Capacity Development to Support National Drought Management Policies

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Drought, Vulnerability and Risk Assessment Within the Context of UNCCD
- Conceptual frameworks
- Impacts Assessment
- Vulnerability for West Africa
- UNCCD mandate for drought
The 3 Pillars of Drought Policy and their linkages

Monitoring and Early Warning
Drought status (meteo, hydro, agric., socio-econ)

Mitigation and Response
Actions and measures to mitigate drought impacts and to respond to drought emergencies

Vulnerability and Impact Assessment
Who/what is vulnerable; why. Prioritization/ranking

+ Drought characterization studies

Data, info for decision-making

Who/what requires action

Feedback

Monitoring, Feedback
Vulnerability and Risk Assessment

The process of identifying, quantifying, and prioritizing (or ranking) the vulnerabilities in a drought scenario

- Includes assessing the threats from potential drought hazards to the population, infrastructure, environment, etc.

- It is conducted individually or combined from the political, social, economic or environmental perspective, etc.
Drought Task Force

Policy Direction

Situation Reports

Assessment Reports

Policy Direction

Monitoring Committee

- frequency
- severity
- duration
- spatial extent
- reporting

Risk Assessment Committee

Assessment Reports

Situation Reports

Working Groups
Risk Assessment Committee Tasks

- **prior to drought**, conduct a risk assessment to identify relevant drought impacts and vulnerability factors, in order to identify priority drought management options

*Risk Assessment Tasks:*

*Task 1: Conduct a Drought Impact Assessment*

*Task 2: Rank the Most Pressing Impacts*

*Task 3: Conduct a Vulnerability Assessment*

*Task 4. Identify Risk Management Options*

*Task 5. Prioritize Risk Management Options*
Task 1: Conduct a Drought Impact Assessment

• Identifying sectoral impacts is a good place to start

• “drought of record”, last drought, or future drought as a basis (with help from monitoring committee)

• Goal: to identify as many drought impacts as possible from relevant sectors
Conceptual Framework of Vulnerability

Source: Australian Government, 2005
Food and water shortages have left a trail of death and destruction in the Sahel [Reuters]

“UN says one million children at risk of dying of hunger in parts of Africa's Sahel region amid drought and unrest.”
For the third time in a decade, drought has returned to the Sahel region of West Africa bringing hunger to millions of people across the region.
## Identifying Drought Impacts

### Checklist of Historical, Current, and Potential Drought Impacts

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<th>H=Historical</th>
<th>C=Current</th>
<th>P=Potential</th>
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### Social Impacts

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#### Health
- Mental and physical stress
- Health-related low-flow problems
- Reductions in nutrition
- Loss of human life
- Public safety from forest and range fires
- Increased respiratory ailments
- Migration
# Checklist of Historical, Current, and Potential Drought Impacts

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## Environmental

**Hydrological effects**
- Lower water levels in reservoirs, lakes and ponds
- Reduced flow from springs
- Reduced streamflow
- Loss of wetlands
- Estuarine impacts
- Increased ground water depletion, land subsidence, reduced recharge
- Water quality effects
Checklist of Historical, Current, and Potential Drought Impacts

H = Historical  C = Current  P = Potential

Economic

- Costs and losses to agricultural producers
- Annual and perennial crop losses
- Damage to crop quality
- Income loss for farmers from poor crop yields
- Reduced productivity of cropland
- Insect infestation
- Plant disease
- Wildlife damage to crops
- Increased irrigation costs
- Cost of new or supplemental water resources
Summary: Clustering impacts of drought

**Environmental**
- Water scarcity (frequent restrictions in water usages)
- Wind and water soil erosion
- Increased desertification
- Biodiversity loss
- Increased fires

**Economic**
- Increased food prices (threats to food security)
- Loss of crops and livestock productions
- Loss of hydroelectric power, navigation
- Loss in tourism industry

**Social**
- Increased poverty & reduced quality of life
- Mental & physical stress
- Forced human migration (Mauritania)
- Social unrest
- Political conflicts
### Main Sectors Vulnerable to Drought

- Working groups based on sectors vulnerable to drought

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<tr>
<th>Sector</th>
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<td>Agriculture and Food Security</td>
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<td>Water Resources</td>
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<td>Marine Ecosystems</td>
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<td>Terrestrial Ecosystems</td>
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<td>Human Health</td>
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<td>Other</td>
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*Other:*
- Tourism
- Recreation
- Industry, etc.

