

GWP@20
YEARS OF IMPACT
1996 – 2016



Integrated Drought Management Programme

Guidelines for Drought Management Plans

Drought and Water Scarcity
Bratislava, 17-18 May 2016
Richard Müller

Drought

- **Management** – drought management plans
- **Drought monitoring and forecasting** – Intersucho, ESA Sentinels
- **Measures** – reduction of drought impacts, vulnerabilities and risks



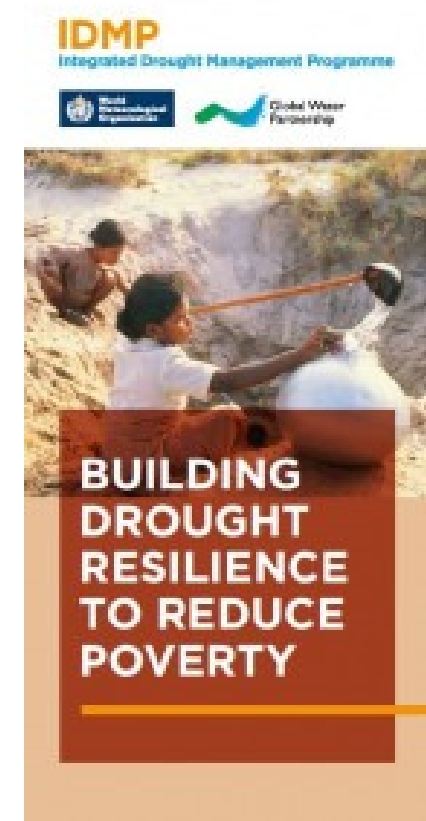
Facts and figures

- Population of 152 million people, a quarter of all Europeans
- 12 countries in **Baltic** and **Danube** regions, 160 Partner organizations
- Founded in 1998
- **Baltic region:** Estonia, Latvia, Lithuania and Poland
- **Danube region:** Bulgaria, Hungary, the Czech Republic, Moldova, Romania, Slovakia, Slovenia and Ukraine

The GWP CEE region



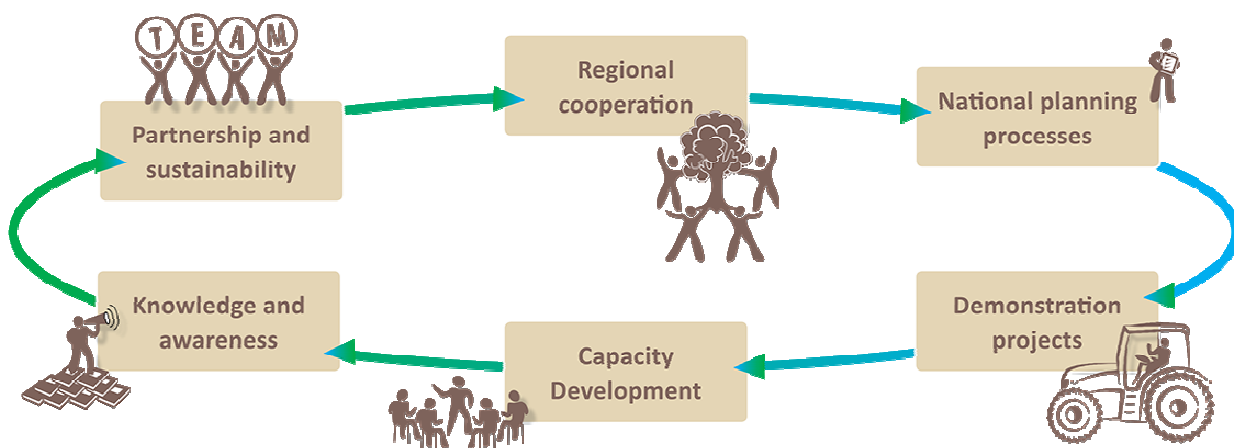
- WMO/GWP started in 2013
- Principles: shift the focus from reactive (crisis management) to proactive measures through drought mitigation, vulnerability reduction and preparedness
- Contribution to the [Global Framework for Climate Services \(GFCS\)](#)
- CEE, West Africa, Horn of Africa, South Asia and Central America



Why IDMP in CEE?

