



# How can water reuse help to mitigate water scarcity?

Approaches & Initiatives in Europe

Marie Raffin | Chairperson of WRE's board of Director

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WaterMan Dialogue Forum,  
Rønne, Denmark | 08 NOV 2023

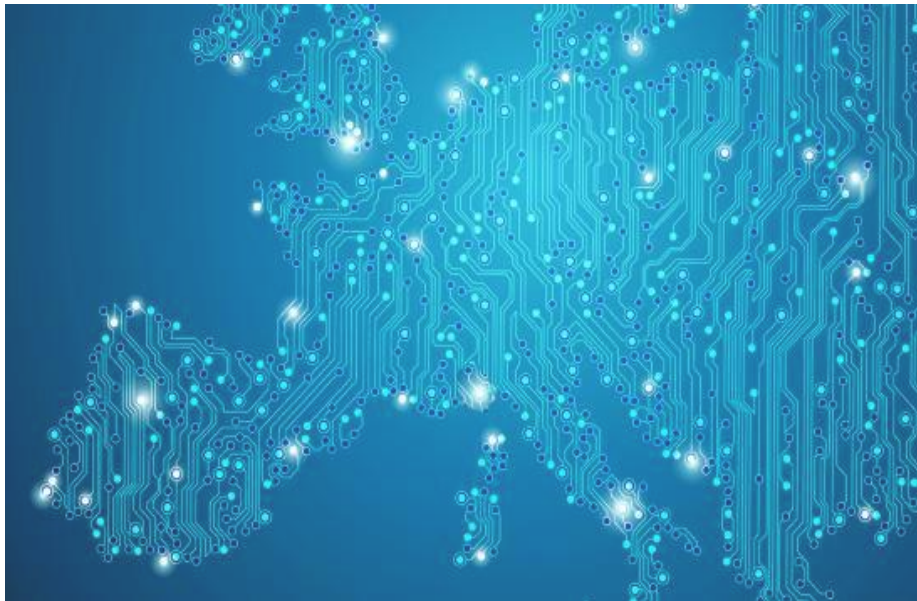
# About us

## What is Water Reuse Europe?

We are a not-for-profit association (registered in the UK) which supports, assists and represents its members while promoting the water reuse sector as an effective option for sustainable and resilient water management.

## Our mission

To provide a collective identity for the European water reuse sector and promote an innovative and dynamic industry. Our members are commercial and public organisations from across Europe who operate in the water reuse sector.



Become the collective identity for the European water reuse sector

Promote an innovative and dynamic industry.

# About us

## Our aims

**To stimulate the growth and competitiveness of the European water reuse sector by:**

### Awareness

Raising public awareness and understanding of water reuse practices;

### Promotion

Promoting European products, services and expertise in water reuse to communities around the world;  
Promoting research and innovation on water reuse.

### Sharing

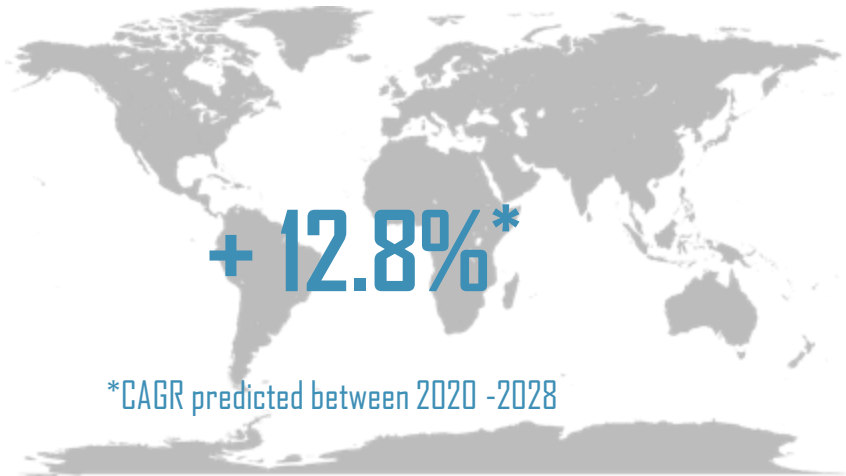
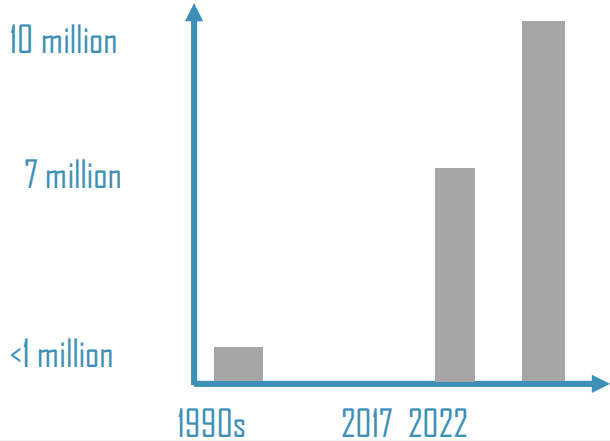
Facilitating the sharing of knowledge, good practices, techniques, research and experiences on water reuse amongst public and private entities involved in water reuse;

### Support

Supporting European companies, and particularly SMEs, in their efforts to commercialise safe and innovative water reuse solutions

# Water Reuse - A growing sector worldwide

Global market for water reuse (m<sup>3</sup>/d)



