

Capacity Development to Support National Drought Management Policies

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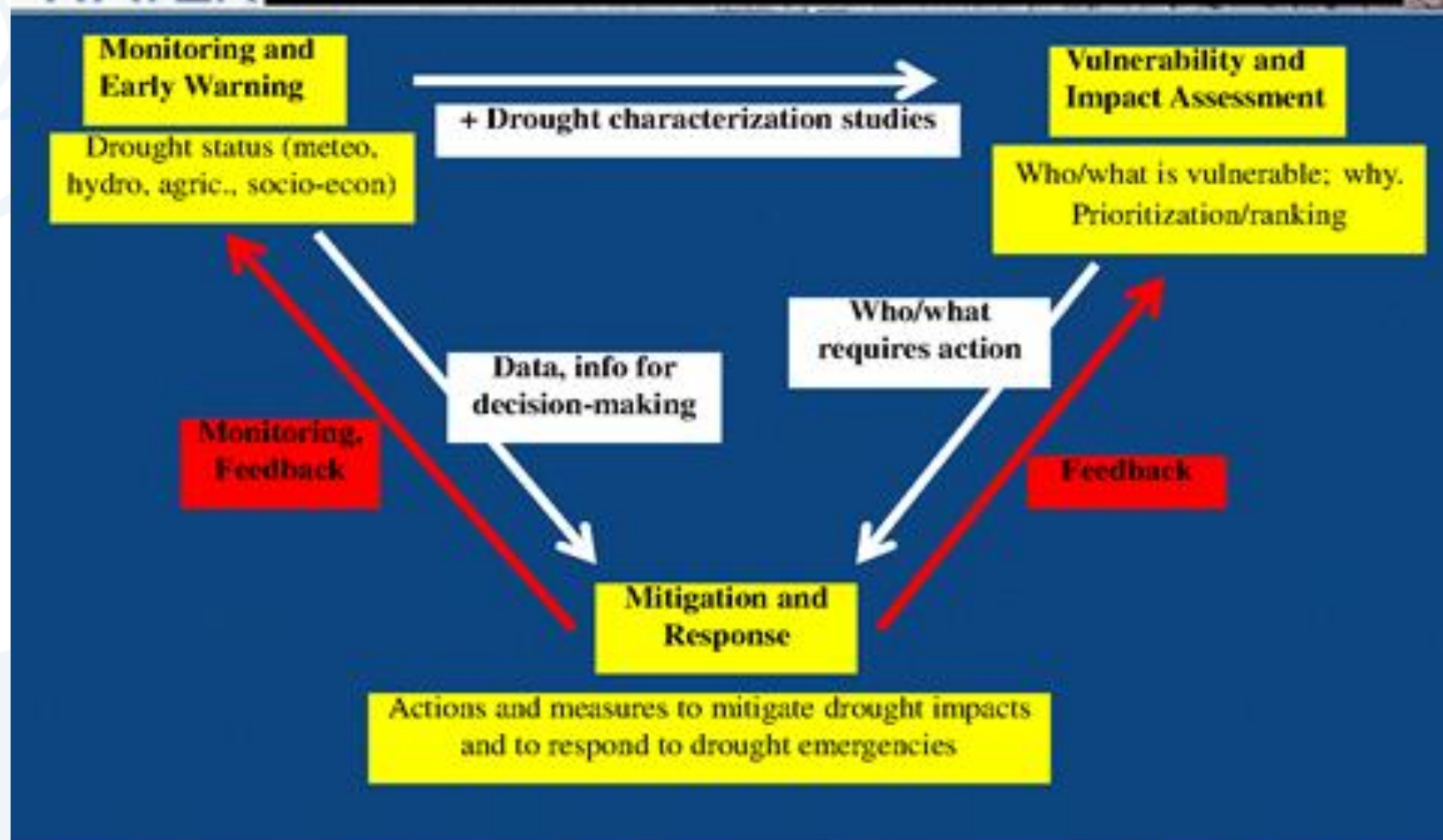
Drought, Vulnerability and Risk Assessment Within the Context of UNCCD



United Nations Convention
to Combat Desertification

- **Conceptual frameworks**
- **Impacts Assessment**
- **Vulnerability for West Africa**
- **UNCCD mandate for drought**

