INTEGRATED DROUGHT MANAGEMENT PROGRAMME

WORLD METEOROLOGICAL ORGANIZATION

Global Water Partnership

FROM EMERGENCY TO PREPAREDNESS: WHY DO WE NEED A PARADIGM SHIFT IN DROUGHT MANAGEMENT

Katrin Ehlert and Robert Stefanski, WMO
Valentin Aich, GWP

Tunis, 15 December 2022

Regional gathering
Tunis, 12 – 16 December 2022

ITALIAN AGENCY FOR DEVELOPMENT COOPERATION

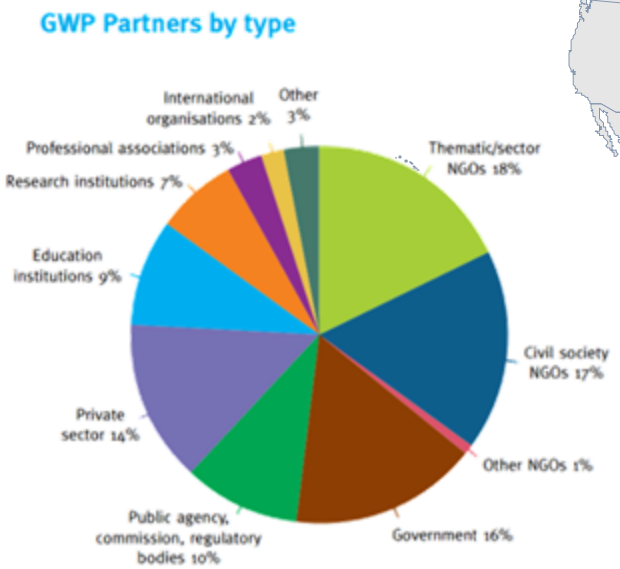
World Meteorological Organization

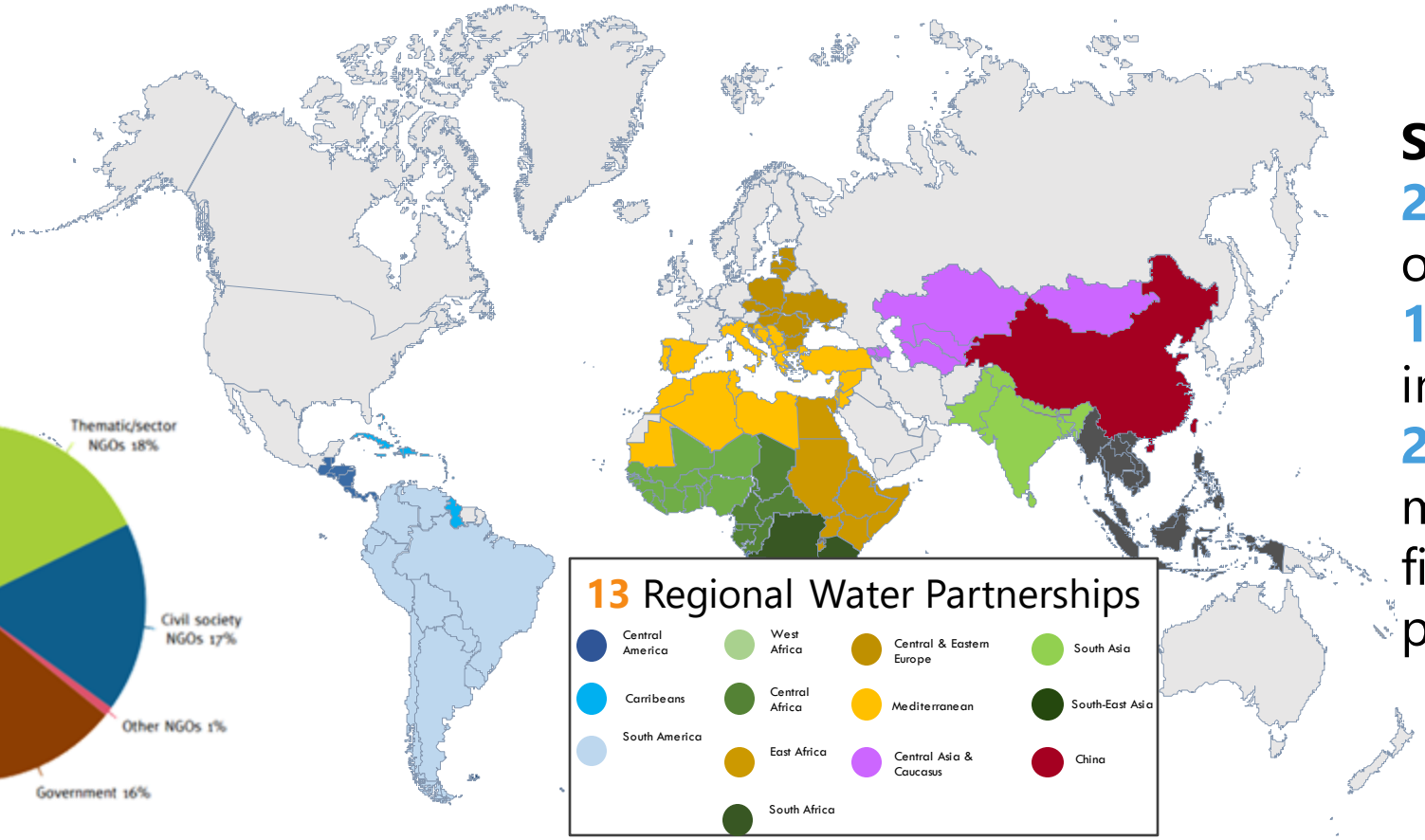
WMO is the United Nations system's authoritative voice on Weather, Climate and Water:

- 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.

