

Integrated water management in the context of climate change

Sustainably managing biodiversity, pollution, and water resources

Caroline Whalley – Trine Christiansen – Celine Bout - Francesco Mundo - Nihat Zal | EEA-Eionet day, 1 March 2023



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Where we are in the EEA-Eionet Strategy

EEA-Eionet Strategy 2021-2030



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Integrated water assessment - sustainably managing biodiversity, pollution, and water resources in a changing climate – an EEA assessment in 2024



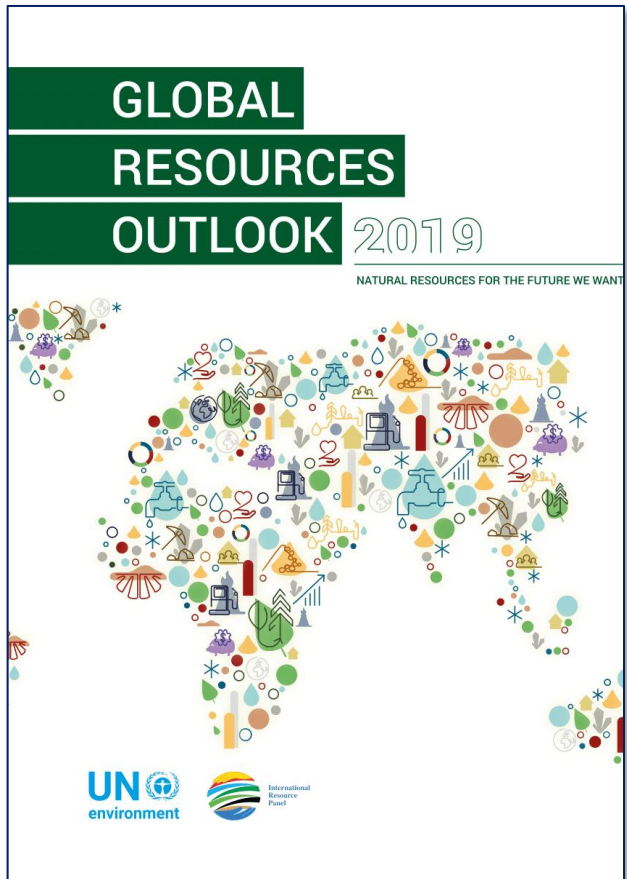
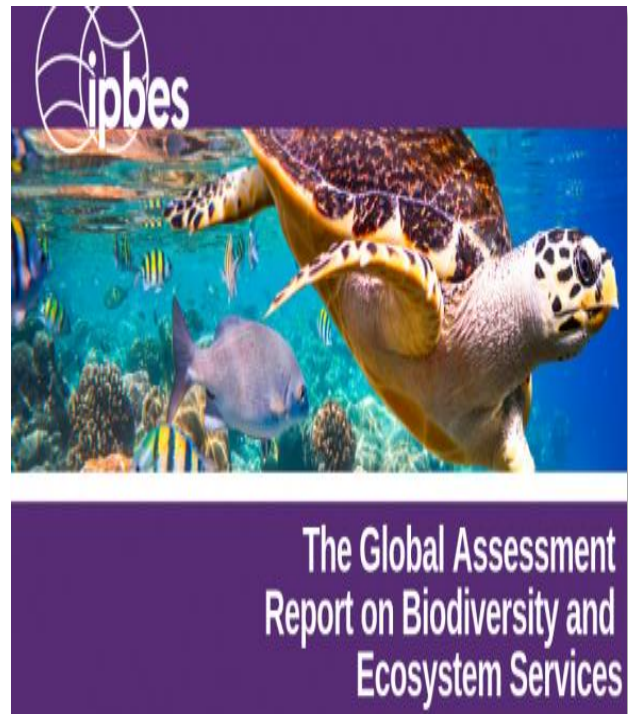
Global context: unprecedented challenges, improved knowledge

