



UN-Water Decade Programme on Capacity Development  
**UNW-DPC**

# 1<sup>st</sup> Regional Workshop

of the joint UN-Water Initiative of  
WMO, UNCCD, FAO and UNW-DPC

## Towards Action Plan: Developing Drought Management Policy

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# Outline

- **Introduction**
- **Objectives of Drought Policies**
- **10-Step Process for preparing Drought Policies**
- **Arrangements/Guiding Principles fo Drought Policy**
- **Challenges in formulating Drought Policy**
- **Case Studies**

# 1 | Introduction



## Why should we care?

- 6-8 billion dollar costs through drought damage every year
- Affects more people than any other natural hazard
- Complex & multi-dimensional impacts (environment, economy, personal/psychological hardship)
- Affects particularly food, water and energy sector
- Significant secondary & tertiary impacts
- Ex: recent droughts in the horn of Africa, China, USA, England & Wales

# 1 | Introduction



## Phases in Drought Risk Management

- Monitoring & Early Warning Systems
- Vulnerability & Risk Assessment
- Emergency Response & Recovery
- Preparedness & Mitigation

## 2| Objectives of National Drought Policy



- To encourage vulnerable economic sectors & population groups to adopt self-reliant measures that promote risk management
- To promote sustainable use of agricultural and natural resource base
- To facilitate early recovery from drought through actions consistent with national drought policy objectives

*Source: Wilhite, 2007*

# 3| The 10-Step Planning Process



Taken from

***“Drought Preparedness Planning: Building Institutional Capacity” Donald A. Wilhite, Michael J. Hayes, and Cody I. Knutson***

***“Science Document: Best Practices on National Drought Management Policy”***

***HMNDP, CICG, Geneva, March 11-13 2013***

# 3 | The 10-Step Planning Process



- Requires political will and coordinated approach; diverse stakeholders must be engaged in the process.
- It is a one approach to assist nations with NDP process
- It can/should be modified/adopted according to local conditions
- Has been fundamental in guiding drought mitigation and preparedness plans in the USA

# 3| The 10-Step Planning Process



## Step 1: Appoint a National Drought Management Policy commission/Task Force

- Appointed by a high level authority
- Supervises and coordinates the development of the plan
- Coordinates action, implement mitigation & response programs during times of drought & to make policy recommendations to the appropriate government stakeholder
- The task force should reflect multidisciplinary nature of drought/impacts
- Should include appropriate representatives of both state & federal government agencies & universities (rep. of extension, climatologists, policy specialists, planners, private sectors, etc.) - Composition of TF: state specific



# 3 | The 10-Step Planning Process



## Step 2: Define the goals/objectives of risk-based National Drought Management Policy

- Government officials should consider many questions as they define the purpose of the plan
- Scope of the plan should be defined
- Should consider most drought-prone areas of the state/nation
- Historical impacts and historical response to drought
- Most vulnerable economic and social sectors
- Legal and social implications of the plan
- Environmental concerns caused by drought
- ❖ Drought plans may differ between countries/regions but the overall goal remains the same: Reduce impacts of drought

# 3| The 10-Step Planning Process



## Step 3: Seek Stakeholder Participation

- Resolve conflicts between key water user sectors (competition for scarce water resources among sectors)
- It is essential to identify all citizen groups (solicit input from all stakeholders) that have a stake in drought planning and to understand their interests.
- These groups (ranging from farmers, the poor, rural residents, marginalized, practitioners to decision makers) must be involved early and continuously for fair representation and effective drought management and planning.
- Forms of participation: establish citizens council/district (regional) advisory council, etc. as permanent feature of drought plan, helps info keep flowing

