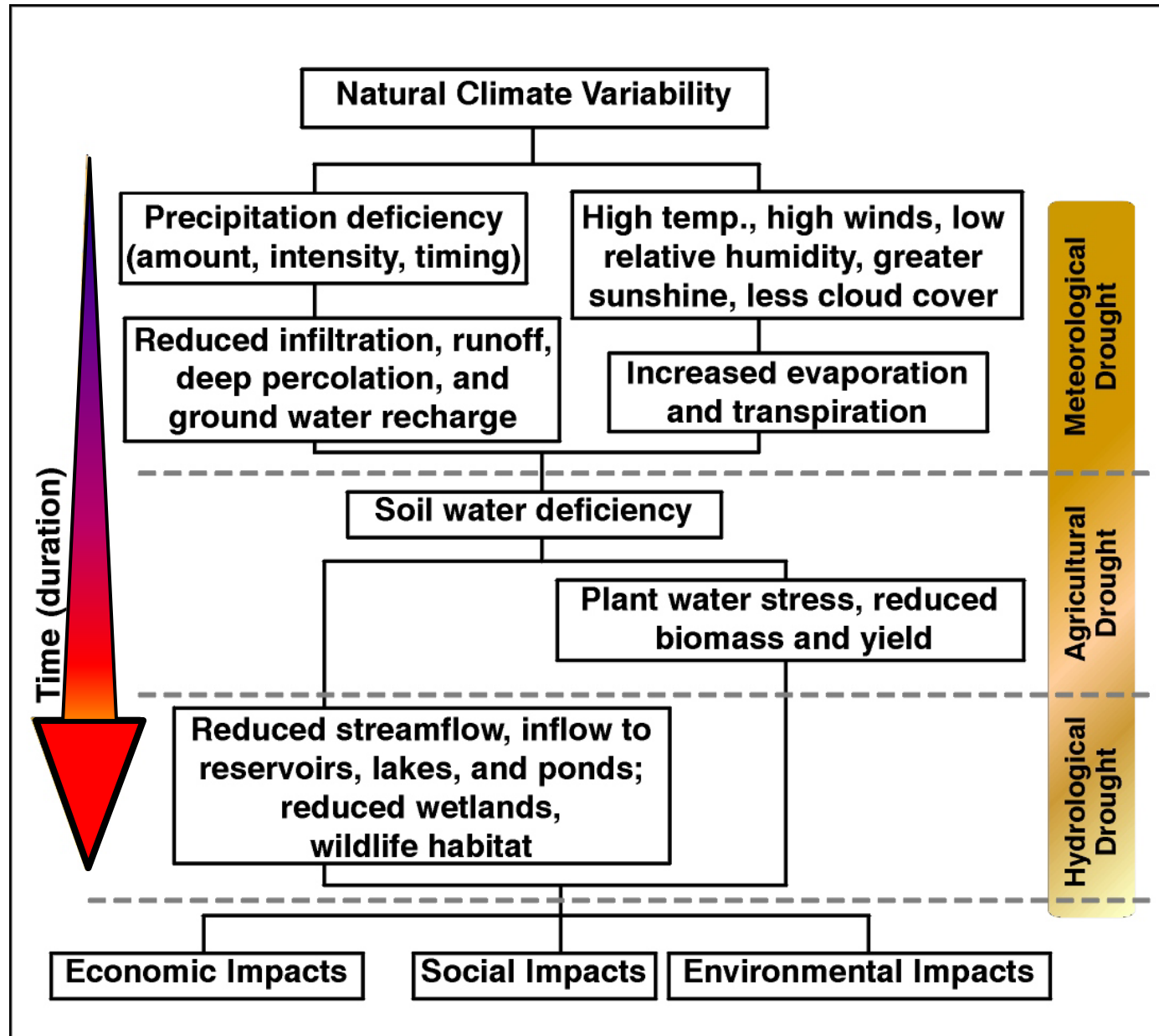
and is insufficient to meet the demands of human activities and the environment (**impacts**).

