



The longer term needs for water and the Water Framework Directive

*Saskia Onnink
European Commission
DG ENV Sustainable Water
management*

contents

WFD

Present and foreseen drought risks for agriculture

Sustainable water use practises in agriculture (also promoted in CAP)

Regional water cycle and risks broken water cycle reinforcing droughts

Options to balance supply and demand

Reflections



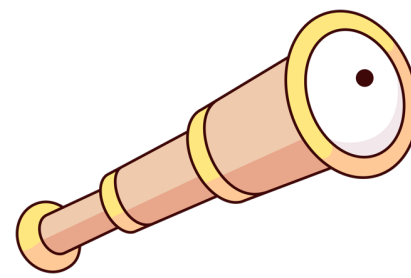
European
Commission

EU Water Policy

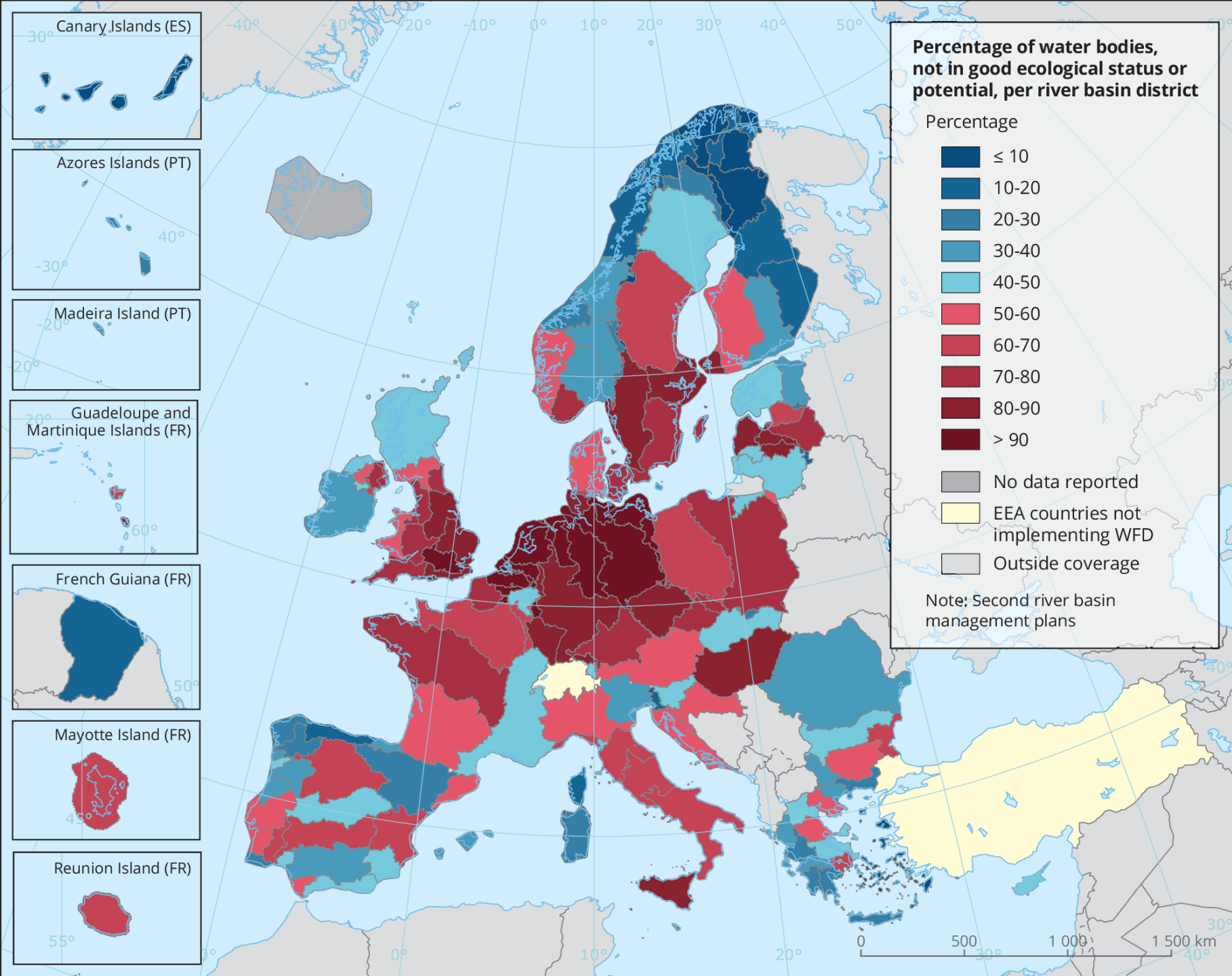
Water policy



Core principles in WFD