# 3| The 10-Step Planning Process



## Step 4: Inventory data and financial resources & identify groups at risk

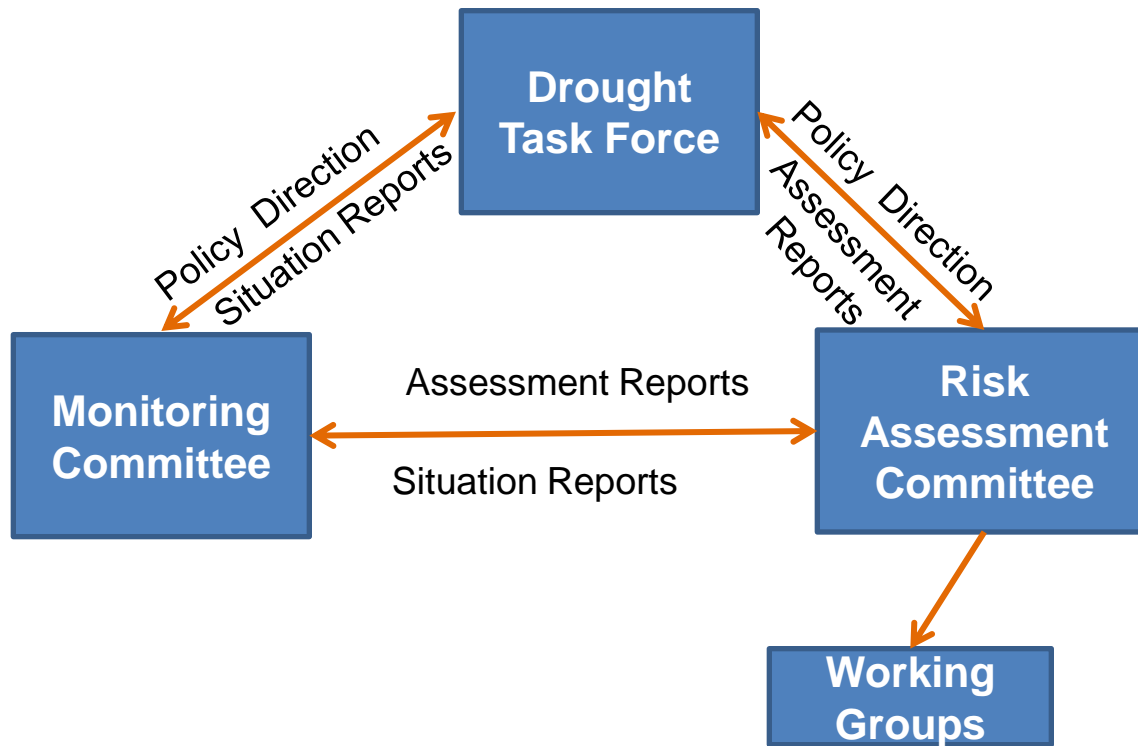
- An inventory of natural, biological, and human resources including the identification of constraints that may impede the planning process, may need to be initiated by the task force.
- *Natural resource (ex. Water): where is it located?; how accessible is it? of what quality?*
- *Biological resources: quantity/quality of rangelands, forests, wildlife, etc.*
- *Human resources: labor needed to develop water resources, pipelines,...*
- Identify constraints to the planning process and to the activation of the various elements of the plan as drought conditions develop: Constraints may be physical, financial, legal, or political.
- Costs of the plan against losses (cost if inaction) should be weighed
- Areas of high risk should be identified (exposure x vulnerability)

# 3| The 10-Step Planning Process



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## Step 5: Prepare/Write the key tenets of a national management drought policy



Drought Task Force Organizational Structure

# 3| The 10-Step Planning Process



## Step 5: Prepare/Write the key tenets of a national management drought policy (Cont.)

- An important step of establishing relevant committees
- Write the drought plan & develop necessary organizational structure
- Drought plan's three main components: (1) monitoring (Committee 1), (2) risk assessment (Committee 2) and (3) mitigation and response (TF)
- **Specific responsibilities of TF (mitigation and response):**
  - Determine mitigation and response actions for sectors in collaboration with risk assessment committee
  - Inventory all forms of assistance from the various levels of government during severe drought
  - Work with monitoring and risk assessment committees to establish triggers
  - Establish drought management areas
  - Developing website for disseminating drought monitoring info & drought plan

# 3| The 10-Step Planning Process



## Step 5: Prepare/Write the key tenets of a national management drought policy (Cont.)

### Monitoring committee:

- Help policy makers adopt a workable definition of drought
- Help the TF establish drought management areas
- Develop a drought monitoring system
- Inventory data quantity and quality from current observation networks
- Determine data needs of primary users
- Develop/modify current data information delivery systems

# 3| The 10-Step Planning Process



## Step 5: Prepare/Write the key tenets of a national management drought policy (Cont.)

### Risk assessment committee

- Assemble the team
- Evaluate the effects of past droughts
- Rank impacts
- Identify underlying causes
- Identify ways to reduce risk
- Write “to do” list

# 3| The 10-Step Planning Process



## Step 6: Identify research needs & fill institutional gaps

- The drought task force should compile a list of needs and deficiencies and make recommendations to the appropriate government body on remedial measures that should be taken.