1. IPCC: **climate change**

2. IPBES: **biodiversity loss** and ecosystem services

3. IRP: **unsustainable resource use**

4. WHO: **environment and health**



PREVENTING DISEASE THROUGH HEALTHY ENVIRONMENTS

A global assessment of the burden of disease from environmental risks

A Prüss-Ustün, J. Wolf, C. Corvalán, R. Bos and M. Neira



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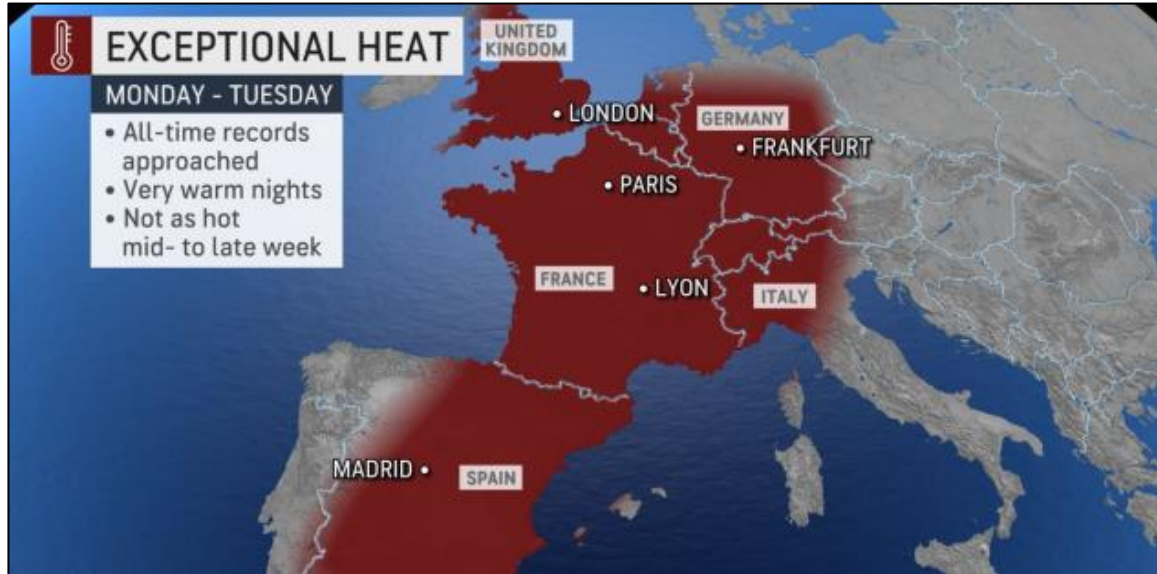
4. WHO: environment and **health**