**Increase the capacity of the region
to adapt to climate variability by
enhancing resilience to drought**

- ✓ variability and change in precipitation
- ✓ increased frequency of extreme weather events in the future
- ✓ well developed meteorological and hydrological monitoring but not as a support for decision makers
- ✓ limited sharing of information among countries
- ✓ drought was not considered as a relevant issue



Partners

10 countries, 40 organizations

- ✓ Universities
- ✓ Hydro-meteo services
- ✓ Research institutes
- ✓ Ministries & state agencies
- ✓ River basins directorates
- ✓ Drought Management Center for South East Europe
- ✓ Country Water Partnerships



Structure

Drought management	<div>Act. 1.2 Review of the current status</div> <div>Act. 2.1: Guidelines</div> <div>Act. 2.2: National consultation dialogues</div> <div>Act. 5.4: Drought Risk Management Scheme</div>	<div>Act. 7.1: Compendium of Good Practice</div>
Drought monitoring and forecasting	<div>Act. 1.3: Drought data exchange platform</div> <div>Act. 1.4: South Eastern Baltic Sea (SEBS) Region</div> <div>Act. 5.5: Remote sensing agricultural drought monitoring methods</div> <div>Act. 5.6: Upgrading agricultural drought monitoring and forecasting (UA & MD)</div>	<div>Act. 7.2: Communication activities</div> <div>Act. 6.1 & 6.2: Workshops & training</div>
Measures to reduce drought impacts, vulnerabilities and risks	<div>Act. 5.1: soil-water holding capacity</div> <div>Act. 5.2: Assessment of drought impact on forests</div> <div>Act. 5.3: Natural small water retention measures</div>	<div>Act. 6.3: Peer Review Group</div>

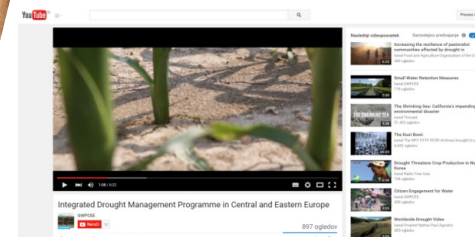
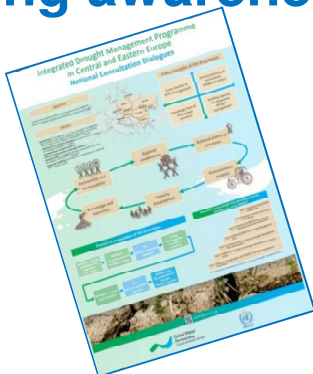
1. Cooperation with decision makers on drought management planning

- Guidelines for preparation of the Drought Management Plans
- 20 National Dialogues in 10 countries

2. New approaches towards proactive drought management

- Focus on agricultural sector and forestry

3. Raising awareness & communication



Demonstration projects

Natural small water retention measures

Hungary, Poland, Slovakia and Slovenia

Guidelines - Natural Small Water Retention Measures combining drought mitigation, flood protection and biodiversity conservation



NATURAL SMALL WATER RETENTION MEASURES
combining drought mitigation, flood protection,
and biodiversity conservation

— GUIDELINES —



NATURAL SMALL WATER RETENTION
MEASURES

— CASE STUDIES —



Increasing soil water holding capacity

Czech Republic, Poland, Slovakia and Slovenia

Methods for improving water infiltration into the soil profile – practical recommendations for farmers, decision makers



Drought impacts on forest ecosystems

Bulgaria, Lithuania, Slovenia and Ukraine

Adaptation measures for the forests to mitigate negative effects of the drought



Remote sensing agricultural drought monitoring methods

Hungary, Slovakia and Romania

A user-friendly drought monitoring and yield loss mapping process script - toolbox

Agricultural drought monitoring and yield loss forecasting through the application of remote sensing data



Agricultural drought monitoring and forecasting

Upgraded climate-zoning & forecasting models

Drought risk maps for agro sector of Ukraine and Dniester river basin
MD: Guide on best practices on soil conservation



