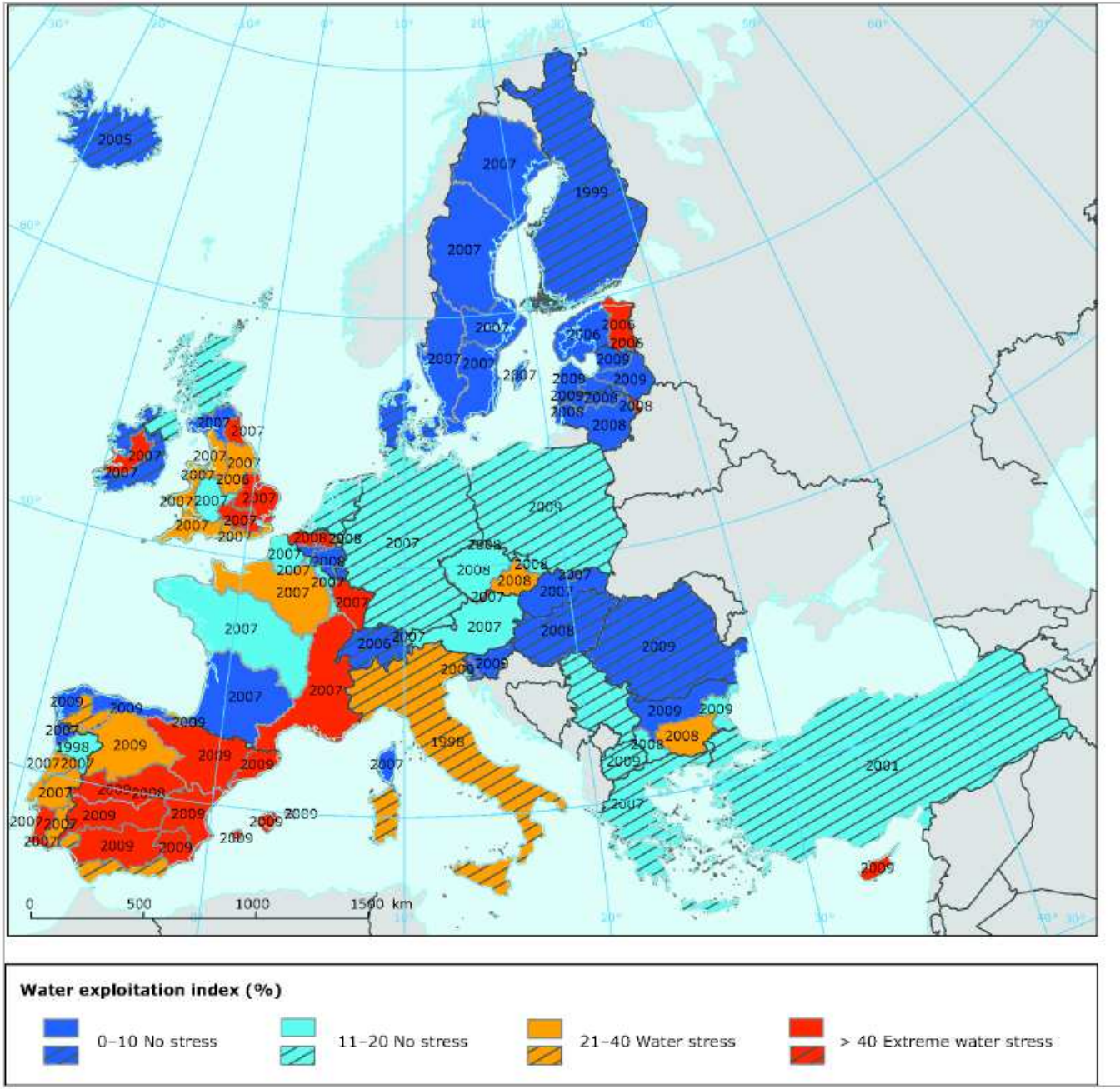
DEMOWARE

Innovation Demonstration for a Competitive and Innovative European Water Reuse Sector: DEMOWARE (FP7 61940)