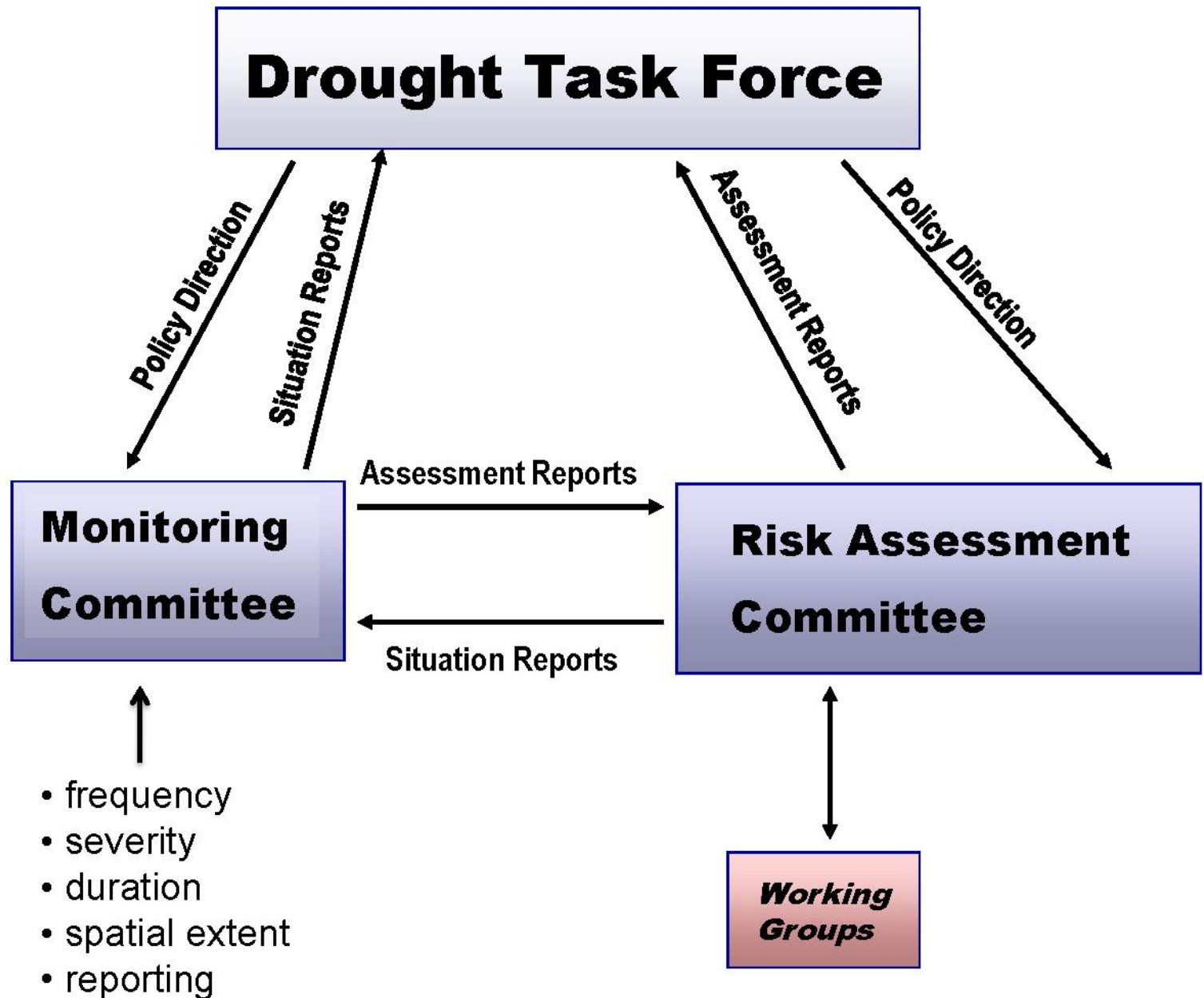
The 3 Pillars of Drought Policy and their linkages



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.