- Protection + improvement of all waters in EU (incl heavily modified + artificial water bodies + coastal water bodies)
- No deterioration – derogation under strict principles
- Integrated watermanagement & hydrological basins,
- No deteriorating for downstream functions/ecosyst = included
- Ecosystem(s) = best check for health + improvements water body
- Chemical status needs good status too
- Quantitative status + chemical status Ground Water ↔ ecosystem needs in fed surface water + drinking water production
- One out = all out

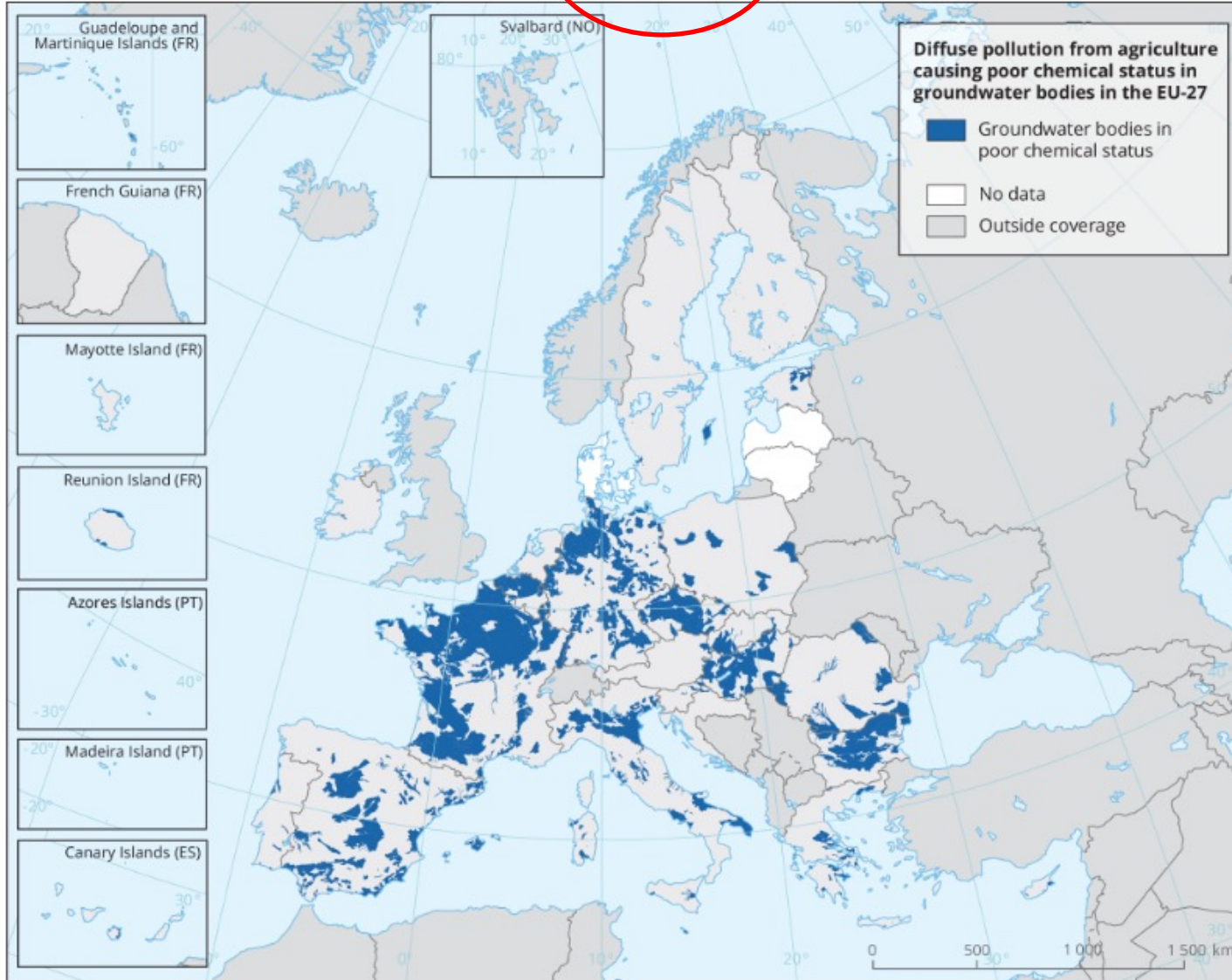


EU Ecological status 2016

Main causes failure:

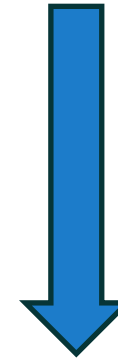
- **Hydromorphological pressures (incl AGRI)**
- **Diffuse agricultural pollutions**
- Atmospheric pollutions
- Point source pollutions
- **Over abstraction (incl AGRI)**

Map 1. Diffuse source pollution from agriculture in groundwater bodies in the EU-27



Diffuse pollution agriculture reported in RBMP:

- PHOSPHATES
- NITRATES
- PESTICIDES (if Priority Substance or River Basin Specific Pollutant)



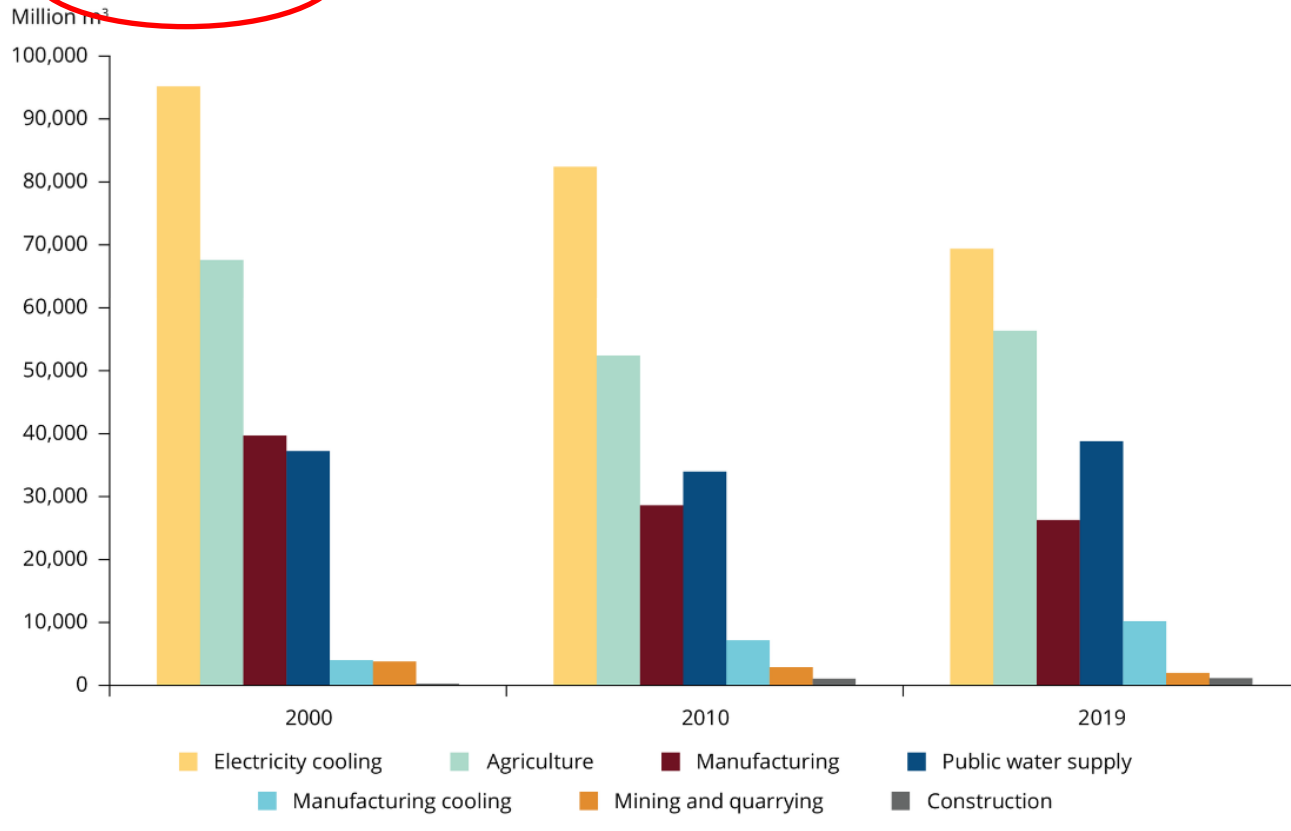
Not fit to produce drinking water

Note: The map illustrates groundwater bodies of poor chemical status, affected significantly by diffuse source pollution from agriculture in the EU-27, as reported in national 2016 RBMPs.

