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**IDMP - Towards a more  
Drought Resilient Society**

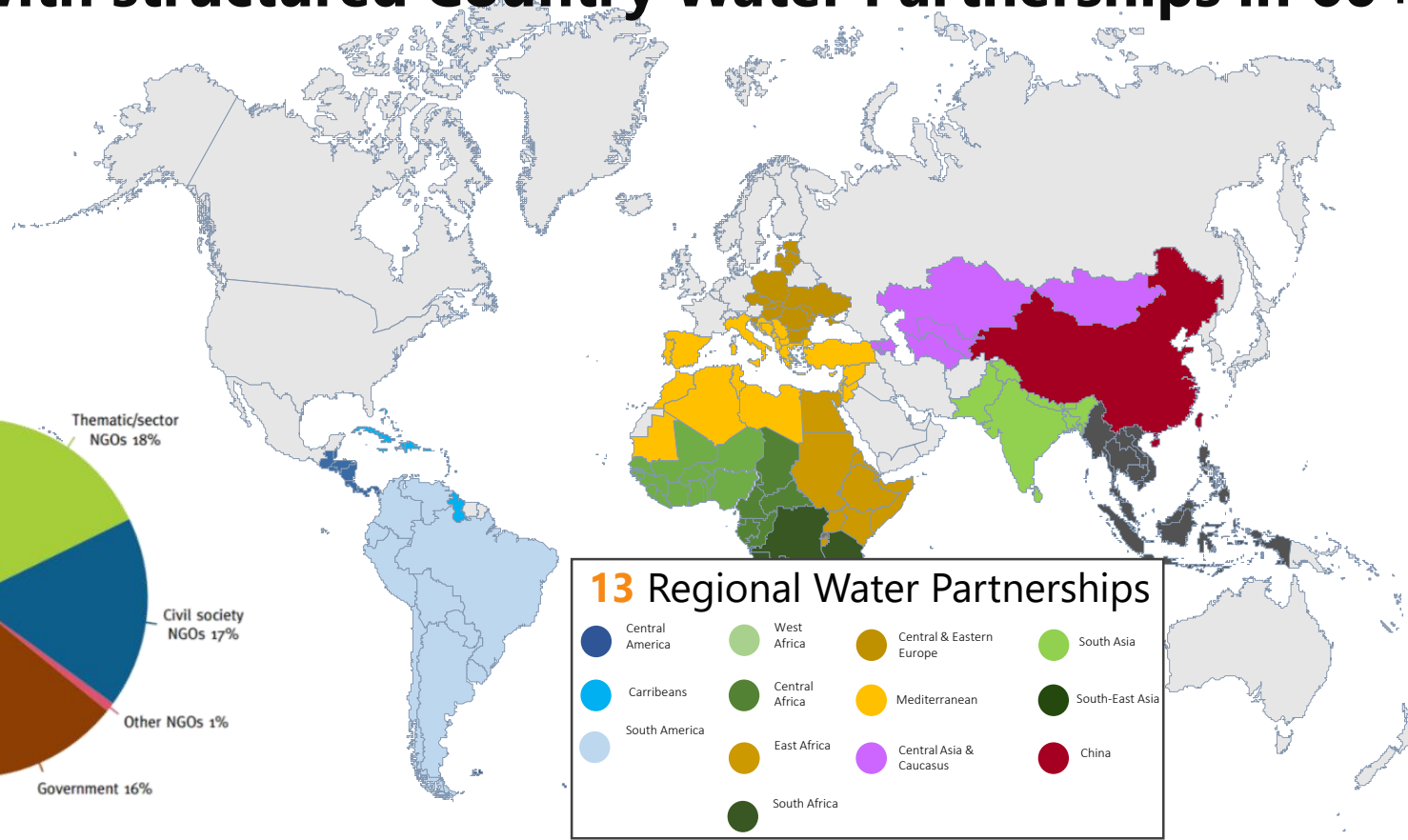
TEACHER-CE Final Conference  
*February 2, 2022*

- 1. Droughts in a changing environment and the Integrated Drought Management Programme**
- 2. Managing Droughts and Floods Together**
- 3. IDMP activities in Central and Easter Europe**

## WMO is the United Nations system's authoritative voice on Weather, Climate and Water:

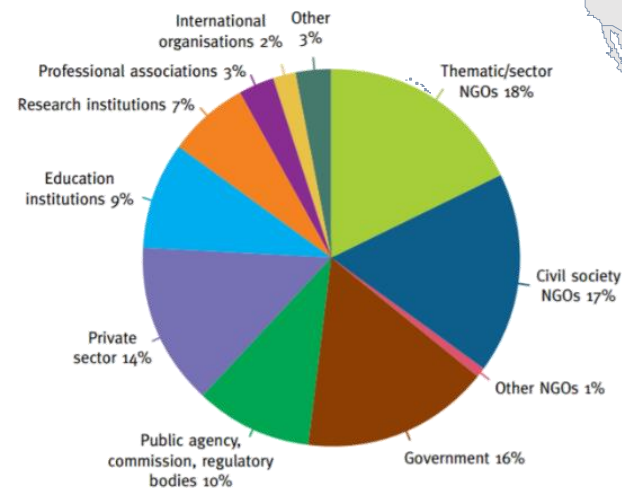
- Founded in 1873 and since 1950 a United Nations organization
- 193 countries and territories are members
- Secretariat is based in Geneva, Switzerland (~200 staff)
- Core task: Coordination of National Meteorological and Hydrological Services (NMHSs) because weather, climate and water know no national or political boundaries.