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

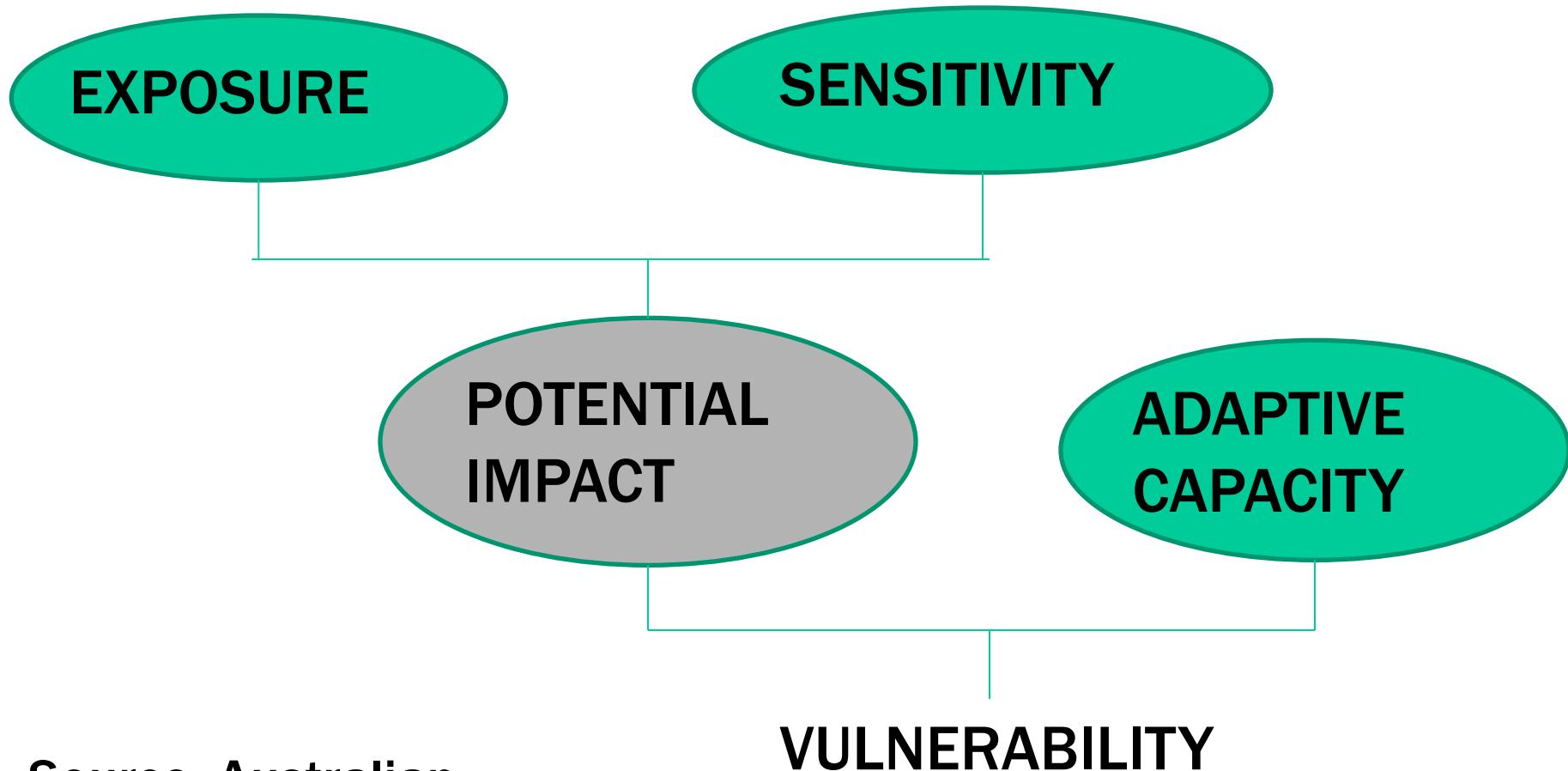
Task 5. Prioritize Risk Management Options



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

IMPACTS ASSESSMENT



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.”

CILSS Country cases (Village of Garbey Malo Koir, Niger (WFP 2010))

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

H=Historical

C=Current

P=Potential

Social Impacts

Health

H	C	P
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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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

H=Historical

C=Current

P=Potential

Environmental

Hydrological effects

H C P
☐ ☐ ☐

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

H	C	P	Costs and losses to agricultural producers
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Annual and perennial crop losses
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Damage to crop quality
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Income loss for farmers from poor crop yields
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reduced productivity of cropland
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insect infestation
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plant disease
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wildlife damage to crops
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Increased irrigation costs
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	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