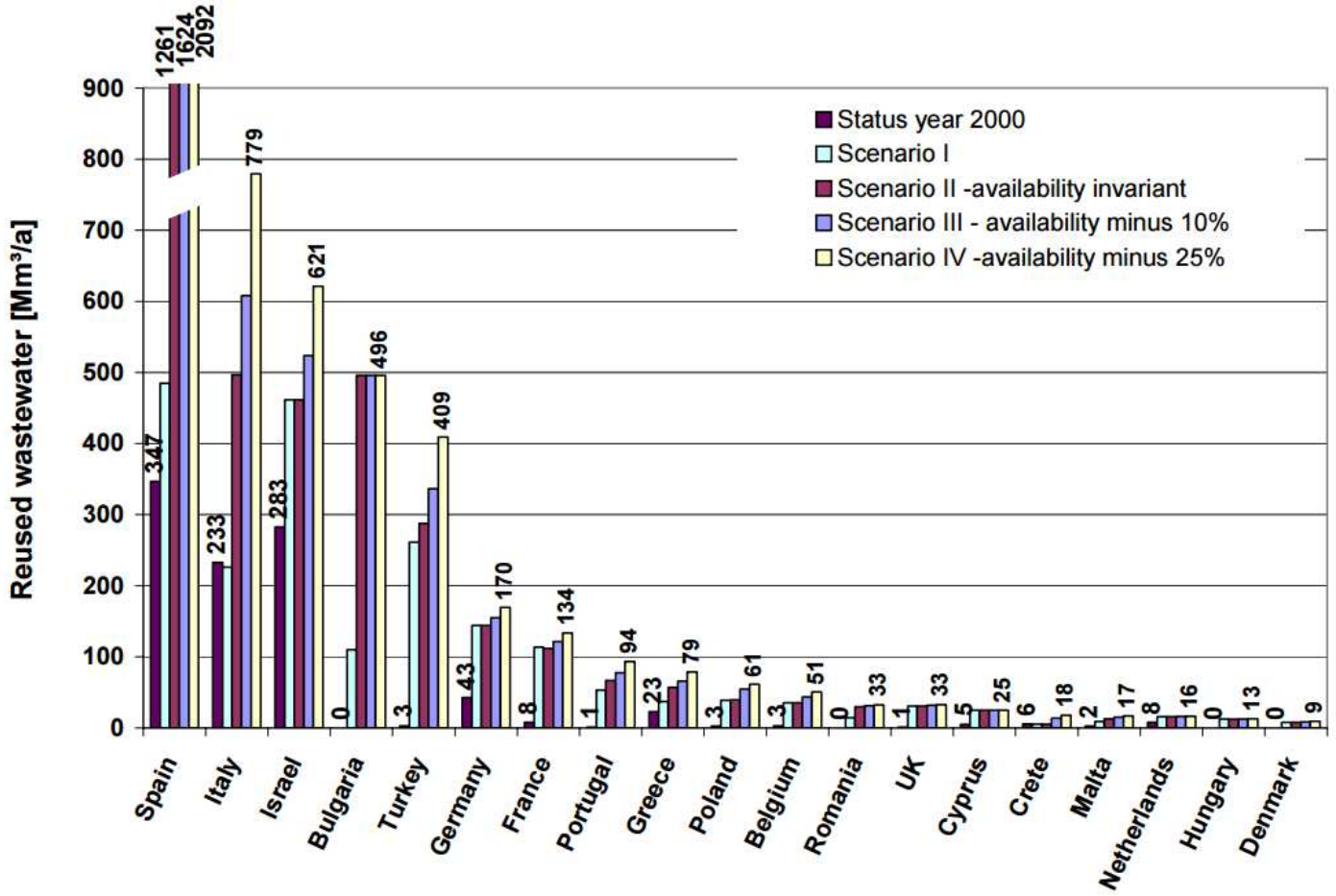
Introduction

Europe's freshwater resources are under increasing stress, with a worrying mismatch between demand for, and availability of, water resources across both temporal and geographical (spatial) scales

EEA (2012) Towards efficient use of water resources in Europe. EEA report No 1/2012. European Environment Agency, Copenhagen, DK



There is an overly proportionate increase in wastewater reuse potential with declining water availability in most European countries.



Hochstrat et al. (2006) Assessing the European wastewater reclamation and reuse potential — a scenario analysis. Desalination 188, vol. 1-6, 2006.

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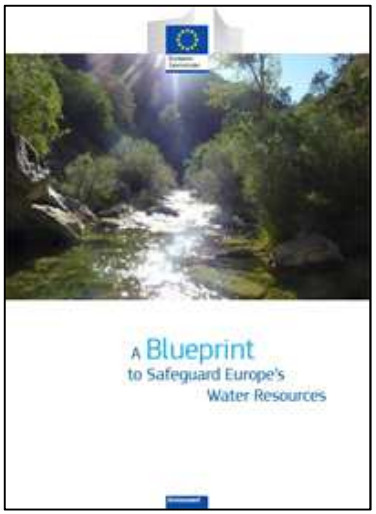
EIP Water
Boosting opportunities – Innovating water

Common Implementation Strategy for the WFD



Roadmap for a resource efficiency Europe

Water Reuse

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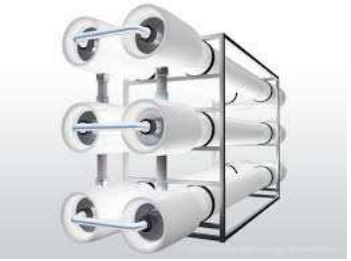
Barriers



Inconsistent and unreliable methods for identification and optimization of appropriate wastewater treatment technologies

Difficulty in specifying and selecting effective whole system monitoring techniques and technologies.

Significant challenges in reliably assessing the environmental and public health risk / benefit of water reuse

Poorly developed business models for water reuse schemes and markets for recycled water.

Low levels of public and government enthusiasm for water reuse.

Lack of a unifying identity and professional image for the European water reuse sector.