**We work in 181+ countries  
with structured Country Water Partnerships in 60+ countries**

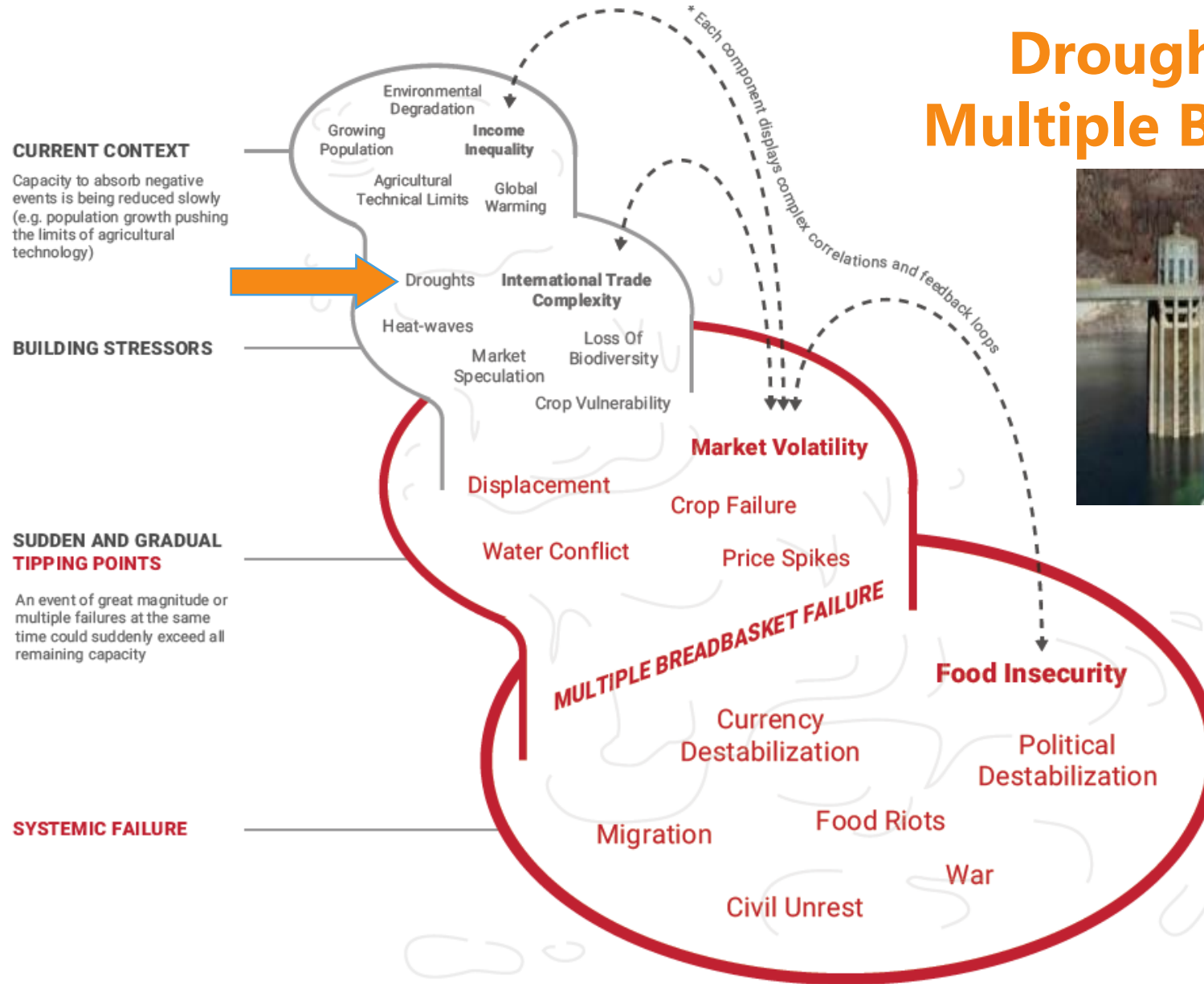


**Since 2014:**  
**220+** water governance outcomes  
**1 billion €+** water related investments influenced  
**20m€+** investments directly mobilized from climate finance sources through project preparation

GWP Partners by type



# Drought in the context of Multiple Breadbasket Failure



Source: UN DRR GAR19

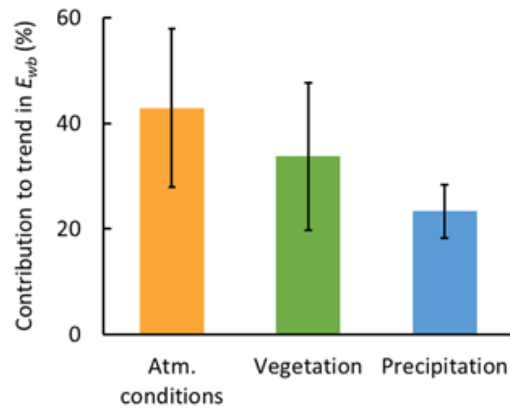
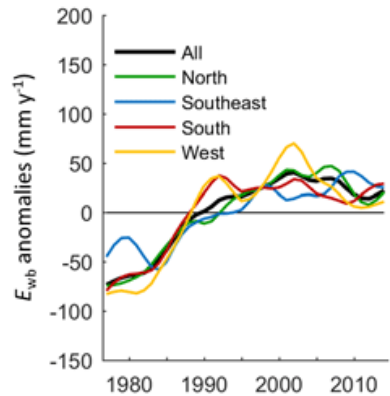
# Droughts are among the most complex natural hazards