# 3 | The 10-Step Planning Process



## Step 7: Integrate science and policy aspects of drought management

- Integration of science and policy during the planning process will also be useful in setting research priorities and synthesizing current understanding.
- Often policy maker's understanding of scientific issues/technical constraints associated with drought
- Often scientists have a poor understanding of existing policy constraints to respond impacts of drought.
- Communication between science and policy must be enhanced
  - Setting research priorities
  - Synthesizes current understanding

# 3| The 10-Step Planning Process



## Step 8: Publicize the drought management policy and build public awareness

Communicate constantly with the public, emphasising on issues like:

- How the drought plan is expected to relieve drought impacts in both the short and long term.
- What changes people might be asked to make in response to different degrees of drought
- What it will cost to implement each option, and how it will be funded

# 3| The 10-Step Planning Process



## Step 9: Develop educational programs for all age groups & stakeholders

- An education program to raise awareness of short and long-term water supply issues will facilitate that people understand how to respond to drought when it occurs and that drought planning does not lose ground during non-drought years.
- Build better than “normal better awareness”

# 3 | The 10-Step Planning Process



## Step 10: Evaluate and Revise Drought management Policy

The final step in the planning process is to create a detailed set of procedures to ensure adequate plan evaluation.

- **Ongoing evaluation:**

It keeps track of how societal changes such as new technology, new research, new laws, and changes in political leadership may affect drought risk and the operational aspects of the drought plan.

- **Post-Drought Evaluation:**

It documents and analyzes the assessment and response actions of government, nongovernmental organizations, and others and provides a mechanism to implement recommendations for improving the system.

# 4| A National Drought Policy should ....



- Be broadly stated (to accomodate changes in time & space)
- establish a clear set of principles/operating guidelines
- Be consistent & equitable for all regions, pop groups and economics/social sectors
- Be consistent with the goals of sustainable development
- Should reflect regional differences in drought characteristics, vulnerability and impacts
- Should promote principles of risk management

*Source: Wilhite, 2007*

# 4 | Arrangements/Guiding Principles for Drought Policy



- Political commitment, strong institutions, & appropriate governance (essential for integrating drought risk issues to sustainable development & disaster risk reduction process)
- Stakeholder participation: Bottom-up approach with community participation (both in decision making and implementation)
- Preparedness at all levels of government (Individuals, community, decision makers, local and regional authorities)
- Legal/ institutional framework with defined responsibilities and cross-institutional collaboration

## 4 | Institutional arrangements: Needs for Drought Policy (Cont.)



- Capacity building and knowledge development to help build political commitment, competent institutions, and an informed constituency
- Establish clear set of principles and operating guidelines to govern management of droughts
- Drought policies should emphasize mitigation and preparedness
- Policy mechanisms to ensure that strategies are carried out
- Development of long-term investment in mitigation and preparedness measures

# 5 | Drought Policy Challenges



## 1. Fragmented responsibilities for drought risk management

In Viet Nam, responsibility for drought risk is centralized within the national government, but the management of drought risk drivers falls between different institutions responsible for managing forests, agriculture, water and land use.

*(Shaw et al., 2010)*

## 2. Low priority given to drought by governments

In Mexico, 16 million hectares of agricultural land in Sonora, Mexico, 87 percent are rain-fed and highly vulnerable to agricultural drought and accounts for 70 percent of agricultural production. Nevertheless, there is no drought early warning system or any systematic recording of drought impacts.

*(Neri, 2004; Neri and Briones, 2010)*



# 5 | Drought Policy Challenges



## 3. Weak local drought risk governance capacities

In North-western Bangladesh, the local governments of Tanore and Shibganj have very low institutional resilience. They have not incorporated drought risk into disaster management plans, not developed effective drought risk management policies, training or demonstration programmes, and have weak coordination with other government institutions and NGO.

*(Shaw et al., 2010; Habiba et al., 2011)*

## 4. Conflict and excess water use

To manage scarce groundwater more efficiently during droughts, Morocco enacted a series of reforms, which included the privatization of water rights during the 1990s. The new policies conflicted with tribal customs and religious views and, due to the government's inability to ensure compliance, overexploitation of groundwater continued.