Global Water Partnership

WE WORK IN 181+ COUNTRIES
WITH STRUCTURED COUNTRY WATER PARTNERSHIPS IN 60+ COUNTRIES





Since 2014:

220+ water governance outcomes

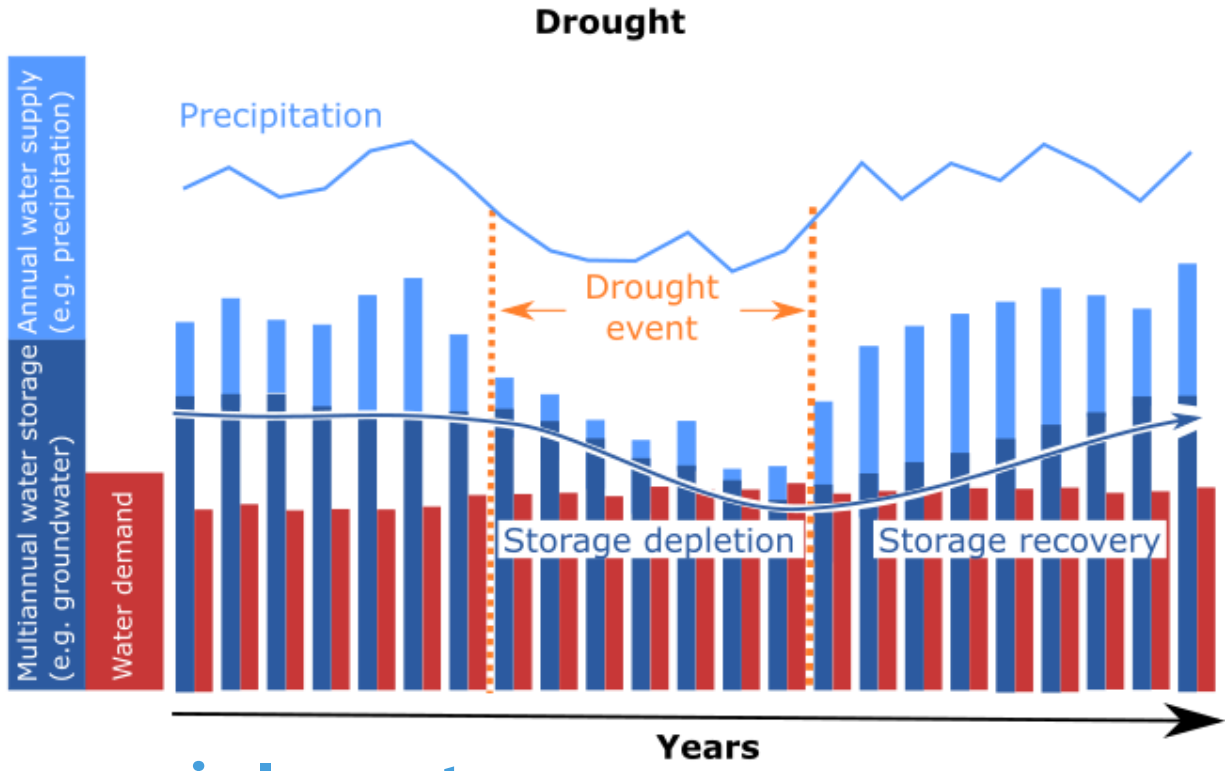
1 billion €+ water related investments influenced

20m€+ investments directly mobilized from climate finance sources through project preparation

Defining Drought

MULTITUDE OF DEFINITIONS: APPLICATION AND REGION SPECIFIC

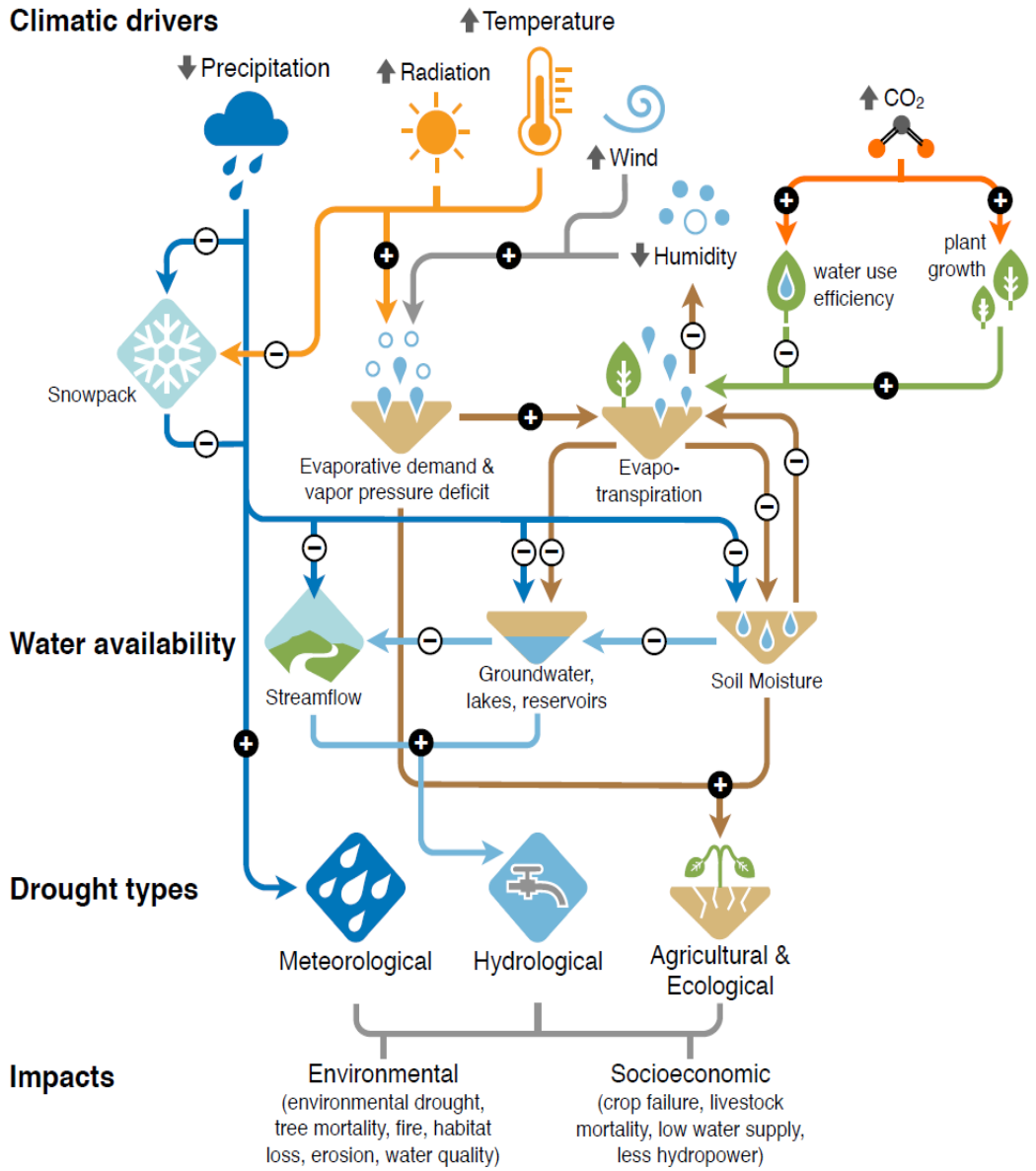
1. Drought is a deficiency of **precipitation** (**intensity**)
2. …from expected or "normal" that extends over a season or longer period of time (**duration**)
3. …and is insufficient to meet the demands of human activities and the environment (**impacts**).