- 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

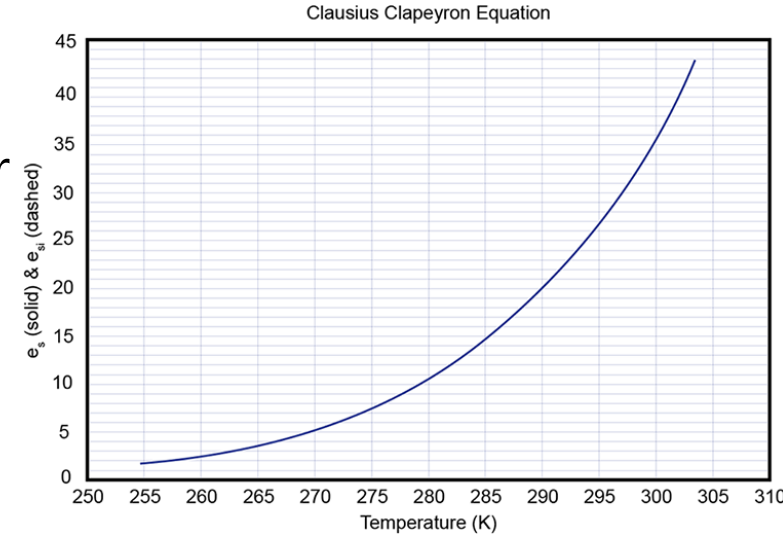
# How is Climate Change affecting Droughts

- Warming -> atmospheric water content increases ~7% per 1 °C (Clausius Clapeyron relationship) -> less water in soils and freshwater aquifers
- Increasing temperatures strengthen evaporation

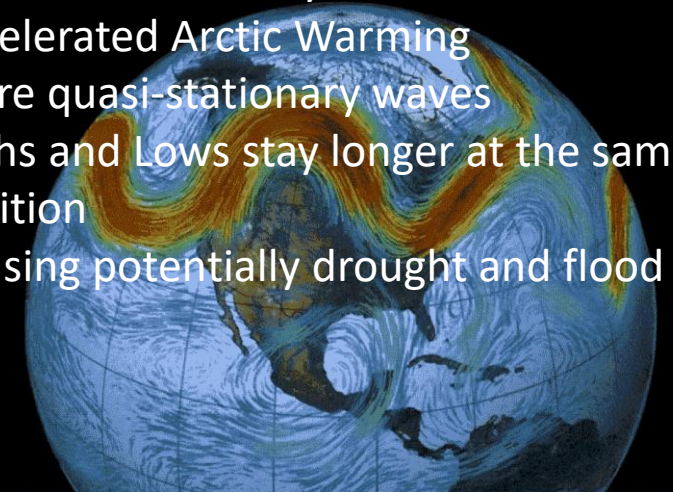


*HESS, Duethmann and Blöschl 2018.*

- Reduced Snowpack volumes and earlier snowmelt, glacier melting
- Change of weather patterns, e.g. Rossby Waves, El-Nino Southern Oscillation (ENSO), etc.
- Positive feedback of dry soils and diminished plant cover



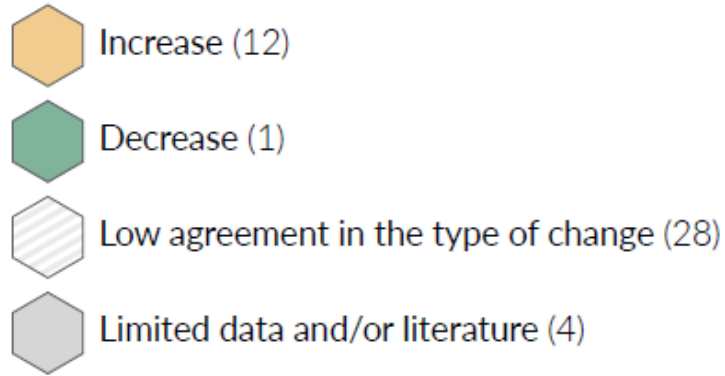
- Waves move usually eastward
- Accelerated Arctic Warming
- More quasi-stationary waves
- Highs and Lows stay longer at the same position
- Causing potentially drought and flood