**Agricultural drought**

**Hydrological drought**

**Socio-economic drought**

# Evolution of Drought Types

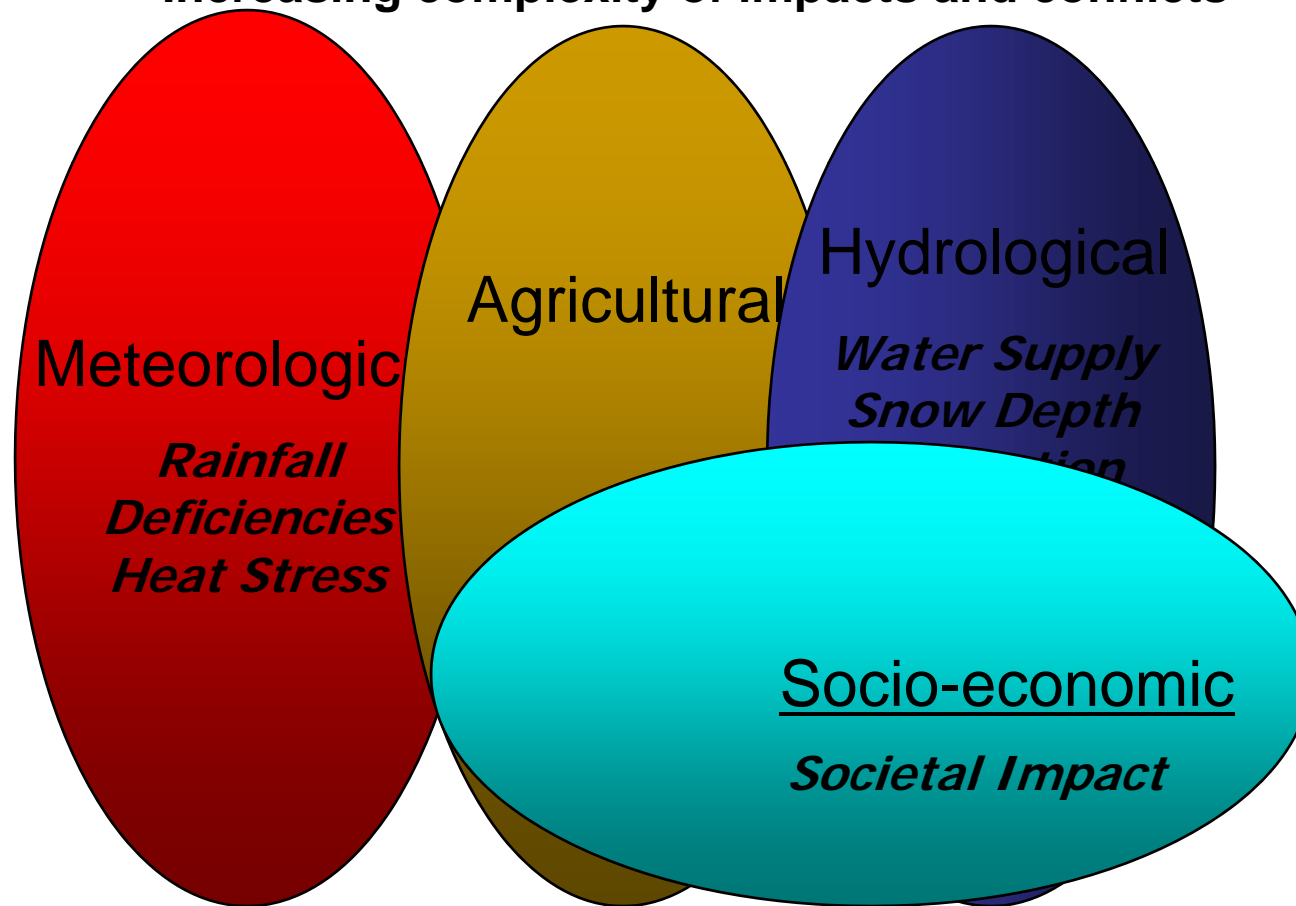


# Natural and Social Dimensions of Drought

Decreasing emphasis on the natural event (precipitation deficiencies) 