*(Doukkali, 2005)*

# 6 | Case Studies



## Australia

### Last three severe droughts

1982–83	One of the most intense and widespread droughts on record. Total loss was estimated to have been in excess of \$3 billion
1991–95	Particularly dry in parts of Queensland, northern New South Wales and parts of central Australia. Average production by rural industries fell by about 10 percent, resulting in a possible \$5 billion cost to the Australian economy, The Commonwealth Government provided \$590 million of drought relief between September 1992 and December 1995.
2002–07	Winter crop production declined sharply in 2002–03 and, after recovering, declined again in 2006–07. The Murray–Darling Basin inflows were the lowest on record, severely affecting irrigated agriculture.

*(Nicholson, et. al, 2011, p. 35)*

### Actions

- In 1992, a National Drought Policy was established
- Since the 1992 drought policy was enacted, it has been reviewed and its principles reinforced several times.
- In early 2008, the government further improved to the National Drought Policy in the context of responding to climate change, enhancing productivity and improving market access

## 6 | Case Studies



### Australia

#### Objectives of the National Drought Policy:

- encourage primary producers and other sections of rural Australia to adopt self-reliant approaches to managing climatic variability
- maintain and protect Australia's agricultural and environmental resource base during periods of extreme climate stress
- ensure early recovery of agricultural and rural industries, consistent with long-term sustainable levels.

An important Australian Government initiative has been to move away from a crisis management approach for droughts to an increased emphasis on climate risk management.

## 6 | Case Studies



### Unites States of America

In 1998, Congress passed the National Drought Policy Act. The Act also created the National Drought Policy Commission.

The commission evaluated all the findings and concluded that the United States clearly needed to embrace a national drought policy with preparedness as it fundamental core. The NDPC recommended that Congress pass a National Drought Preparedness Act.

#### **Some specific Recommendations of National Drought Preparedness Act**

- Congress should authorize and fund the U.S. Department of Agriculture to evaluate different options
- The Department of Agriculture should establish a single procedure to trigger, in a timely fashion, all of the Department's disaster programs.
- The President should request and Congress should provide administrative funding to support the interim and long-term National Drought Councils.

## 6 | Case Studies



### Brazil

The Brazilian Northeast, especially its semi-arid area, traditionally suffers from recurrent droughts that affect heavily its population, economy and environment.

#### Conclusions and Lessons learned

- As a result of drought and development policies, the Northeast of Brazil has reduced its economic and social vulnerability to droughts.
- Environmental vulnerability, however, has increased, due to increased human pressure on the natural resources of the Semi-arid Northeast
- Though the social impacts of droughts have decreased, due to social and economic policies, there is still a large group of the rural poor population that is vulnerable. This group continues to depend on social policies, especially on cash transfers.
- Climate risk should be considered as a dimension in economic, environmental and social public policies. This is an area where there seems to be increasing awareness but still little concrete actions...

# 6 | Case Studies



## Spain

Spanish Constitution and the European Union Water Framework are the bases of the Spanish water codes and statutes, including drought management plans.

The Law of the National Hydrological Plan (2001) explicitly ordered the development of Special Drought Management Plans for all basins and Drought Emergency Plans for all urban water supply systems

### **Management actions under the drought policy:**

- Internal operations
- Water uses
- Water reuses
- Industrial uses
- Legal.aspects

# 6 | Case Studies



## Spain

Summary of a planning framework for risk management of water scarcity

	Preparedness	Pre-Alert	Alert	Emergency
Monitoring Indicators	Indicators show a normal situation	Indicators show initial stage of danger; no observed impacts (meteorological drought)	Drought is occurring and impacts will occur if measures are not taken (meteorological and hydrological drought)	Drought is persistent and impacts have occurred; water supply is not guaranteed (socio-economic drought)
Objective of the plan in each stage	To ensure that a preparedness and early warning plan is in place	To ensure acceptance of measures to be taken in case of alarm or emergency by raising awareness of the danger of drought	To overcome the drought situation and to guarantee water supply while emergency measures can be put in place	To minimize damage, the priority is drinking water
Measures	Development of a management plan and strategy for revision and review Implementation of a monitoring and early warning system Integration with development and land use policies	Low cost, indirect, voluntary Non-structural directed to influence water demand and avoid worse situations. Focus on communication and awareness Intensification of monitoring and evaluation of worse case scenarios	Low cost, direct, coercive, direct impact on consumption costs. Non-structural directed to specific water use groups. Water restrictions for uses that do not affect drinking water. Changes in management. Revision of tariffs	High cost, direct, restrictive, approved as general interest actions. Structural, new infrastructure, intra-basin, inter-basin and transboundary transfers. Non-structural, such as permission for new groundwater abstraction points. Water restrictions for all users, including urban demand.