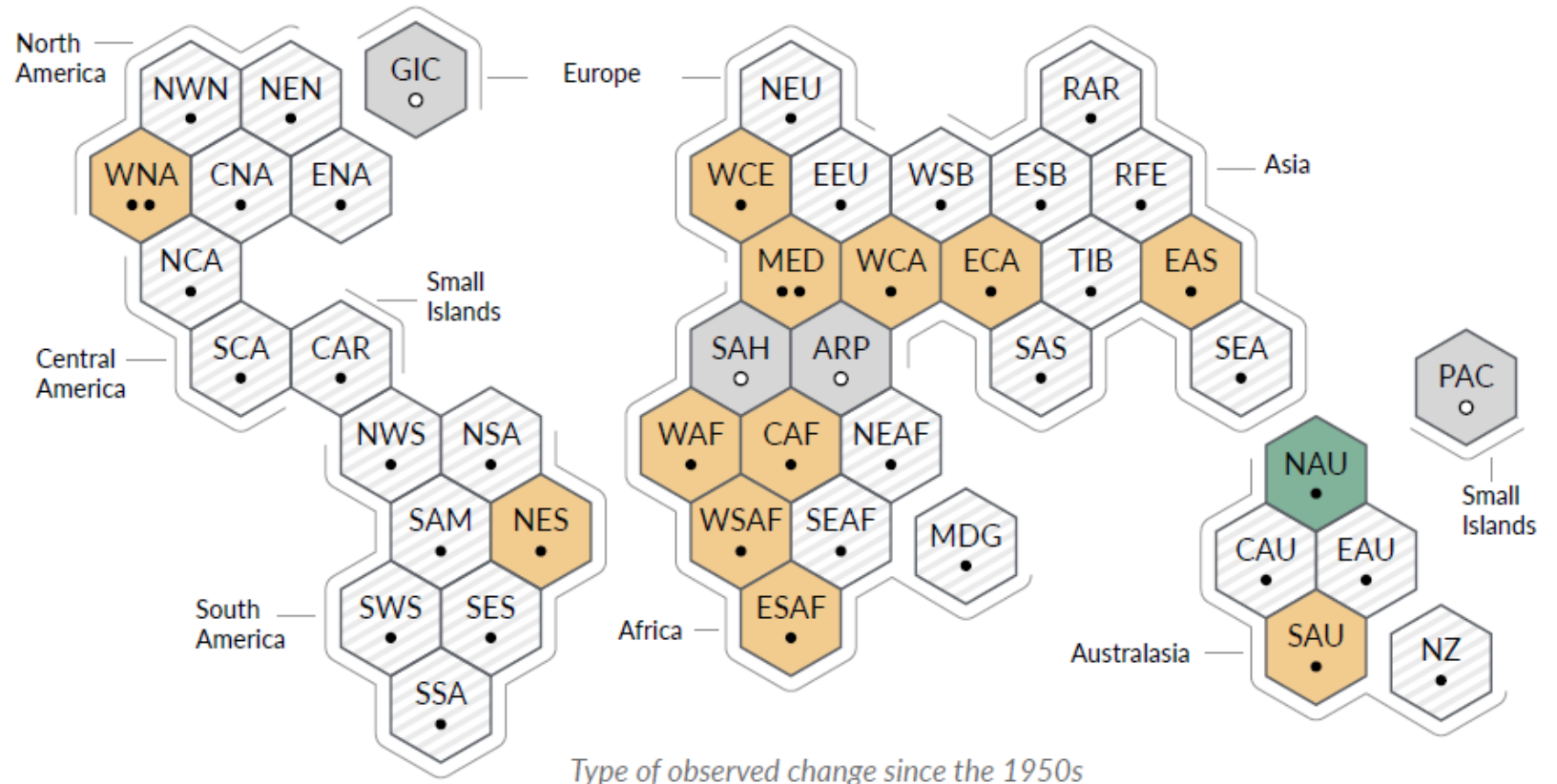
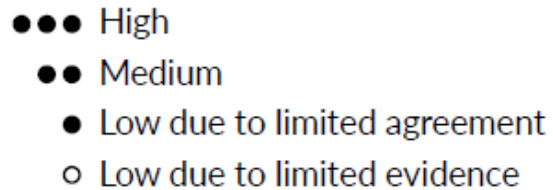
# How has Climate Change affected Droughts until now?

c) Synthesis of assessment of observed change in **agricultural and ecological drought** and confidence in human contribution to the observed changes in the world's regions

Type of observed change in agricultural and ecological drought



Confidence in human contribution to the observed change



From the just released 6<sup>th</sup> Assessment Report of the IPCC, WGI:

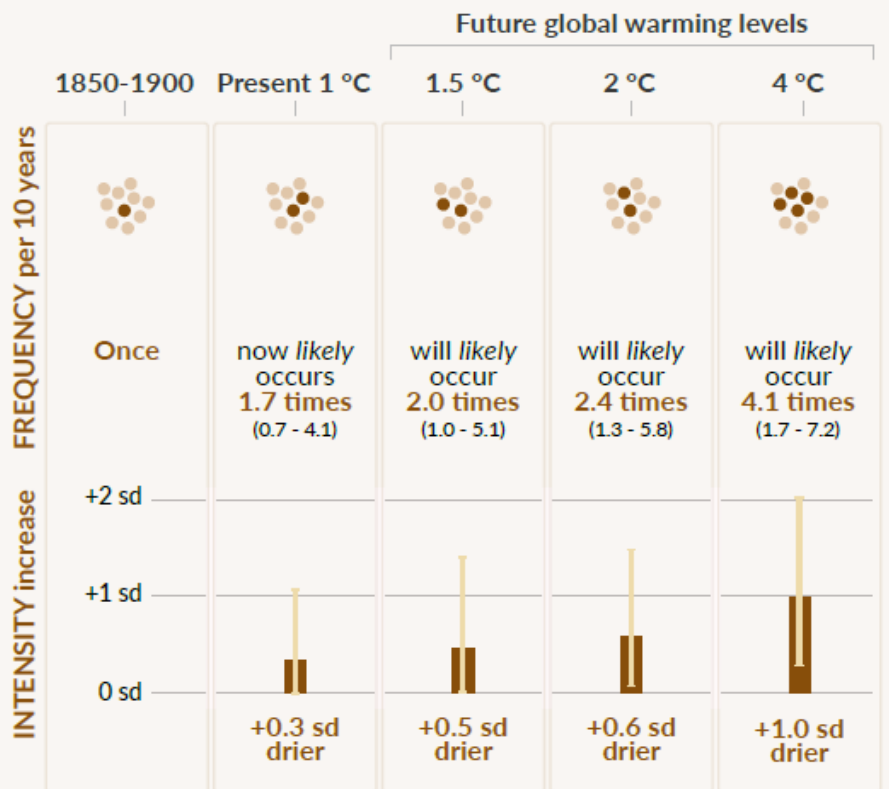


## ... and how will it likely affect droughts in the future

### Agricultural & ecological droughts in drying regions

#### 10-year event

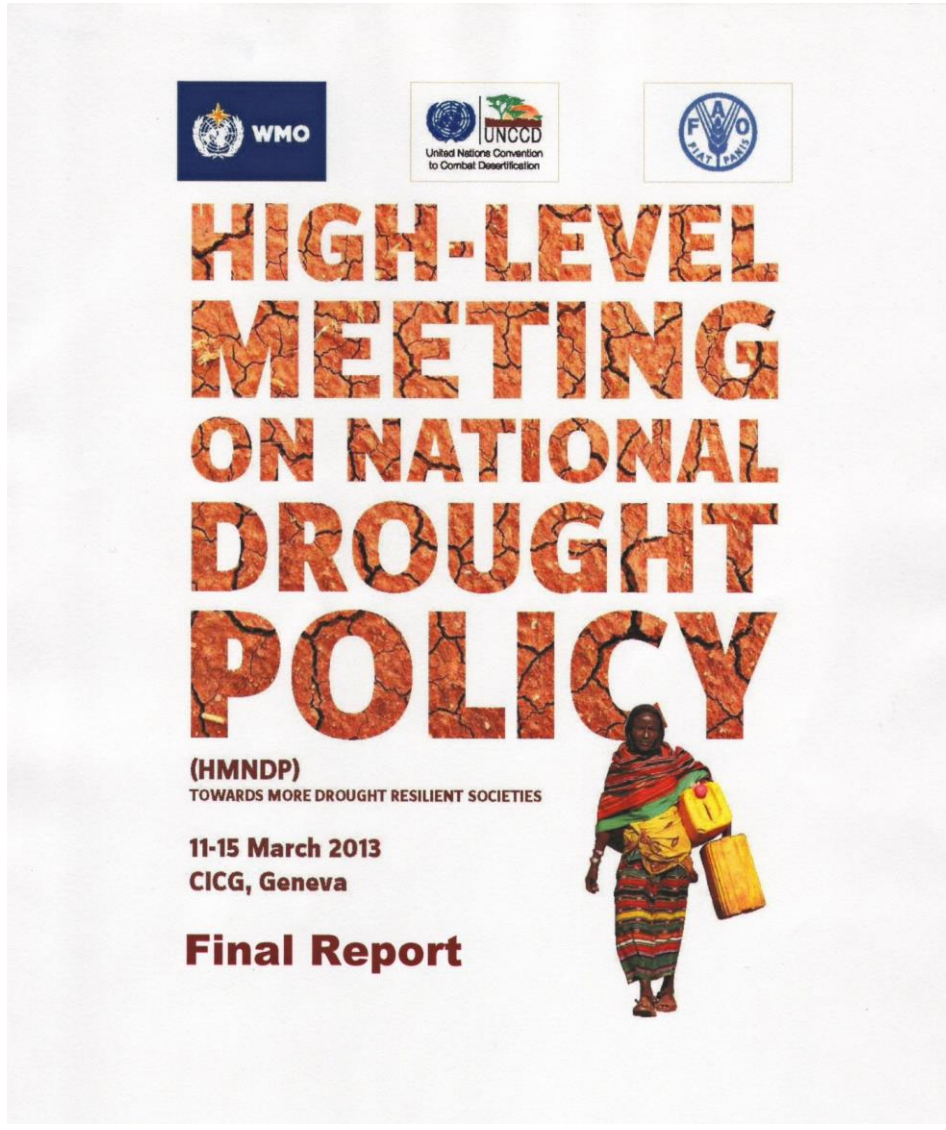
Frequency and increase in intensity of an agricultural and ecological drought event that occurred once in 10 years on average across drying regions in a climate without human influence



- “With every additional increment of global warming, changes in extremes continue to become larger. For example, every additional 0.5°C of global warming causes clearly discernible increases in the intensity and frequency of hot extremes, including heatwaves (very likely) [...] as well as agricultural and ecological droughts in some regions (high confidence).
- Increases in frequency and intensity of hydrological droughts become larger with increasing global warming in some regions (medium confidence).
- **There will be an increasing occurrence of some extreme events unprecedented in the observational record with additional global warming, even at 1.5°C of global warming.**
- Also, more frequent and/or severe agricultural and ecological droughts are projected in a few regions in all continents except Asia compared to 1850–1900 (medium confidence); increases in meteorological droughts are also projected in a few regions (medium confidence).