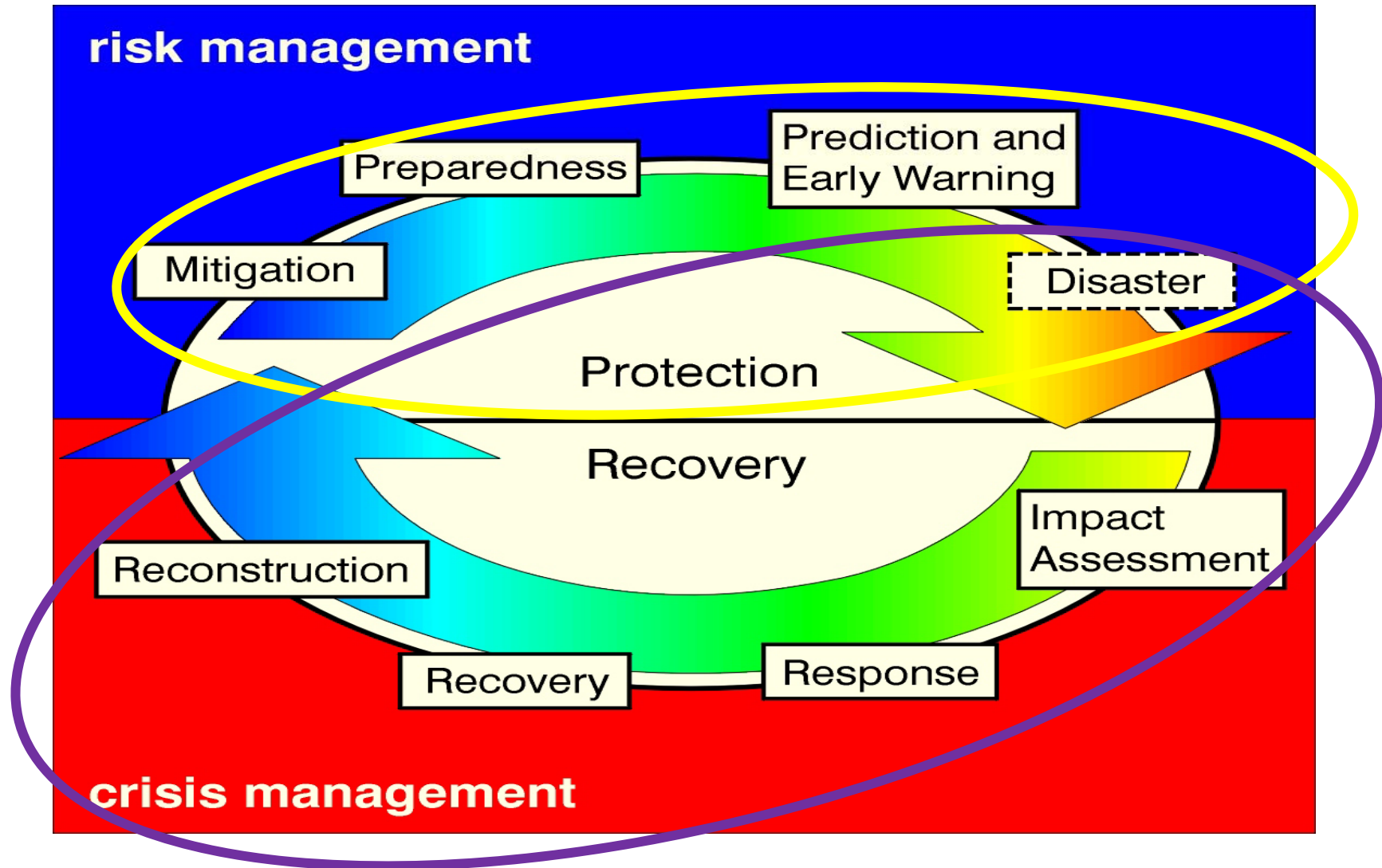
Increasing emphasis on water/natural resource management