- Urgency; pivotal decade
- Irreversibilities
- Tipping points
- Interconnected

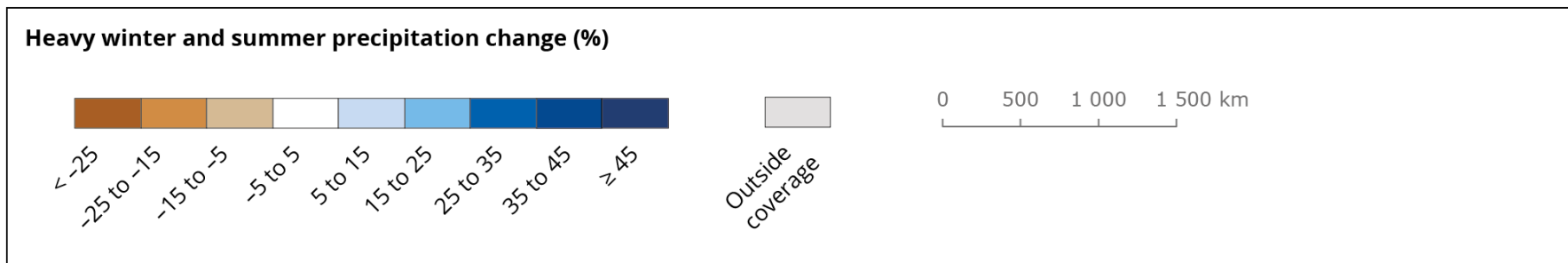
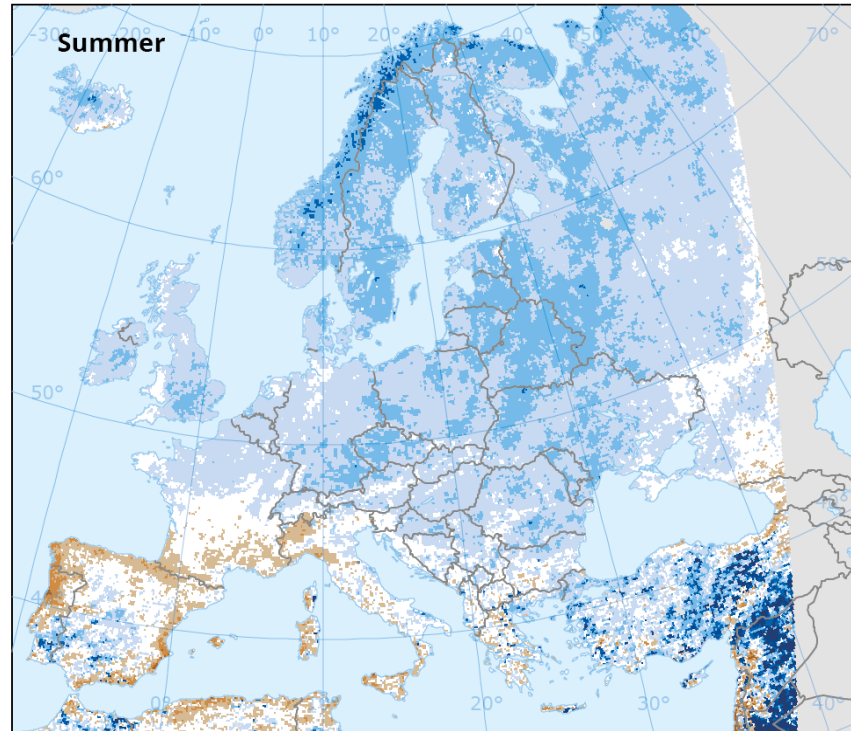
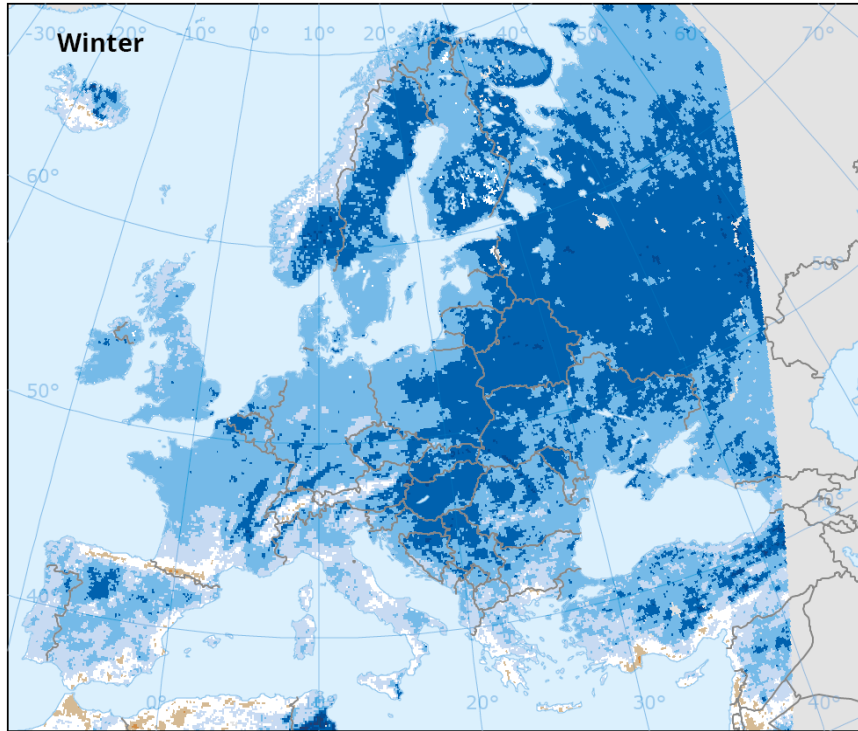


• An (un)exceptional summer in Europe – hydroclimatic extremes!



