



Robert Stefanski

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Technical Support Unit

Integrated Drought Management Programme

World Meteorological Organization

Integrated
Drought
Management

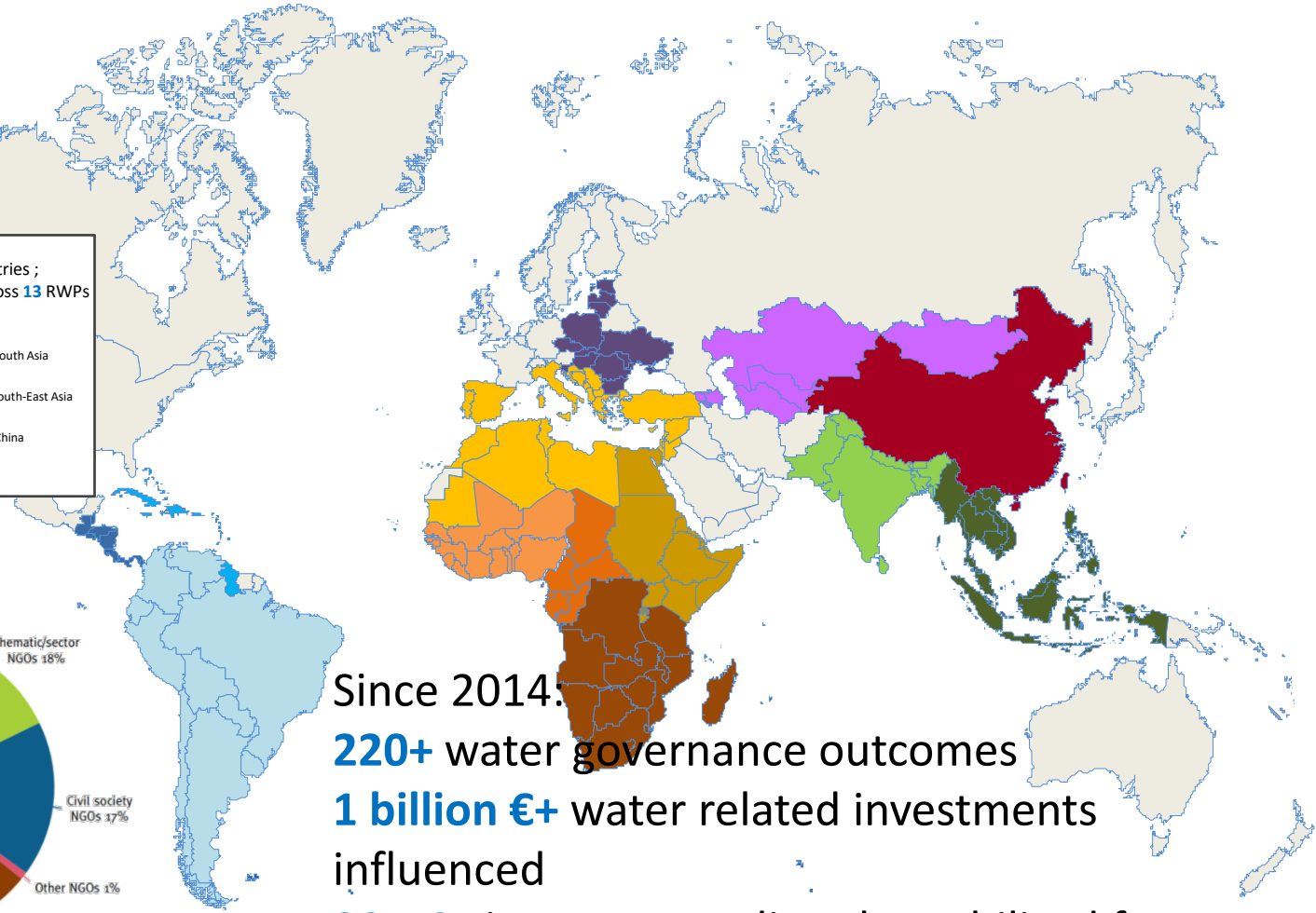
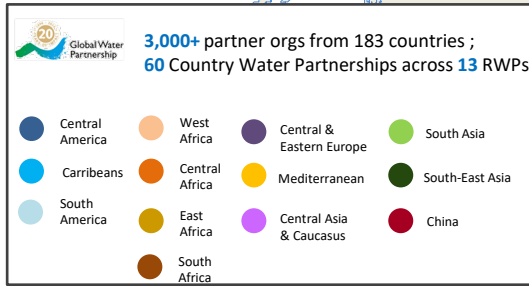
World Meteorological Organization