WATEREUSE

WssTP
The European Water Platform

Water Reuse

Research and Technology Development Needs for Water Reuse

Publication
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www.wsstp.eu

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FP7 2013 Inno-Demo call

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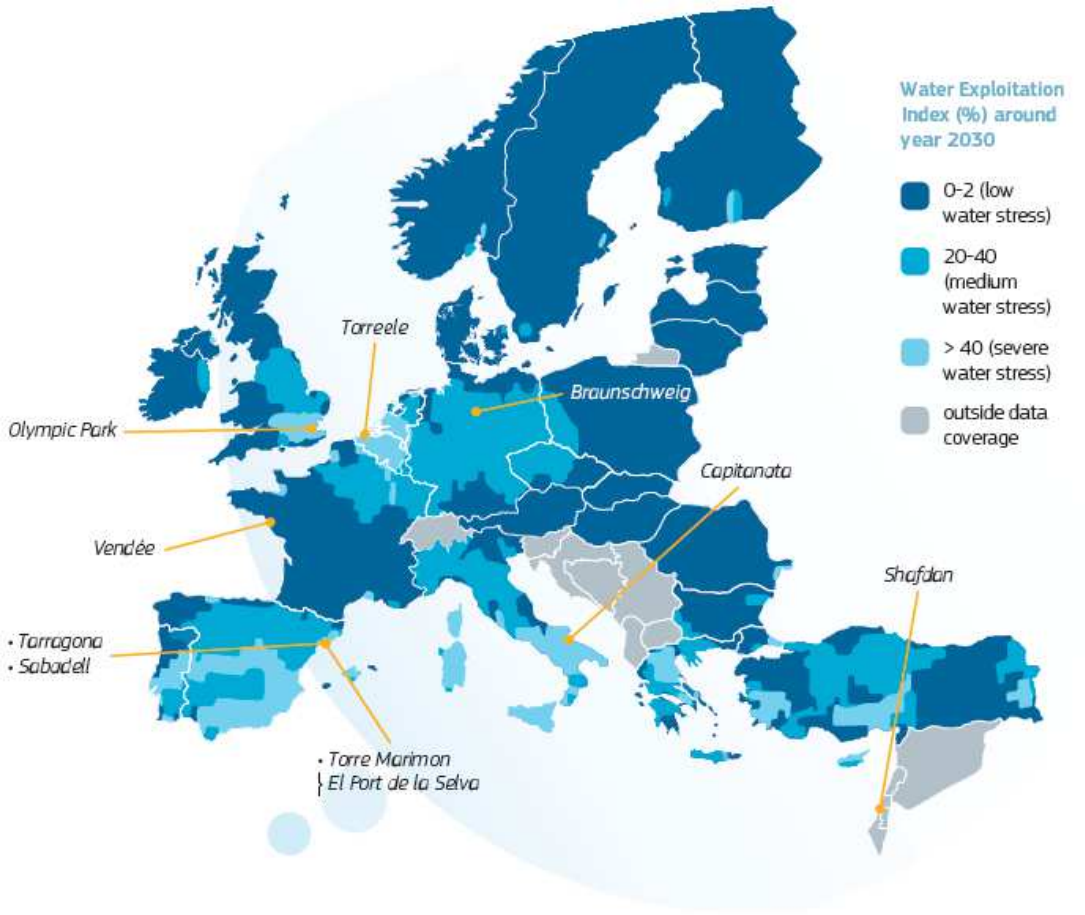
Project Data

Partners: 27
Demo-sites: 10
Budget: 10.504.470 €
Requested UE contribution: 5.999.566 €
Duration: 3 years

Work Packages: 9
Person-months: 961.8
Deliverables: 42
Milestones: 28
External Stakeholders: 12



Objectives

- Demonstrate the technical feasibility of innovative technologies for wastewater reclamation and reuse
- Demonstrate advanced monitoring and control of water constituents (pathogens, contaminants and nutrients) in various water recycling schemes.
- Demonstrate how through the assessment and management of risks the socio-economic and environmental benefits of water reuse can be maximized, while negative impacts are kept to a minimum
- Increase and promote the marketability of water reuse schemes.
- Improve the ability of reuse scheme operators to deliver socially acceptable projects within collaborative and effective governance regimes.
- Promote a wider understanding and awareness of water reuse practices among public administrations and end-users.
- To create and nurture an identity and knowledge base for the nascent European water reuse sector.