More flooding and droughts

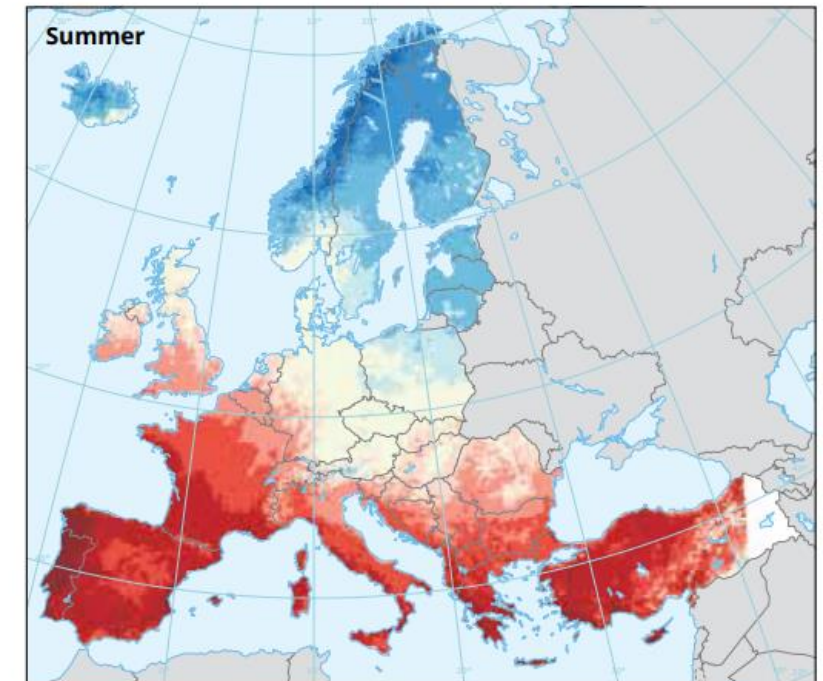
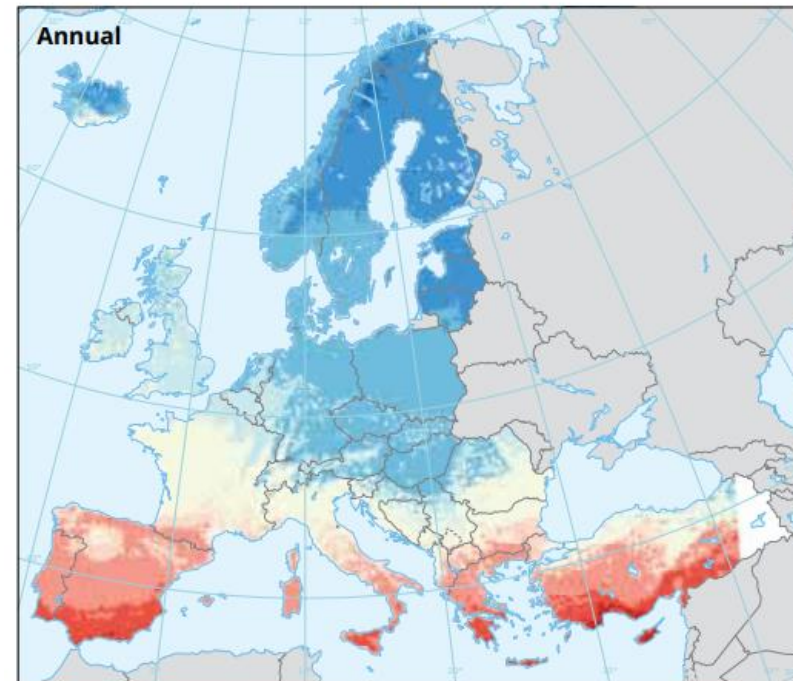
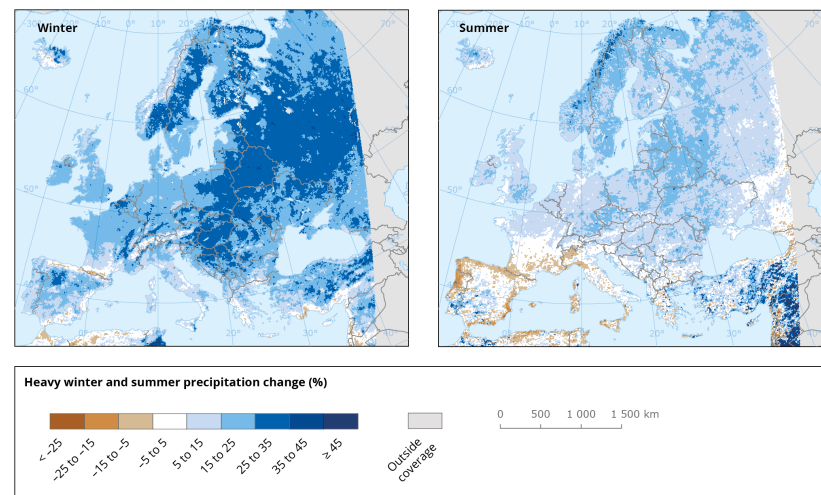
Winter and summer heavy rain (projected change for 2080s, high emissions scenario)



