

# Global perspectives and innovative governance approaches for drought risk management

BEYOND SCARCITY: WATER SCARCITY AND DROUGHT RISK MANAGEMENT IN THE DANUBE REGION

*September 20, 2021*



**WORLD BANK GROUP**  
Water Global Practice



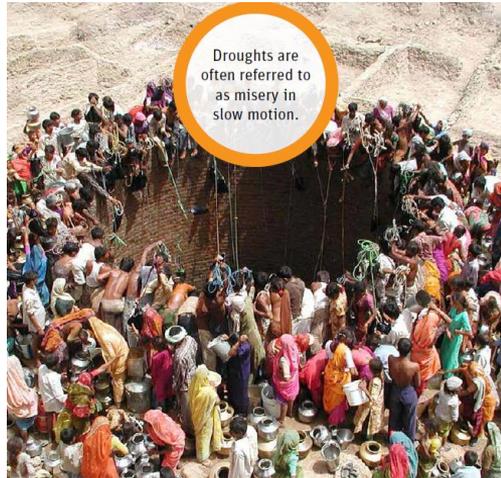
Nathan Engle  
Sr. Climate Change Specialist  
The World Bank

# Overview

- Droughts... Why should we care?
- Global perspectives and innovative governance approaches for drought risk management - examples from the World Bank

# Why should we care about floods and droughts?

- Between 2000 and 2019, 1.65 billion people adversely affected by floods and 1.43 billion by droughts.
- Floods and droughts have caused US\$764 billion in recorded damages plus US\$1,390 billion from storm-related flooding.



Average yearly damage:

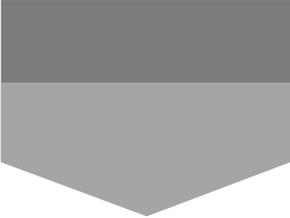
154 M



US\$110B

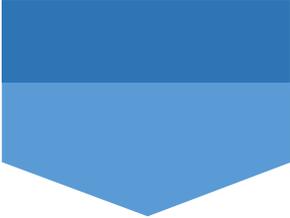


# Why should we care about droughts in particular?



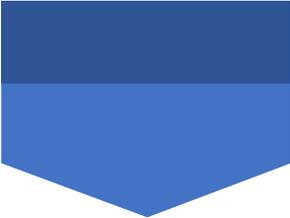
## Droughts are costly and deadly

Cyclical droughts are exacerbated by climate change, and their frequency and intensity are increasing



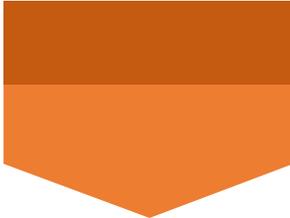
## Developing countries are vulnerable

Developing economies are highly dependent on natural resources. Drought cause ecosystem degradation and food insecurity



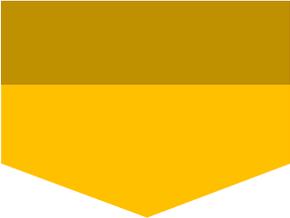
## Droughts are felt across borders

Meteorological, hydrological, and agricultural droughts affect landscapes beyond national borders



## Impacts are felt across the economy

Cities run out of water; power generation declines; and rural livelihoods collapse



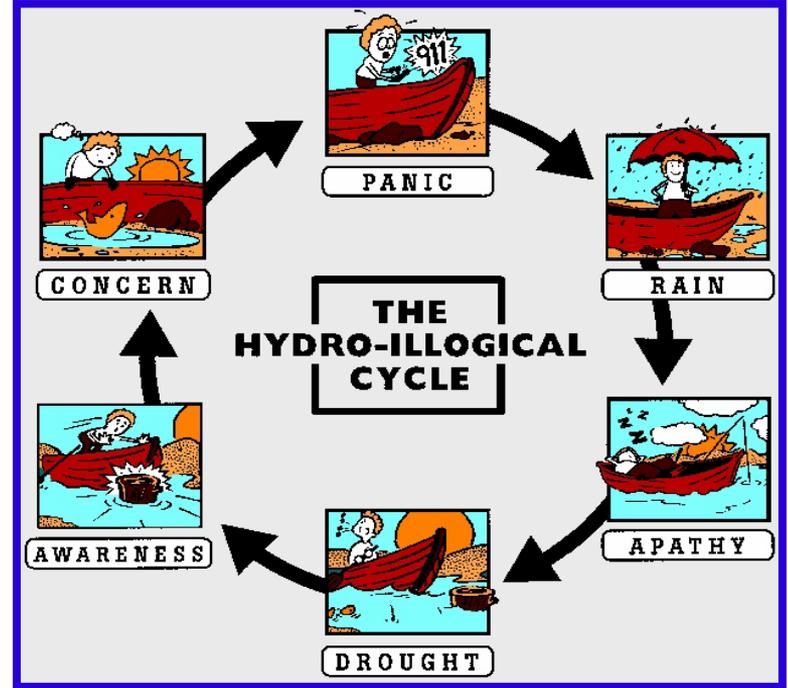
## Action must be regional & cross-sectoral