Increasing complexity of impacts and conflicts



  
Time/Duration of the event

# The Cycle of Disaster Management



# Let's keep in mind...

## Attributes of the CDPMN

- Precipitation status monitored using a number of indices
- ...Standardized Precipitation Index; Palmer Drought Severity Index; Crop Moisture Index
- Other indicators (e.g. water levels, state of vegetation and ecosystems)
- Final precipitation status determined, by consensus, by a network of persons from different sectors, institutions and communities embracing the diversity in definitions and impacts of drought
- Short term and seasonal precipitation forecasts to provide a projection of future drought (1 - 6 months possible)

# Barbados

- Groundwater accounts for for the largest proportion of the island's water resources at 79% and for 98.6% of the public water supply
- consistently been ranked among the ten most water scarce countries in the world
- 300 m<sup>3</sup> / capita/ year
- The frequency of drought in Barbados is about 3 in 10 years



# Barbados

- Domestic Users (including unaccounted-for-water) account for more than 60% of the total water abstracted
- Sustainable Water Management Strategy and Action Plan by the Barbados Water Authority (BWA)

# Barbados

The main elements of the strategy include:

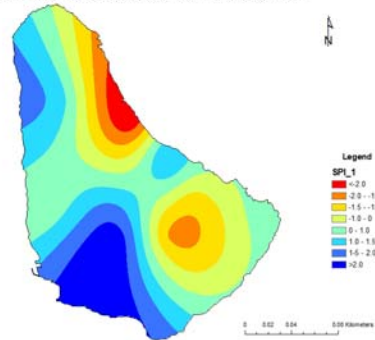
- Demand Reduction
- Supply Augmentation
- Water Quality Protection
- Public Education
- Capacity Building and Networking

# Response Stages to Water Shortage

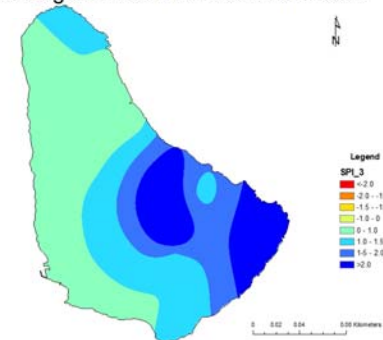
- Stage 1 Voluntary Conservation Measures
- Stage 2 Mandatory Water Use Restrictions
- Stage 3 More Stringent Mandatory Restrictions