WMO is the United Nations system's authoritative voice on weather, climate and water

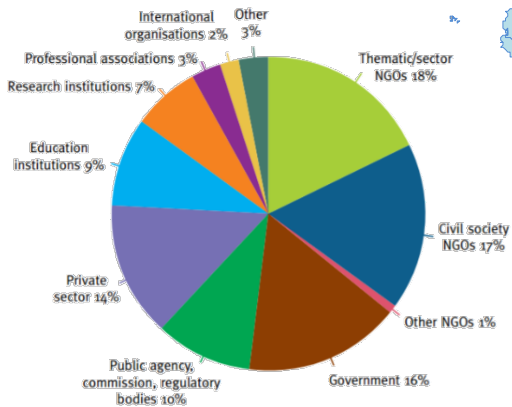
WMO has 191 Members and coordinates the activities of the National Meteorological and Hydrological Services (NMHSs) because weather, climate and water know no national or political boundaries.

We work in 181+ countries

With structured Country Water Partnerships in 60+ countries



GWP Partners by type



Since 2014:
220+ water governance outcomes
1 billion €+ water related investments influenced
20m€+ investments directly mobilized from climate finance sources through project preparation

<http://www.gwp.org/en/interactivemap/>

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

Effective drought management must be INTEGRATED across sectors and within and between levels of government as well as with NGOs.



**Hydrological and
Socio-economic
Impacts**



Droughts differ in terms of

- **INTENSITY**
- **Duration**
- **Spatial Extent**

As with other natural hazards,
each drought event is unique in its physical
characteristics and impacts.

Droughts are among the most complex natural hazards



- Drought is a creeping phenomenon with slow onset
- Impacts of drought can accumulate gradually
- Lack of precise and universal definition for drought leads to confusion about when a drought begins and when it ends
- Leads to uncertainty on precise time to implement emergency response actions or mitigation measures.
- Drought expected to increase due to climate change

Integrated Drought Management Programme (IDMP)

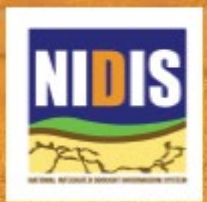
Integrated Drought Management Helpdesk

The image shows three interactive buttons for the Integrated Drought Management Helpdesk. Each button has a title, an icon, a description, and a plus sign in the bottom right corner. The 'Ask' button is highlighted with a blue border.

- Ask:** Icon of two speech bubbles (one with a question mark, one with an 'i'). Description: "Ask for assistance on integrated drought management".
- Find:** Icon of a magnifying glass. Description: "Find knowledge resources on integrated drought management".
- Connect:** Icon of a group of stylized human figures in a circle. Description: "Learn about the activities of IDMP and connect to them".

www.DroughtManagement.info

meet IDMP's dedicated
Partners



Guidelines and Library

Guidelines and tools created by Experts

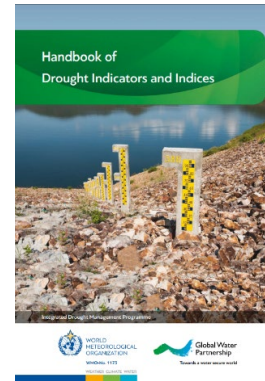
- Handbook on Drought Indicators and Indices (online tool)
- National Drought Management Policy Guidelines