## Some common key factors

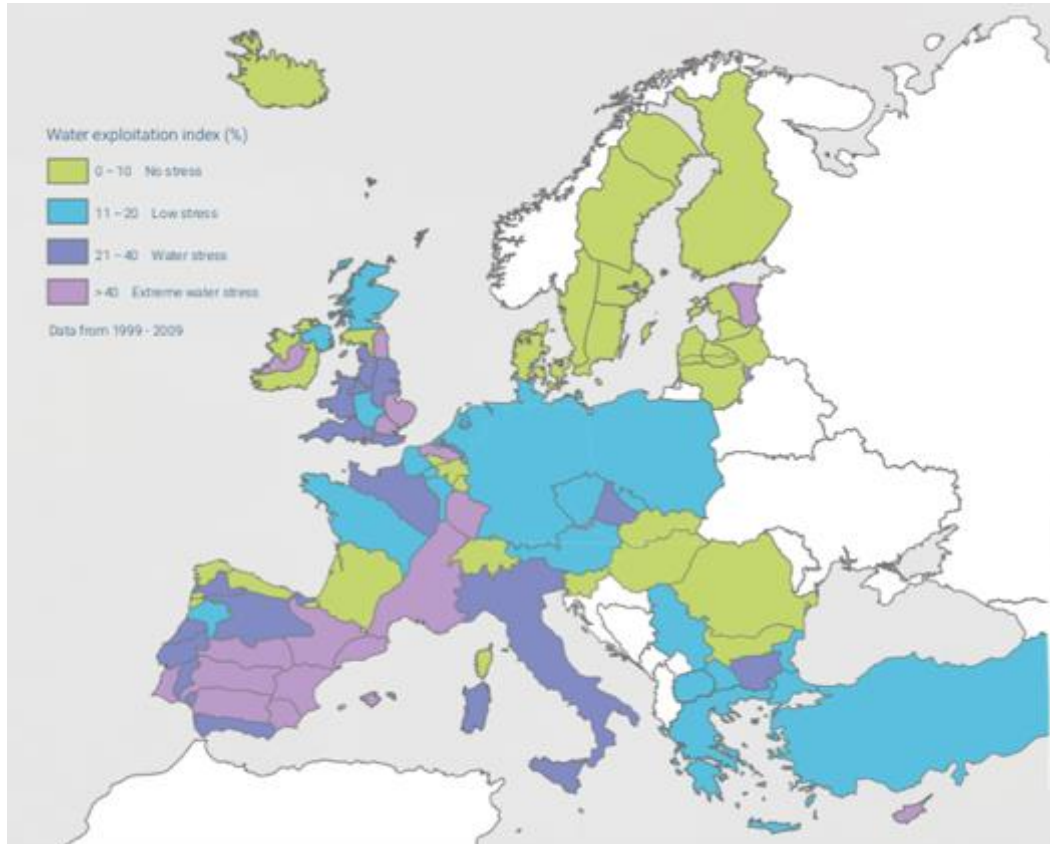
- Population growth
- Escalating urbanisation,
- Salinization
- climate change

## Exacerbated by

- individuals' increasing water footprints fuelled by changing diets, societal aspirations and growing industry requirements



# Europe: a complex situation



Water exploitation index (WEI)

Source: EEA

>50%

EU river basins affected by water scarcity by 2030



High variability of water resources and demand across countries/regions

38%

of EU population affected by water scarcity (2019)

13

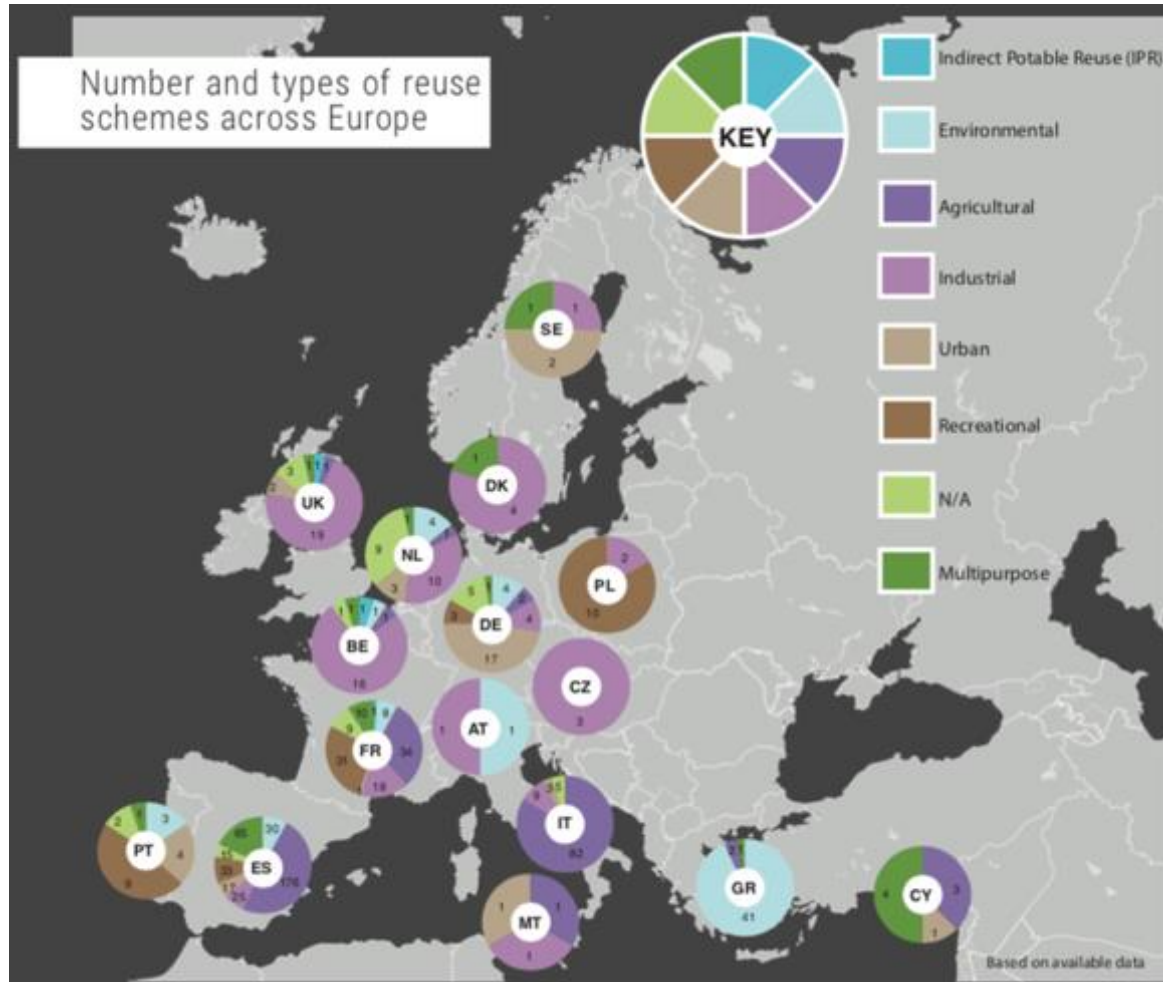
Mediterranean river basins with WEI > 20% and > 40% in specific areas (2014)