# 6 | Case Studies



## China

In 2002 and 2004, China approved the Water and the Meteorological Law respectively, both of which are active in the prevention and control of drought

### **Purpose of the Plan:**

- Identifies the local, provincial, state sector entities and non-governmental organizations that are involved with drought management and defines their responsibilities.
- Defines a process to be followed in addressing drought related activities, including monitoring, early warning, impact assessment, emergency response, hazard relief and recovery, and logistic supports
- Identifies long and short term activities that can be implemented to prevent and mitigate drought impacts



# References



Wilhite, D.A., M.J. Hayes, C. Knutson and K.H. Smith (). The basics of drought planning: A 10 step process

Sivakumar, M.V.K., Motha, R.P., Wilhite, D. A. and Qu, J.J. (Eds) (2001): Towards a Compedium on National Drought Policy. WMO, Geneva

UNISDR (2011): Global Assessment Report on Disaster Risk Reduction: Revealing Risk, Redefining Development. United Nations International Strategy for Disaster Reduction, Geneva, Switzerland

UNISDR (2007): Drought Risk Reduction Framework and Practices: Contributing to the Implementation of the Hyogo Framework for Action. United Nations secretariat of the International Strategy for Disaster Reduction (UNISDR), Geneva, Switzerland

# Breakout Groups



Capacity Development to Support  
**National  
DROUGHT**  
Management Policies

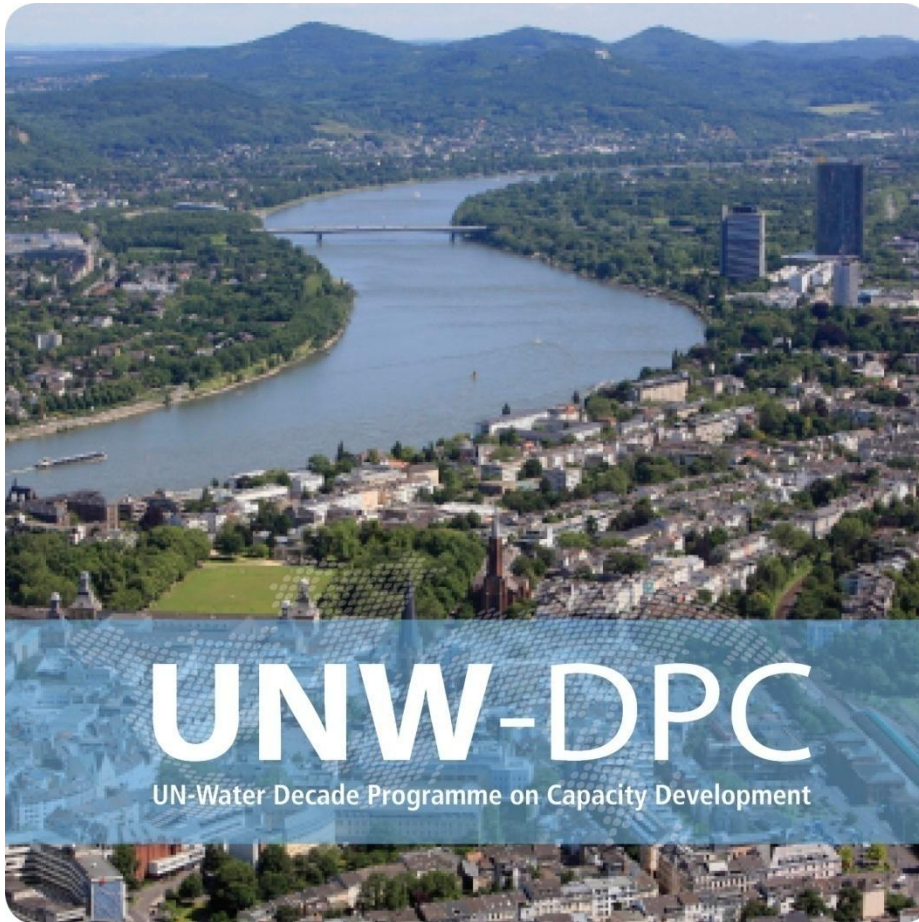
**Group A: What are the challenges for developing national drought policies?**