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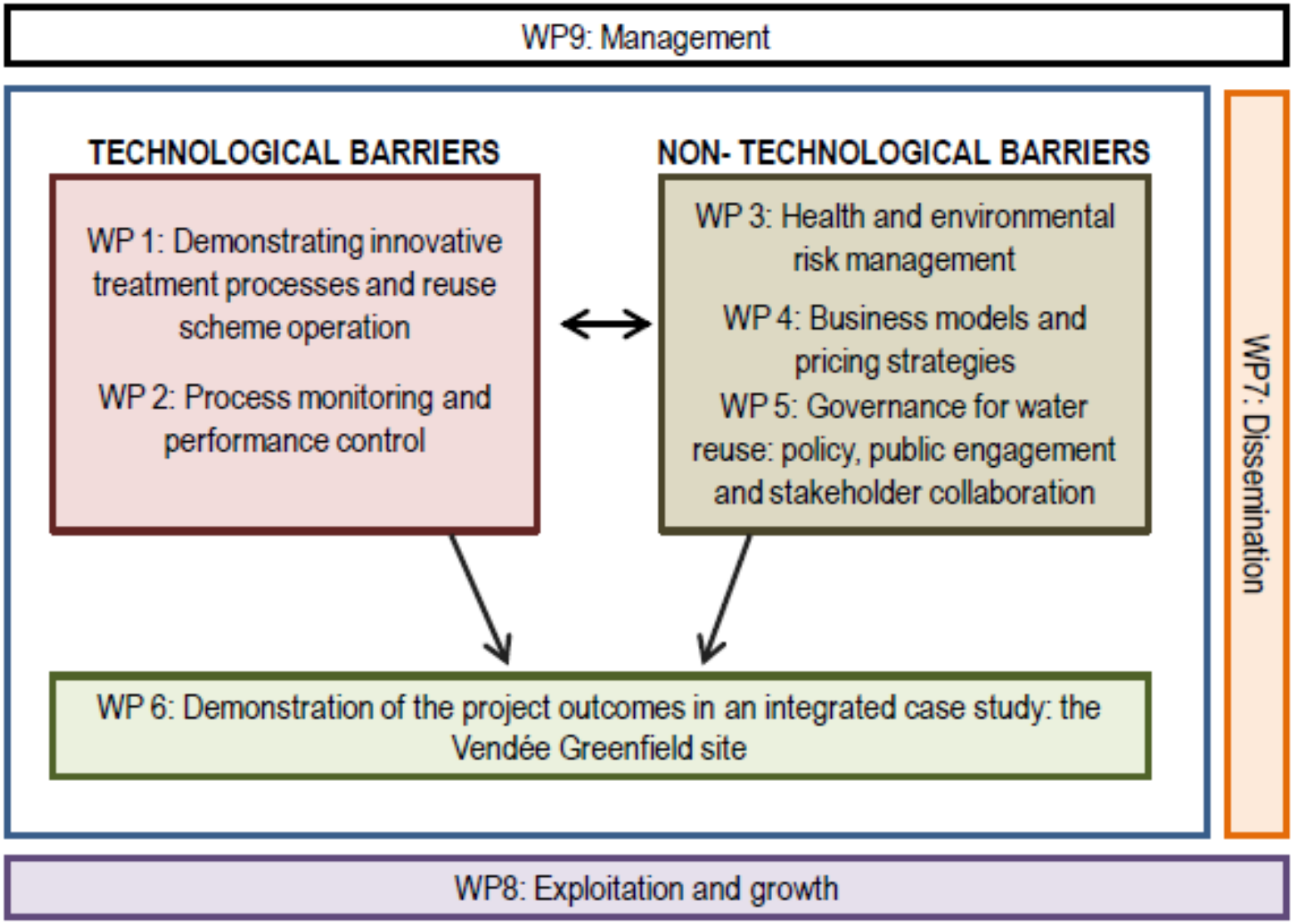
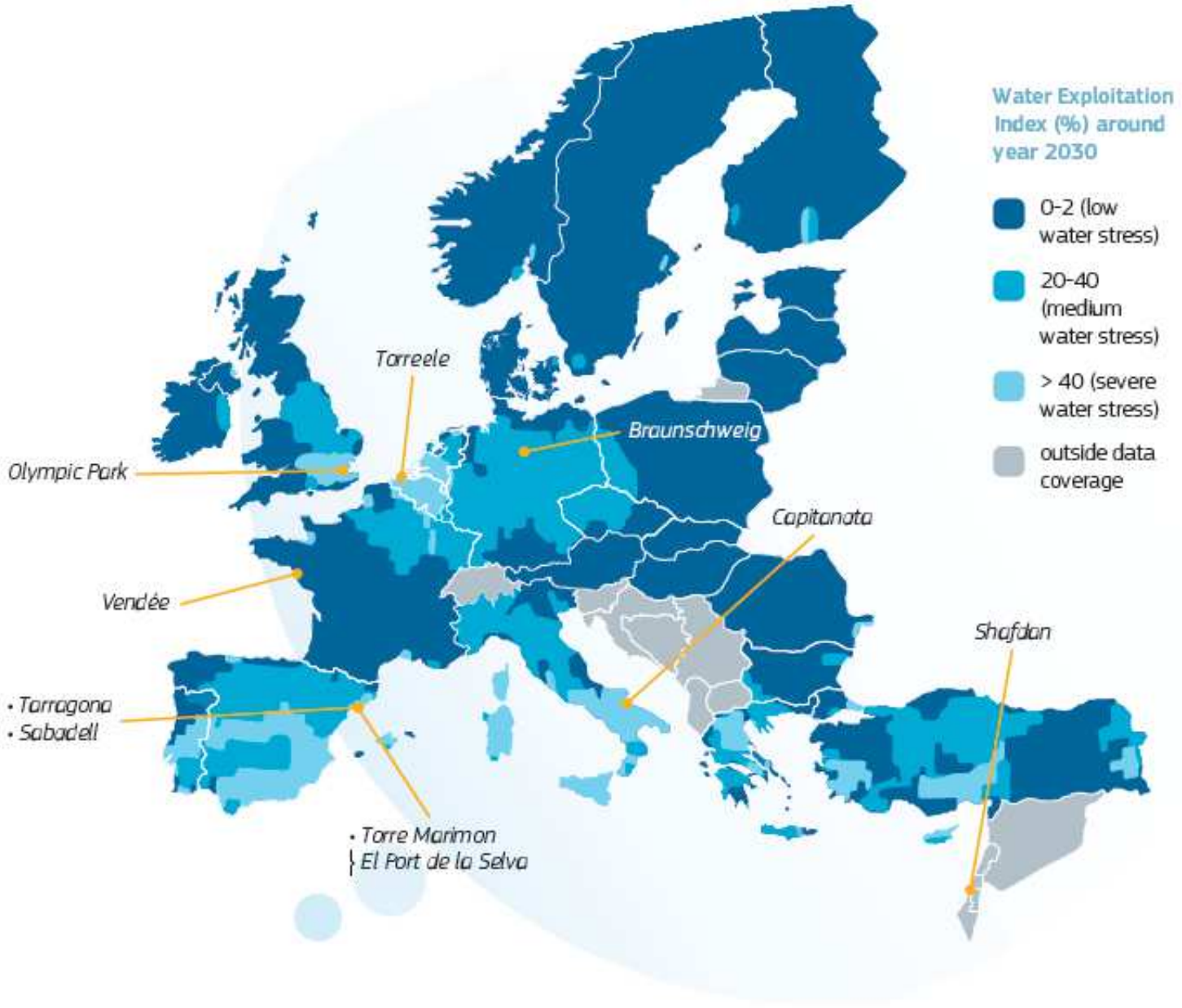
Project Structure