- **Agricultural, Hydrological and Socio-Economic Impacts**
- **Effective drought management must be INTEGRATED across sectors and within and between levels of government as well as with NGOs.**

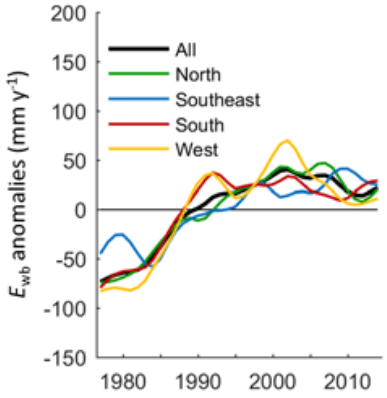
DROUGHTS ARE AMONG THE MOST COMPLEX NATURAL HAZARDS

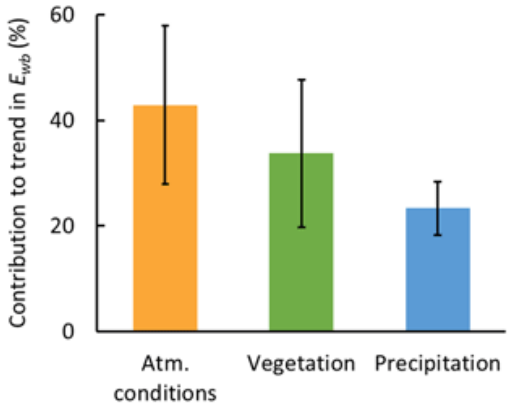
- Drought is a creeping phenomenon with slow onset
- Impacts of drought can accumulate gradually
- Lack of precise and universal definition for drought leads to confusion about when a drought begins and when it ends
- Leads to uncertainty on precise time to implement emergency response actions or mitigation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



SOME SIMPLE PHYSICS: HOW CLIMATE CHANGE ACCELERATES EXTREMES

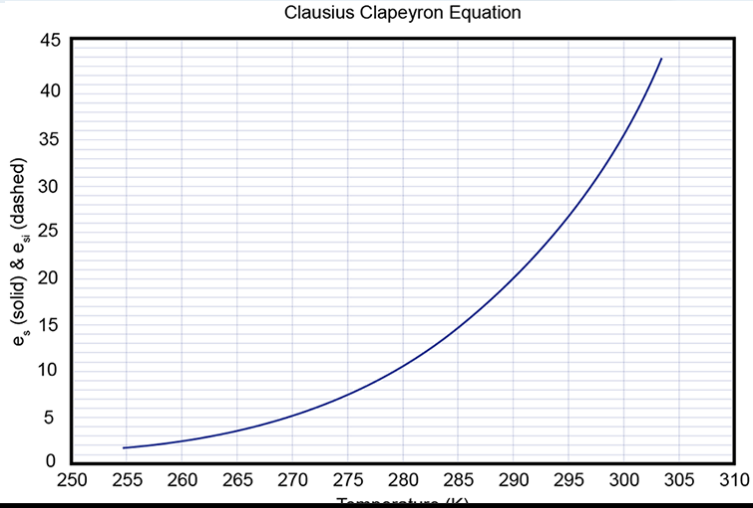
- Warming-> atmospheric water content increases ~7% per 1 °C (Clausius Clapeyron relationship) -> less water in soils and freshwater aquifers
- Increasing temperatures strengthen evaporation

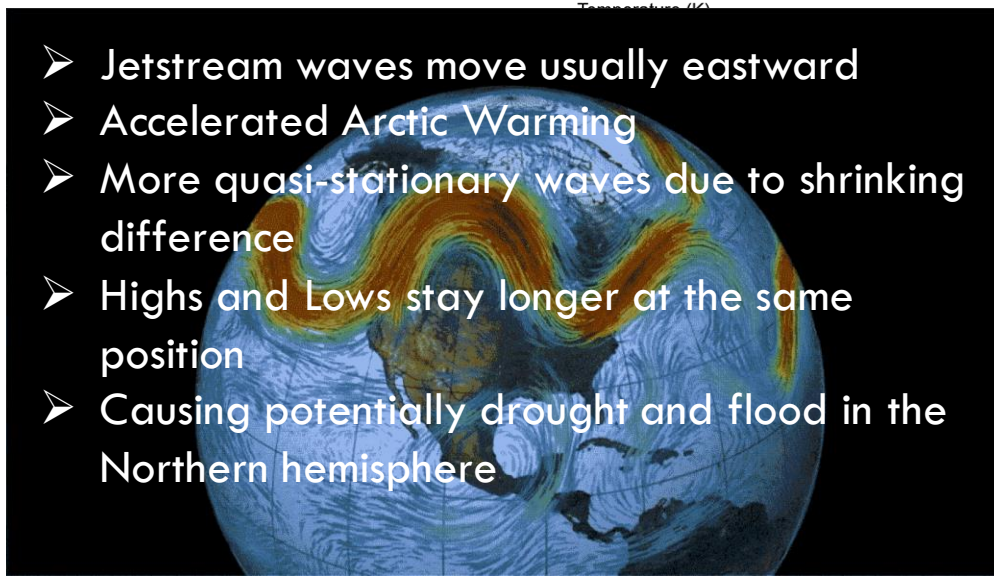




HESS, Duethmann and Blöschl 2018.

- 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





Observed increase in droughts

- From the 2021 6th Assessment Report of the IPCC, WGI:

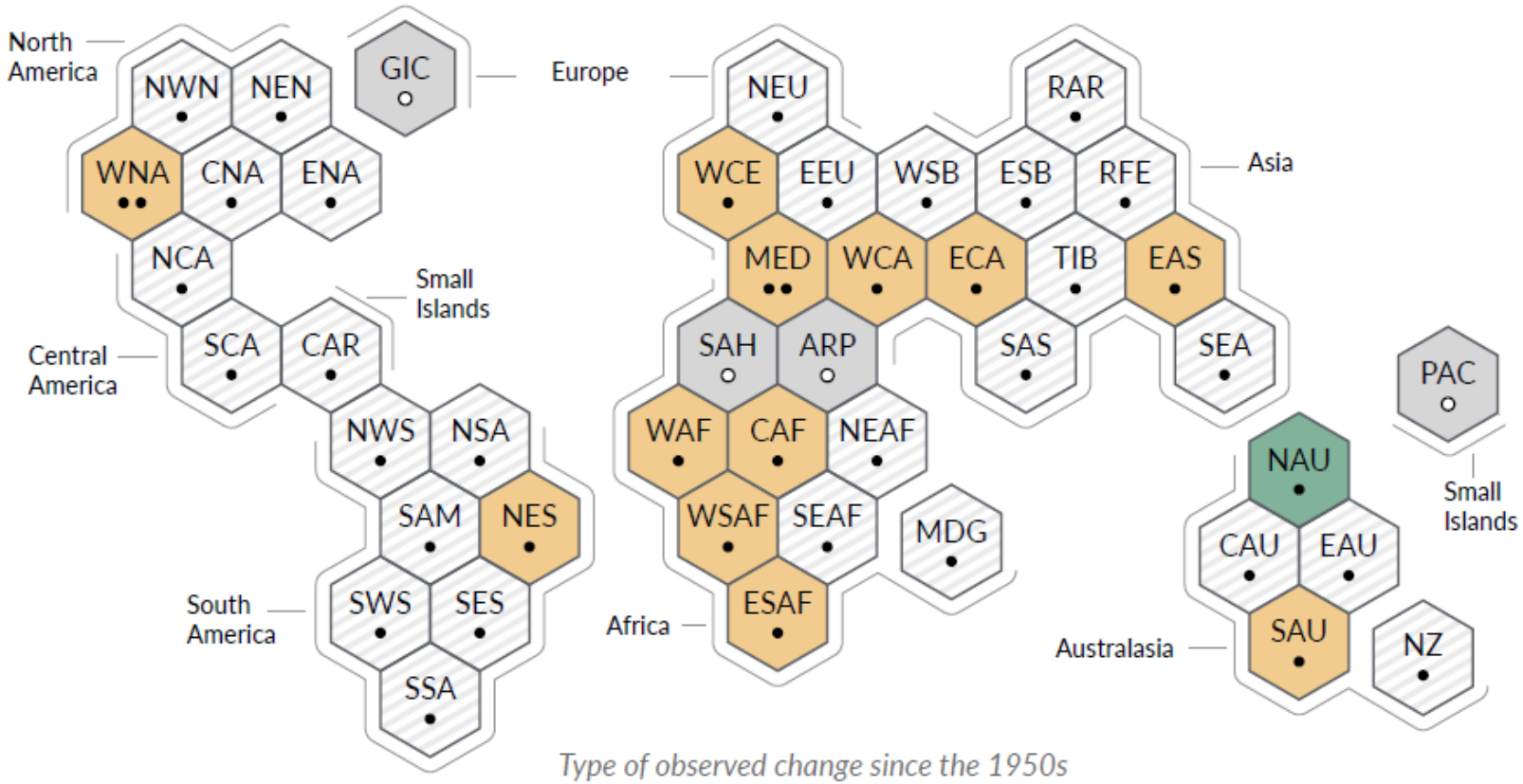
c) Synthesis of assessment of observed change in **agricultural and ecological drought** and confidence in human contribution to the observed changes in the world's regions

Type of observed change
in agricultural and ecological drought

- Increase (12)
- Decrease (1)
- Low agreement in the type of change (28)
- Limited data and/or literature (4)

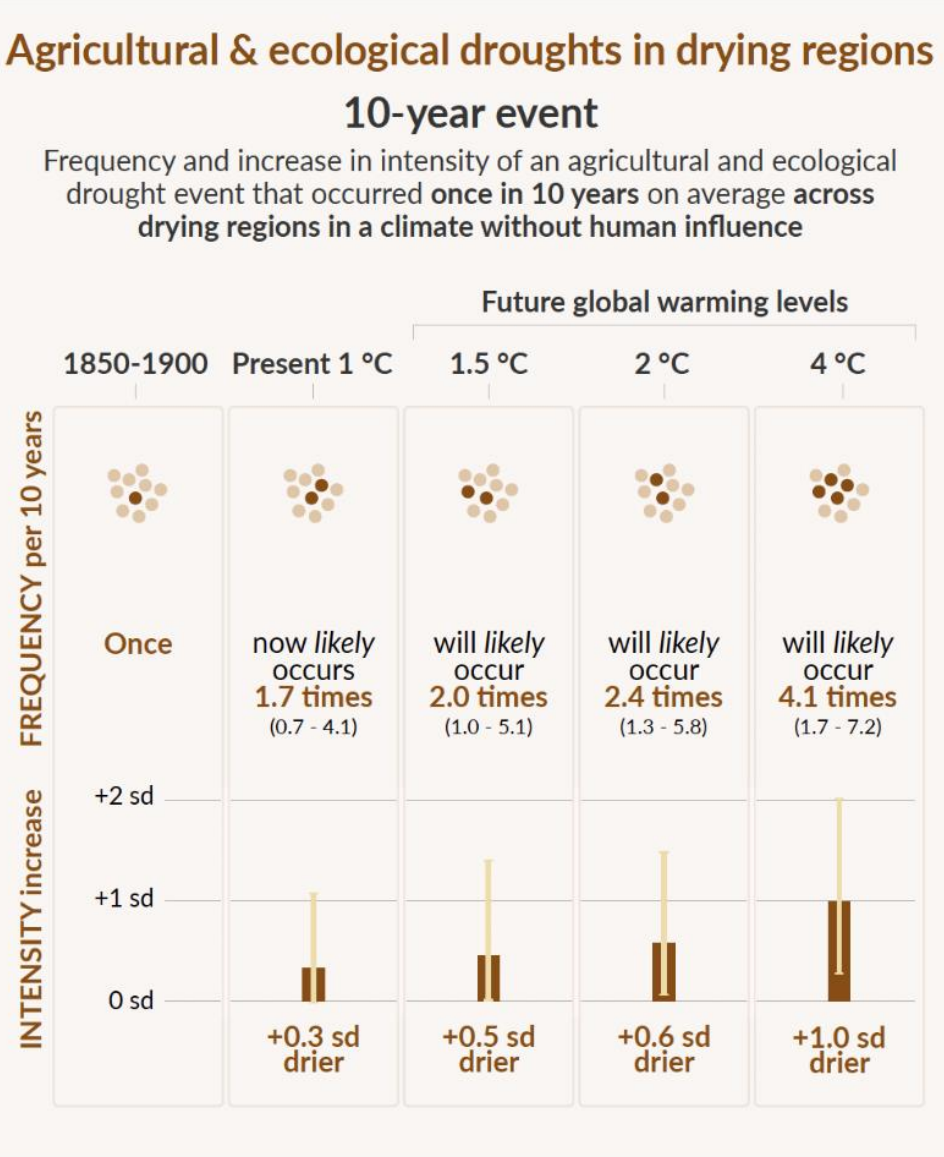
Confidence in human contribution
to the observed change

- ●●● High
- ●● Medium
- ● Low due to limited agreement
- ○ Low due to limited evidence