Guidelines

Process of preparation of the Guidelines

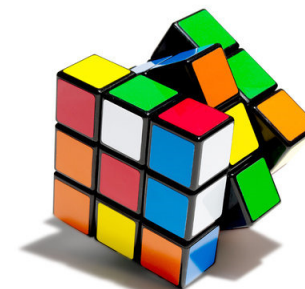




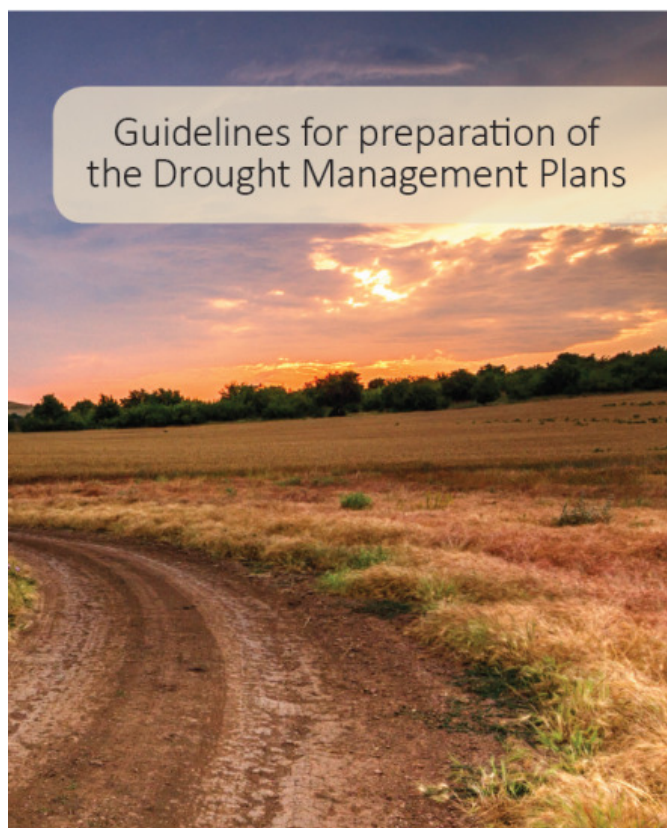
national
methodologies for
assessment of
historical drought

national drought
indicator systems
and evaluation
methodologies

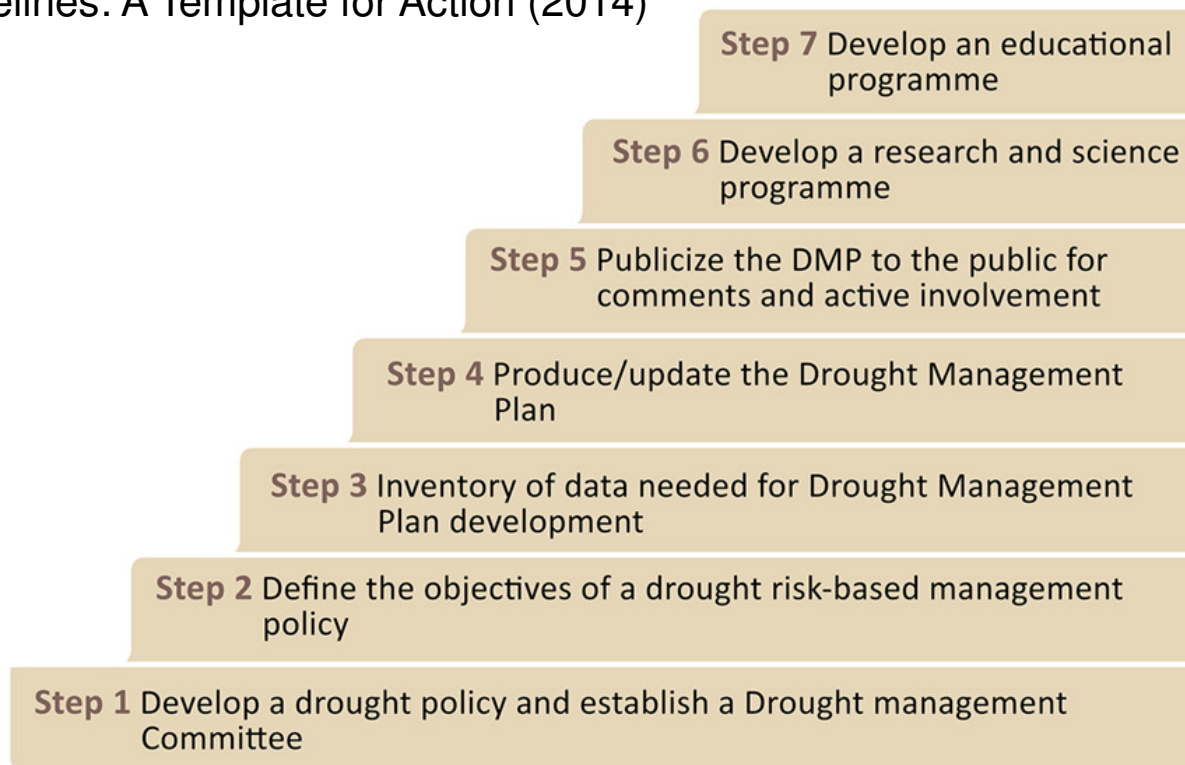
national
organizational
structures to deal
with drought



