IDMP
Integrated Drought Management Programme

WORLD METEOROLOGICAL ORGANIZATION

Global Water Partnership Central and Eastern Europe

25 YEARS

Way towards more drought resilient Danube region

Outcomes of the Danube Drought Workshop

Danube Water Conference
Droughts and climate change: An increasing threat, is the Danube Region prepared?
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BEYOND SCARCITY

WATER SCARCITY AND DROUGHT RISK MANAGEMENT IN THE DANUBE REGION

Online workshop on 20-21 September 2021

133 participants

Objectives:

1) Awareness about the relevance, past and potential future impacts of water scarcity and droughts

2) Forum for an exchange on good practice approaches and options

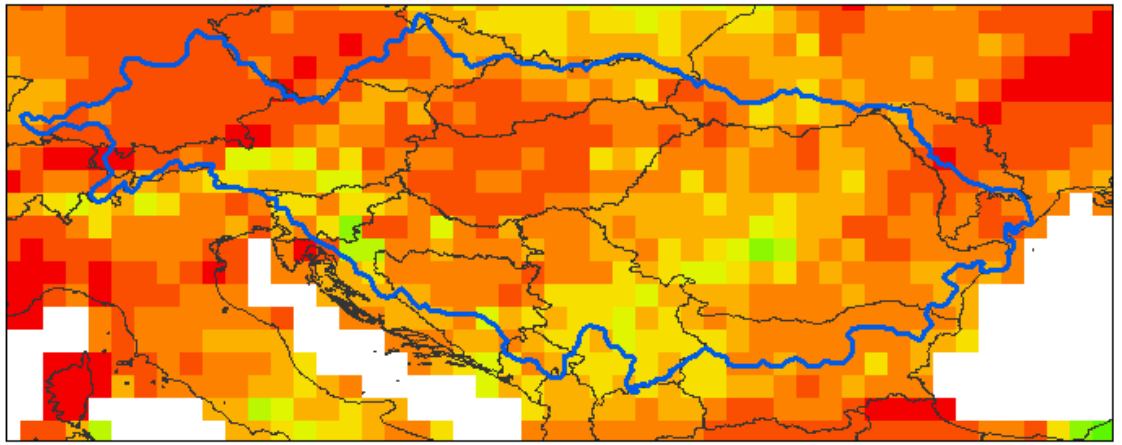
3) Challenges and needs for future actions

55% participants - somewhat prepared to deal with water scarcity and drought but with significant gaps to cover

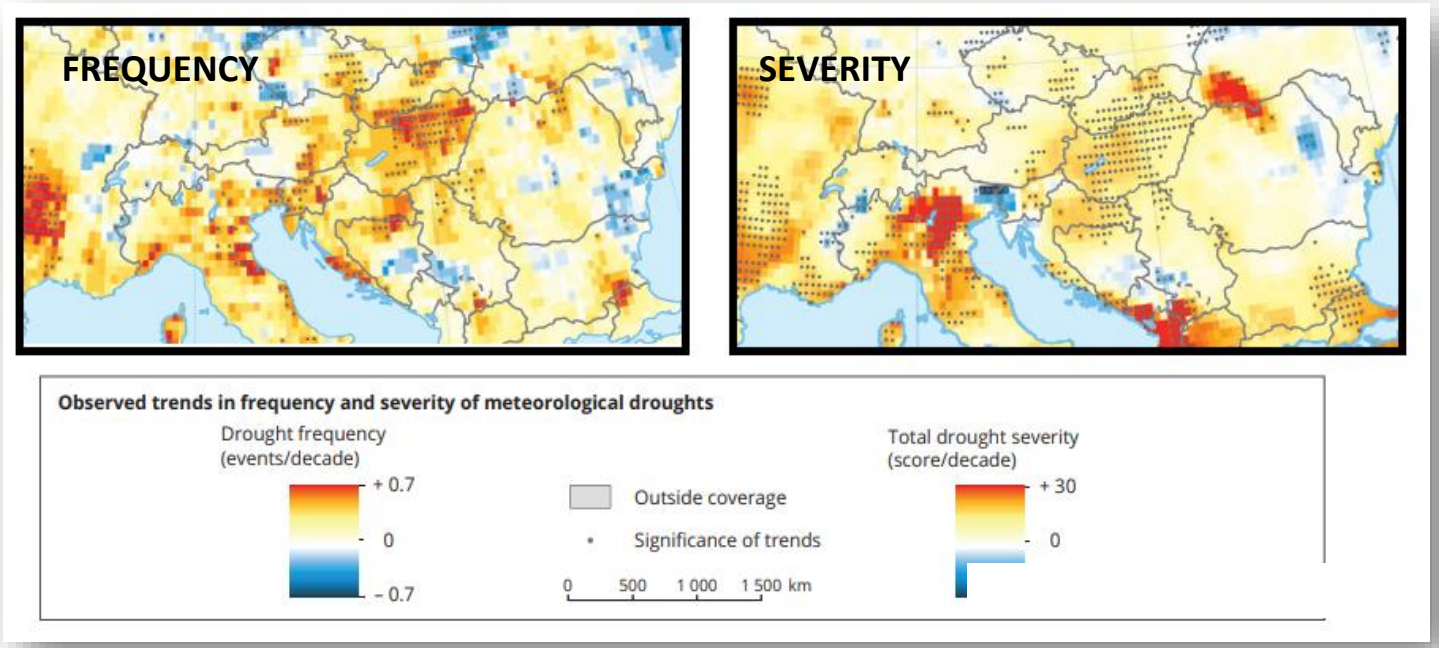
72% of the participants expressed that they perceive drought and water scarcity as a significant or highly relevant issue in their countries and regions