The drought challenge requires a response that is regional and integrated across sectors

**Drought:** *An entry point for building broader resilience*

# Characteristics of crisis management

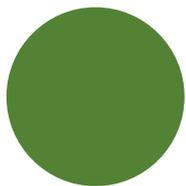
- Ineffective, treats symptoms of drought
- Untimely, response actions
- Increases reliance on government/donors
- Poorly coordinated, national to local level actions
- Expensive, large expenditures from numerous government agencies (and donors)
- Increases vulnerability?



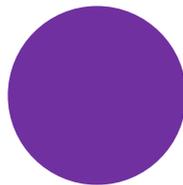
*Don Wilhite, University of Nebraska, Lincoln*

# Global perspectives and approaches

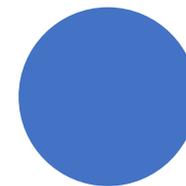
Shifting the paradigm from reactive to proactive – HMNDP, IDMP, and others



**Drought Monitoring and  
Early Warning Systems**



**Drought Vulnerability  
and Risk Assessment**



**Drought Preparedness,  
Mitigation, and  
Response**

The Three Pillars of Integrated Drought Risk Management

# Global perspectives and approaches



## An EPIC Response:

Innovative Governance for Flood and Drought Risk Management



## PROGRAM AREAS

**E**NABLE

- National Frameworks: Laws, Agencies, Strategic Plans
- Facilitating Whole-of-Society Approach
- Hydro-Met Services

**P**LAN

- Flood and Drought Risk Mitigation and Contingency Planning

**I**NVEST

- Healthy Watershed
- Water Resources Infrastructure

**C**ONTROL

- Water Allocation and Groundwater Management
- Floodplain Management

**RESPOND**

- Drought Monitoring, Response, and Recovery
- Flood Monitoring, Response, and Recovery
- Disaster Risk Financing

**IMPACT**



# EPIC Response continued

## National strategic planning is a key tool for accelerating the evolution of an EPIC Response

- Governments should periodically develop interlocking national strategic plans for water, disaster risk management, and drought.
- They need to continuously strive to improve program performance through M&E and adjustments.
- National climate adaptation plans can also be guided by the EPIC Response Framework.

## National Agency Roles for Hydro-climatic Risk Management

### Hydromet

Provides information for water resources and floodplain management. Leads flood and drought forecasting. Supports agriculture with agro-hydro advisory services.



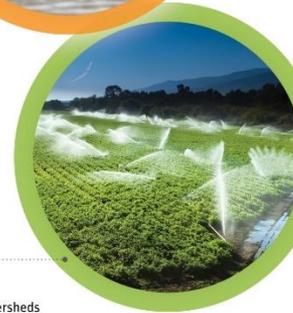
### WRM

Oversees planning and operation of water resources infrastructure. Regulates water allocations and strategic use of groundwater to help mitigate droughts. Key role in flood and drought response.



### DRM

Lead coordinating agency for flood, and sometimes drought, disaster response. Provides leadership in floodplain management. Works with other agencies to mitigate risks.