Demonstration Sites



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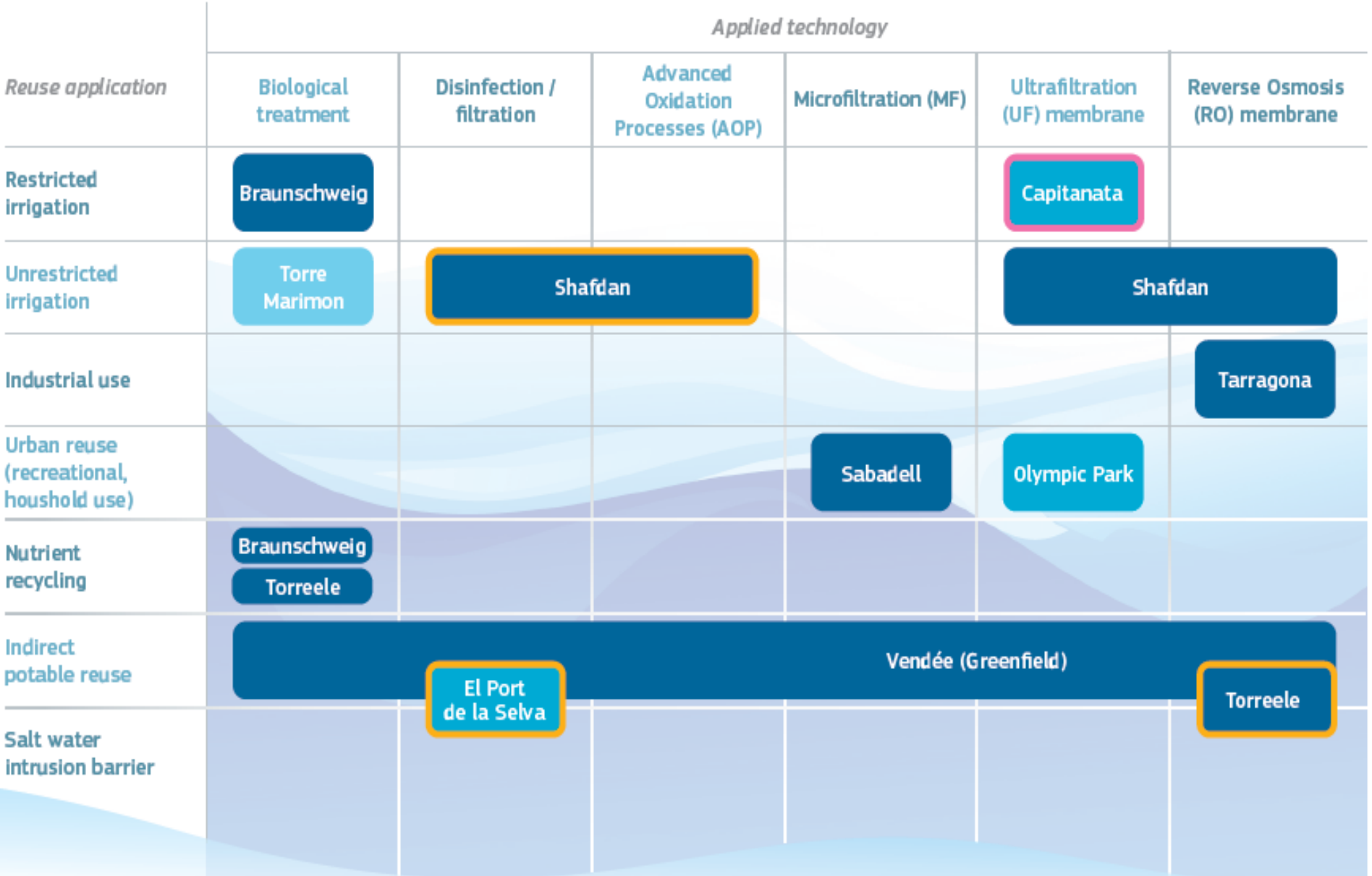
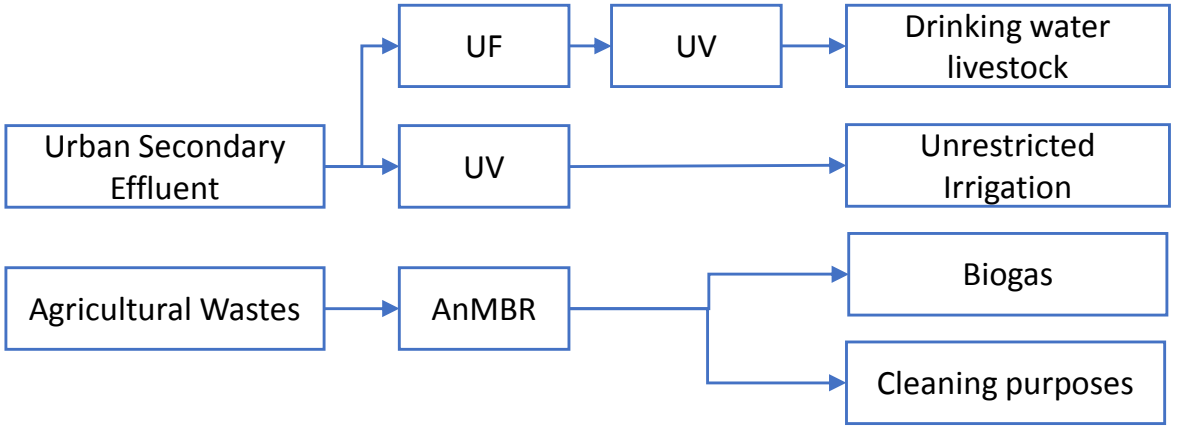
Sites and Technologies