Droughts in the Danube: the past

In recent years such as 2003, 2007, 2012, 2015 and 2017, significant parts of the Danube River Basin were affected by drought



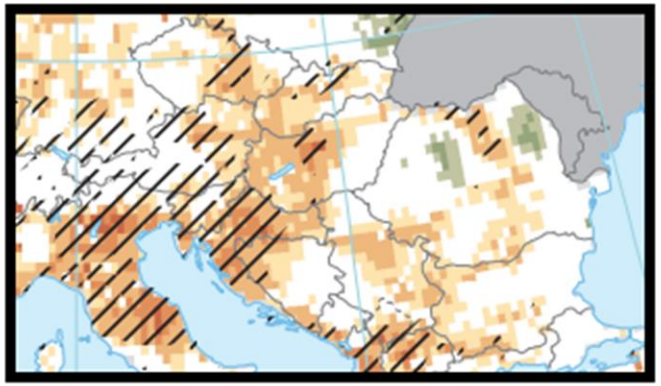
Number of precipitation drought periods from 1901 to 2019 measured with DEPI drought index. Source: CRU dataset



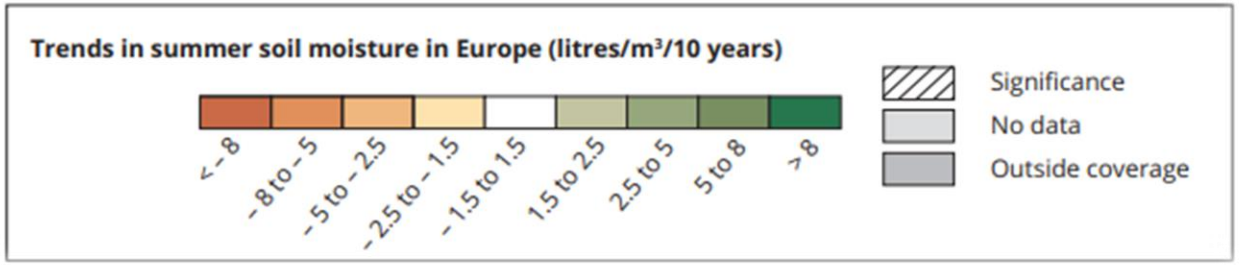
Trends in frequency and severity of meteorological droughts between 1950 and 2012 (SPI + SPEI + RDI 12). Source: EEA website

Droughts in Danube basin are becoming more frequent and more intense

Impacts of droughts in the Danube



Agricultural – the most impacted sector, as summer soil moisture shows a drying trend

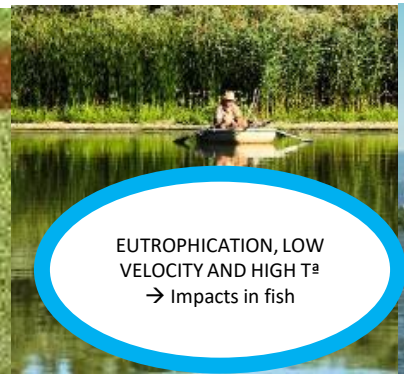


Future drought impacts will depenad on the way drought management is organized (proactive approach)

NAVIGATION: Austria, Czech Republic, Germany, Croatia, Serbia, Bosnia and Herzegovina, the Slovak Republic and Moldova

SNOW COVER & MELT PATTERNS CHANGED

FOREST FIRES & ECOLOGICAL IMPACTS: High impacts in Czech Republic and Moldova, while low impacts in Austria, Bosnia and Herzegovina, Germany, Croatia, Hungary, Serbia and the Slovak Republic