More flooding and droughts

Annual and summer rain (projected change for the period 2071-2100)

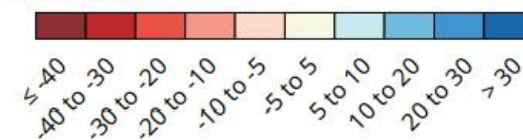
Winter and summer heavy rain (projected change for 2080s, high emissions scenario)



Reference data: ©ESRI

Projected change in annual (left) and summer (right) precipitation, 2071-2100

Percentage

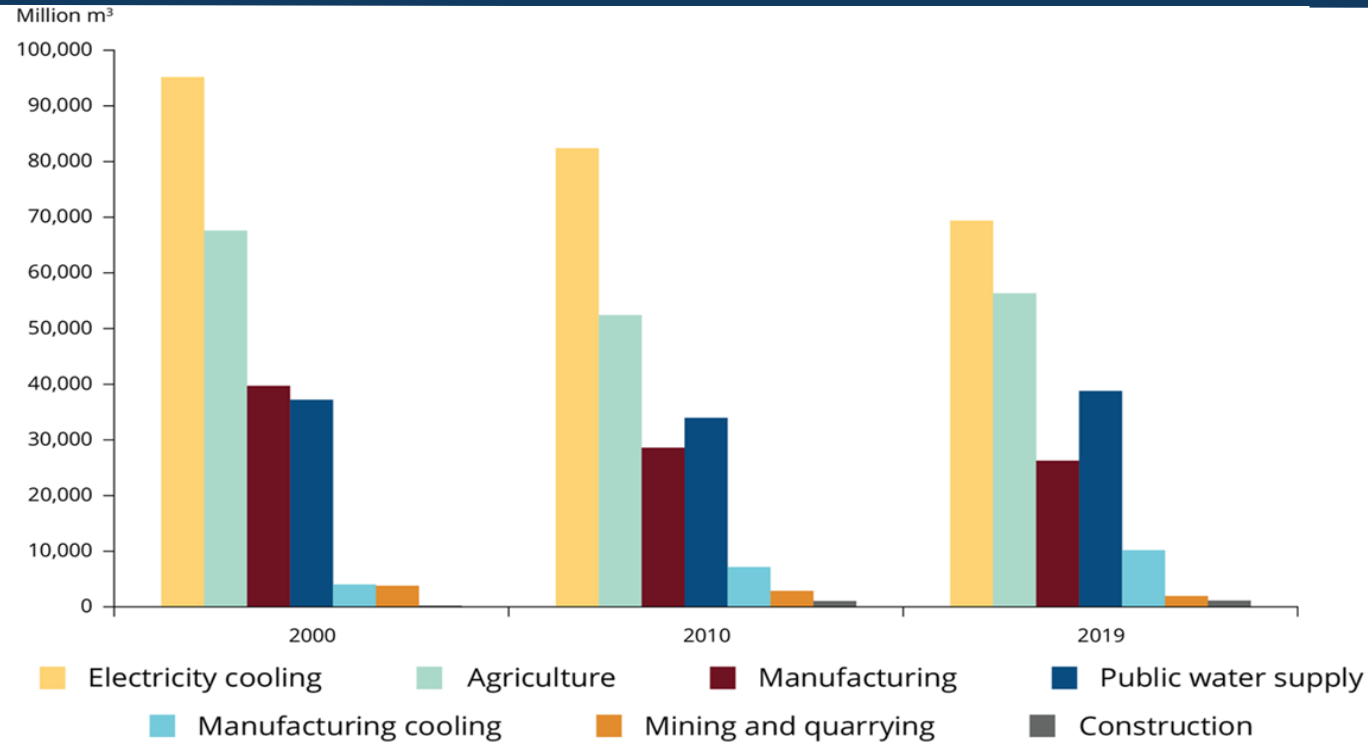


No data

Outside coverage

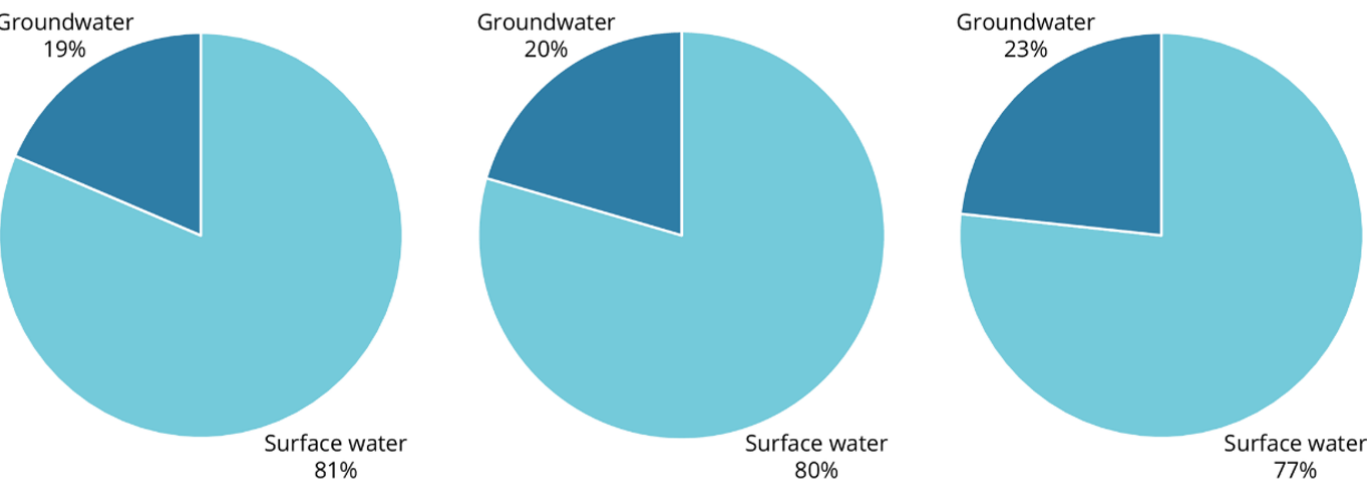
0 500 1 000 1 500 km

Water abstraction by source and sector (2000, 2010, 2019)



- Total volume of water abstracted from surface water and groundwater **declined by 15%** in EU-27.

- Share of water abstraction from groundwater resources **increased from 19% to 23%** of total water withdrawals



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Poor water quality contributes to water scarcity



- Reduces water availability for drinking, irrigation or cooling.
- Increases water demand from groundwater resources
- Increases demand for water treatment which in turn increases cost of clean water
- Causes degradation of ecosystems, potentially already threatened by water scarcity.



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Ecosystems are at risk - restoration is needed

- As competition for water resources increases, less water could become available for aquatic ecosystems and wetlands.
- These are already among the most threatened in Europe.
- Achieving both Water Framework Directive and Restoration objectives requires that adequate and sufficient quantity **and** quality of water is available to ecosystems