6<sup>th</sup> Assessment Report of the IPCC, WGI

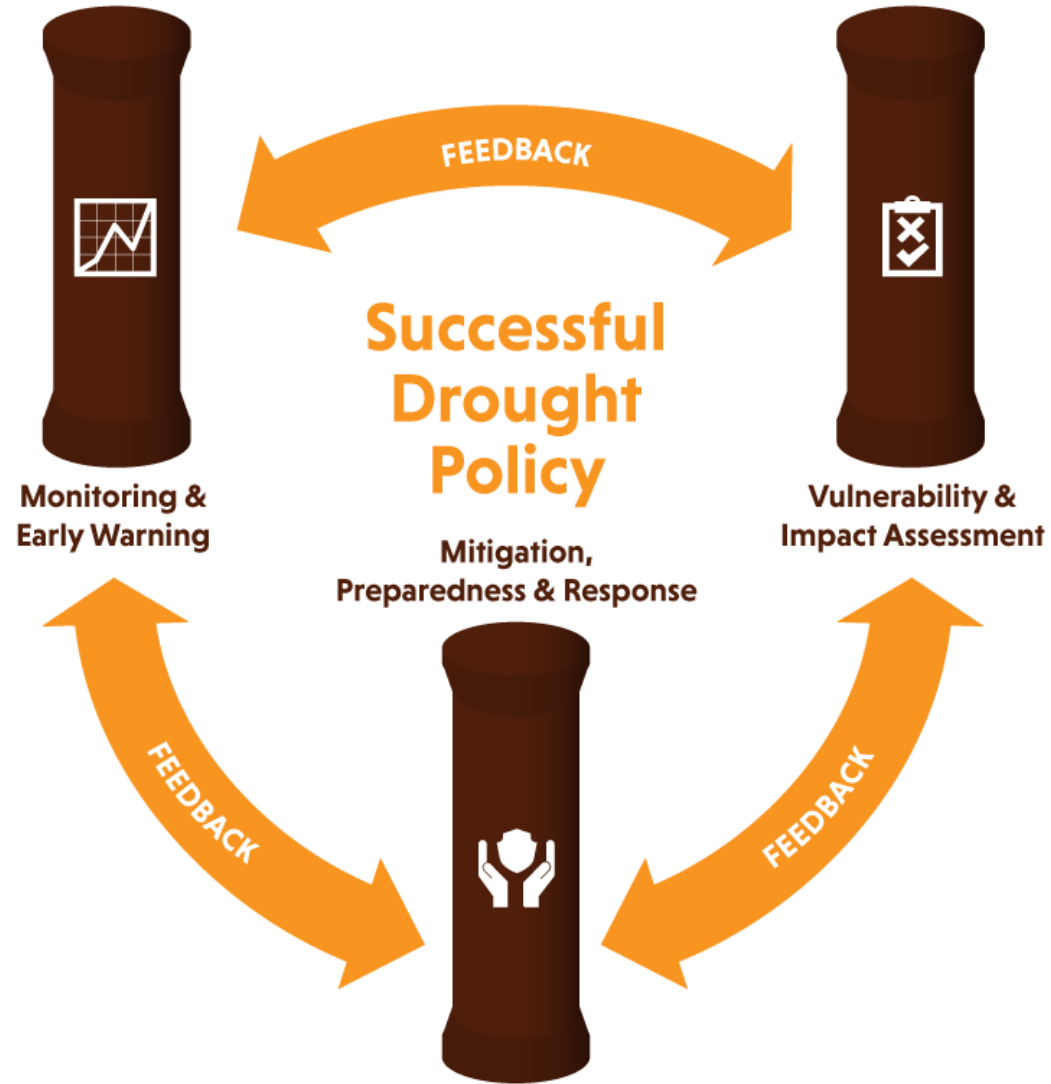
# The Integrated Drought Management Programme



# The heart of IDMP: The Partners



# The Three Pillars of Integrated Drought Management





# Overcoming bad habits: Crisis vs. Risk Management:

## Crisis Management

- Expensive
  - Costs + costs of inaction
  - Repeats past mistakes
- Post-impact
  - Drought relief
- Treats the symptoms of vulnerability, i.e., impacts
- Rewards poor management of resources
- Increases vulnerability, reliance on government & donors

## Risk Management

- Investment
  - Short-term—EWS, networks
  - Long-term—institutional capacity, structural adjustments
- Pre-impact
  - Mitigates and reduces risks
- Identifies and treats the root causes of vulnerability and hazard
- Promotes improved stewardship of natural resources
- Builds self-reliance, reduces vulnerability

Source: Don Wilhite, 2015 [link](#)