www.droughtmanagement.info/find/guidelines-tools

Drought Management Library

- Over 300 publications
- Vetted by IDMP Partners
- Ongoing updates

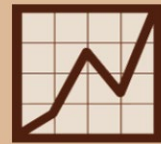
www.droughtmanagement.info/library



Tools and Resources on the 3 Pillars of IDM



Monitoring
Early
Warning



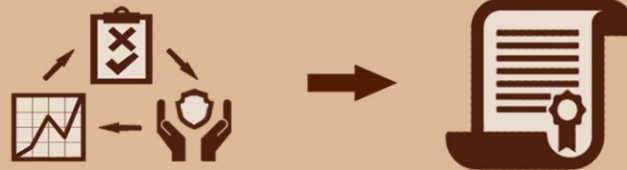
Vulnerability
& Impact
Assessment



Mitigation,
Preparedness &
Response



Drought Policies and Plans

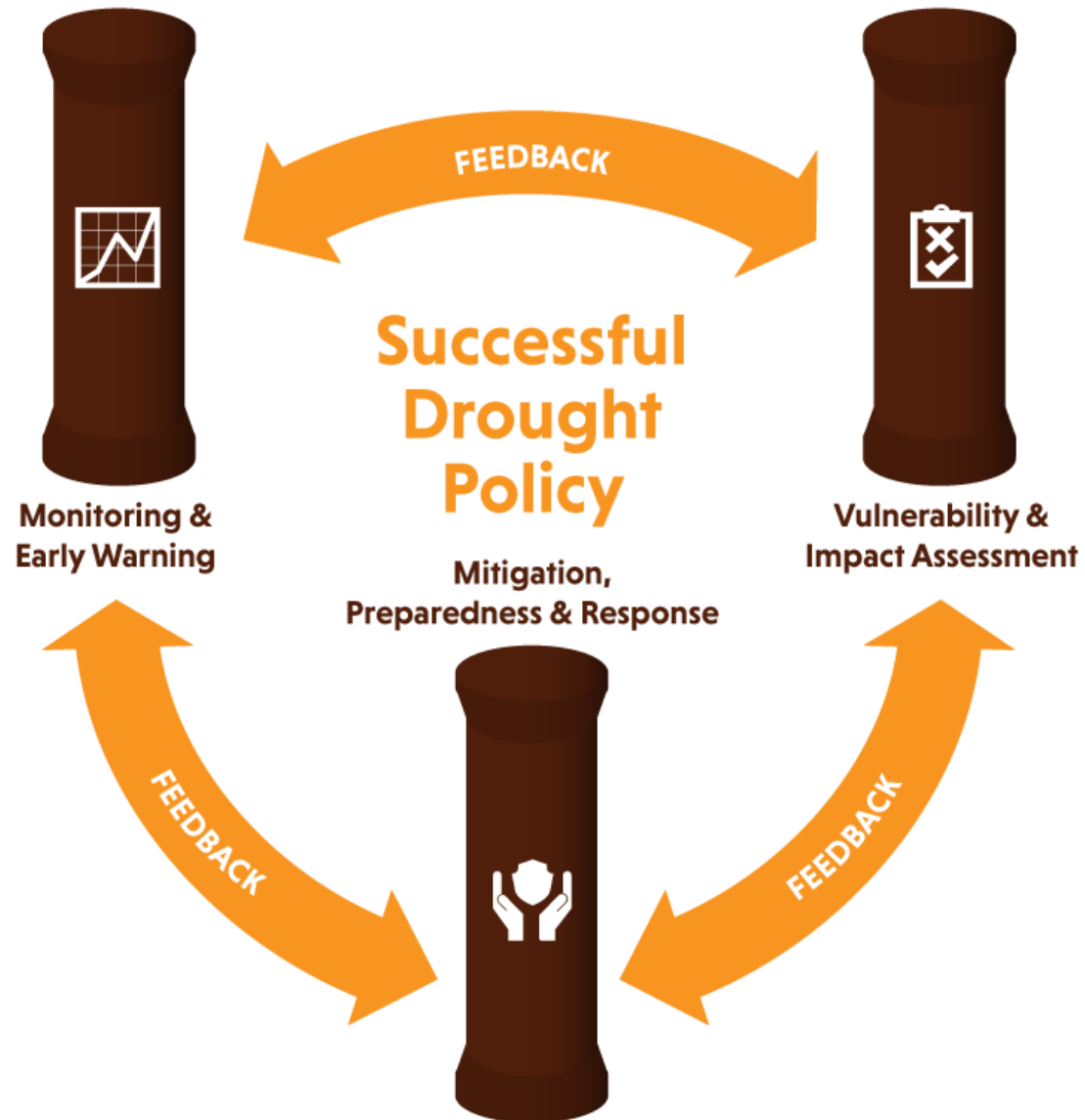


Tools and
Examples of
Applications on the
3 pillars of
Integrated Drought
Management