Belgium, Denmark and the UK in the low water availability group



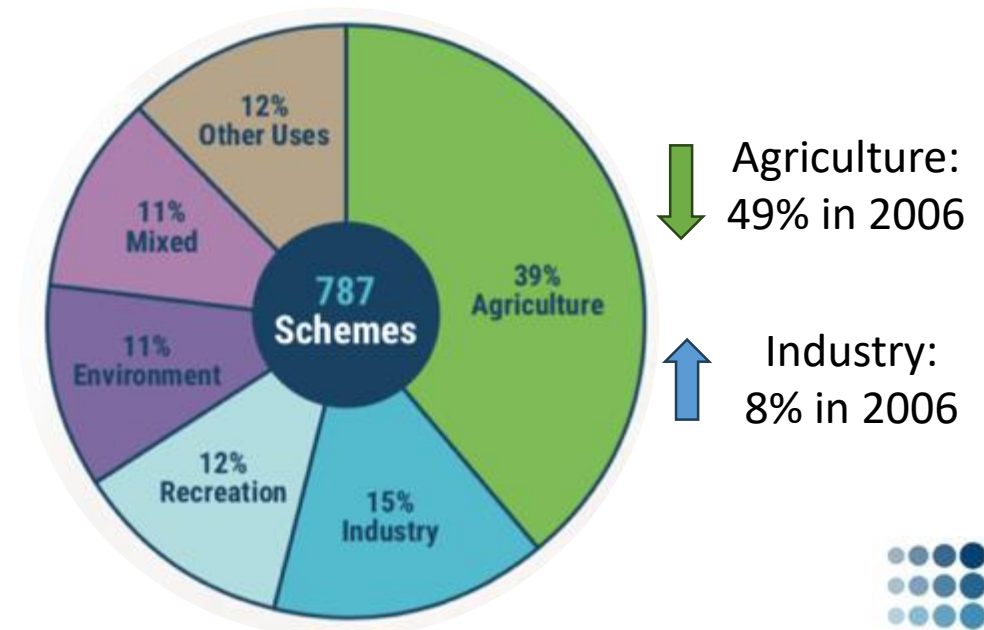
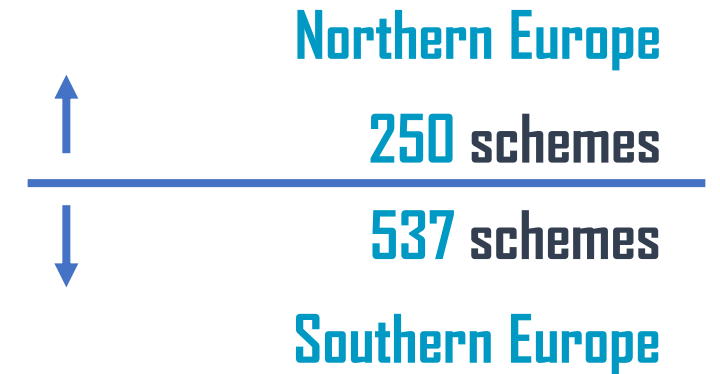
# Water reuse in Europe: a growing sector...