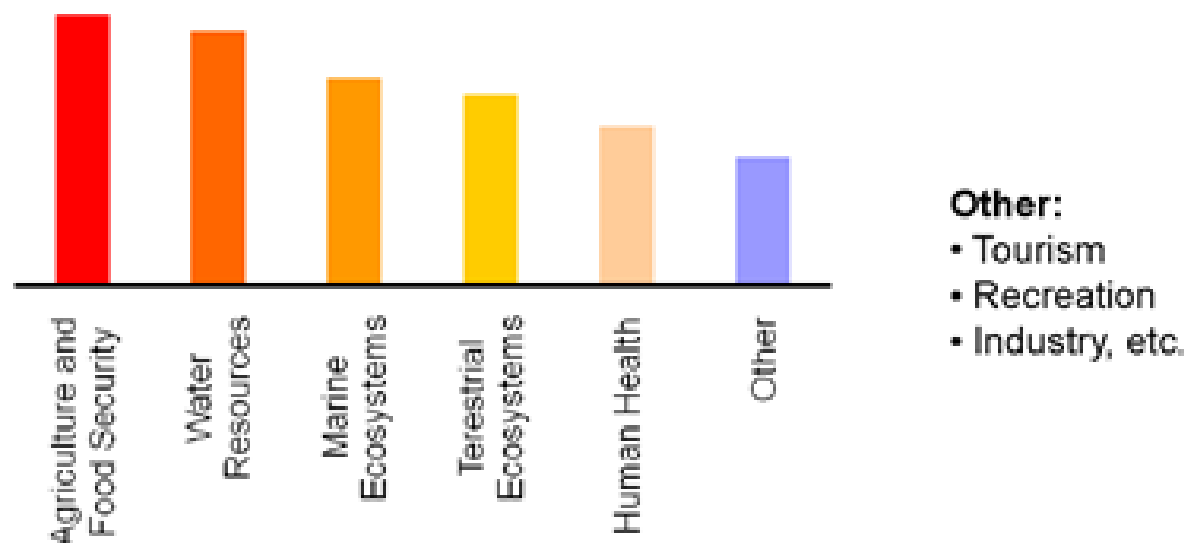
Forced human
migration (Mauritania)

Social unrest

Political conflicts

Main Sectors Vulnerable to Drought

- Working groups based on sectors vulnerable to drought



(After Lulian Florin Vladu, UNFCCC, 2006)