EUTROPHICATION, LOW VELOCITY AND HIGH Tª → Impacts in fish

HYDROPOWER PRODUCTION

Droughts in the Danube: the future

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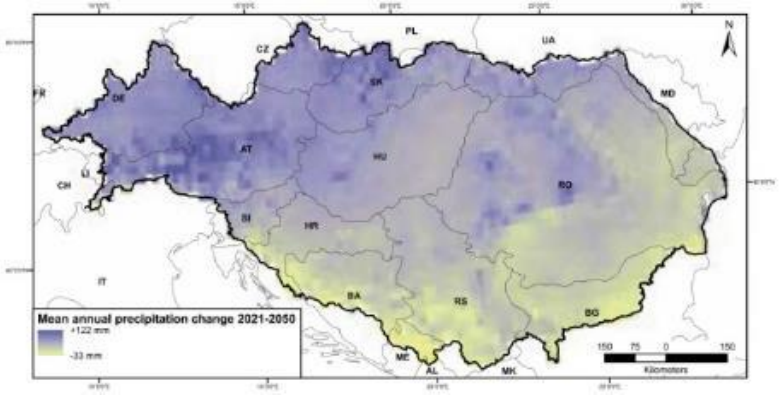
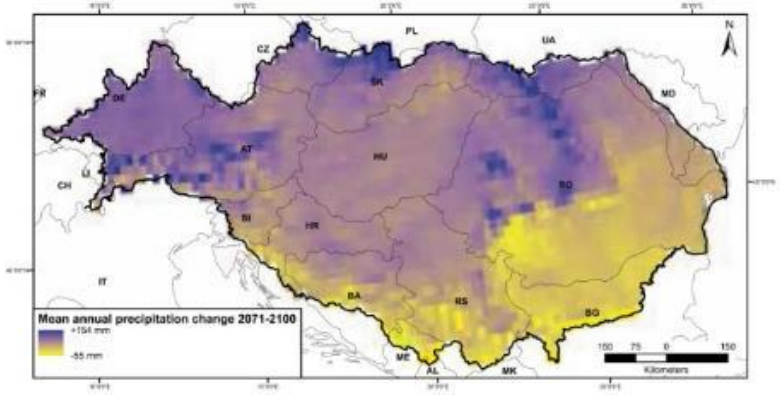
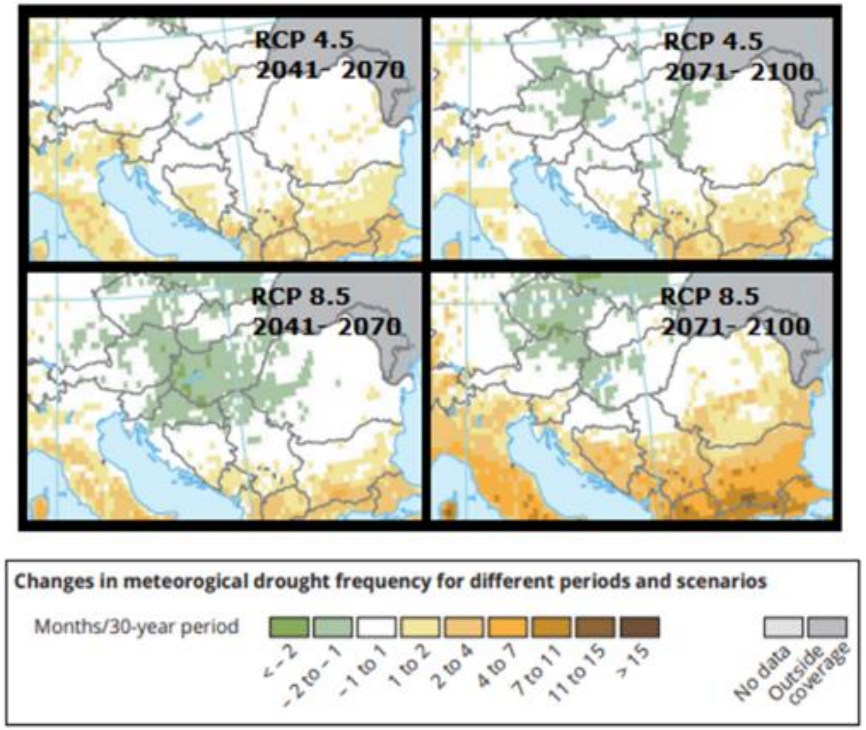
Precipitation totals are expected to decrease in part of the basin





Estimated annual mean precipitation trends in the Danube region 2021–2050 and 2071-2100
Source: ICPDR (2018)

Drought is going to become more frequent in some parts



Changes in meteorological drought frequency for different periods and scenarios. SPI6 months below -2
Source: EEA website

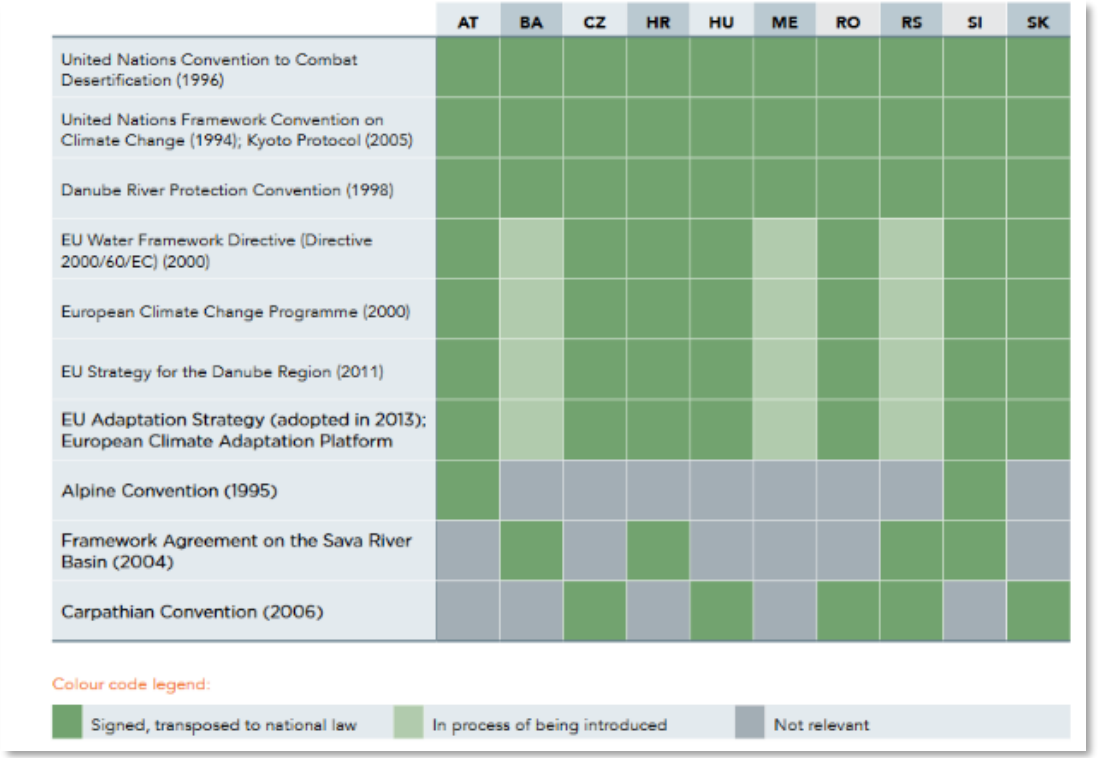
Drought becomes a disaster if not well managed/prepared → work on PROACTIVE approach