Source: Water Reuse Europe Review - 2018

>780 schemes

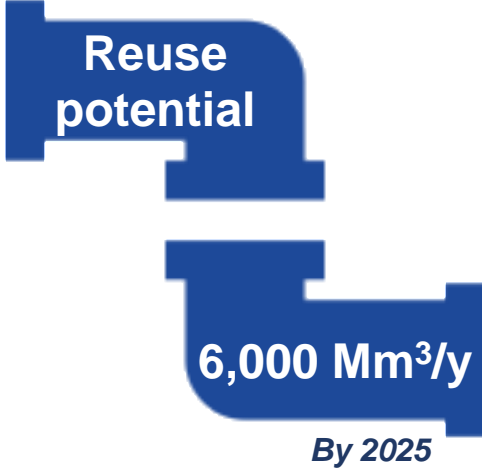
+ 437 schemes since 2006



Data from 2017



# But still behind other countries despite a vast potential



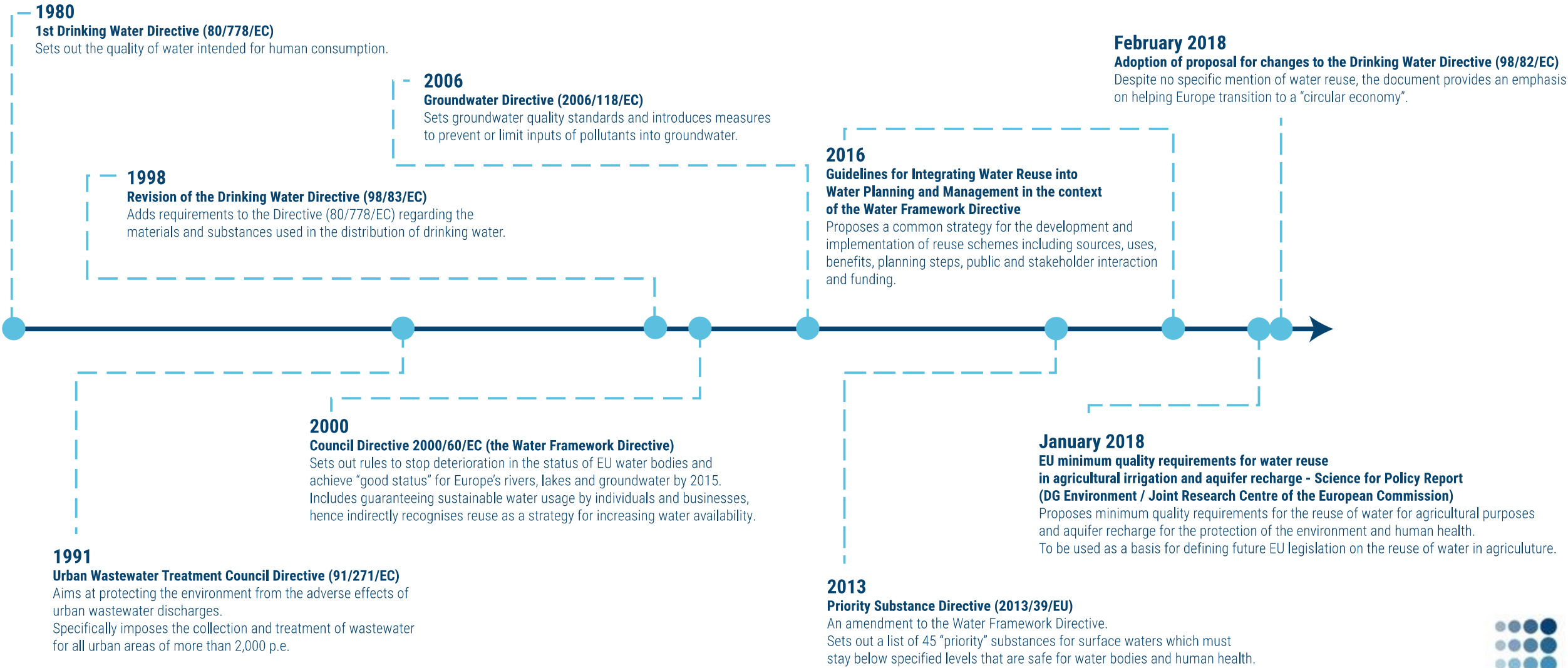
## Fundamental barriers to a wider implementation remain to be addressed



- Limited awareness of the benefits of water reuse
- Low acceptance of water reuse solutions
- Low economic attractiveness of water reuse solutions
- Poor coordination of the professionals and organizations involved in water reuse scheme
- And until recently a lack of EU-wide regulations**

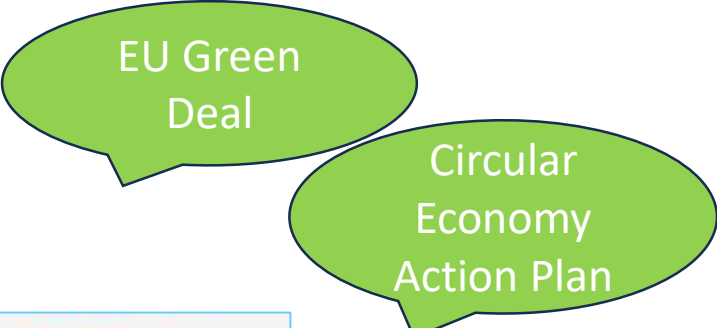


# Relevant regulations (Part 1)





# Relevant regulations (Part 2)



**New rules to stimulate and facilitate water reuse for agricultural irrigation**  
The legislative proposal aspires to incentivise the reuse of treated waste water while ensuring a high level of protection of health and the environment.

**General approach agreed to water reuse for agricultural irrigation**  
The European Council agreed its position (general approach) on a regulation which facilitates the use of urban waste water for agricultural irrigation.

**Regulation (EU) 2020/741 on minimum requirements for water reuse**  
The first European wide regulation on water reuse, specifically the minimum requirements for water reuse.