Site 1: Torre Marimon - Catalonia, Spain

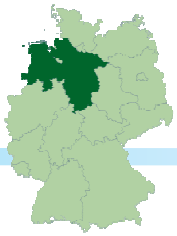
AGR

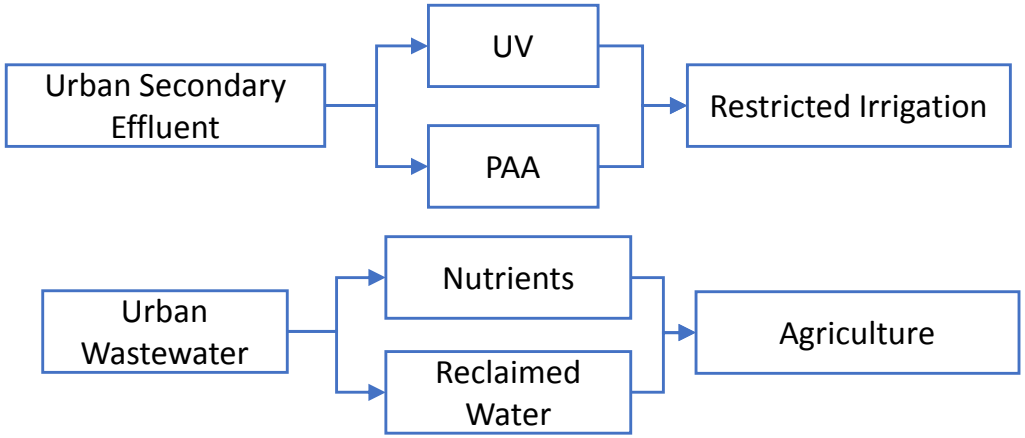


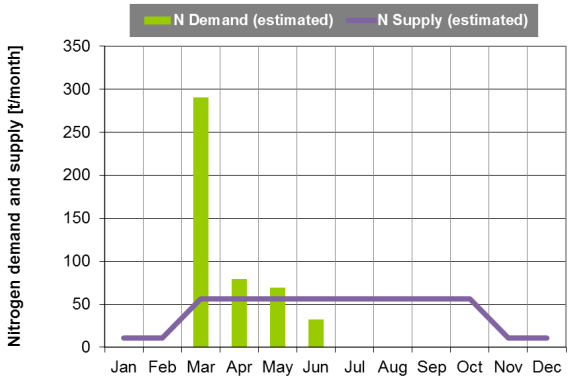
- Feasibility of AnMBR for integrated water reuse and waste management in rural zones.
- Explore water reuse in farms.
- Feasibility of innovative clogging reduction methodologies in agricultural irrigation networks.

Site 2: Braunschweig - Lower Saxony, Germany

AGR



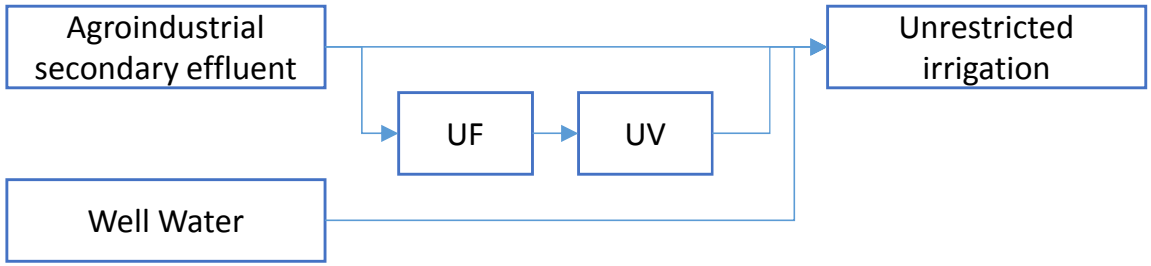




- Provide new technologies and concepts for nutrient recovery and serve as a demonstration site of decoupling nutrients water management.
- Demonstrate of partial disinfection strategies in the framework of risk assessment.
- LCA, Water Footprint, risk assessment
- Cost-benefit Analysis, pricing and financing strategies
- Identify and overcome barriers related to governance and public acceptance

Site 3: Capitanata – Puglia Region, Italy

AGR

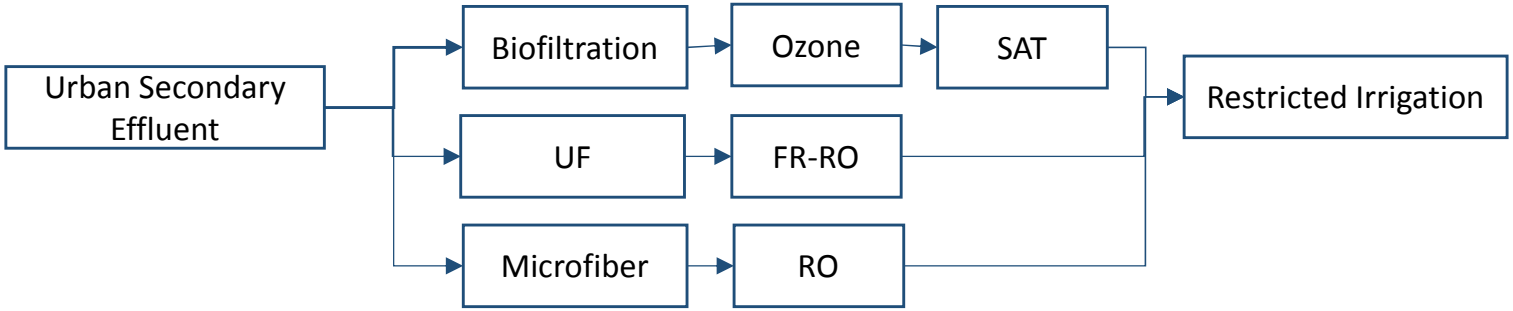


- Feasibility of reusing agroindustrial wastewater for food crop irrigation
- Compare quality of different water sources
- Evaluate the feasibility of nutrient recovery using reclaimed wastewater
- Monitoring techniques (FCA) for microbial control
- Identify and overcome barriers related to governance and public acceptance
- Pricing and financing strategies

Site 4: Shafdan – Israel

AGR

MEKOROT
ISRAEL NATIONAL WATER CO.