Sources: (EEA 2020; Psomas, Bariamis, Roy, et al., 2021)

Agriculture is important pressure on water

Figure 2. Water abstraction by economic sector in the 27 EU Member States, 2000-2019



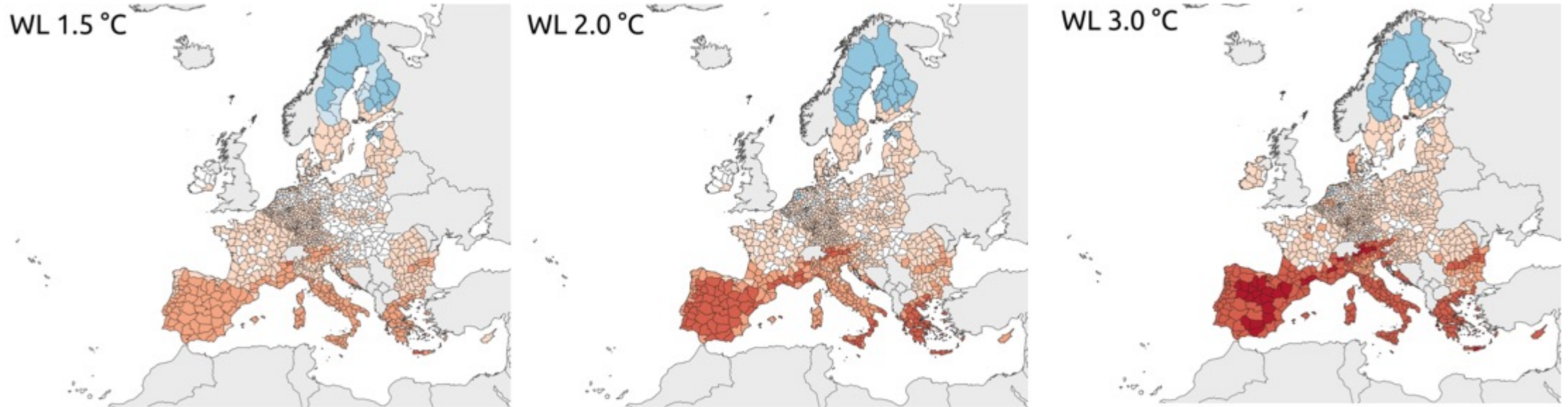
Restitution of main part abstractions to hydrological cycle except agriculture (crop = sold)

- Electricity cooling decreased
- Manufacture decreased, cooling increased
- Agriculture increases since 2010 especially in Southern Europe

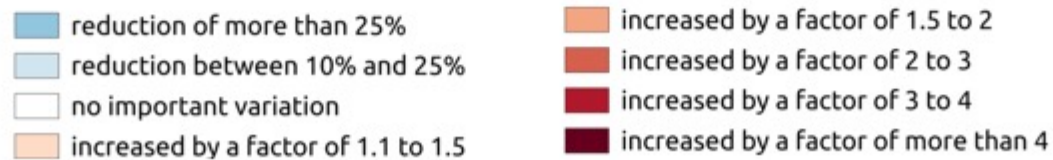
Water abstraction by source and economic sector in Europe, EEA, 2022