Guidelines

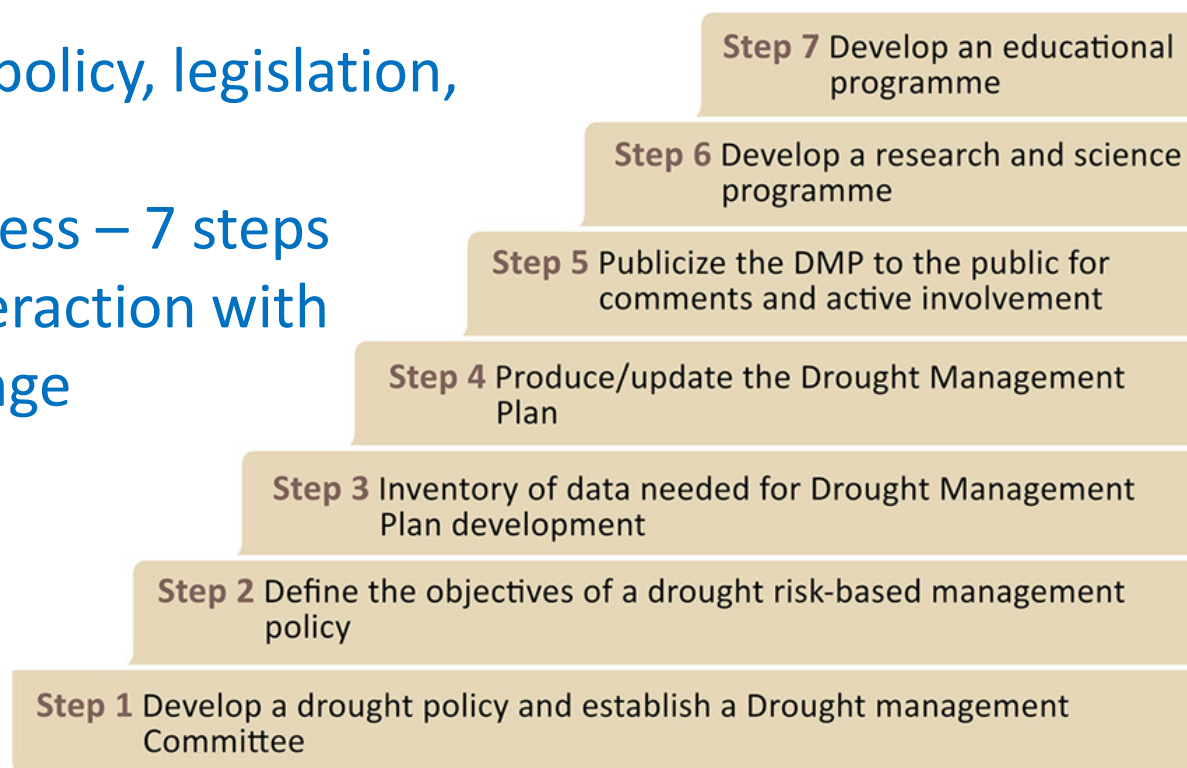


National Drought Management Policy Guidelines: A Template for Action (2014)