# How can monitoring help?

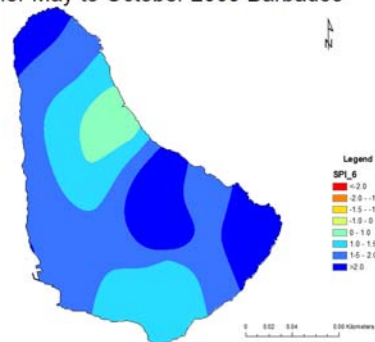
SPI for October 2009 Barbados



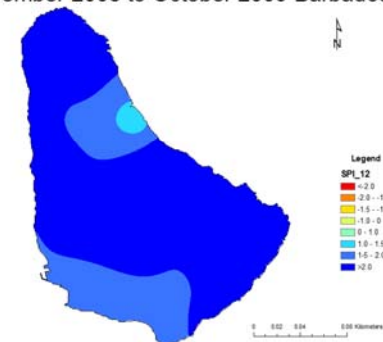
SPI for August to October 2009 Barbados



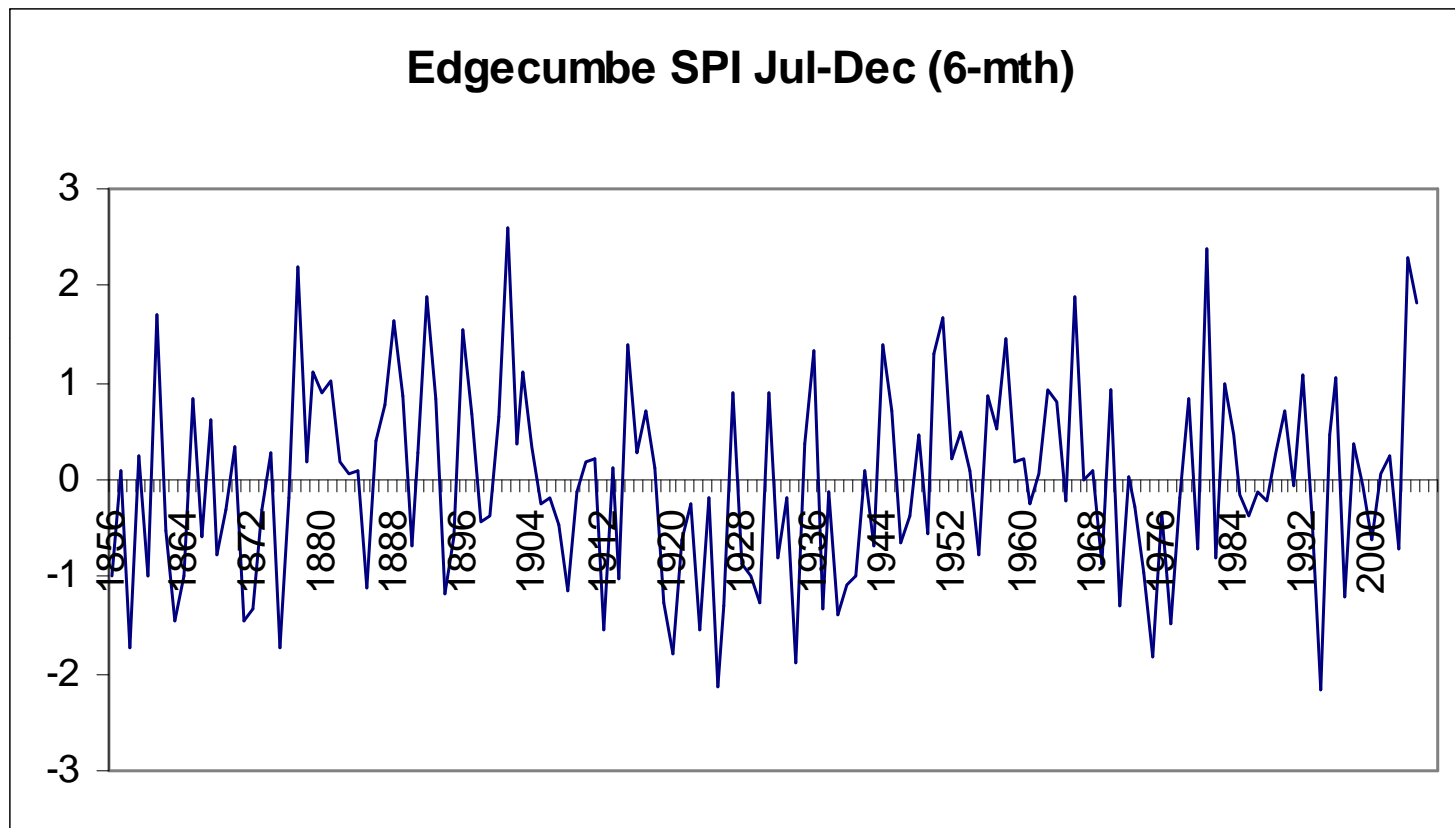
SPI for May to October 2009 Barbados



SPI November 2008 to October 2009 Barbados



# Wet Season SPI Edgecumbe, Barbados



Indices can indicate history of timing, duration and severity of drought

**Important for impact studies and adaptation considerations**

As expected, the SPI showing similar cyclical trends as the rainfall

# Guyana

- Guyana rainfall averaging approx. 2500mm
- Competition for water during dry season
- Drought during the dry season can impact heavily