(After Lulian Florin Vladu, UNFCCC, 2006)
Where does drought have the most immediate impacts?

Socio-Economic
- Livestock mortality
- Fall of crop harvests
- Famine
- Malnutrition
Where does drought has the most secondary and tertiary impact?

**Environmental**
- Land degradation, desertification, dust storms
- Water scarcity

**Socio-Economic**
- Agriculture and food security
- Industry and manufacturing - unemployment
- Poverty
- Forced human migration
- Malnutrition, poor health and diseases prevalence
- Conflicts over use of resources
- House-hold break-out
- Increased burdens for women
VULNERABILITY ASSESSMENT
Exposure: Drought frequency records in the Sahel

Sahel precipitation anomalies 1900-2011

University of Washington
Joint Institute for the Study of the Atmosphere and Ocean

June through October averages over 20-10N, 20W-10E. 1900-2011 climatology
NOAA NCDC Global Historical Climatology Network Data
Climate Change global context will not affect equally the regions and countries. Africa is likely to be negatively affected.

- CC = acceleration and amplification of drought periods in North Africa (4th report of the IPCC)
- Raising of the temperature to 3 to 4 °C in the African continent (IPCC, 2007),
- Drought will become multiple, diffuse, and difficult to characterize, and North African countries are particularly sensitive;
- Between 75 to 250 million of people will be threatened by water stress in all Africa.
Sensitivity: CILSS Country cases

Distribution of natural disasters, by country and type of phenomena, in Africa (1975-2001)

EM-DAT: The OFDA/CRED International Disaster Database
(http://www.cred.be; email: cred@epid.ucl.ac.be)

LEGEND
- Volcano
- Earthquake
- Drought/Famine
- Epidemic
- Avalanche/Landslide
- Flood
- Wind Storm
- Other
Distribution of people affected by natural disasters, by country and type of phenomena, in Africa (1975-2001)

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Adaptive capacities

IPCC: the adaptive capacity of a society can be divided into generic and impact specific indicators. “Generic indicators include factors such as education, income and health. Indicators specific to a particular impact, such as drought or floods, may relate to institutions, knowledge and technology” (IPCC 2007:727). 
Adaptive capacities at WA sub regional level

To complement national levels there can be capacities at sub regional and also regional levels, which enable cooperation on drought matters, among countries belonging to sub regions. In West Africa, for instance CILSS was established to only address droughts matters in support to its member states.
Hazard \( \times \) Vulnerability = Risk

**EXPOSURE**
- Severity/Magnitude
  - Intensity/Duration
- Frequency
- Spatial extent
- Trends
  - Historical
  - Future
- Impacts

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

RISK
Summary: general steps for drought vulnerability and risk assessment are:

1. Cataloging available assets and capabilities (resources) in the event of a drought
2. Assigning quantifiable value (or at least rank order) and importance to those resources
3. Identifying the vulnerabilities or potential threats to each resource
4. Mitigating or eliminating the most serious vulnerabilities for the most valuable resources
Ongoing Initiatives and international Response: UNCCD as legal framework

- Article 10, parag. 3 (b): “strengthening of drought preparedness and management, including drought contingency plans at the local, national, sub regional and regional levels, which take into consideration seasonal and inter-annual climate predictions.”

- Pursuant to the HLMNDP held in Geneva in March 2013, the UNCCD Secretariat is requested to develop an Advocacy Policy Framework (APF) on drought and to support countries to address the drought issue within the implementation of their AP.

- The overarching goal of the APF is to promote the development and adoption of policies that reduce/minimize people vulnerability to drought through preparedness and coping measures.
Thank you