EDORA Drought Risk Atlas - Ecosystems

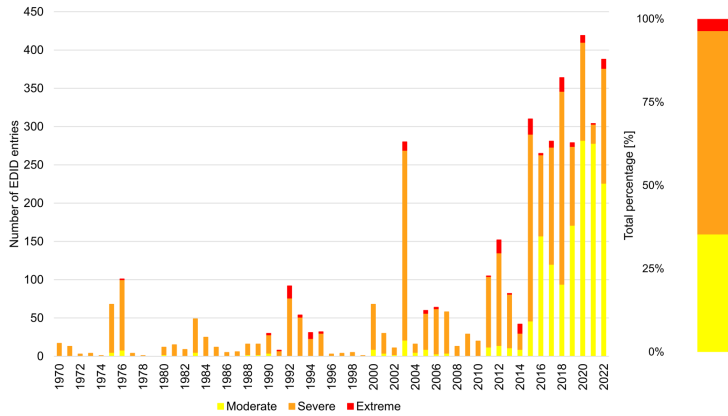
Terrestrial: Projected / Current Loss



Projected Loss / Current Loss

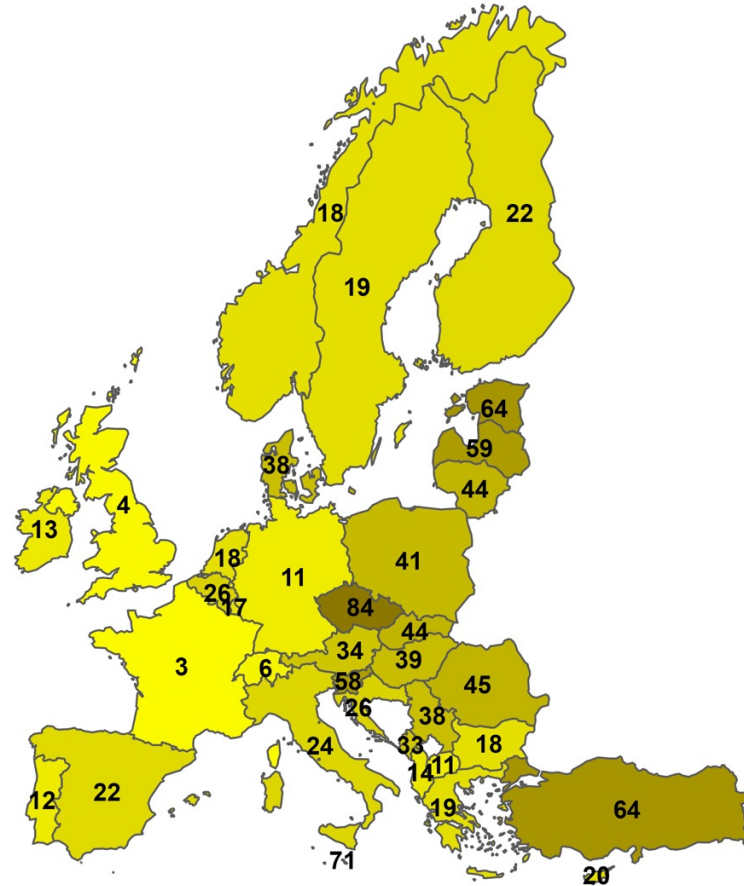


EDORA Drought Impacts Database (1970-2022)