To be reviewed in June 2028

May 2018

June 2019

June 2020

Feb 2019

Dec 2019

June 2023

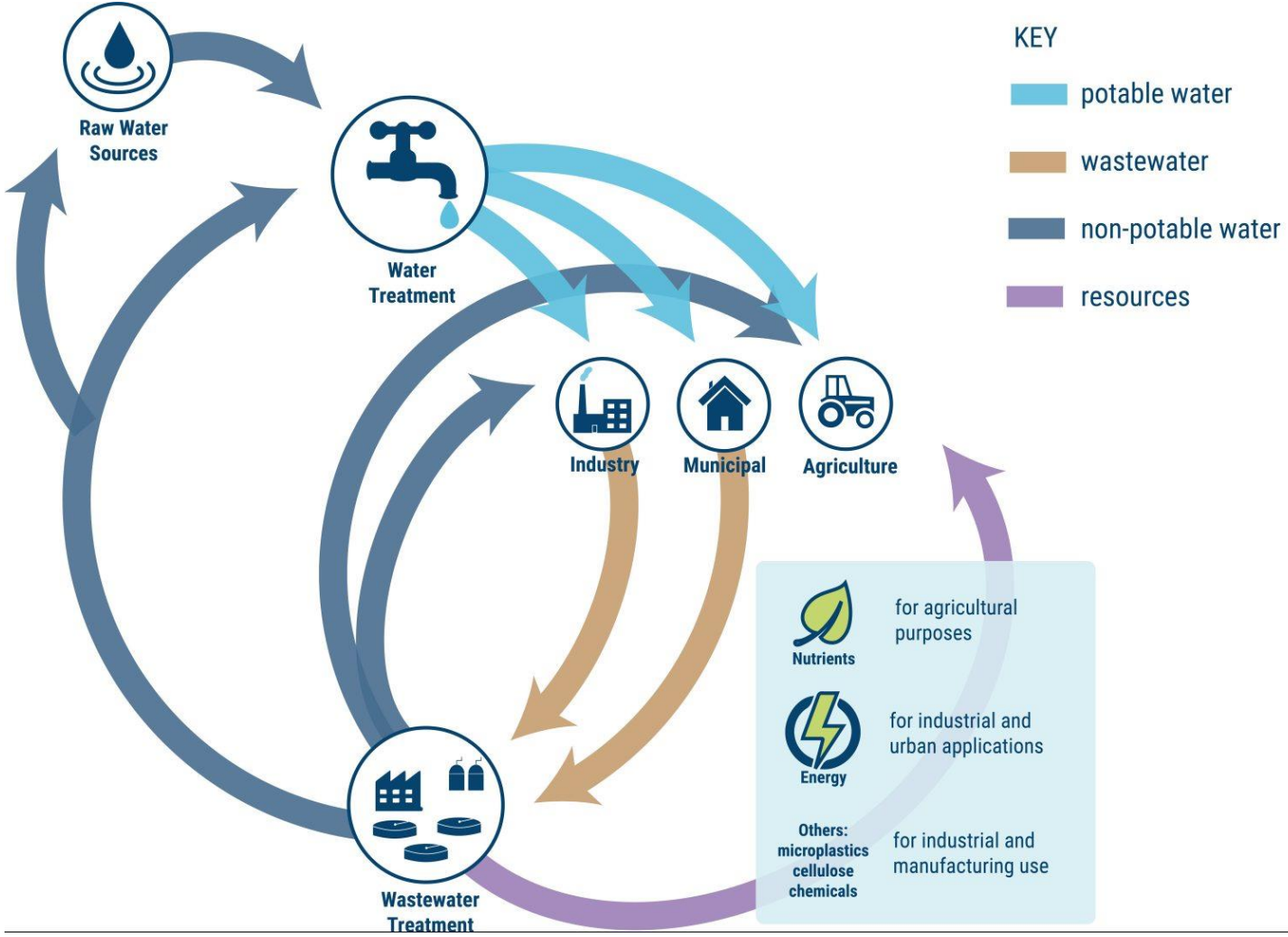
**Proposal for a regulation of the European parliament and of the council on minimum requirements for water reuse**  
The European parliament endorses rules to promote agricultural reuse.

**Water reuse for agricultural irrigation: EU Council approves provisional agreement**  
The regulation sets out harmonised minimum water quality requirements for the safe reuse of treated urban wastewaters for agricultural irrigation. It contains strict requirements for the quality of reclaimed water and its monitoring to ensure that human and animal health as well as the environment are protected.

**Regulation (EU) 2020/741 on minimum requirements for water reuse come into effect**  
*On 26 June 2023, the regulation on minimum requirements for water reuse will officially come into place.*