### Agriculture

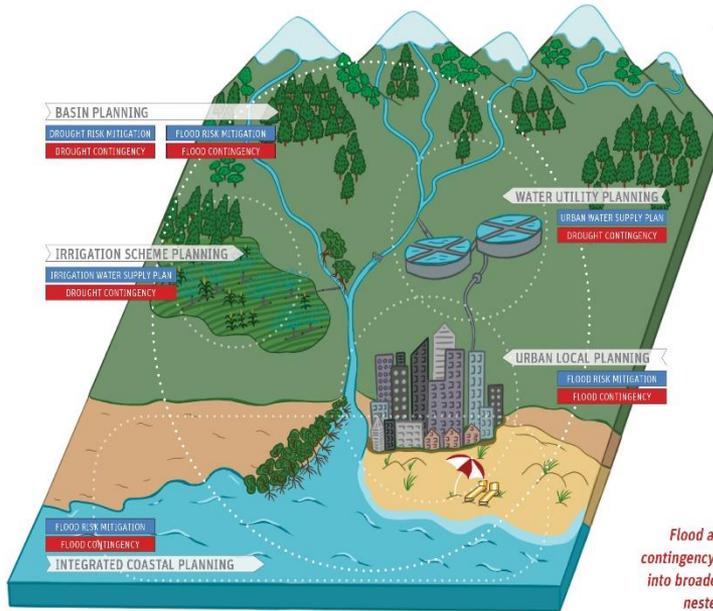
Promotes healthy watersheds through sound agricultural policies and climate-smart agriculture. Helps boost farmer incomes and resilience. Key role in drought response. Collaborates with natural resources and WRM on watershed management

### Natural resources management

Promotes healthy watersheds by sustainably managing forests, wetlands, and coastal barriers. Collaborates with agriculture and WRM on watershed management.

# EPIC Response continued

FIGURE 5 Overview of Plans for Hydro-Climatic Risk Management



*Flood and drought mitigation and contingency planning should be integrated into broader planning processes within a nested geographical context.*

## An EPIC Response is a whole-of-society effort:

National governments must lead a whole-of-society effort to managing hydro-climatic risks. Sub-national governments are the indispensable associates of national agencies in this endeavor. Agencies need to engage with businesses, civil society, and households—and focus on poor and marginalized groups—to ensure effective programs. They need to prioritize education and risk communication, tap into the expertise of the research community, and ensure open access to data and information.

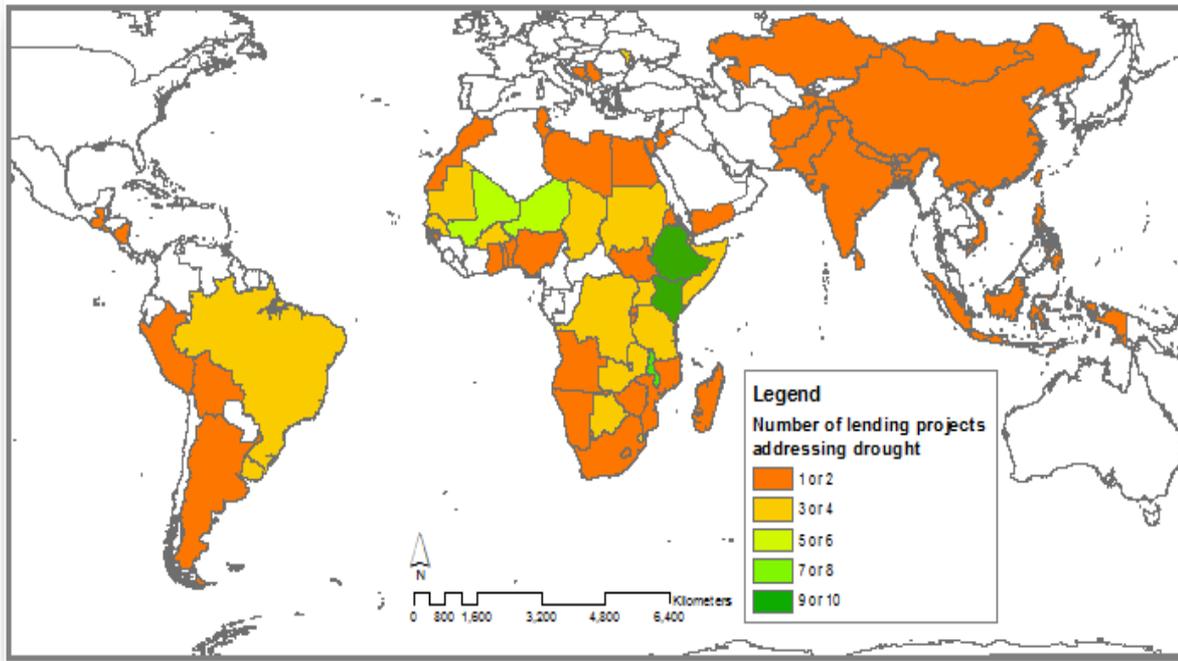
## Developing an EPIC Response is an evolutionary process:

The ability of a country to mount an EPIC Response depends on many factors, including its overall level of economic development and quality of governance. The report helps countries improve their responses by providing a template to gauge the effectiveness of their programs. The challenge is urgent because a country's EPIC Response needs to evolve rapidly to stay ahead of a changing climate.