Severity of impacts in Agriculture are on the rise

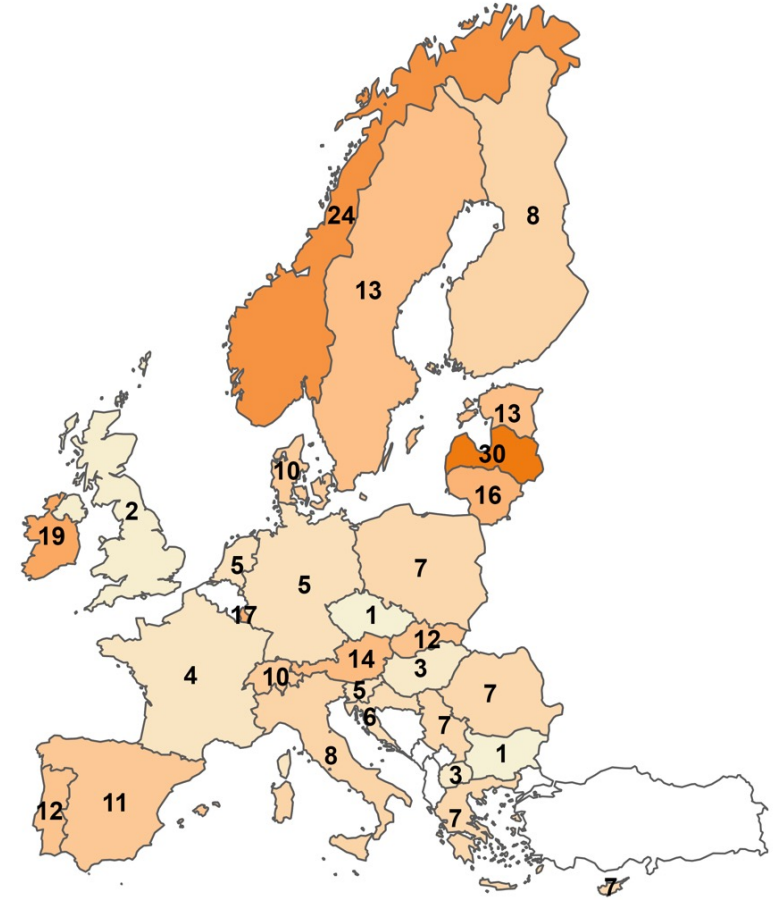
Agriculture Annual Crops



Fraction (in %) of system-specific impacts of all impacts by country

0 20 40 60 80

Agriculture Livestock

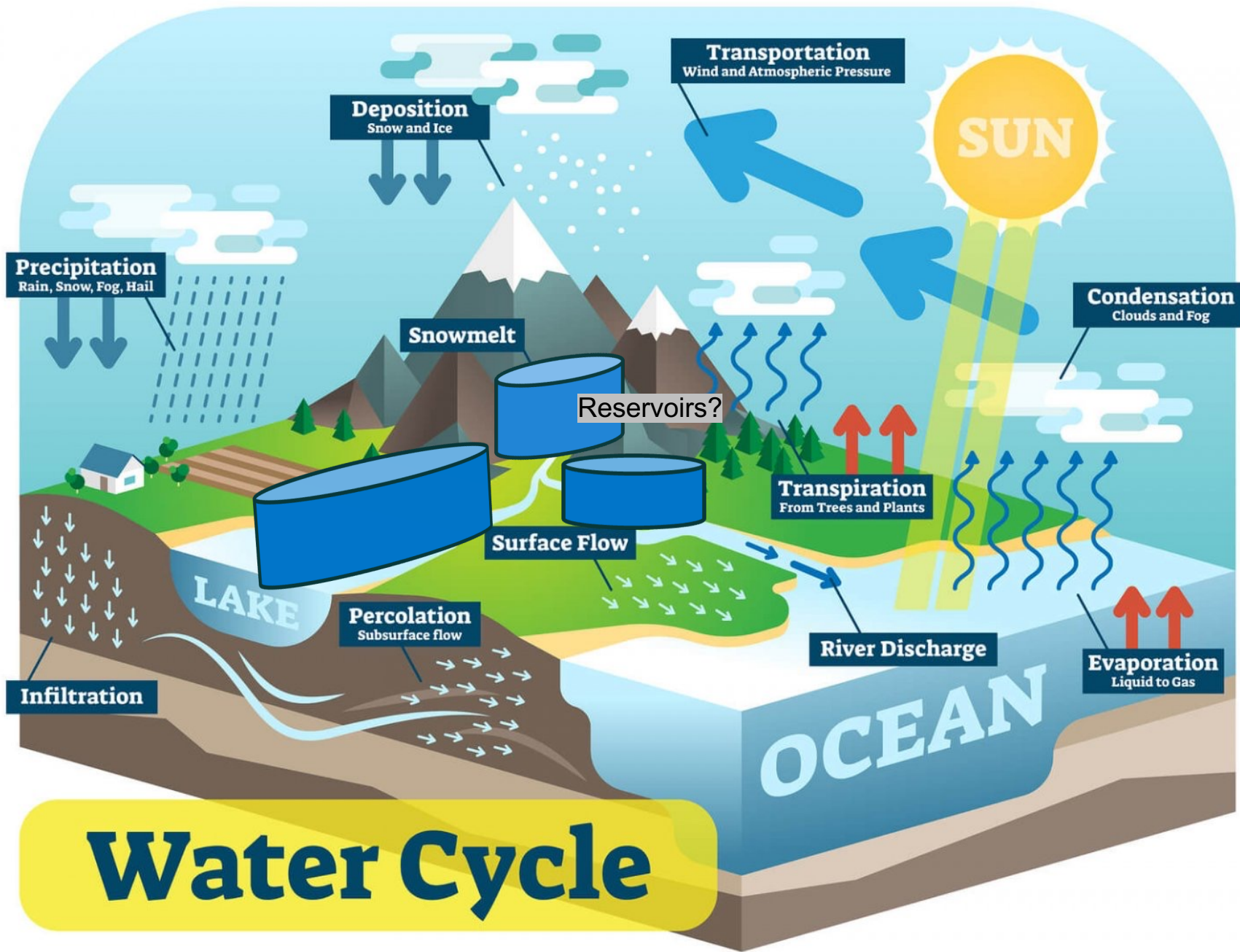


Fraction (in %) of system-specific impacts of all impacts by country

0 10 20 30

Sustainable water use in agriculture

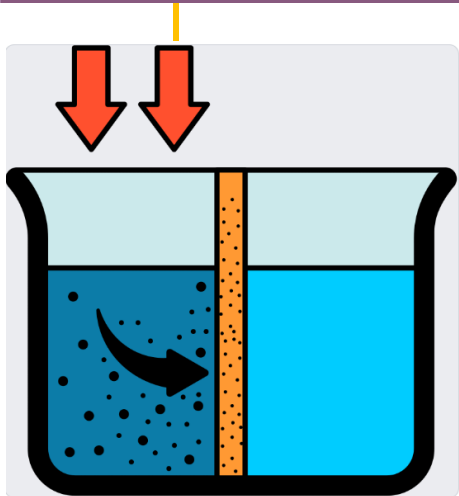
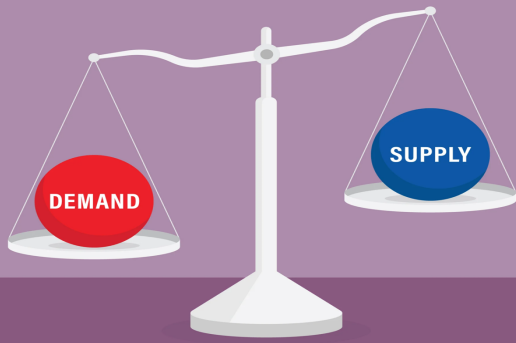
- Limit chemical inputs
- Improve the soil structure to improve infiltration and water retention capacity
- Limit evaporation and increased erosion risks by covercrops, mulch, hedges, contour ploughing, terrassing etc
- Switch to less water demanding crops/varieties (increasing drought and heat waves regions)
- CHECK CC proof abstraction BEFORE INVESTING IN IRRIGATION
- Irrigate only when necessary + limit amount to that what will be used by rootsystem (= little amounts when roots are small)
- Only abstract within permit limits/water body(ies) implied in good status (water balance is balanced incl CC projections)
- Accept abstraction stops when needed



Reservoirs can help human needs in droughts BUT No WFD objective + Increased local availability = decrease else + H2O losses + increased water dependancy---> overabstraction



Balancing supply and demand



Extending supply

When necessary (after limiting demand):

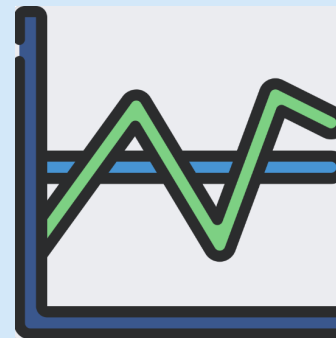
Desalination

- **RTD efforts**
- **High energy consumption**
- **GHGs emissions**