# Water Reuse at a glance

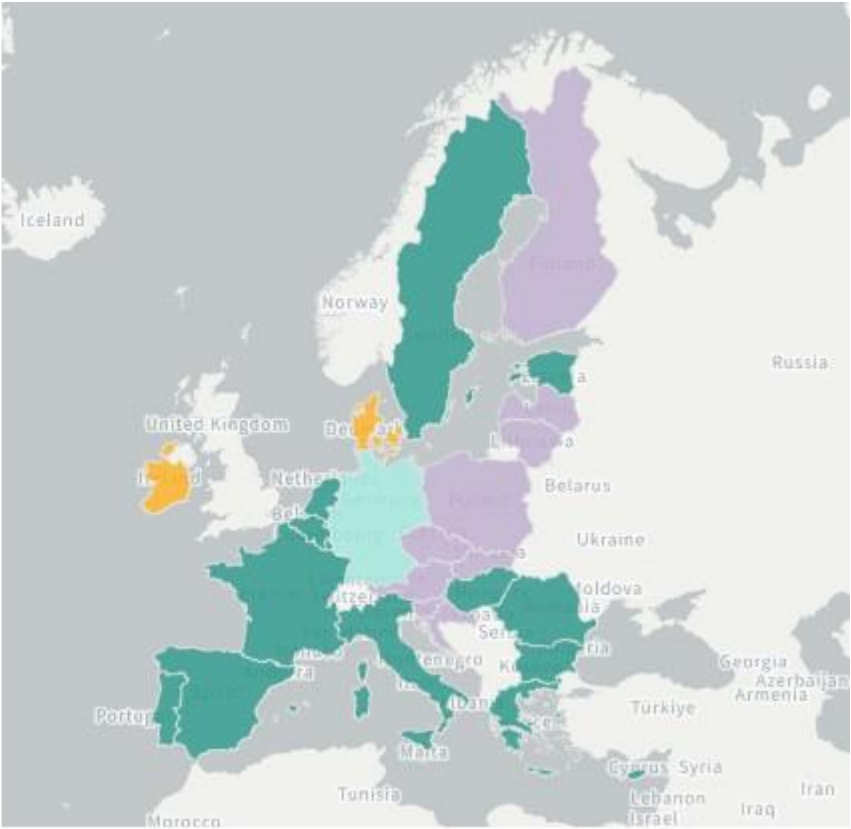


# Agricultural reuse

## Legend

Member States where water reuse for agricultural irrigation is allowed

-  Water reuse is allowed
-  Water reuse is generally allowed, except in some designated parts of the country
-  Water reuse is not allowed
-  Final decision is not available yet
-  No information



# Industrial water reuse



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22.03.23

## Danish Carlsberg brewery saves 1 billion litres of water with new technology

After two years with its pioneering water recycling system, Carlsberg estimates that the brewery in Fredericia has saved approximately 1 billion liters of water. The brewery is an example of how broad collaborations can solve one of the world's biggest challenges - water scarcity.



This year, World Water Day focuses on global water scarcity and how new technologies can help to address this major challenge.

## Devon car wash recycles nearly all its water

© 25 April



The system recycles 99.5% of the water the business uses

## Using recycled water to make concrete in the UK

Yorkshire Water, a UK water company, have provided treated wastewater to Tarmac, a construction solutions provider, to produce concrete slabs at its site in Bradford, UK. The concrete slabs will be used as foundations for a National Test Centre for emerging water technologies.



CONTACT   MENU



### Bakkavor Tilmanstone (UK)

AMBR LE™, Reverse Osmosis & Water Reuse

Client

Bakkavor is a leading international producer of fresh prepared foods, with manufacturing operations all over the world. In 2001 a new facility was opened in Tilmanstone, producing salads and prepared vegetables. Fresh salad produce is supplied to the company from accredited growers in both the UK and Continental Europe.



## Reclaimed water for the Tarragona petrochemical park

J. Sanz, J. Suescun, J. Molist, F. Rubio, R. Mujeriego and B. Salgado

### ABSTRACT

The Camp de Tarragona Water Reuse Project is an emblematic example of how regional water scarcity can be overcome by considering reclaimed secondary effluent, which would otherwise be disposed of in the Mediterranean Sea, as an essential component of integrated water resources management. An advanced water reclamation plant (AWRP) was completed in 2011 to reclaim municipal secondary effluent from Tarragona and Vilaseca-Salou wastewater treatment plants. The reclaimed effluent is used for cooling and process water at the nearby Tarragona petrochemical park. The AWRP's current (2014) capacity is 19,000 m<sup>3</sup>/d (Phase I), and further expansions are planned to produce 29,000 m<sup>3</sup>/d (Phase II) and 55,000 m<sup>3</sup>/d (Phase III) in coming years. This locally available additional water supply will replace surface water supplies currently transferred from the Ebro River for use at the petrochemical park; as a result, an equivalent volume of surface water will be available for other uses in the coastal zone of Tarragona province. By developing this new and treat-

J. Sanz (corresponding author)  
J. Suescun  
Voolla Water Technologies Ibérica,  
Avda. Via Augusta 3,  
08174 Sant Cugat del Valles,  
Spain  
E-mail: joan.sanz@voolla.com

J. Molist  
Agència Catalana de l'Aigua,  
Provença 204-208,  
08036 Barcelona,  
Spain

F. Rubio  
Aguas Industriales de Tarragona (AITASA),  
Douce s/n,  
43100 Bonavista,  
Spain



# Urban reuse - Residential and commercial reuse



## Greywater recycling at the Tennis French Open in Roland Garros

A greywater recycling system developed by Water Reuse Europe member, FIRMUS, and commercialised by the company FGWRS, has been installed at the Jean Bouin training facility of The French Open from the September 20th to October 10, 2020. [Continue reading >](#)

## Inter IKEA Group Invests in Danish Greenwich Start-up, Flow Loop, Water Reuse Europe 2021 Innovation Prize Finalist



## Graytec AB installs several Greywater Recycling Systems in Sweden.

Graytec AB installed its Blue Eco Systems for bathroom greywater recycling and reuse for indirect purposes such as vehicle washing and landscaping in 11 total apartment buildings, saving up to 50% of onsite water usage.