# World Bank examples

WB activities addressing drought from the World Bank lending portfolio (2000-2017)

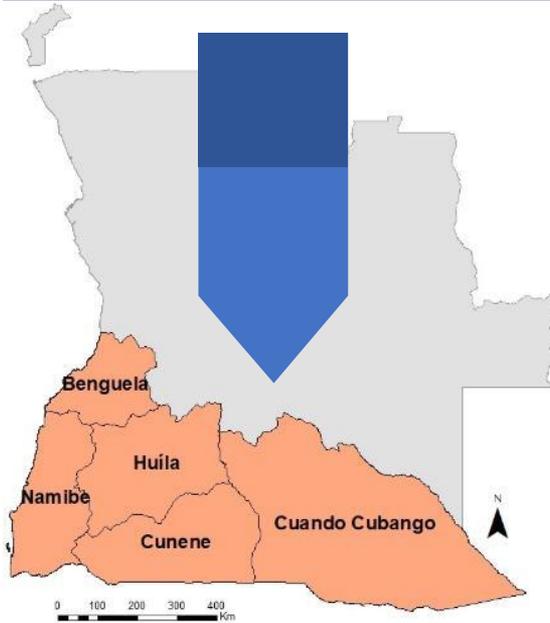


In the most supported countries, many GPs (sectors) intervene

However, some of these projects were emergency support, launched only when drought hit the countries!

# Deep dive into Angola

Multi-year drought in Angola from  
2012 - present



## Numerous Impacts (PDNA, 2016)

- 76% of **population affected**.
- **Economic impact** of US\$749 million.
- Agriculture, livestock, and fisheries sector = **75%** of the economic impact.
- Increase in **livestock mortality**.
- Failure of **crops**.
- Increase in the admission cases of **malnutrition, family abandonment, and domestic violence**.

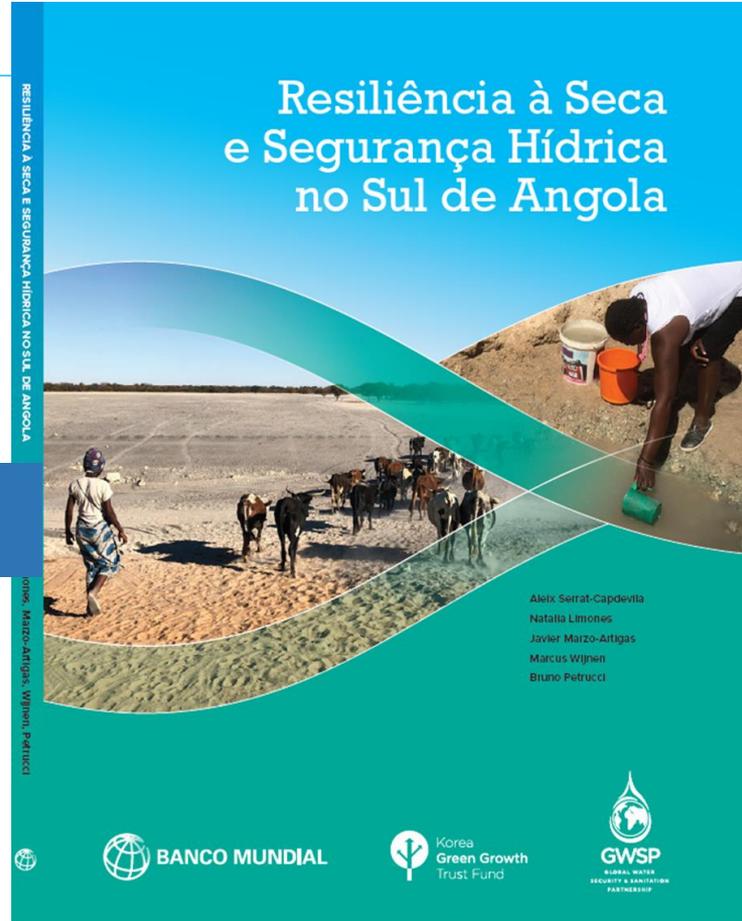
# Deep dive into Angola

Initial assessment finalized in 2020

Field and data-driven diagnosis of the main drought vulnerabilities in the Southern Provinces:

- i. **Lack of basic infrastructure** and reliable access to safe water resources, and lack of water storage. Water availability is guaranteed in the dry season, but not during multi-year droughts.
- ii. **Lack of efficient monitoring** of the status and use of rural water points (and sometime urban), no information flows, no open data, poor water resources knowledge base.
- iii. **Lack of governance capacity** to prepare for drought, no capacity to manage and repair rural water points. Scarce human and financial resources, from community level to provincial and national

level



# Deep dive into Angola

## NEW WORLD BANK PROJECT (2022) → Climate Resilience and Water Security in Angola (P177004)



**Component 2 of the Project: Strengthening climate-resilient WRM. This component will support central and basin institutions to achieve climate preparedness while improving WRM**



### PROJECT OUTPUTS

#### Adaptation to climate change is increased in the south Angola through resilience-building activities

- Rural water point management at the local, regional and national level is strengthened, also repair capacity
- Communities have higher capacity to manage WASH
- Relevant players have robust monitoring systems and can adequately support rural areas
- Municipalities & Provinces have a stronger capacity to prepare and respond to climate events, including having in place preparedness and drought emergency and disaster response programs

#### Rural water supply systems in the south of Angola are strengthened to withstand drought and a community-level infrastructure program is developed

- RBMPs updated
- Improved capacity of River Basin Agencies, that will coordinate drought monitoring and preparedness, and flood and drought emergency and disaster response programs.
- Monitoring of water resources is carried out systematically and decisions are based on monitoring data and subsequently operationalized.
- Groundwater studies conducted inform water availability and vulnerability
- A community-level infrastructure program is established
- An analytical approach for storage investments in the South is developed



### PROJECT OUTCOMES

Increased data-driven decision making to fight drought

Systematic monitoring of drought and other climatic events and integrated basin plans developed and/or endorsed



#### Project Development Objective:

Improve WASH services and water resources development in targeted areas and strengthen the institutional capacity for drought resilience in the water sector.