Type of observed change since the 1950s

Projections for future drought



Even in a "best case" scenario, when achieving Paris goals (1.5°C warming):

- Drought will occur 2 time more often and will be significantly more severe
- Hazardous flooding will occur 1.5 times more often and significantly more severe
- "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"

The Solution: Being pro-active

Crisis Management

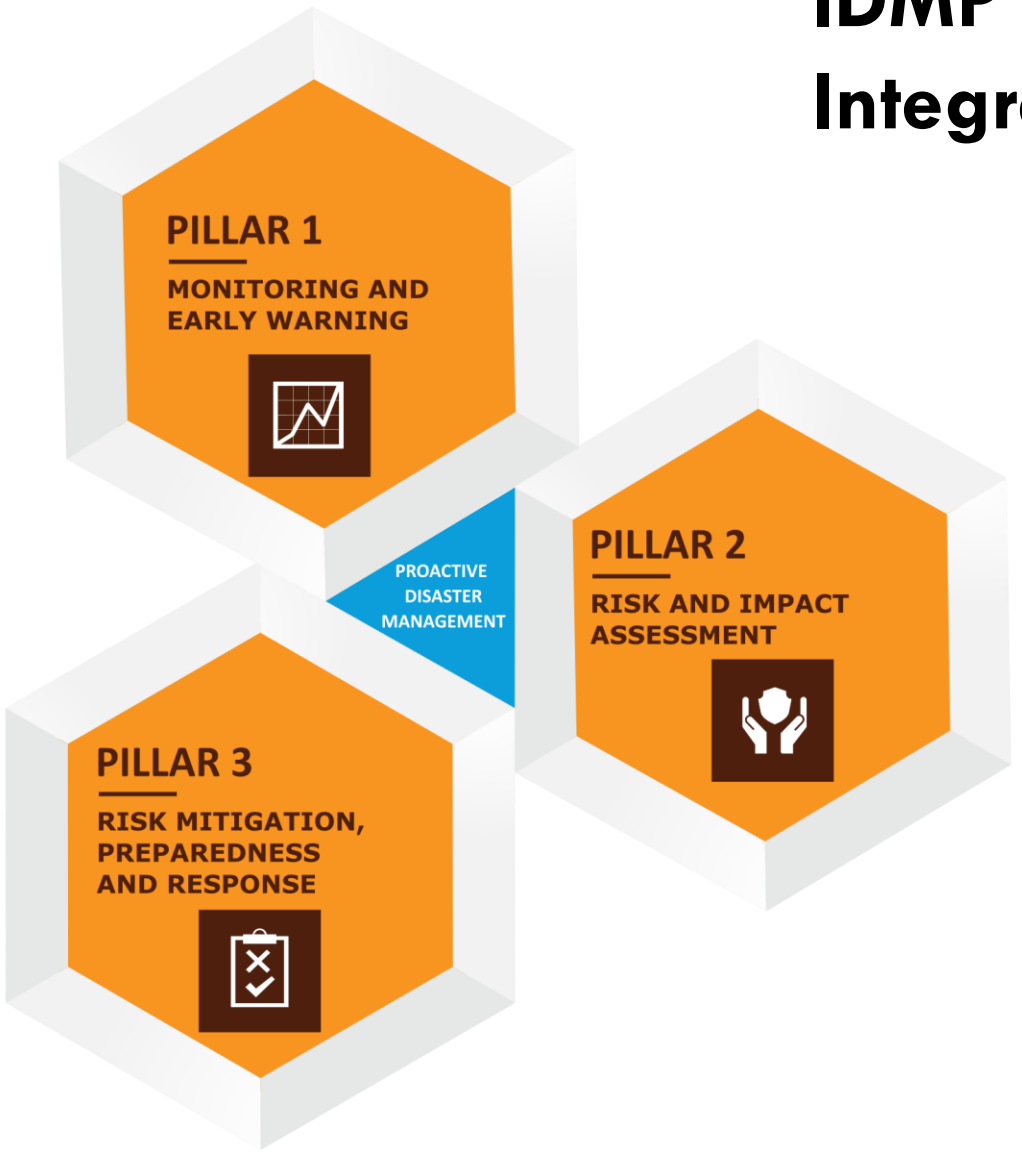
- Expensive
  - Costs + costs of inaction
  - Repeats past mistakes
- Post-impact
  - Disaster relief
- Treats the symptoms of risk, vulnerability i.e., impacts
- Rewards poor management of resources
- Increases vulnerability, reliance on government & donors

Risk Management

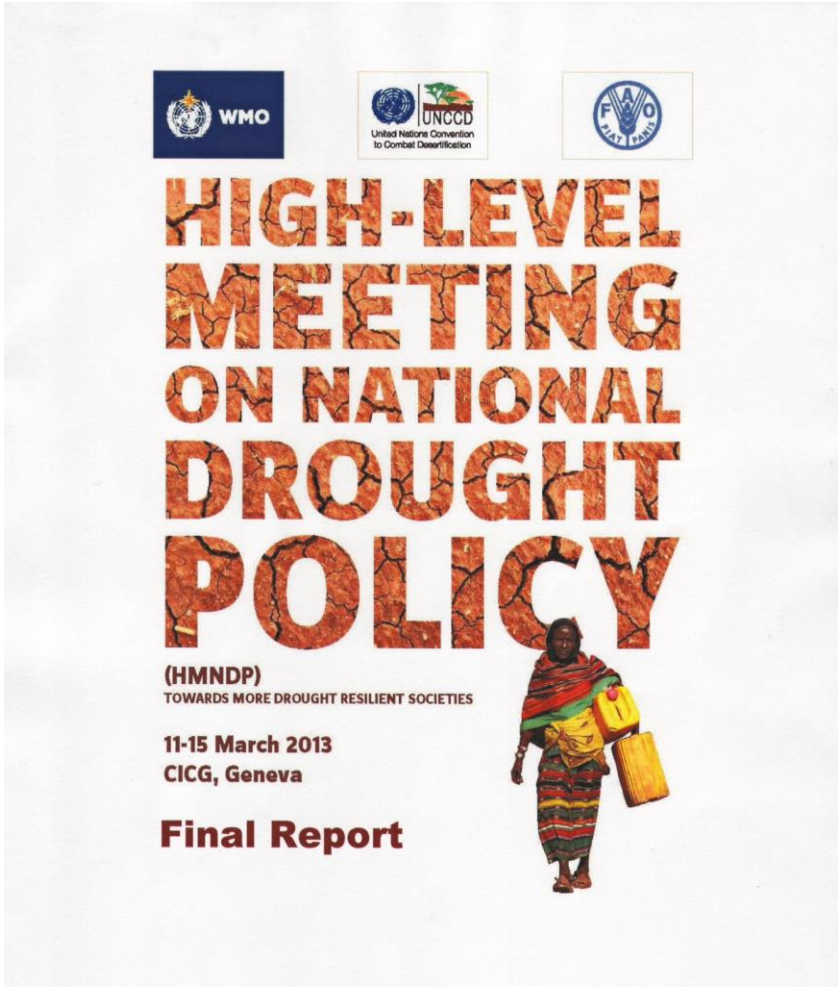
- Investment
  - Short-term—EWS, networks
  - Long-term—institutional capacity, structural adjustments
- Pre-impact
  - Mitigates and reduces risks
- Identifies and treats the root causes of vulnerability and hazard
- Promotes improved stewardship of natural resources
- Builds self-reliance, reduces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