Step by step approach inspired by the WMO Drought Management Guidelines

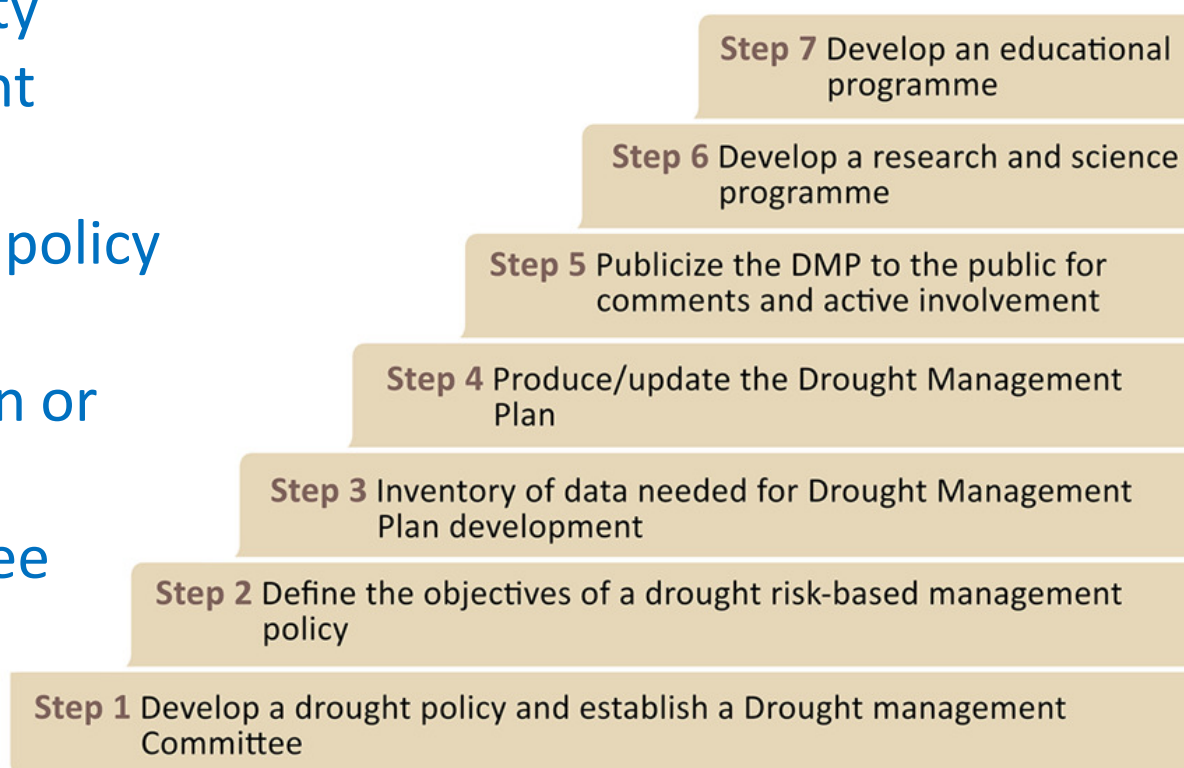
- Chapter 2: General Framework – policy, legislation, drought management context
- Chapter 3: Drought Planning Process – 7 steps
- Chapter 4: Related issues and interaction with WFD – groundwater, climate change