Overview of
Drought
Management Plans
and Policies

www.droughtmanagement.info/pillars

Three Pillars of Integrated Drought Management



Key Pillars of National Drought Management Policy



1) Monitoring and early warning systems

- (NMHS, NDMO, WMO)

2) Vulnerability and impact assessments

- (Ministry of Agriculture, Fisheries/Marine Resources, Livestock, Environment/Climate Change Division, Health, Finance, NDMO, NMHS, Water Authority and Internal Affairs, FAO, UNCCD, GWP)

3) Drought preparedness, mitigation and response

- (NDMO, NMHS, WMO, Agriculture, Environment/Climate Change Division, Health, Finance and Internal Affairs, Red Cross, FAO, UNCCD, GWP)

Pillar 1: Monitoring and Early Warning Systems



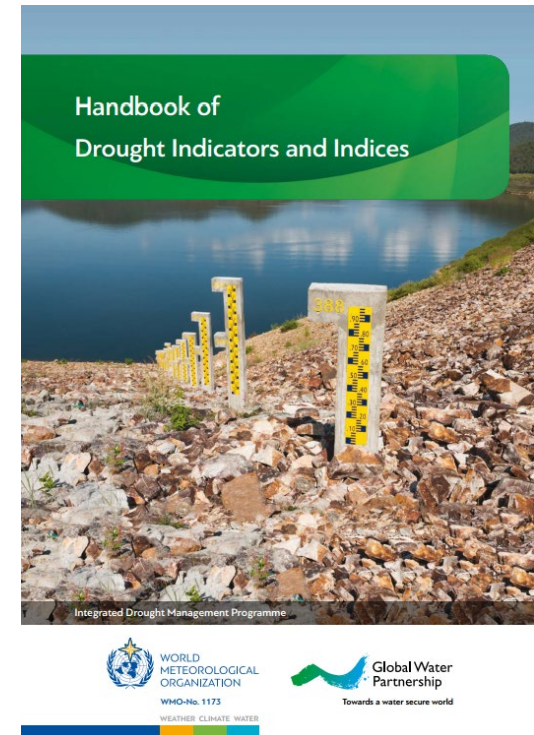
- **Monitoring/early warning, prediction and information delivery systems**
 - **Integrated** monitoring of key indicators
 - Precipitation, temperature, soil moisture, streamflow, snowpack, groundwater, **impacts**, etc.
 - Use of appropriate indices
 - **Used to trigger actions in drought plans**
 - Reliable seasonal forecasts
 - Development/delivery of information and sector-specific decision-support tools

Monitoring, Early Warning & Information Delivery Systems

Indicators/Indices	Agencies/Ministries/Organizations
<ul style="list-style-type: none">• Precipitation• Temperature• Surface water supplies<ul style="list-style-type: none">– Stream flow– Soil Moisture– Reservoir levels– Snow pack– Water use• Ground water• Remotely-sensed data (e.g., plant water stress)• Impacts<ul style="list-style-type: none">– By sector, area	<ul style="list-style-type: none">• Water• Meteorological & Hydrological Services• Agriculture, Forestry & Fisheries• Environment• Health• Energy• Transportation• Commerce• Social Services• NGOs• Others

Handbook of Drought Indicators and Indices

- Handbook is a resource to cover most commonly used drought indicators/indices
- A starting point to describe and characterize the most common indicators and indices and their applications
- Does not recommend a "best" set of indicators and indices, given research requirements for appropriate application in location in question.



Pillar 2 and 3



- **Risk/Vulnerability and impact assessment**
 - Conduct of risk/vulnerability assessments
 - Monitoring/archiving of impacts/losses
 - Critical for evaluating progress in risk reduction and also for vulnerability assessment
- **Preparedness, Mitigation and response**
 - Proactive measures to increase coping capacity
 - Response measures that support the principles of drought risk reduction

Vulnerability/Impact Assessment, Mitigation and Response

Who and What is at RISK and Why?