IDMP: 10 Years of Integrated Drought Management

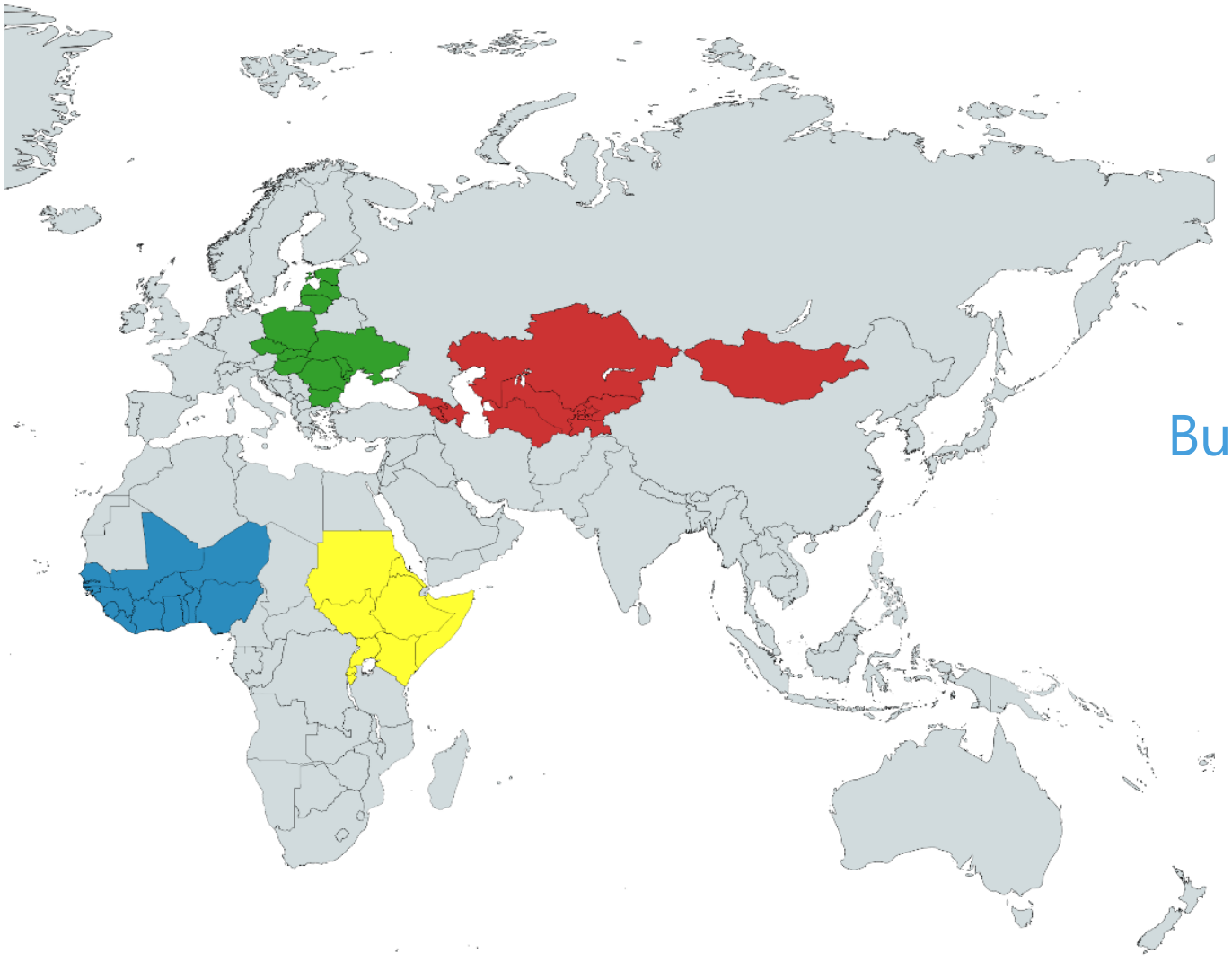
IDMP promotes the Three Pillars of Integrated Drought Management



Established in 2013 at High-Level Meeting on National Drought Policy



IDMP Regional Programmes



- IDMP Caucasus and Central Asia (CACENA)
- IDMP Central and Eastern Europe
- IDMP West Africa
- IDMP East Africa

But activities in many more countries!

The heart of IDMP: over 40 Partners

The National Framework of the Three Pillars Approach

Pillar 1:

- National Meteorological and Hydrological Services (NMHS)
- National Disaster Management Office (NDMO)
- WMO