Key message 1

Drought is a very relevant issue in the region, and it is gaining traction, but we need more frameworks and protocols.

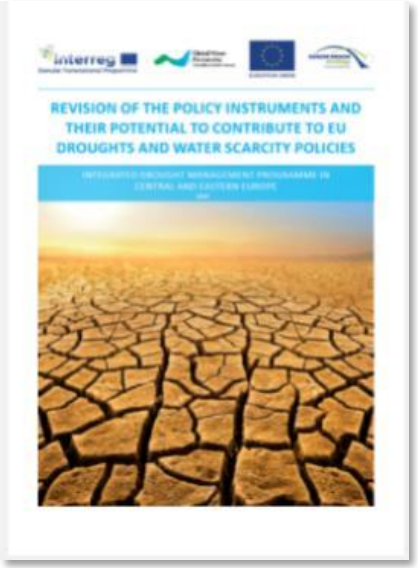
Regional Action Frameworks

- Legislative framework: **Water Framework Directive** (WFD)
- EU Communication → "Addressing the challenge of water scarcity and droughts in the European Union" (2007)
- **Danube Climate Change Adaptation Strategy**, updated 2018 → puts drought as a relevant issue for the future of the basin, considering it a main field of action



Danube Drought Strategy, 2019

- **The Danube RBMPs** (2015, 2021) aligned with WFD→ now drought is **SWMI** → need of addressing its management in the international basin-wide RBMP which is due by December 2021
- **The EU Strategy for the Danube Region (EUSDR) Environmental Risks (Priority Area 5)**→ Addressing the challenges of water scarcity and droughts though the Danube RBMP and contributing to reports & strategies



Regional Action partnerships, activities, initiatives

- **Integrated Drought Management Programme** in Central and Eastern Europe (ongoing since 2013)
- **Drought Management Centre for Southeastern Europe (DMCSEE)**
- **Drought Risk in the Danube Region (DriDanube)** project (2017- 2019)
- **Alpine Drought Observatory (ADO)** project (2019 – 2022)
- **European Drought Centre** (EDC) → virtual knowledge hub
- **European Drought Observatory** → scientific backup

Strengthen existing partnership between agencies and stakeholders and promote connections with other institutions and initiatives is key.