Water Supplies Department  
The Government of the Hong Kong Special Administrative Region

EN. Q

### Core Businesses

Home > Core Businesses > Water Resources > Seawater for Flushing | Print

### Seawater for Flushing

While many places in the world nowadays are still using fresh water for toilet flushing, Hong Kong is one of the few places extensively applying seawater for flushing since the late 1950s. The use of such a sustainable resource continues to play an important role in Hong Kong's water management. About 320 million cubic metres per annum of seawater is supplied, conserving an equivalent amount of fresh water which is about 20% of total water supply. We will continue to extend the use of seawater for flushing to reduce fresh water demand.



# Indirect potable reuse



Torrelle groundwater augmentation scheme in Belgium - Aquaduin  
In operation since 2002



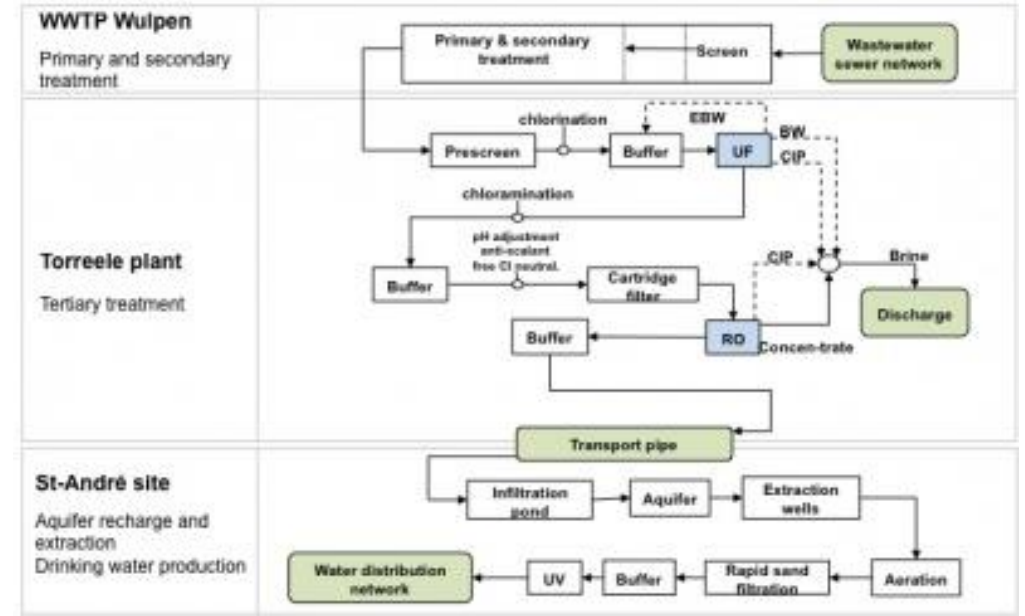
Indirect potable water reuse in the Llobregat river, Spain – Catalan Water Agency  
In operation since 2022



Programme Jourdain, France – Vendee Eau  
Pilot phase starting in 2024, full-scale 2027



Strategic resources options, UK  
Design and pilot phase, depending on scheme



The Water Reuse Europe Innovation Prize 2019 was awarded on the 21st of October 2019 in Lille (France) to the [Mörbylånga Drinking Water Treatment Plant \(DWTP\)](#) in Sweden.



The winner and finalists of the 2019 Water Reuse Europe Innovation Prize.



# Challenge 1: Common Legislation/ Regulations

## Implications of the implementation of the EU regulations (e.g. from WRE members and case studies)



- Mostly welcome
- Should contribute to mitigating the effect of climate change on water resources, should help harmonising water reuse practices across Europe, limiting risks associated with reuse
- Clauses imposing raising awareness of water reuse should boost public acceptance of water reuse



- Stringent pathogens thresholds, especially for Class A, which for countries such as Spain and France is much lower than the national legislation in place