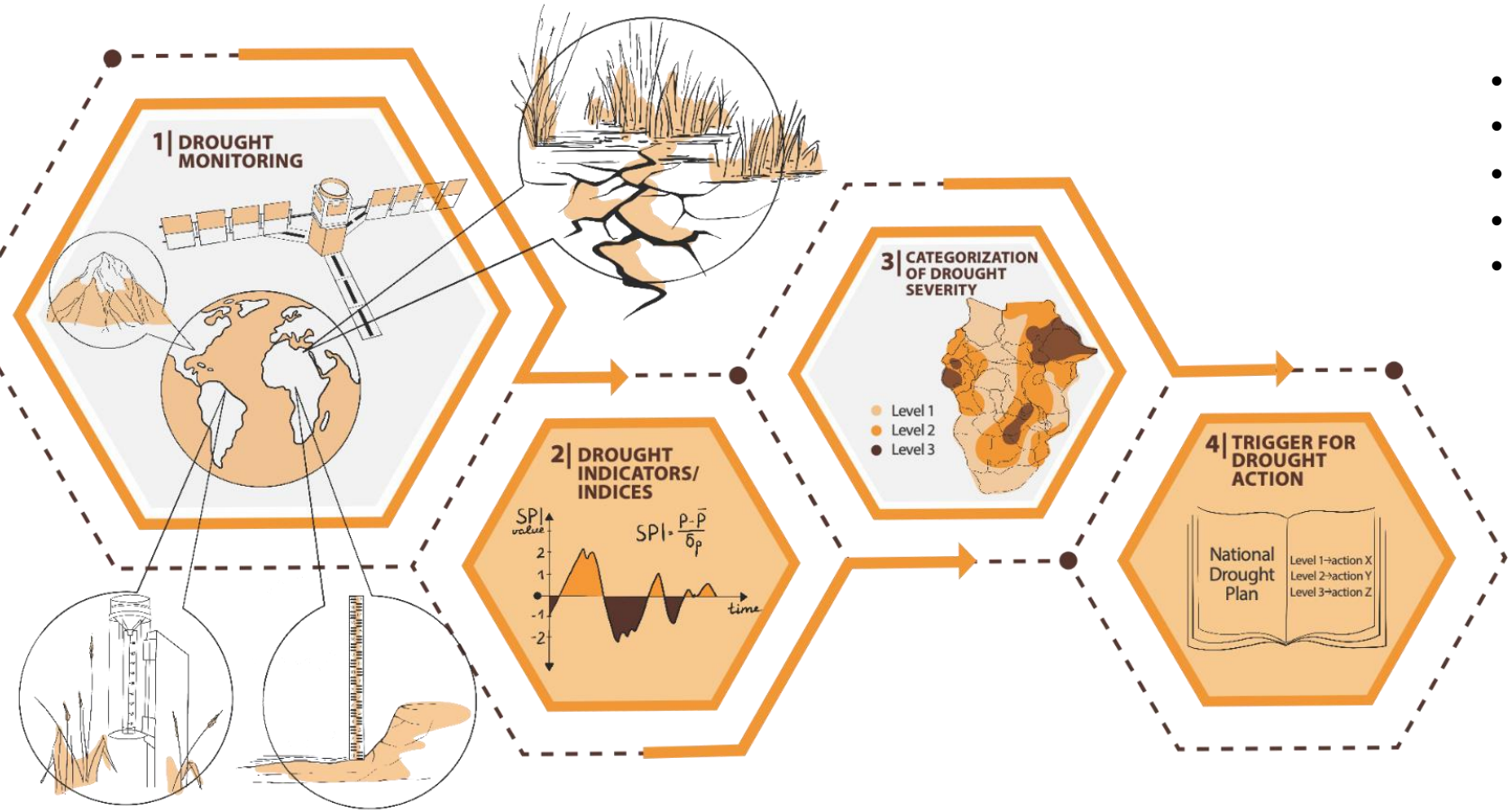
Pillar 2:

- Ministry of Agriculture
- Ministry of Livestock
- Ministry of Environment
- Ministry of Health
- Ministry of Finance
- Ministry of Marine Resources
- Water Authority
- NDMO, NMHS, Water Authority
- FAO, UNCCD, GWP

Pillar 3:

- Same as Pillar 1
- Same as Pillar 2
- Red Cross, WFP

Pillar 1: Drought monitoring and EWS



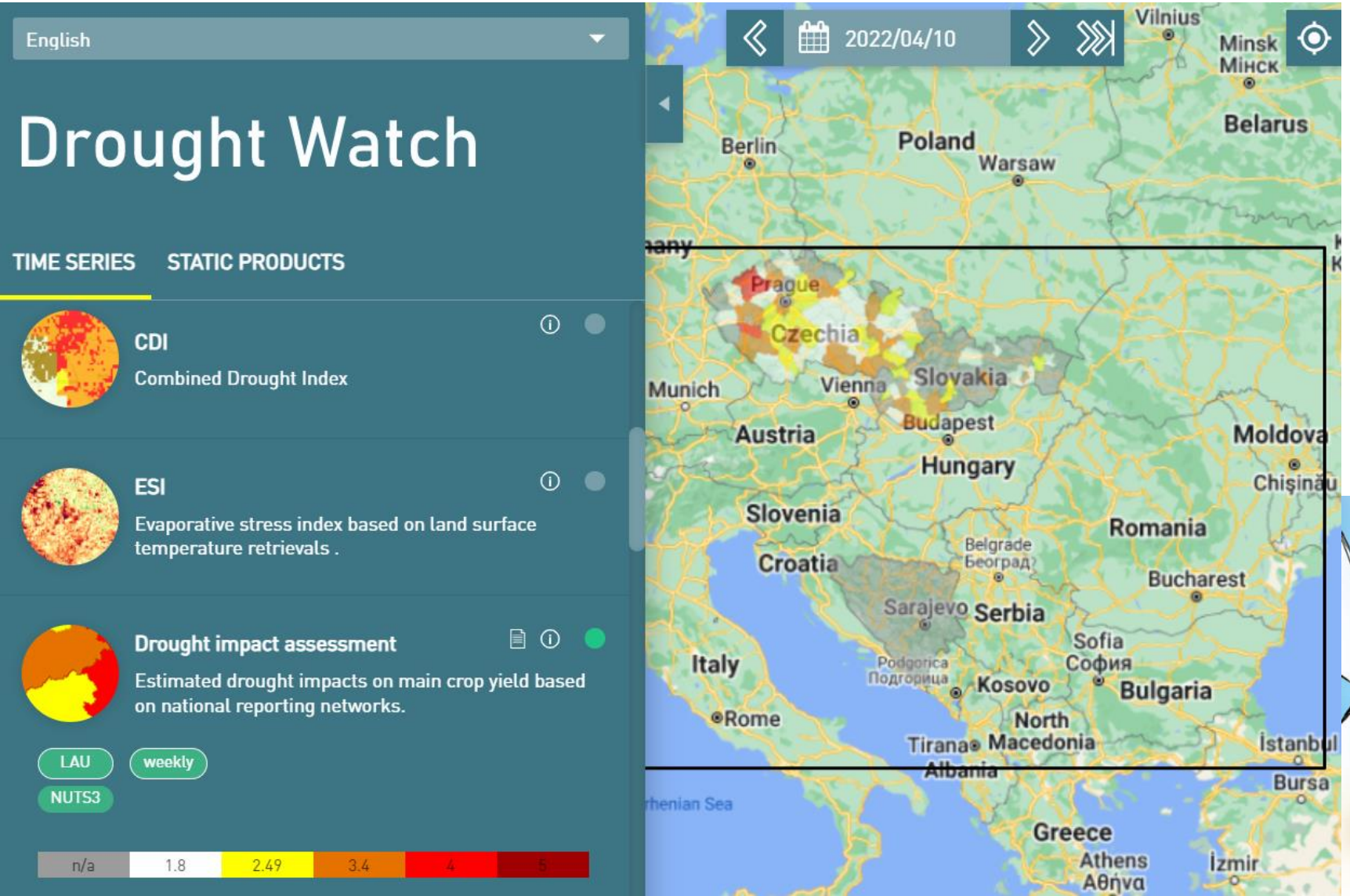
- **Integrated** monitoring of key indicators
- Use of appropriate indices
- **-> trigger actions in drought plans**
- Reliable seasonal forecasts
- Delivery of information and sector-specific decision-support tools