# Regional initiatives are key



## Southern Africa DROUGHT RESILIENCE INITIATIVE



THE WORLD BANK  
IBRD • IDA | WORLD BANK GROUP



GWSP  
GLOBAL WATER  
SECURITY & SANITATION  
PARTNERSHIP



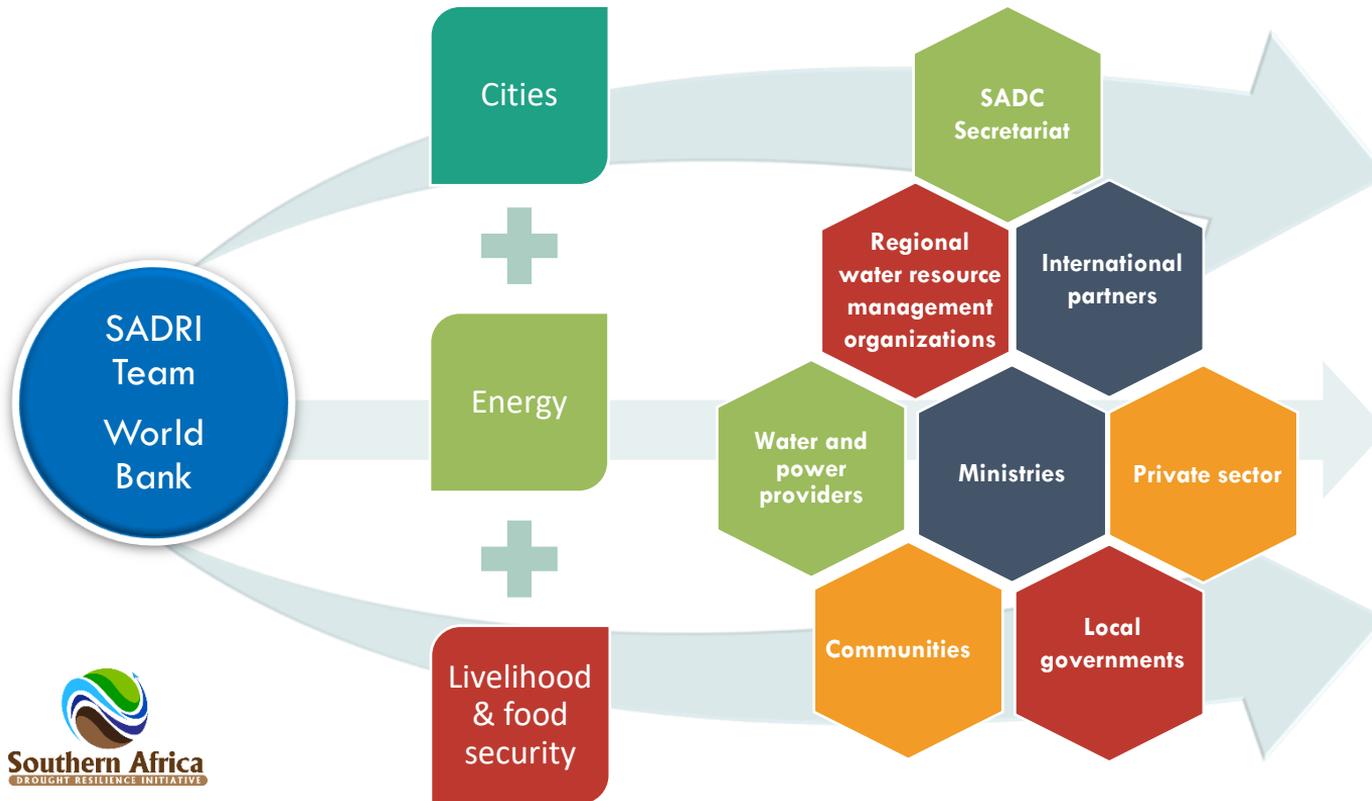
**SADRI** aims to build analytical and institutional foundations to catalyze national and regional investments in integrated drought resilience.

# SADRI continued: Integrated and multi-level

## Pillar Strategies/Activities

## Partners/Implementers

## Vision



Our vision is a drought resilient SADC region in which governments, institutions and households are able to withstand climate change and associated economic shocks, benefiting all citizens. SADRI will contribute to this change by supporting countries, cities and regional bodies to take an integrated approach to drought risk assessment that is proactive and coordinated. Inspired by others in the region and new tools and insights, countries will invest and welcome international investment and technical advice. With these new tools, countries will be able to better implement and coordinate drought resilience strategies within and across borders and sectors.

# SADRI continued: Integrated and multi-level

## Umbrella Program



1. Stocktaking and Needs Assessment at the national and regional level - Drought Resilience Profiles and Regional Profile
2. Knowledge Hub on Drought Resilience
  - Capture existing content/info through an internal platform.
  - Stakeholder and Knowledge events to raise awareness, foster collaboration, and generate demand

### Pillar 1: Cities



1. City Drought Resilience Toolkit for TTLs
2. Regional Guidance notes for water systems to reduce exposure and increase resilience to drought

### Pillar 2: Energy Systems



1. Dam Operation Optimization for the Zambezi Hydropower Cascade
2. SAPP Drought Sensitivity Assessment and Adaptation Strategy
3. SAPP Drought Resilience Action Plan

### Pillar 3: Livelihoods & Food Security



1. Development of agri-food value chain solutions for drought risks
2. Review of strategic food reserves policies
3. Operationalizing drought resilient contingency components/mechanisms
4. Integrated Water Resource Management Strategy for resilient livelihoods, food security, and agriculture



## Internal World Bank Community of Practice on Drought Resilience



Drought Resilience  
Community of Practice

- Raise awareness & increase **collaboration among World Bank staff developing projects** (teams from many sectors)
- **Share experiences and expertise** across the World Bank
- Reflect together on how to use budgets to strengthen drought resilience. What are the major **challenges, gaps and opportunities** for building drought resilience? What should be the World Bank role?

**Thank You!**

**[nengle@worldbank.org](mailto:nengle@worldbank.org)**