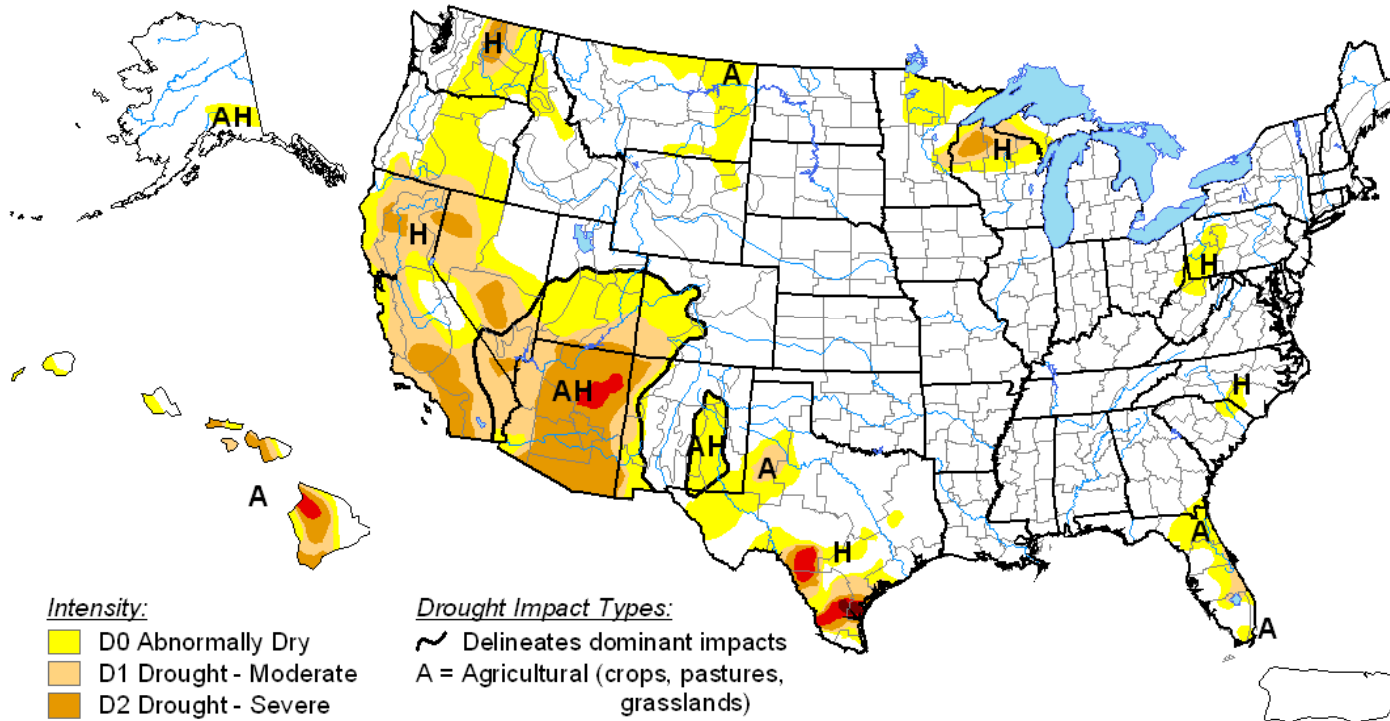
# ***Guyana National Development Strategy 2001-2010***