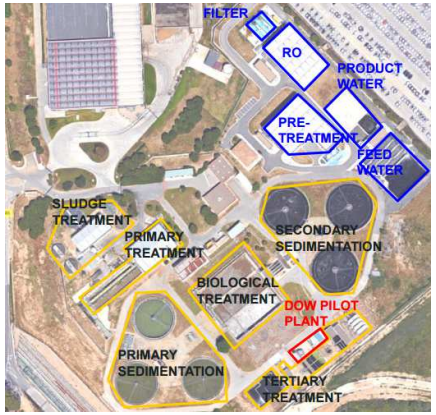


- Optimised pre-treatment before soil infiltration using AOP
- Evaluate flow-reversal reverse osmosis and microfiber filtration as pretreatment to RO
- Learn how to overcome governance barriers
- LCA, Water Footprint and Risk Assessment

Site 5: Tarragona – Catalonia, Spain

IND

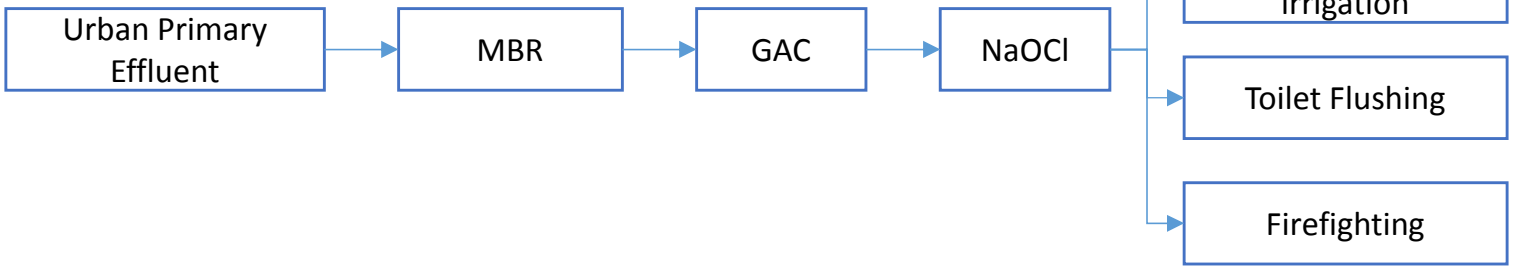
Urban Secondary Effluent → Clarification → UF → RO → Cooling towers



- Demonstrate feasibility of water reuse for cooling purposes
- Test of innovative low-fouling membranes (UF, RO) for wastewater reclamation
- Development of innovative cleaning strategies for membrane systems
- Development of failure detection strategies for RO systems
- Pricing and financing strategies

Site 6: Old Ford Water Recycling Plant (OFWRP) – United Kingdom

URB



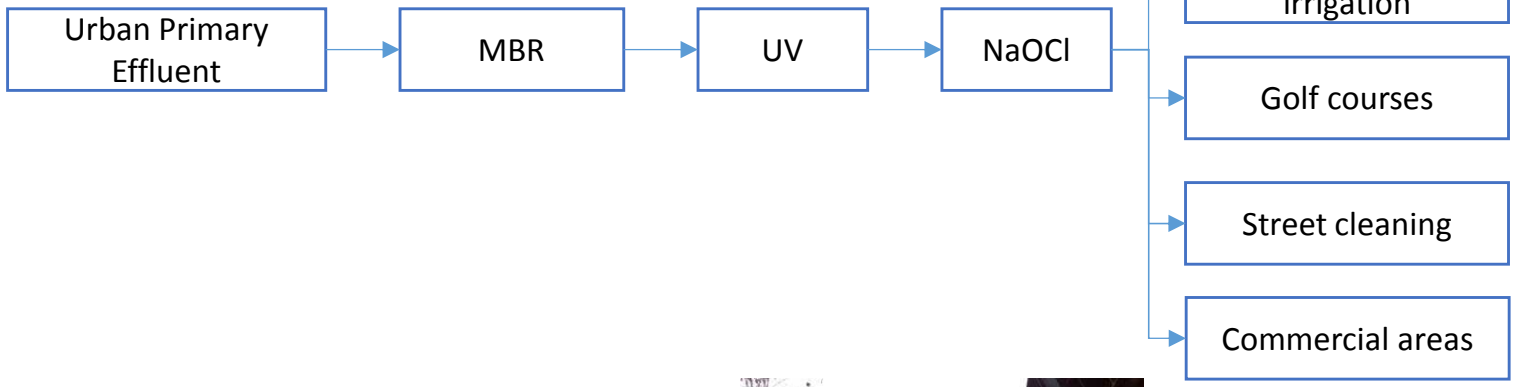
- Technology resilience: contaminants removal, with special focus on microbiological pathogens
- Behaviour and operation of reclaimed water distribution networks
- Innovative microbial pollution monitoring techniques (FCA)
- Public perception and acceptability.