Regional Action partnerships, activities, initiatives

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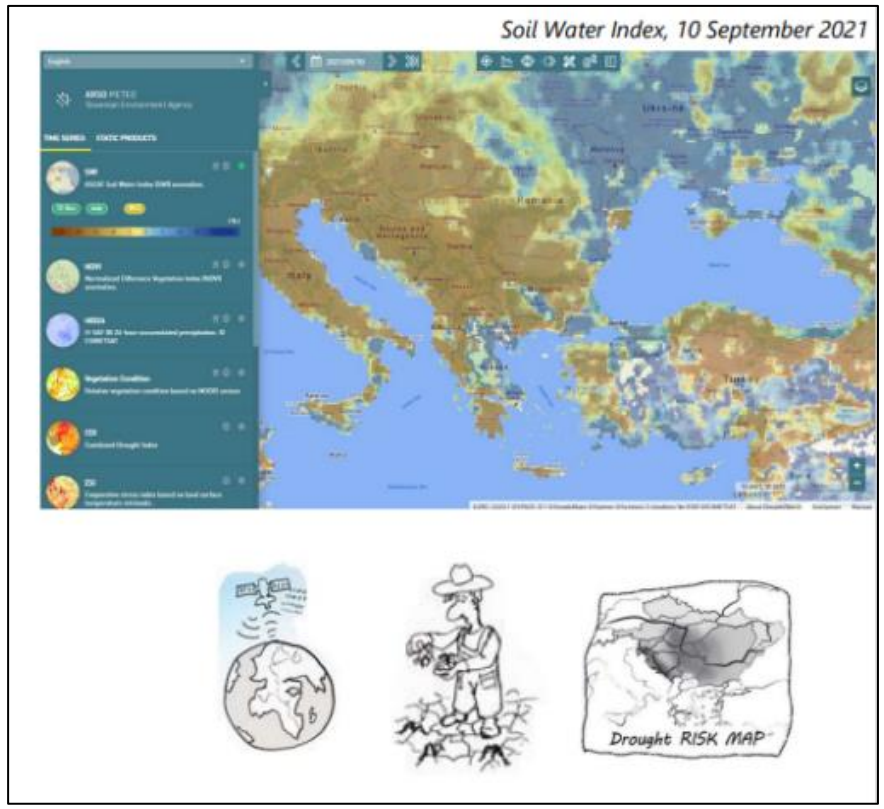
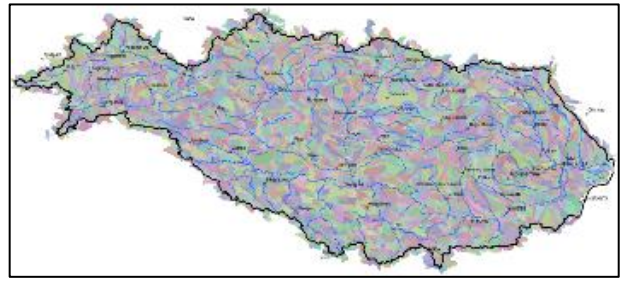
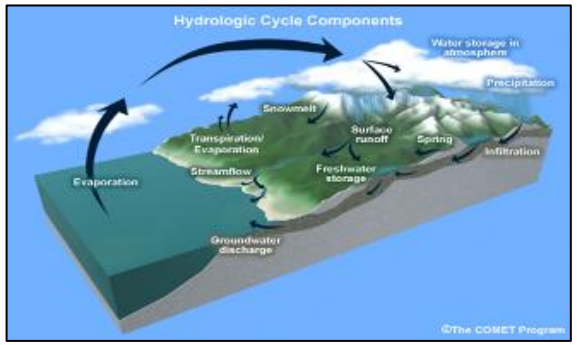
Drought Watch→ www.droughtwatch.eu



Alpine Drought Observatory→ /www.alpine-space.eu/

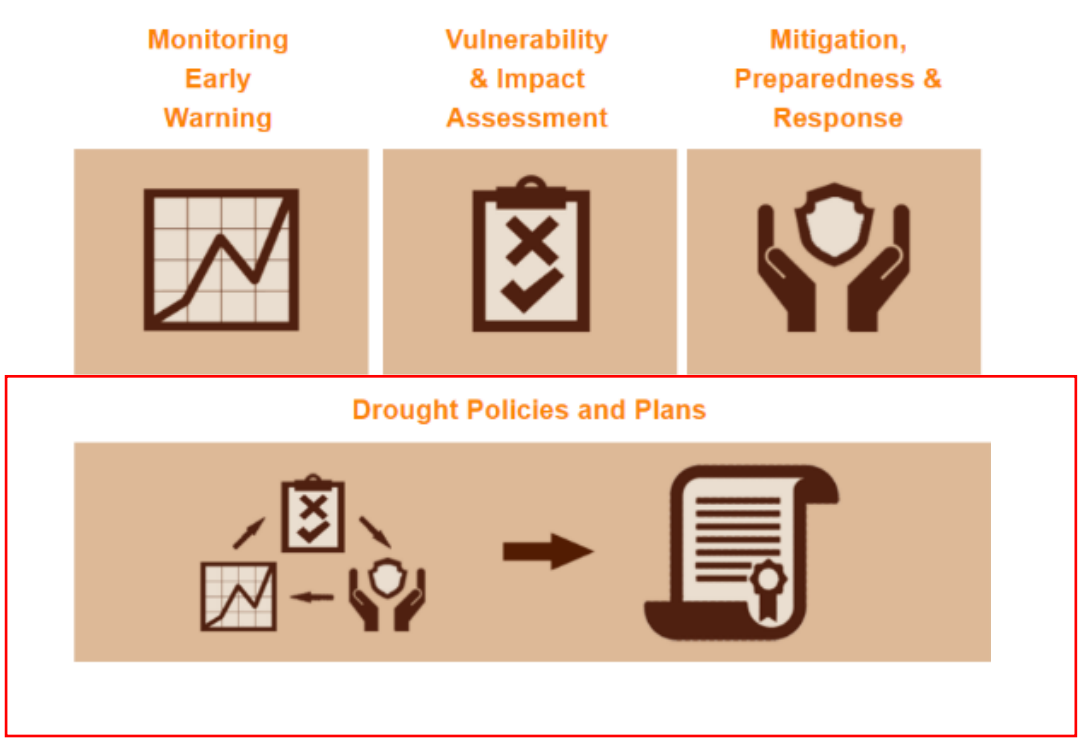
Water balance at Danube level





Data, Information and Knowledge!