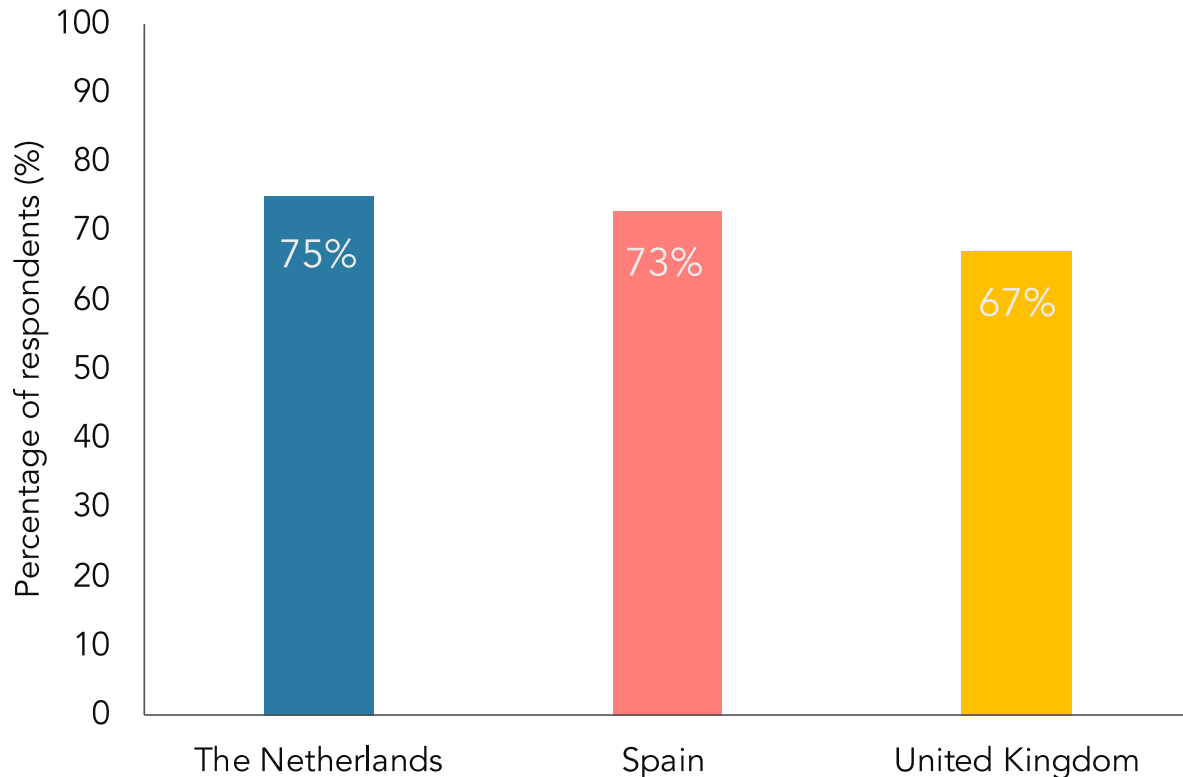


- Production and supply of reclaimed water subject to permit
- Compliance checks
- Development of risk management plans needed for many schemes
- Cross-border cooperation between members states



# Challenge 2: Public acceptance

Attitudes towards reuse are evolving...? Survey on the perception of recycled water for drinking purposes in the the Netherlands, Spain Netherlands, Spain and the UK (2021)



*"The public is more open to wastewater recycling than the water sector has historically believed."*

*Dr Heather Smith, senior lecturer in Water Governance, Cranfield University, UK*

*"An element in the acceptability of wastewater recycling relates to trust. Trust in the water quality and personal experience but also trust in the organisations delivering the service."*

*Jas Frijns, Resilience management and governance team leader, KWR, The Netherlands*

Long-term strategy of public engagement for water recycling project will be key to their success and future growth of the sector.

Percentage of respondents\* supporting or strongly supporting the use of recycled water for drinking purposes.



\*2500 participants



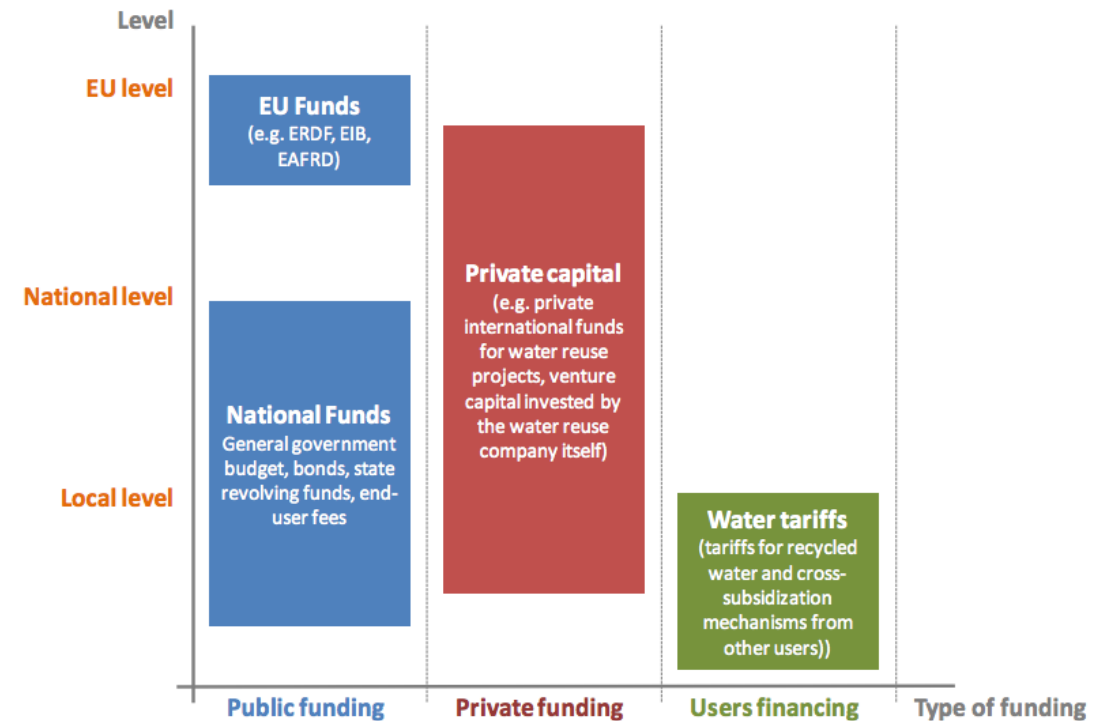
# Challenge 3: Economic attractiveness – Inadequate water pricing and business models

## Fundamental barriers

- Insufficient price differentials between the use of recycled water and the use of drinking water (business as usual)/freshwater
- Lack of full cost recovery – who's paying/who's benefiting

## Opportunities

- Financial incentives in form of subsidies to improve water reuse
- Better understanding of the non-financial co-benefits (e.g. environmental, social, etc)






FP7 Demoware Project (2016)



# QUESTIONS?



-  [www.water-reuse-europe.org](http://www.water-reuse-europe.org)
-  [info@water-reuse-europe.org](mailto:info@water-reuse-europe.org)
-  @WREur