Managing Drought Risk in a Changing Climate: The Role of National Drought Policies

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APEC Climate Symposium 2013: Regional Cooperation in Drought Prediction Science to Support Disaster Preparedness and Management (Jakarta, Indonesia)
Presentation Outline

• The **MANY FACES OF DROUGHT**
  ▪ Drought as hazard, characteristics, definition

• Breaking the **HYDRO-ILLOGICAL CYCLE**
  ▪ Crisis management

• Our **CHANGING CLIMATE—CHANGING VULNERABILITY**

• Building **SOCIETAL RESILIENCE**
  ▪ Drought monitoring and prediction, early warning/information systems
  ▪ Vulnerability/risk/impact assessments
  ▪ Mitigation and response measures

• Moving towards a **POLICY FRAMEWORK** that enhances preparedness and risk reduction
  ▪ Compendium of best practices in support of NDMP
  ▪ Regional Capacity Building Workshops
  ▪ Integrated Drought Management Programme (IDMP)
The Many Faces of Drought
Defining Drought

-Hundreds of definitions—application and region specific

Drought is 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, Hydrological and Socio-economic Drought
Breaking the Hydro-illogical Cycle: An Institutional Challenge for Drought Management

Crisis Management

If you do what you’ve always done, you’ll get what you’ve always got.

We MUST adopt a new paradigm for drought management!
The U.S. Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu/

Released Thursday, September 13, 2012
Author: David Simmeral, Western Regional Climate Center
• 2012, $17.4 billion in crop insurance indemnities
• 2011-12, $28 billion in crop insurance indemnities
• $62 billion spent on U.S. disaster relief, 2011-12
• Total drought impacts ~ $35-77 billion, 2012
• Superstorm Sandy ~ $50 billion
• Total U.S. drought losses, 1980-2012 ~$250 billion
• Total European drought losses, 1982-2012 ~$100 billion
Emergency response has a place in drought risk management, but it can also lead to:

• greater vulnerability/decreased resilience to future drought events
• increased reliance on government and donor interventions.
There is a close correlation between CO₂ and temperature that has been verified through many lines of research. This graph shows the relationship of temperature and CO₂ over the last 130 years.
Biggest regional changes!
The Climate Challenge for Drought Management

- Increasing mean temperature
- High temp. stress and heat waves/longer growing seasons
- Increased evapotranspiration
- Changes in precipitation amount, distribution and intensity
- Reduced soil moisture
- Changes in groundwater recharge
- Reduced runoff/stream flow resulting from reduced snowpack/sublimation

Are droughts increasing in frequency, intensity and duration?
Drought impacts are more complex today as more economic sectors are affected, creating more conflicts between water users, i.e., societal vulnerability is dramatically different and changing.

- Agricultural production
- Food security
- Energy
- Transportation
- Tourism/Recreation
- Forest/rangeland fires
- Municipal water
- Water quality/quantity
- Environment
- Ecosystem services
- Health
Reducing Societal Vulnerability

• Improve **drought awareness**
• Develop/improve monitoring, seasonal forecasts, early warning and **information delivery** systems
• Improve **decision support** tools
• Complete **risk assessments** of vulnerable sectors, population groups, regions
• Improve understanding and quantification of **drought impacts vs. mitigation costs**
• Develop and implement **drought preparedness plans**
• Create **national drought policies** based on the principles of risk reduction
Types of Policy Responses

- Post-impact government interventions—relief measures (i.e., crisis management)
- Pre-impact government programs—mitigation measures to reduce vulnerability and impacts, including insurance programs
- Risk-based drought policies and preparedness plans, organizational frameworks and operational arrangements
The Cycle of Disaster Management

Risk management increases coping capacity, builds resilience.

Crisis management treats the symptoms, not the causes.

Risk management:
- Preparedness
- Prediction and Early Warning
- Mitigation

Crisis management:
- Impact Assessment
- Recovery
- Response

Proactive vs. Reactive
Hazard $\times$ Vulnerability = Risk

**Exposure**
- Severity/Magnitude
  - Intensity/Duration
- Frequency
- Spatial extent
- Trends
  - Historical
  - Future
- Impacts
- Early warning

**Social Factors**
- Population growth
- Population shifts
- Urbanization
- Technology
- Land use changes
- Environmental degradation
- Water use trends
- Government policies
- Environmental awareness

**Risk**

Applied Climate Sciences
School of Natural Resources
National Drought Policy

Preparedness Plans based on the principles of risk reduction
A drought policy should be broadly stated and . . .