Where does drought has 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

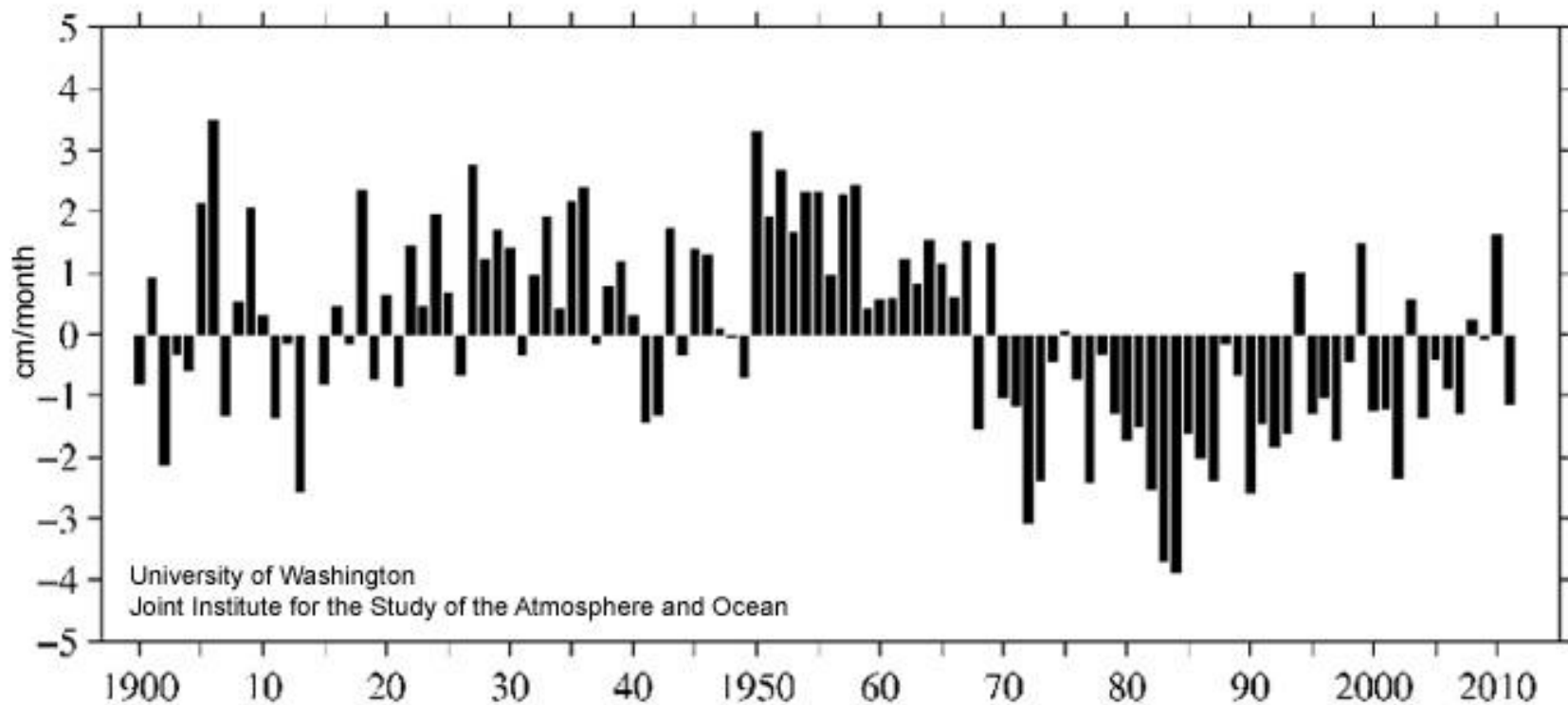
Socio-Economic

- 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



June through October averages over 20-10N, 20W-10E. 1900-2011 climatology
NOAA NCDC Global Historical Climatology Network Data

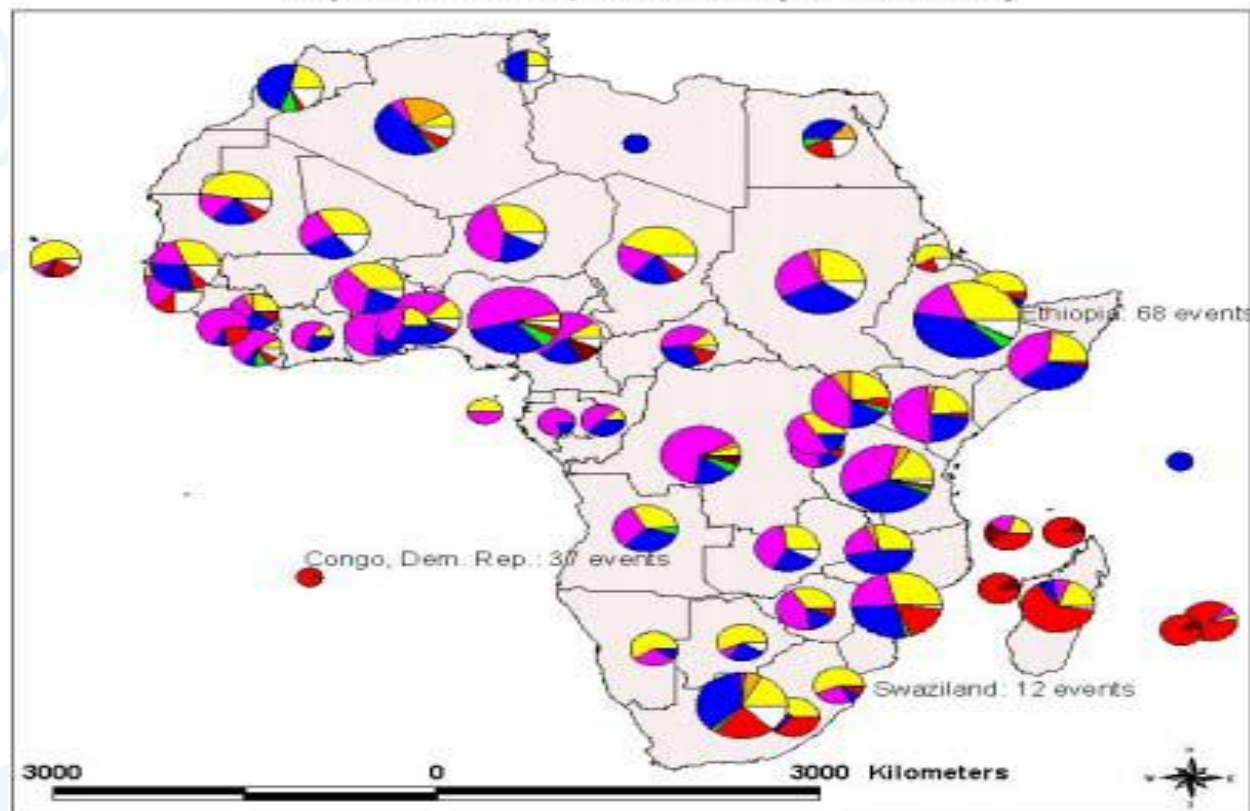
Exposure: Meteorological forecasts for Africa