**Group B: What are the institutional arrangements necessary for developing national drought policies?**

**Group C: What are the steps being undertaken for developing national drought policies (context specific discussion)?**

# Thank you!

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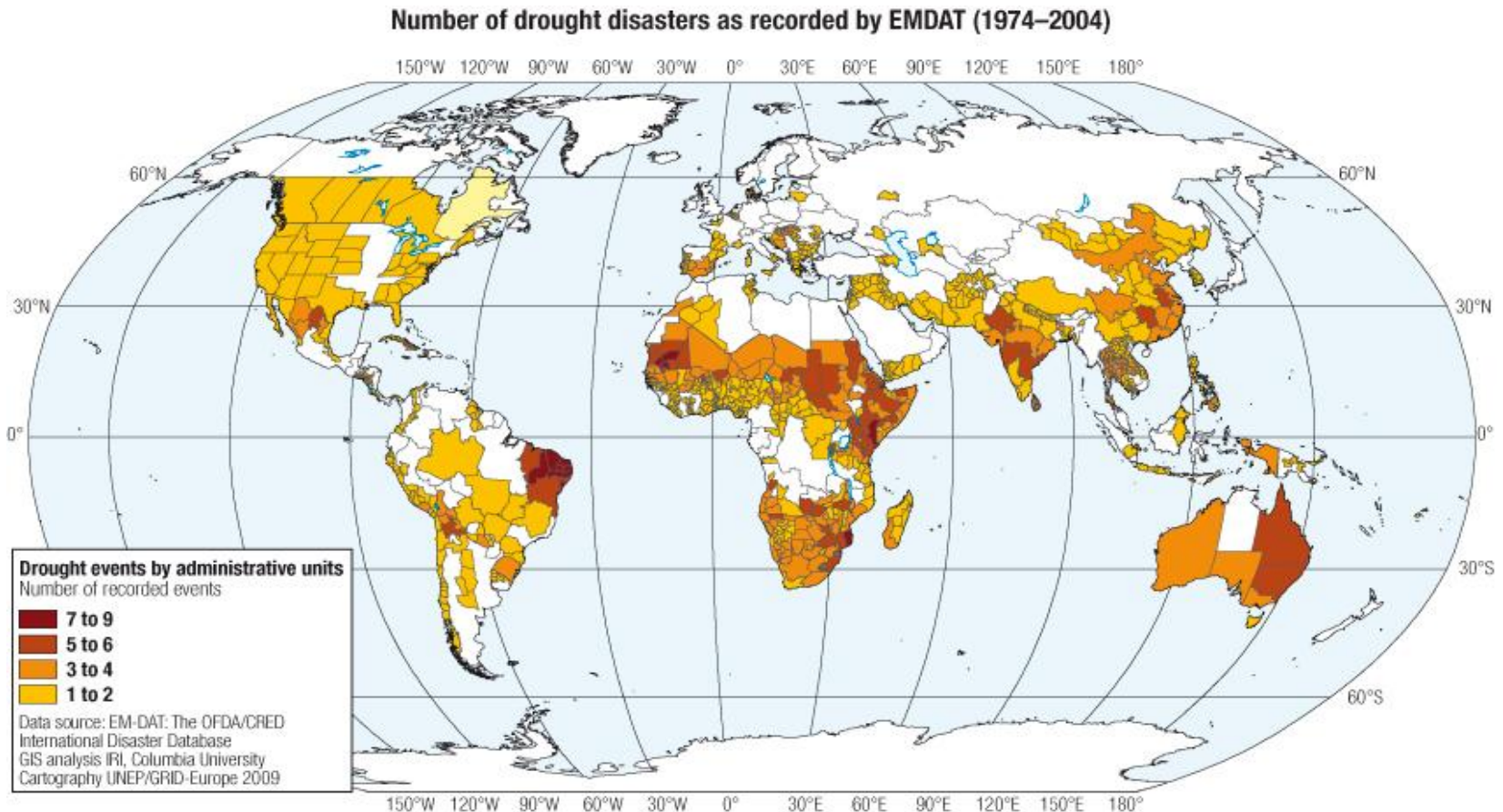
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# 1 | Introduction