Guidelines

Step 1

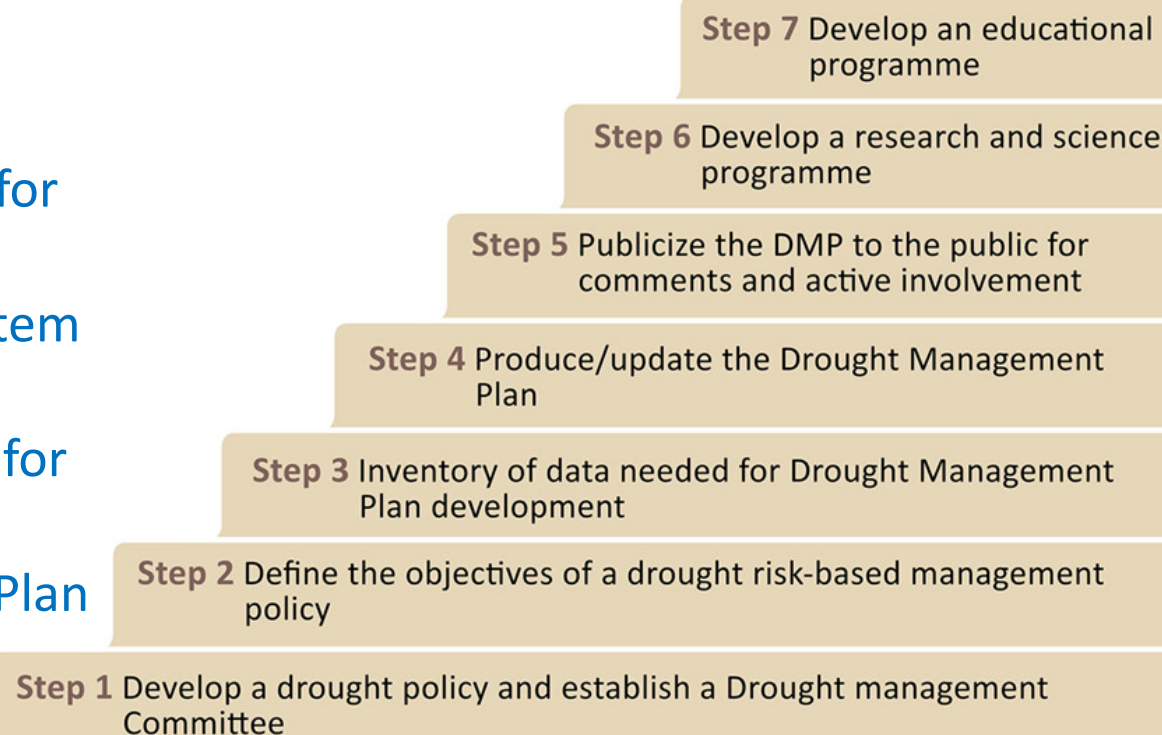
- 1.1 Establish competent authority
- 1.2 Recognize drought as relevant water management issue
- 1.3 Implement national drought policy and implementation strategy
- 1.4 Adopt government resolution or appropriate legislation
- 1.5 Establish a drought committee



Guidelines

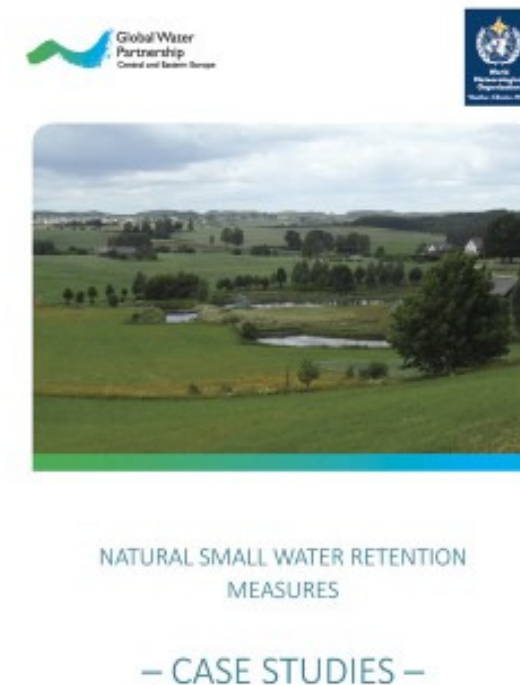
Step 4

- 4.1 Define the content of the Drought Management Plan
- 4.2 Characterise and evaluate historical drought events
- 4.3 Establish indicators and thresholds for drought classification
- 4.4 Establish drought early warning system
- 4.5 Develop a programme of measures
- 4.6 Establish organizational framework for the production, implementation and updating of the Drought Management Plan
- 4.7 Identify gaps and uncertainties



Small water retention guidelines

- Technical guidelines on how to plan and construct different types of small water retention measures
- Case studies: Hungary, Poland, Slovakia and Slovenia
- Video Small Water Retention Measures



What's next?

- Research: one of priorities in Water JPI SRIA 2.0
- The **Sendai Framework** for Disaster Risk Reduction 2015-2030
- **Paris Agreement 2015**
- **Sustainable Development Goals (SDGs)**
- SDG 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity





Thank you
for your attention

www.gwpcee.org/IDMPCEE/

Integrated Drought Management
Programme

www.droughtmanagement.info