- **Negative environmental impacts of brine**
- **Still high costs**



Water storage and ecological flow

Coping with increasing seasonal or yearly variability of precipitations



Increased water storage- intervention in the water cycle + risks increased water stress downstream

Increased water storage- nature based solutions

Respect the ecological flow- the water that must stay in the river for the ecosystem to function

WATERAGRI solutions

- Framework modelling
- remote sensing data for H2O and nutrients
- Nutrients recovery
- Farm constructed wetlands

- OPTAIN solutions
- NSWRM
- Agrilemma serious game



Farmers

- Proof/experience of the benefits ?
- Can I try it, with less risks in pilot?
- My investment: financial and in time?

- Is this worthwhile for my farm?

- How difficult are the future droughts? When will they come?
- Is needed software compatible with other applications I have?
- Is natural retention going to give me enough water to ensure my yields?
- Comparison with continuing my present water management?
- Why not use the intrants that have proved themselves?

Thank you



© European Union 2023

Unless otherwise noted the reuse of this presentation is authorised under the [CC BY 4.0](#) license. For any use or reproduction of elements that are not owned by the EU, permission may need to be sought directly from the respective right holders.

Slide xx: [element concerned](#), source: [e.g. Fotolia.com](#); Slide xx: [element concerned](#), source: [e.g. iStock.com](#)