Implementation challenges



Existing legal approach & planning

- Most countries are missing formal umbrella document on drought management → as part of CC Adaptation plans, RBMPs
- Awareness, communication and education, so that the risk is perceived → encouraging people & governments to take adaptation action

Coordination arrangements

- In place for emergency, not so obviously for preparedness
- No clear inter-institutional scheme of data, responsibility and communication flow for response before, during and after drought
- Cooperation, and drought measures based on DEWS thresholds and triggers

Key message 2

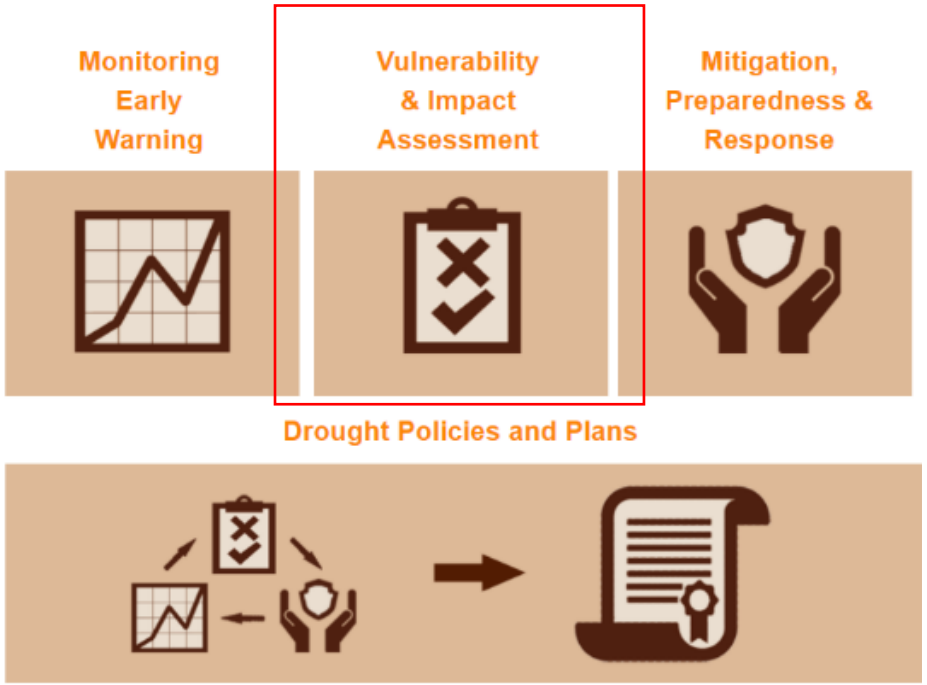
Policy development needs to advance, since water scarcity and droughts not yet recognized and addressed at the required level

Implementation challenges

Monitoring and early warning

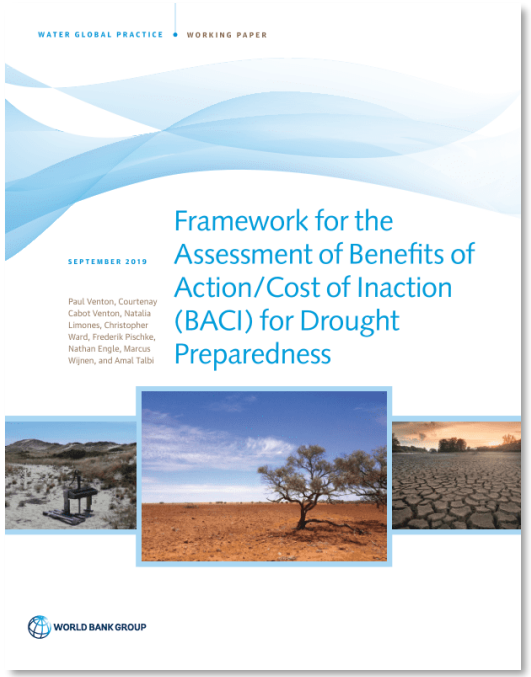
- It is more advanced, but **not homogeneously developed for all countries** → harmonization of national drought observatories
- **No consensus on thresholds** for different drought types nor used to influence measures
- **DEWS followed mainly when drought has started** – reactive approach
- More tracking of water use is required (permits, audits, monitoring…)
- **Maintain and upgrade existing systems** / platforms and connect them to national networks (e.g. Drought Watch)