• By Sector

- Agriculture
- Energy
- Environment, Recreation & Tourism
- Transportation
- Health
- Commerce
- Others

By Area/Region

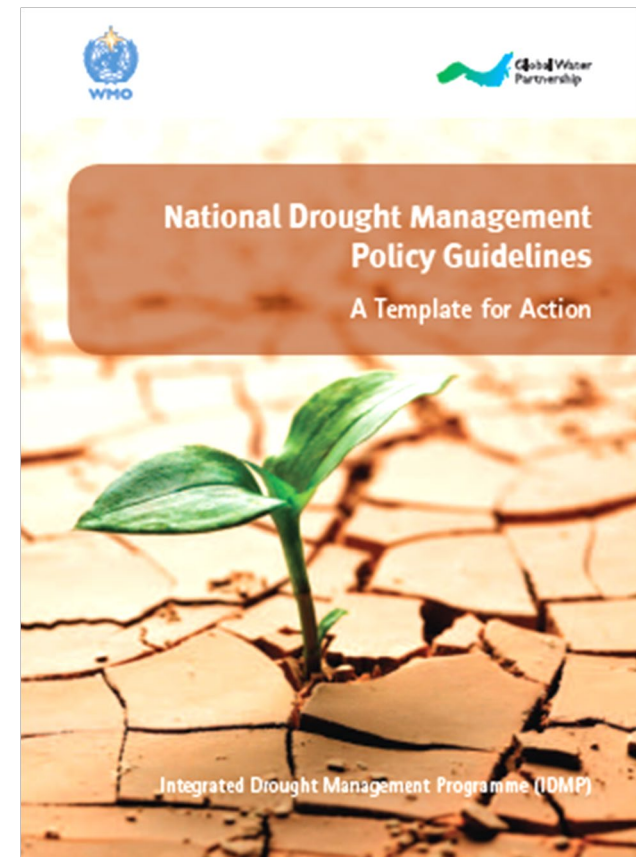
- Drought management areas (provinces, river basins)
- Communities (rural, urban)
- Indigenous population

- Agencies, Organizations & Stakeholder Groups

- Reps from Ministries and non-governmental organizations
- Communities & regional organizations
- Stakeholder groups representing all impact sectors
- Others

National Drought Management Policy Guidelines

- Adapting of 10-step process by Don Wilhite (National Drought Mitigation Center at the University of Nebraska-Lincoln)
- Response to need articulated at High-level Meeting on National Drought Policy (HMNDP)
- Template that can be adapted to national realities and needs
- Building on existing risk management capacities



Source: World Meteorological Organization and Global Water Partnership, National Drought Management Policy Guidelines: A Template for Action



IDMP
Integrated Drought Management Programme
www.droughtmanagement.info



Requirements to implement national drought management policies

- Building capacity is essential to facilitate the necessary framework for developing national drought management policy. In many countries, these capacities are weak or non-existent.
- Governments need to prioritize drought in the development policy.
- National drought policies need a collaborative environment that supports and encourages coordination within and between various levels of government.



Requirements to implement national drought management policies

- Strong outreach and media programmes to improve awareness of drought and need to raise level of consciousness of society regarding drought cannot be neglected.
- National drought policies should reflect regional differences in drought characteristics, vulnerability and impacts to allow decision-makers to identify sectors and regions that are vulnerable to drought and investigate management options before crisis occurs.



Take Home Messages

- Past drought management efforts have been *reactive*—ineffective, poorly coordinated & poorly targeted (**crisis management**).
- Managing sector impacts—*increase resilience* to drought.
- ***Integrated drought management*** requires a collaborative approach **within and between levels** of government, civil society and the private sector for monitoring and early warning, risk/vulnerability assessment and mitigation and response.
- Time is **NOW** to change the *paradigm* from crisis to ***drought risk management*** through *integrated drought management*.
- The '*cost of inaction*' – and *benefits of action*!

Questions?

Get in touch: **Integrated Drought Management Helpdesk**

The image shows three interactive cards arranged horizontally. Each card has a title in an orange box, a central icon, a description in a white box, and a small red '+' icon in the bottom right corner. The first card, 'Ask', features a question mark and an information 'i' icon. The second card, 'Find', features a magnifying glass icon. The third card, 'Connect', features an icon of people holding hands in a circle.

- Ask**: Ask for assistance on integrated drought management
- Find**: Find knowledge resources on integrated drought management
- Connect**: Learn about the activities of IDMP and connect to them

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