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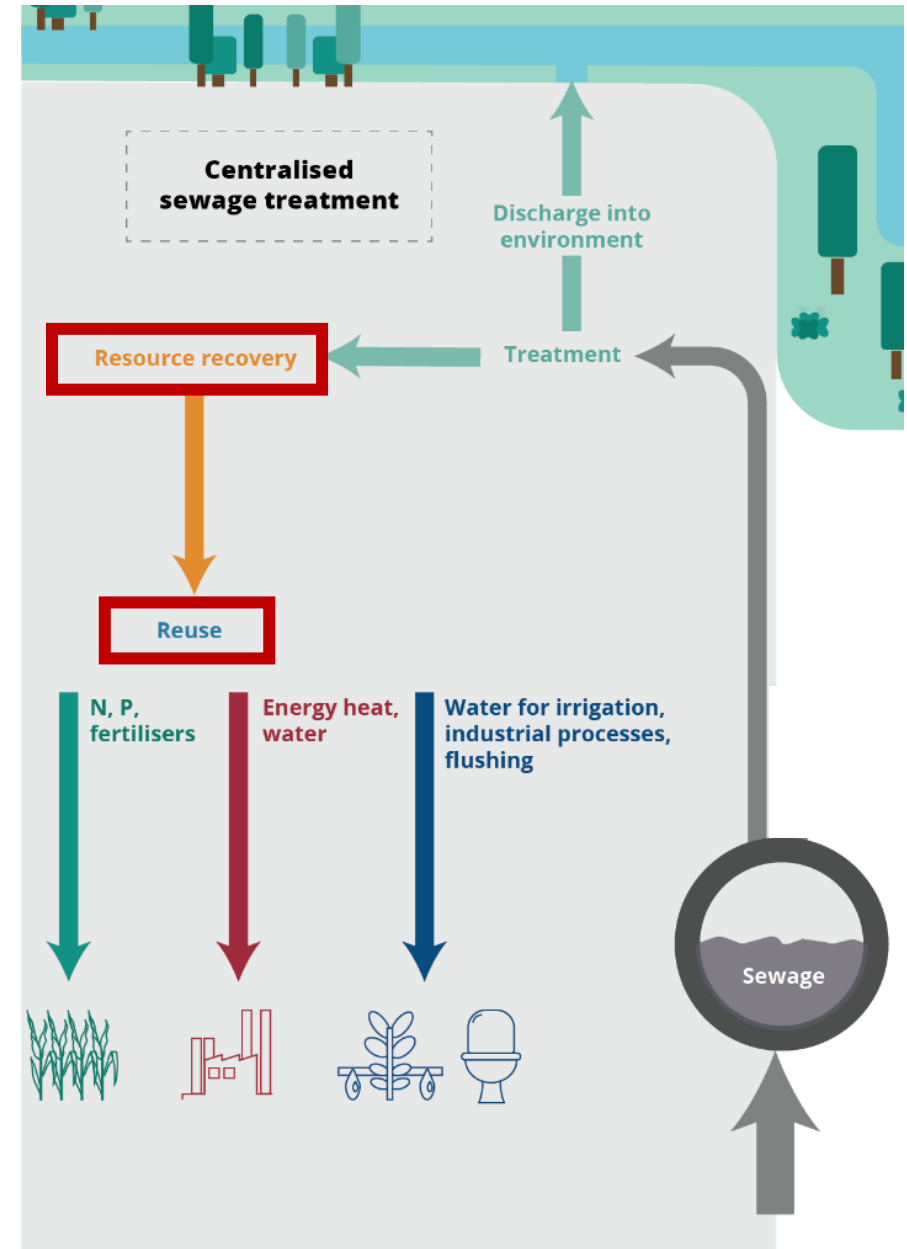
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From “Waste water treatment plant” to “Resource Hub”

- UWWT plants should act as “resource hubs” for resource recovery: offering e.g. water reuse, nutrient recovery, energy generation.
- First step is to become more water-efficient. This reduces total amount of water required to be abstracted, pumped and treated.



Solutions

Increased focus is needed to:

- Conserve and improve natural water retention
- Secure environmental flows
- Improve water use efficiency and reduce water demand of agriculture and energy sectors
- Save water in households
- Implement cost recovery principles



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Summary

- Climate change will :
 - affect seasonal water availability,
 - change frequency, intensity and duration of droughts and floods
- Water availability is a local issue; in many cases drivers are regional, European and/or global
- Water resource demand is likely to increase pressure on the aquatic environment and ecosystems
- Strengthened resilience requires improved resource efficiency
- Transition requires action from many outside the water sector – citizens, town planners, industry, legislators



Thank you for your attention!

Questions for clarification?

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Water and climate change survey

Survey of your impression of climate change impacts in your country

- Aim is to help identify topics to explore further, after the workshop, in context of forthcoming EEA integrated water assessment
- Use your mobile phone or computer to answer the survey
- Scan the QR code / type in the website

Survey available here:

<https://forms.office.com/e/0dQcr4wdaL>



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