- A standardised national electronic water information system
- Periodic assessments of both surface and ground water resources, and their utilizable component on a basin - wise basis, will be conducted
- The planning of water use will take into account land capability and will be supportive of land improvement
- Low rainfall areas will be made less vulnerable to drought-associated problems through soil moisture conservation measures and the transfer of surface water from surplus areas where feasible
- Hydropower development will receive prime consideration
- Those hydrometeorological stations which now exist but are not being utilised will be reactivated. In addition the number of stations will be increased, in order to improve the design network for enhancing forecasting capabilities.
- Real time data transmission from remote stations to the central station via satellite will be effected






# U.S. Drought Monitor

November 24, 2009


Valid 7 a.m. EST



Intensity:

-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

Drought Impact Types:

-  Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

<http://drought.unl.edu/dm>



Released Wednesday, November 25, 2009  
Author: Eric Luebehusen, U.S. Department of Agriculture



# **2003 Livestock Feed Assistance** **Non-Fat Dry Milk Program (NDM)**

On April 8, 2003, then-Agriculture Secretary Ann M. Veneman announced that the U.S. Department of Agriculture will provide surplus USDA stocks of non-fat dry milk (NDM) to livestock producers in areas hardest hit by continuing drought.

USDA will enter into agreements with state and tribal governments to coordinate the movement of the NDM to eligible producers. Approximately 100 counties in nine states (Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, South Dakota, Utah and Wyoming) currently meet the initial eligibility criteria.

The U.S. Drought Monitor will be used to determine which counties are eligible, and eligibility will be re-evaluated every 30 days to ensure the program is targeted to producers in greatest need. To be eligible, counties must meet one of the following two criteria:

\* Be a county or part of a county located in a D4-Exceptional category on the Drought Monitor at any time on or between Sept. 3, 2002, and March 11, 2003, and on the March 11, 2003, Monitor be located in at least D3-Extreme or D4-Exceptional area.

\* Be a county or part of a county located in a D4-Exceptional area on the Drought Monitor on March 11, 2003.

Eligible livestock are foundation herds (breeding and replacement stock) of beef cattle, buffalo, sheep, and goats. The allocation of NDM for a county will be based on a renewable, if applicable, 30-day supply, based upon two pounds of NDM per day for beef cattle and buffalo, and one-half pound of NDM per day for sheep and goats.

## **U.S. Drought Monitor Usage by FSA**

- **State FSA Committees are authorized to approve emergency haying and/or grazing of certain land enrolled in the Conservation Reserve Program (CRP) for an area or county within their State when the U.S. Drought monitor attains D3 or D4.**
- **Informs FSA at the National Office of conditions in areas seeking approval of emergency haying and/or grazing of CRP which has not attained D3 or D4.**
- **Informs FSA at the National Office of drought conditions to support requests for funding under the Emergency Conservation Program.**
- **Lack of moisture verification for prolonged precipitation deficiencies that exceed the D2 level for review of prevented planted claims for nonirrigated crops.**

- **U.S. Drought Monitor Usage by FSA**
- **Food, Conservation, and Energy Act of 2008 authorizes the Livestock Forage Disaster Program**
  - **Grazing loss because of drought on owned or leased grazing land or pastureland that is physically located in a county experiencing:**
    - **D2 intensity for at least 8 consecutive weeks during normal grazing period will be eligible to receive payment equal to 1 monthly payment**
    - **D3 intensity during the normal grazing period will be eligible to receive a payment equal to 2 monthly payments**
    - **D3 intensity for at least 4 weeks or a D4 intensity any time during the grazing period will be eligible to receive a payment equal to 3 monthly payments**

# Why Monitor?

- Existing severity
- Projections
- Mitigate/reduce impacts
- Relief..
- ...Based on known/historical impacts
- Aid in developing drought and flood plans

**NO REASON WHY SIMILAR  
CANNOT BE DONE IN THE  
CARIBBEAN**

**THE QUESTION IS...**

**WHO DOES IT?**

ALL OF US