Implementation challenges

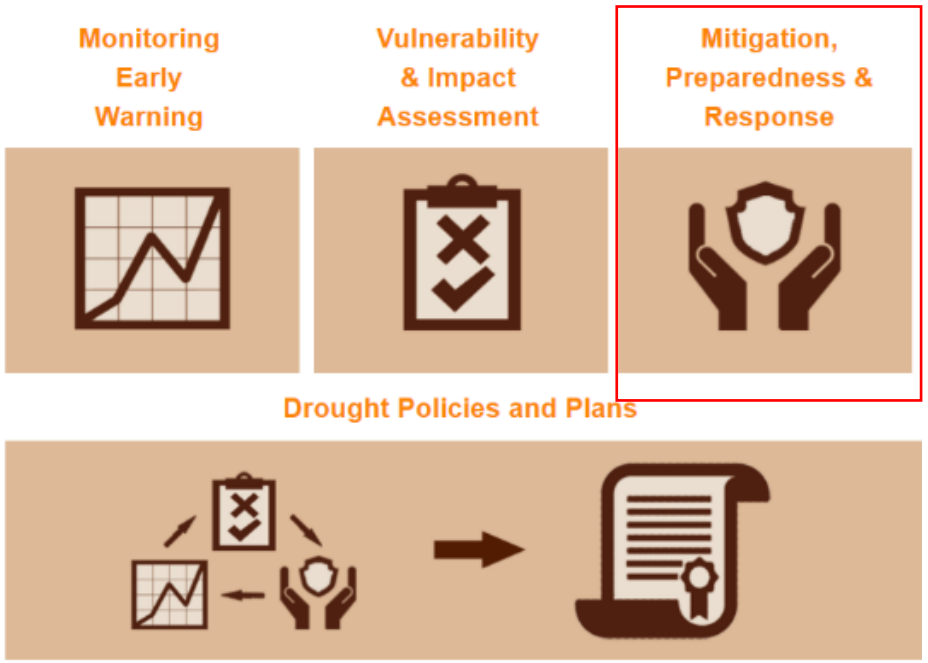


Risk & Impact Assessment

- There are initiatives but vulnerability and risk assessment is much less advanced than drought hazard characterization and monitoring
- Data availability has diverse situations in Europe → fostering dialogue with countries. Missing regular collection of **info on sectoral drought impacts**
- Need for **more detailed cost assessments of impacts on water-related sectors** required as basis for risk-based approach versus crisis-management approach → *"making the economic case"* / economic benefits of risk-based approach



Implementation challenges



Mitigation and preparedness measures

- Crisis-oriented drought measures prevail
- Preparedness, mitigation and response: Gaps
- Opportunities!→ Droung Management connected with other sectors (e.g. flood protection, nature conservation); co-benefits of mitigation actions
- Sectoral agendas are not aligned with Drought Management or have different timings (e.g. hydromelioration for agriculture sector, not very climate-smart forestry interventions, …)

Allocation of budgets for drought preparedness is fundamental: programs, data, products, tools and human capacities need to be financially sustainable.

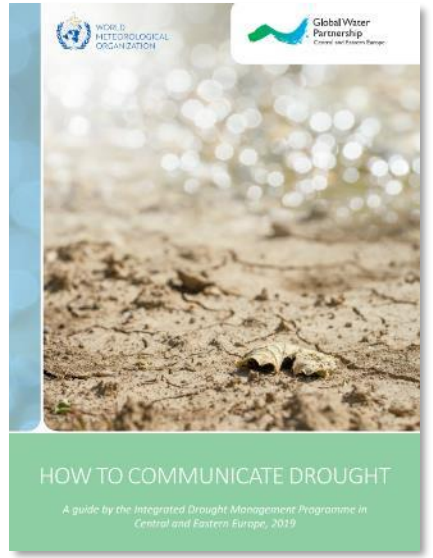
Key message 3

Even if steps are taken, there is variation among countries and pillars → Follow-up needed

Implementation challenges

Communicating Drought

- The response is not structured based on DEWS indices or outcomes
- Uncertainties and DEWS/model results are not interpreted or "translated" for the public
- There are initiatives like youth campaigns and increased media coverage to raise awareness, but it needs to continue



Awareness, communication and education is vital for understanding and perceiving the risk, so that people and governments take adaptation action

Facilitate development of DRM

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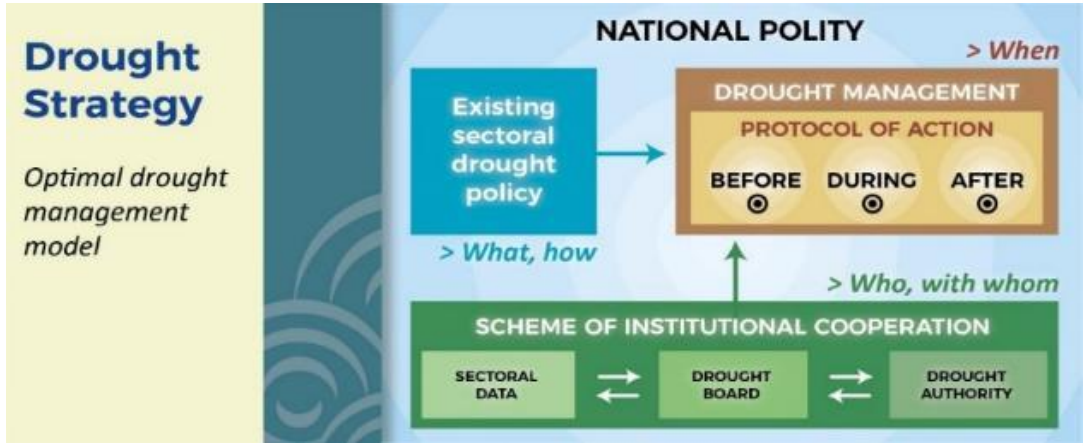
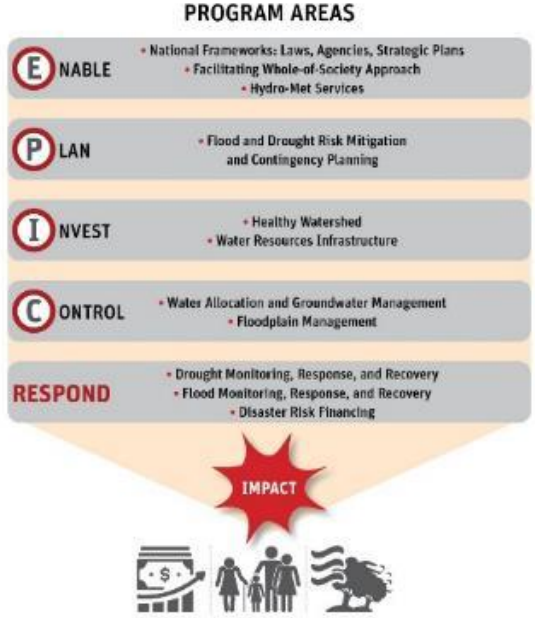
STEP 1	Develop a drought policy and establish a Drought Committee
STEP 2	Define objectives of drought risk-based management policy
STEP 3	Make inventory of data for Drought Management Plan development
STEP 4	Produce/update Drought Management Plan
STEP 5	Publicize Drought Management Plan for public involvement
STEP 6	Develop scientific and research programme
STEP 7	Develop educational programmes