Strong focus on the "**Last Mile**"

The design and implementation of technical solutions is based on **engagement of all relevant stakeholders** at all steps and using a inclusive **whole-of-society approach**

Example IDMP CEE & DMCSEE: DROUGHTWATCH.EU

An open online tool, integrating 3 different types of drought info:



a) **Remote-sensed and modelled data**

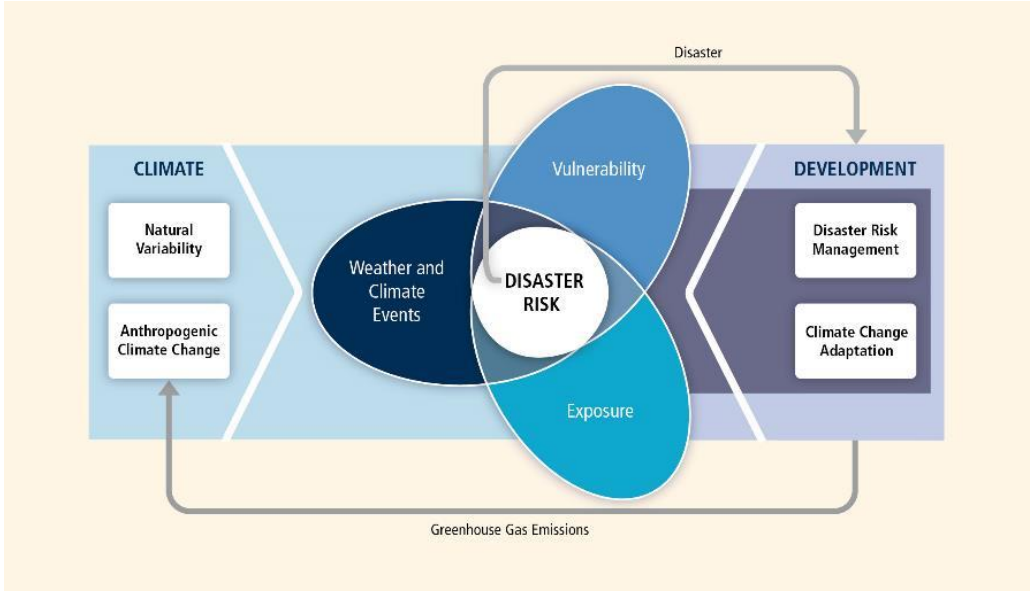
b) **Drought risk maps – assessments from past meteo & yield losses**

c) **On-field drought impact reports from national reporting networks**

Pillar 2 and 3

Risk 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



Risk Mitigation, Preparedness, and Response

- Proactive measures to increase coping capacity
- Response measures that support the principles of drought risk reduction

Tools and Resources on the 3 Pillars of IDM

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

Overview of Drought Management Plans and Policies

www.droughtmanagement.info/pillars

IDMP's Integrated Drought Management Helpdesk

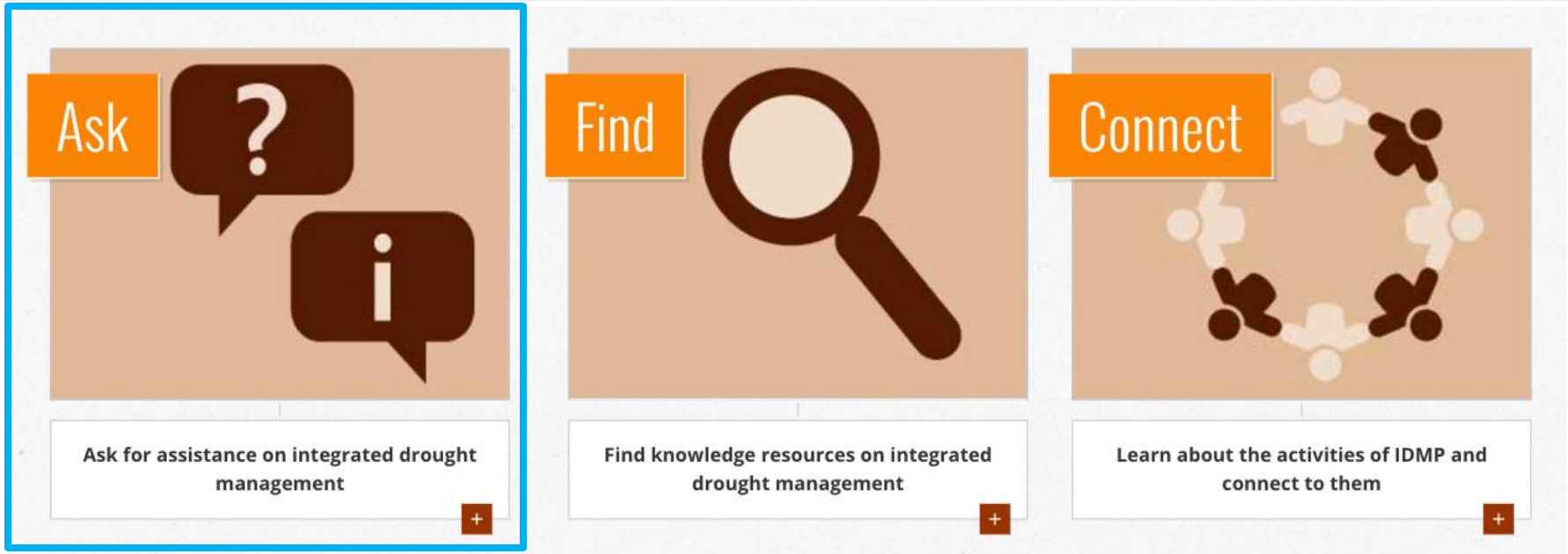
Connecting the Three Pillars: The 10-step process

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

Adapting of 10-step process by Don Wilhite (National Drought Mitigation Center at the University of Nebraska-Lincoln)

Guided drought mitigation and preparedness plans in the USA, Brazil, Mexico, Morocco, and guided the approach of the UNCCD Drought Initiative in 70+ countries.

Get in touch: Integrated Drought Management Helpdesk



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idmp@wmo.int
valentin.aich@gwp.org
rstefanski@wmo.int
kehlert@wmo.int