[Link](#) to further work on the Economic Argument by the IDMP and World Bank

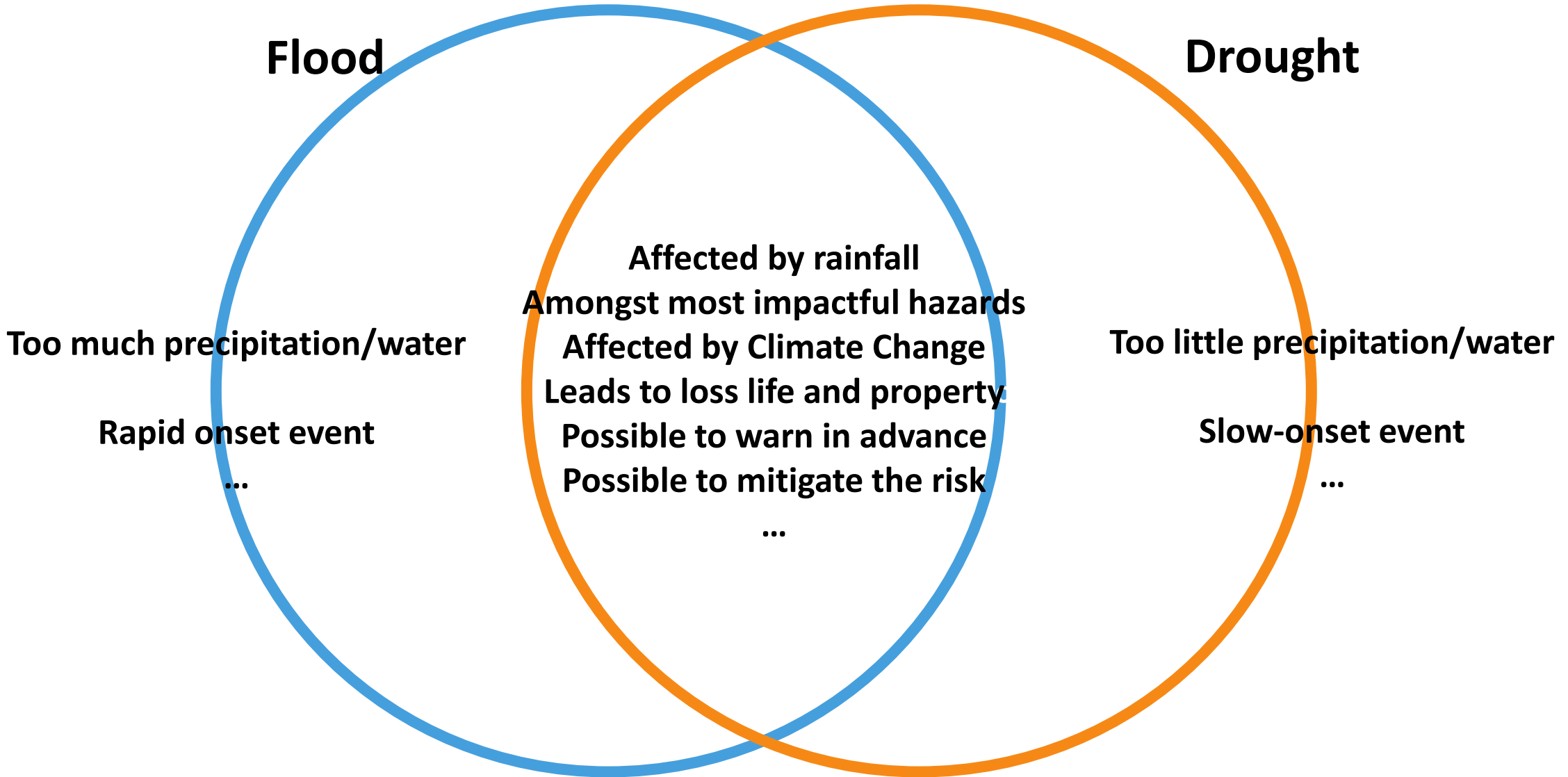
# IDMP's Integrated Drought Management Helpdesk

The image shows three interactive buttons for the IDMP helpdesk, each with a title, an icon, a description, and a plus sign. The 'Ask' button is highlighted with a blue border.

- Ask**: Represented by a question mark and an information icon. Description: "Ask for assistance on integrated drought management".
- Find**: Represented by a magnifying glass icon. Description: "Find knowledge resources on integrated drought management".
- Connect**: Represented by an icon of people in a circle. Description: "Learn about the activities of IDMP and connect to them".

[www.DroughtManagement.info](http://www.DroughtManagement.info)