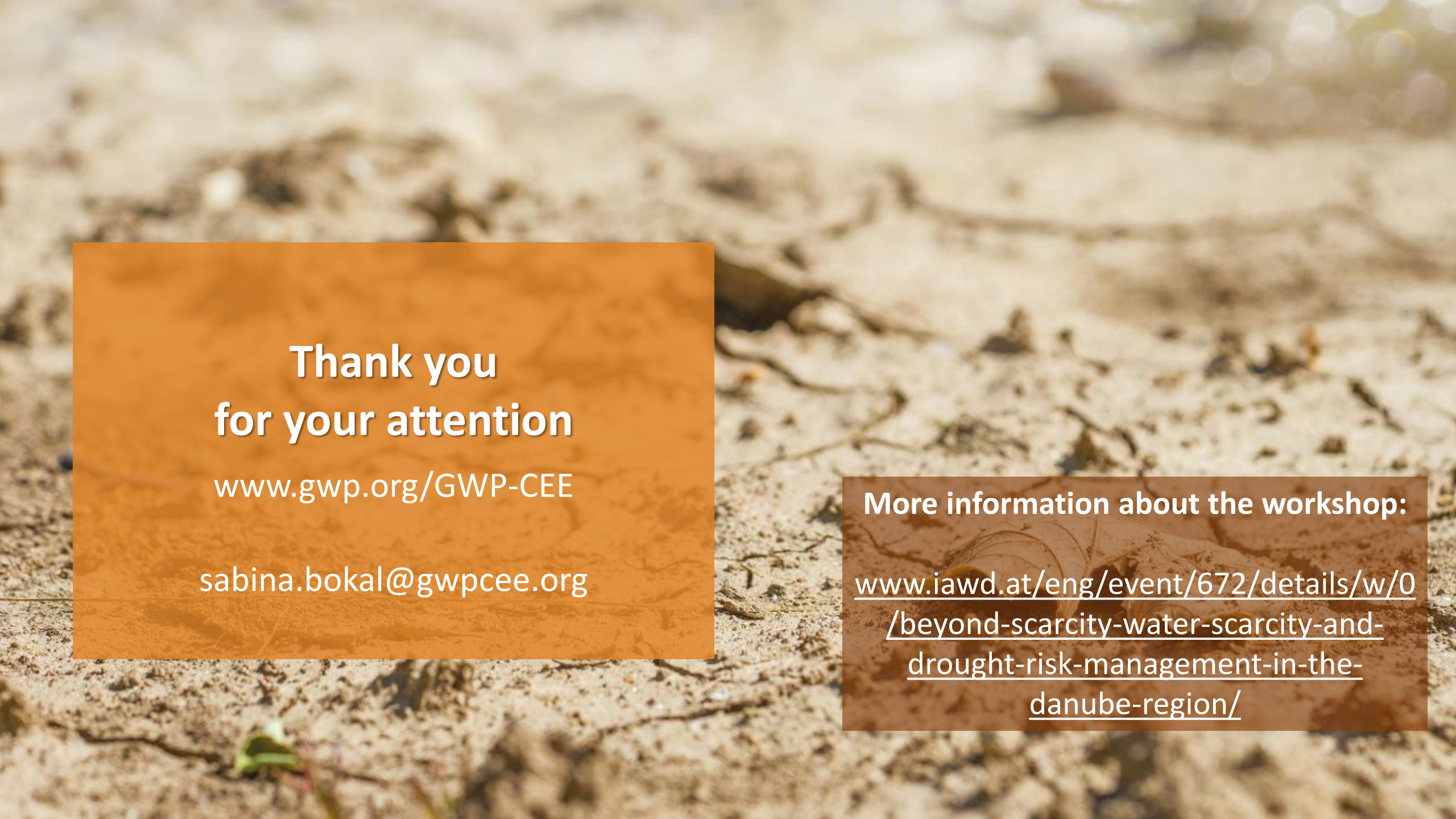
An EPIC Response: Innovative Governance for Flood and Drought Risk Management

Drought is a very relevant issue in the region, and it is gaining traction, but we need more frameworks and protocols.

Policy development needs to advance, since water scarcity and droughts not yet recognized and addressed at the required level

Even if steps are taken, there is variation among countries and pillars → Follow-up needed

Work with governments and **across sectors** for **proactive action**, before drought hits



Thank you
for your attention

www.gwp.org/GWP-CEE

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More information about the workshop:

www.iawd.at/eng/event/672/details/w/0/beyond-scarcity-water-scarcity-and-drought-risk-management-in-the-danube-region/