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

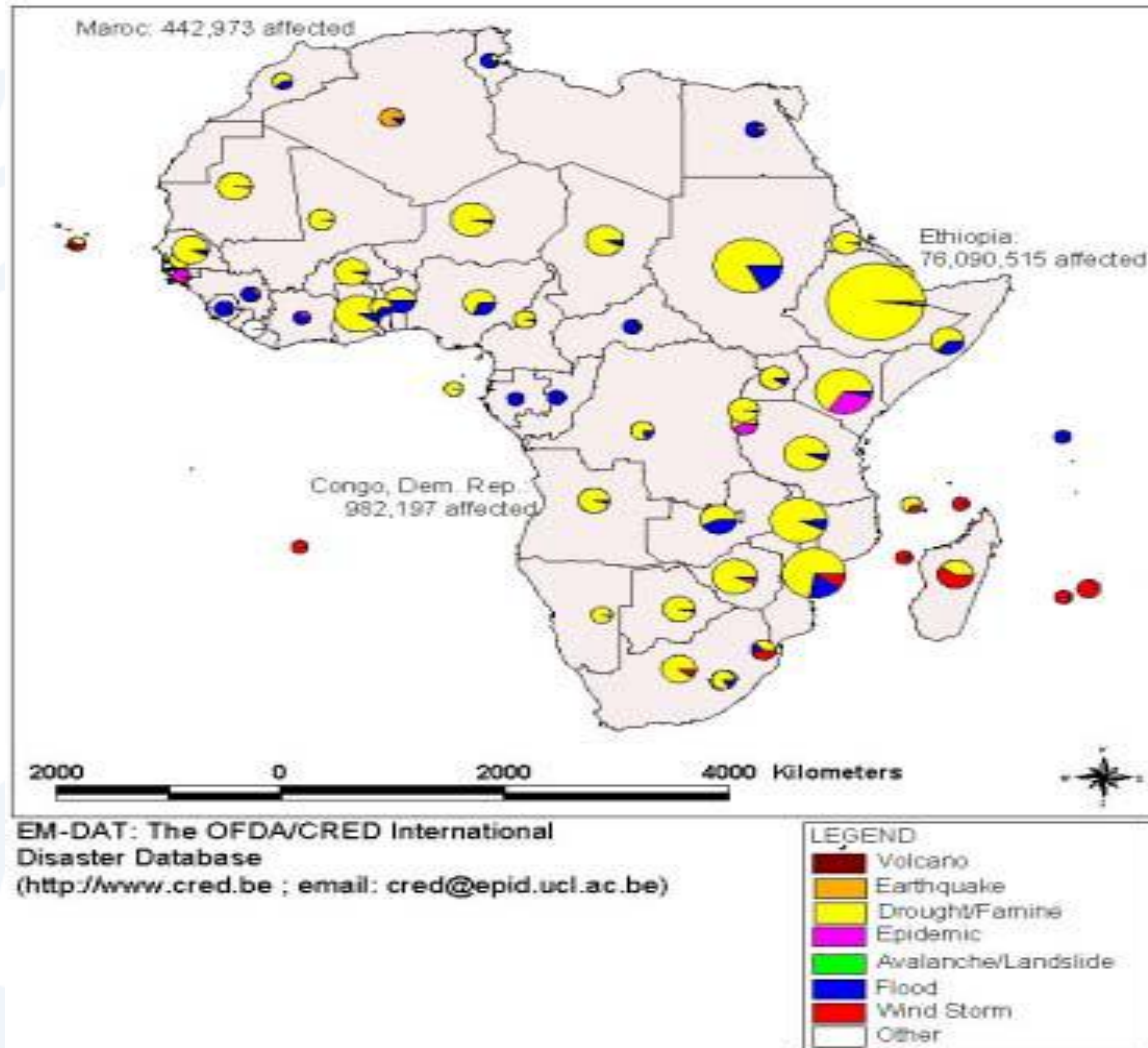
Distribution of natural disasters, by country and type of phenomena, in Africa (1975-2001)



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

Sensitivity : CILSS Country cases

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



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 **x** 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:

Cataloging available assets and capabilities (resources) in the event of a drought



Assigning quantifiable value (or at least rank order) and importance to those resources



Identifying the vulnerabilities or potential threats to each resource



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