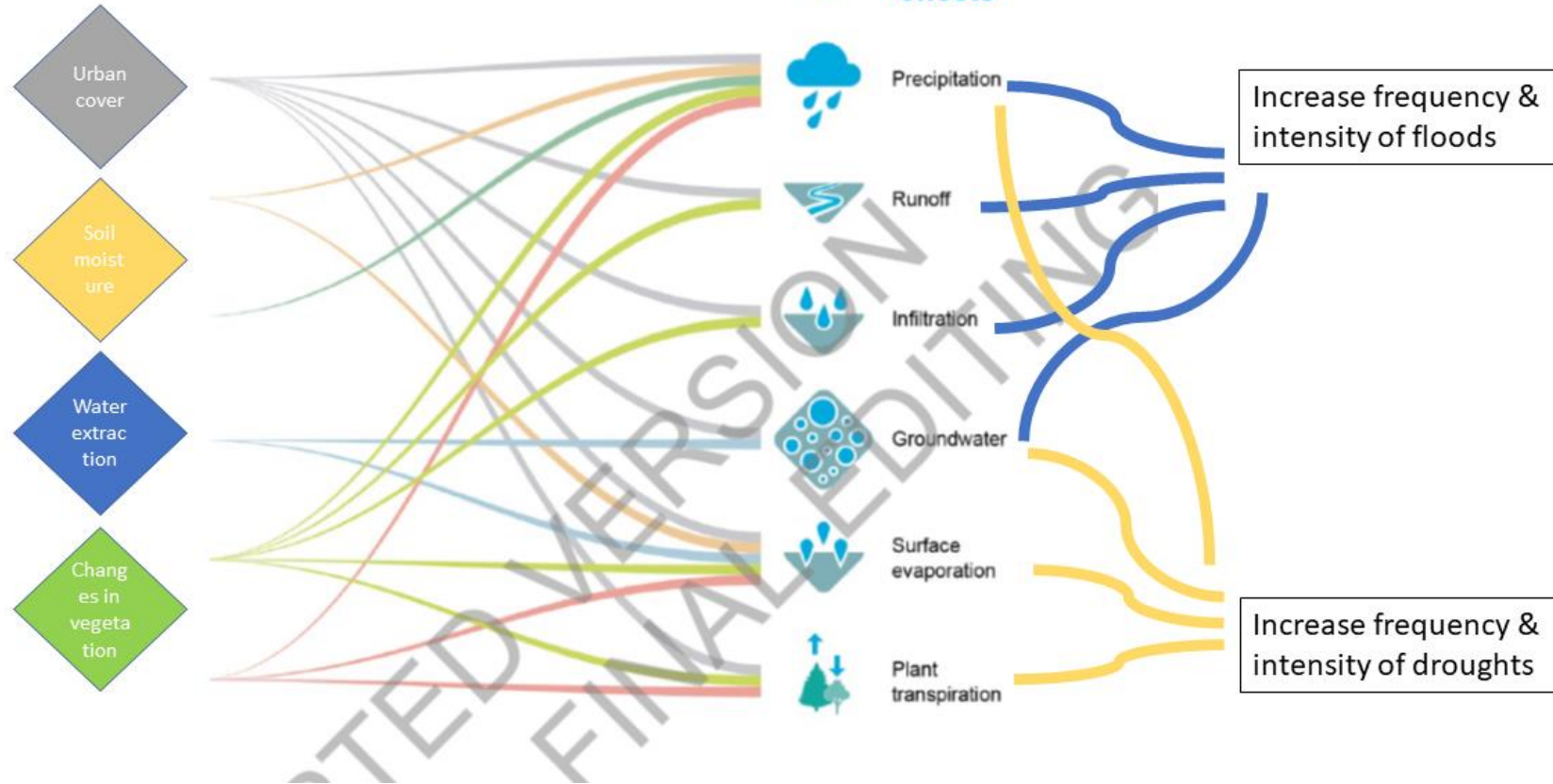
# Managing Floods and Droughts Together



# Land use changes and their effects on floods and droughts

How do land use changes affect the water cycle and occurrence of droughts and floods?

Land-use Change



*IDMP and APFM, under development*



# Integrated Land and Water Management for Drought and Floods

## Natural Infrastructure for Water Management

Investing in nature for multiple objectives



\*Hybrid solutions that contain built elements that interact with natural features and seek to enhance their water related ecosystem services.

Natural or semi-natural infrastructure provides services for water resources management with equivalent or similar benefits to conventional (built) 'grey' water infrastructure. The composition, structure, and function of natural infrastructure assets in river basins, and the way they interplay with built 'grey' infrastructure will determine the primary services and co-benefits produced. Further information can be found in UNEP (2014) *Green Infrastructure Guide for Water Management: Ecosystem-based management approaches for water related-infrastructure projects.*

IUCN:  
<https://www.iucn.org/theme/water/our-work/current-projects/wise-climate>

© IUCN Water

# EPIC Response by World Bank and Deltares

## PROGRAM AREAS

**E**NABLE

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

**P**LAN

- Flood and Drought Risk Mitigation and Contingency Planning

**I**NVEST

- Healthy Watersheds
- 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**



Source: Authors.



<https://www.worldbank.org/en/topic/water/publication/an-epic-response-innovative-governance-for-flood-and-drought-risk-management>

# IDMP in Central and Eastern Europe and current activities

- Funfact: IDMP CEE pre-dates IDMP
- Very successful concept based on regional partnerships and national drought policies
- Connected to the global programme but independent
- Pillars of IDMP CEE: Knowledge Management, Guidance on technical and institutional aspects, Advocacy and Capacity Building
- Currently extending [droughtwatch.eu](https://droughtwatch.eu) to Kosovo, Albania and North Macedonia
- Supporting the establishment of an IDMP for Central Asia and Caucasus



# Get in touch: Integrated Drought Management Helpdesk



**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 

[www.DroughtManagement.info](http://www.DroughtManagement.info)

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