## Drought events 1974-2004



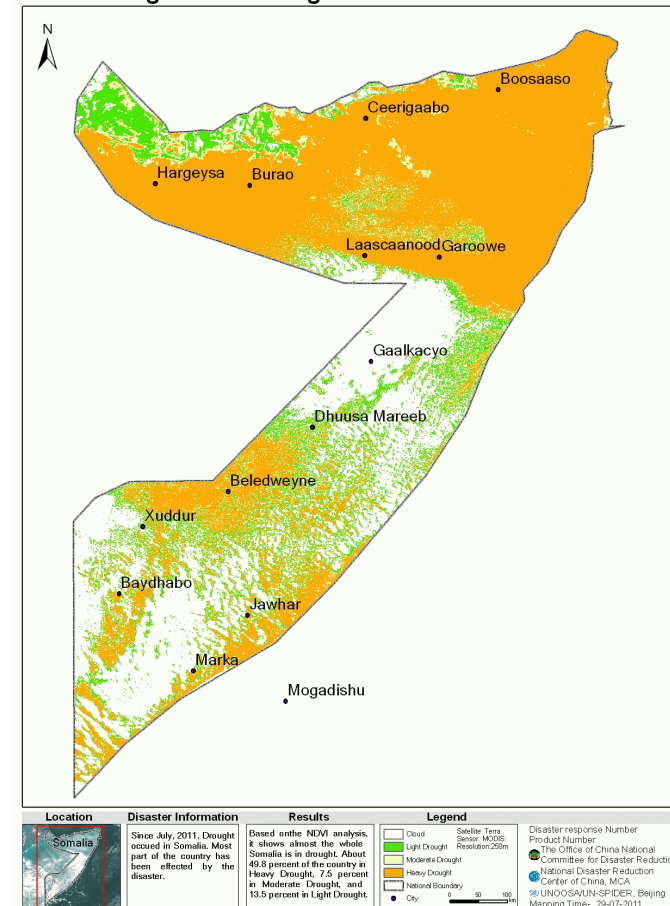
# 1 | Introduction



## Impacts of Drought point to:

- Vulnerable populations and economies
- Poverty and rural vulnerability
- Increasing water demand due to urbanization, industrialization and the growth of agribusiness
- Inappropriate soil & water management
- Weak or ineffective risk governance

Drought Monitoring with MODIS in Somalia



# 1 | Introduction



## Drought types:

- **Meteorological Drought**  
Precipitation deficit, degree of dryness, duration of dry period
- **Hydrological Drought**  
Deficiency in volume of water supply, focus on shortages in hydrologic system – rivers, lakes, streams, aquifers – with impacts on urban water consumption, tourism, etc.
- **Agricultural Drought**  
Agricultural limitations of crop growth due to precipitation shortages, soil moisture, groundwater and reservoir deficits)
- **Socio-economic Drought**  
Supply & demand of eco. goods linked with elements of other drought types, personal hardship

# 6 | National Drought Management Policies Initiative



## NDMP in UNW-AIS

### Information on the initiative

The screenshot shows the UNW-AIS website interface. At the top, it features the UN WATER logo and the UNW-AIS (UN-Water Activity Information System) header. A navigation menu includes Home, Projects, Publications, Learning, Platforms, and UN-Water. The main content area is titled 'Topic outline' and features a large banner for 'Capacity Development to Support National Drought Management Policies'. Below the banner are logos for WMO, UNCCD, and FAO. A text block describes the initiative, stating it was established by WMO, UNCCD, FAO, and UNW-DPC to support national drought management policies. It mentions a high-level meeting in Geneva in March 2013 and a series of regional workshops in 2013 and 2014, culminating in a final wrap-up conference in late 2014. A 'Feedback Form' button and a 'UN-Water' logo are also visible.

### 2 Reference Publications / Websites

WMO:



[Towards a Compendium on National Drought Policy: Proceedings of an expert meeting](#)



[Early Warning Systems for Drought and Desertification: Role of National Meteorological and Hydrological Services](#)



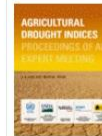
[Climate and Land Degradation](#)



[Drought Monitoring and Early Warning: Concepts, Progress, and Future Challenges](#)



[Early Warning Systems for Drought Preparedness and Drought Management](#)



[Agricultural Drought Indices](#)



[Climate Change and Desertification](#)



[Impacts of Desertification and Drought and Other Extreme Meteorological Events](#)



[Coping with Drought in Sub-Saharan Africa: Better Use of Climate Information](#)

## Documents and publications