- Establish a clear set of risk-based principles or guidelines to govern drought management.
- Consistent and equitable for all regions, population groups, and economic/social sectors.
- Consistent with the goals of sustainable development.
- Reflect regional differences in drought characteristics, vulnerability and impacts.
A drought policy should (continued)

• Promote the principles of risk management by encouraging development of
  – Early warning and delivery systems;
  – Reliable seasonal forecasts;
  – **Preparedness plans** at all levels of government, within river basins, and the private sector;
  – Mitigation actions that reduce drought impacts and the need for government intervention;
  – Coordinated emergency response that ensures targeted and timely relief, consistent with drought policy goals, during drought emergencies.
Key Elements of a Drought Mitigation Plan

• Monitoring/early warning, prediction and information delivery systems
  – Integrated monitoring of key indicators
    • Precipitation, temperature, soil moisture, streamflow, snowpack, groundwater, etc.
  – Use of appropriate indices
  – Reliable seasonal forecasts
  – Development/delivery of information and decision-support tools
Key Elements of a Drought Mitigation Plan

- **Risk and impact assessment**
  - Conduct of risk/vulnerability assessments
  - Monitoring/archiving of impacts/losses

- **Mitigation and response**
  - Proactive measures to increase coping capacity
  - Response measures that support the principles of drought risk reduction
National Drought Policy Commission

“We can reduce this nation’s vulnerability to the impacts of drought by making preparedness the cornerstone of national drought policy.”
HIGH-LEVEL MEETING ON NATIONAL DROUGHT POLICY

(HMNDP)
TOWARDS MORE DROUGHT RESILIENT SOCIETIES

11-15 March 2013
CICG, Geneva

Final Report
National Drought Policy Goals

- Proactive mitigation and planning measures, risk management, public outreach and resource stewardship.
- Greater collaboration to enhance the national / regional / global observation networks and information delivery systems to improve public understanding of, and preparedness for, drought.
- Incorporation of comprehensive governmental and private insurance and financial strategies into drought preparedness plans.
National Drought Policy Goals

- Recognition of a safety net of emergency relief based on sound stewardship of natural resources and self-help at diverse governance levels.
- Coordination of drought programmes and response in an effective, efficient and customer-oriented manner.
A series of 4-5 capacity building workshops sponsored by WMO, FAO, UNCCD, and UN-Water (Eastern Europe, Latin America, Africa and Asia)
Agenda for the first regional workshop for 9-11 July 2013
Bucharest, Roma

DAY 1

8:30-09:00 Registration

9:00-12:00 Session 1: Opening Session/Country reports

9:00-10:15 Session 1a: Opening statements and introductions
- Opening statements by Mrs. Elena Dumitru, 5 and Climate Change (5 minutes)
- Mr. Daniel Botanou, State Secretary, Ministry (10 minutes)
- Dr. Ion Sandu, Director General, National Meteorological Institute (5 minutes)
- Welcoming statements (Organizing partners) (10 minutes)
- A roundtable introduction of participants and exchange of experiences

10:15-10:45 Group photograph/Coffee break

10:45-12:15 Session 1b: Setting the scene

10:45-11:15 Overview of the initiative and scope of the Regional Forum

11:15-12:15 Key Note Address (Willie D.A) on “Risk based management challenges and opportunities”

12:15-13:30 Lunch

Agenda for the second regional workshop for “Latin America and the Caribbean” Countries
04-06 Dec 2013
Fortaleza, Brazil

DAY 1

08:30-09:00 Registration

09:00-13:00 Session 1: Opening & Country reports

09:00-10:00 Session 1a: Opening statements
- Opening statement(s) by High-level authorities from the Gov’t of Brazil (15 minutes)
- Welcoming statement (WMO, on behalf of Organizing partners) (10 minutes)
- A roundtable introduction of participants and expectations (35 minutes)

10:00-10:30 Session 1b: Overview
- Overview of the initiative, objectives and scope of the Workshop (UNW-DPC)

10:30-11:00 Group photograph/Coffee and tea break
New initiative from GWP and WMO launched at HMNDP, March 2013.

Consultation meeting held a World Water Week, September 2013, Stockholm.
### National Drought Policy: A 10-Step Process

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<thead>
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<th>Step 1</th>
<th>Appoint a national drought policy commission</th>
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<td>Step 2</td>
<td><strong>State or define</strong> the goals and objectives of a risk-based national drought management policy</td>
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<td>Step 3</td>
<td><strong>Seek</strong> stakeholder participation and <strong>resolve</strong> conflicts between key water use sectors</td>
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<td>Step 4</td>
<td><strong>Inventory</strong> data and financial resources available and <strong>identify</strong> groups at risk</td>
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<td>Step 5</td>
<td><strong>Prepare/write</strong> the key tenets of a national drought management policy and preparedness plans (monitoring, early warning and prediction; risk and impact assessment; mitigation and response)</td>
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National Drought Policy: A 10-Step Process
(continued)

Step 6
Identify research needs and fill institutional gaps

Step 7
Integrate science and policy aspects of drought management

Step 8
Publicize the national drought management policy and preparedness plans, build public awareness

Step 9
Develop education programs for all age and stakeholder groups

Step 10
Evaluate, test and revise drought management policy and supporting preparedness plans
Drought Task Force

Monitoring Committee

Risk Assessment Committee

Situation Reports

Assessment Reports

Policy Direction

Citizens Advisory Committee (optional)

Drought Plan Organizational Structure

Working Groups
Takeaway Messages

• Climate is changing—climate state and climate variability.

• Extreme climate events are increasing in frequency globally and locally, managing impacts critically important—we must increase our resilience to drought.

• Time is **NOW** to change the paradigm from crisis to **drought risk management**.

• Time is **NOW** for all drought-prone nations to adopt appropriate drought policies to reduce the impacts of future drought episodes through risk-based management.
Thanks for your attention!

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