Site 7: Sabadell – Catalonia, Spain

URB

GRUP cassa | EXPERTS EN AIGUA, ENERGIA I MEDI AMBIENT

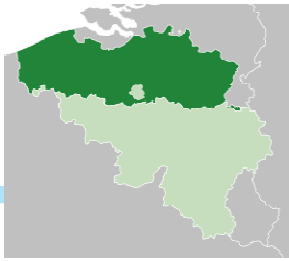
Ajuntament de Sabadell

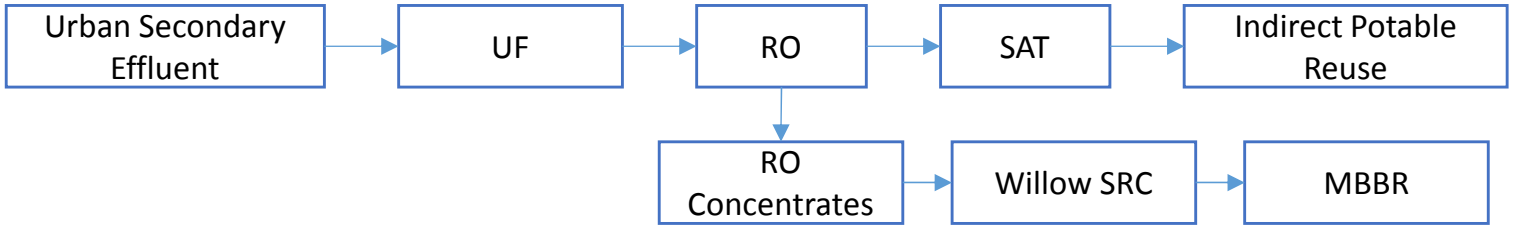


- Innovative monitoring and mantainance strategies for reclaimed water network
- LCA, Water footprint and risk assessment
- Governance issues: public perception
- Pricing and financing strategies.

Site 8: Toreele, Flanders – Belgium

IPR





- Treat membrane concentrates by willows (SRC) and MBBR
- Learn how to overcome governance barriers

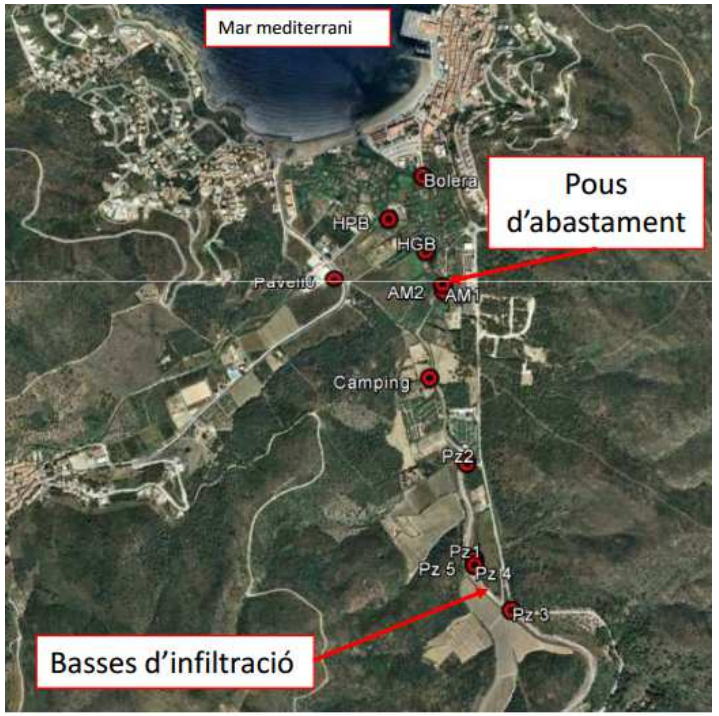
Site 9: El Port de la Selva – Catalonia, Spain

IPR

VEOLIA WATER Solutions & Technologies

CCB Consorci Costa Brava

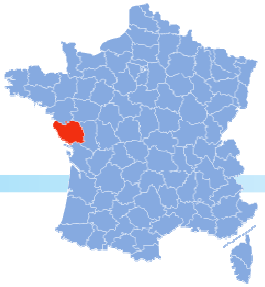
Urban Secondary Effluent → Sand Filtration → UV → SAT → Indirect potable reuse

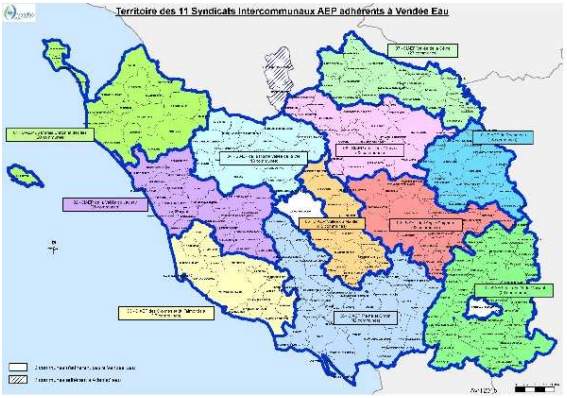


- SAT for indirect potable reuse: hydrogeological modelling, quality monitoring
- LCA, Water footprint and risk assessment
- Pricing and financing strategies

Site 10: Vendée – France

IPR





- Overcome concern human health safety and public acceptance, to demonstrate that the reuse scheme is not a threat to public health and does not have a significant detrimental impact on water bodies.
- Apply knowledge acquired in other sites:
  - Define the treatment scheme
  - Define the communication strategy
  - Evaluate the LCA, water footprint and RA
  - Establish pricing and financing strategies


Well hello again.
Wilcox

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