

# The AquaNES Approach

AquaNES will demonstrate and validate in WP1-3:

- the benefits of post-treatment options such as membranes, activated carbon and ozonation after bank filtration for the production of safe drinking water,
- the treatment and storage capacity of soil-aquifer systems in combination with engineered pre-treatments,
- the combination of constructed wetlands with different technical post- or pre-treatments (ozone or bioreactor systems) as a wastewater treatment option.

AquaNES will further

- assess relevant water quality aspects (WP4),
- apply targeted tools to analyse environmental effects and interfaces with the society (WP5),
- develop a robust risk assessment framework and a design and implementation guidance for combined natural and engineered systems (WP6),
- deliver new market opportunities for cNES in Europe and overseas and promote their exploitation (WP7).

# AquaNES Consortium

The AquaNES consortium consists of 30 partners from seven European countries, Israel and India. Water utilities, SMEs and industries as well as academic partners and research institutes represent a good balance along the technology innovation value chain.

## SMEs & Industry



## Water Utilities



## Universities & Research Institutions



## Contact

FHNW University of Applied Sciences and Arts  
Northwestern Switzerland - School of Life Sciences  
Thomas Wintgens (Project Coordinator)  
info@aquanes.eu

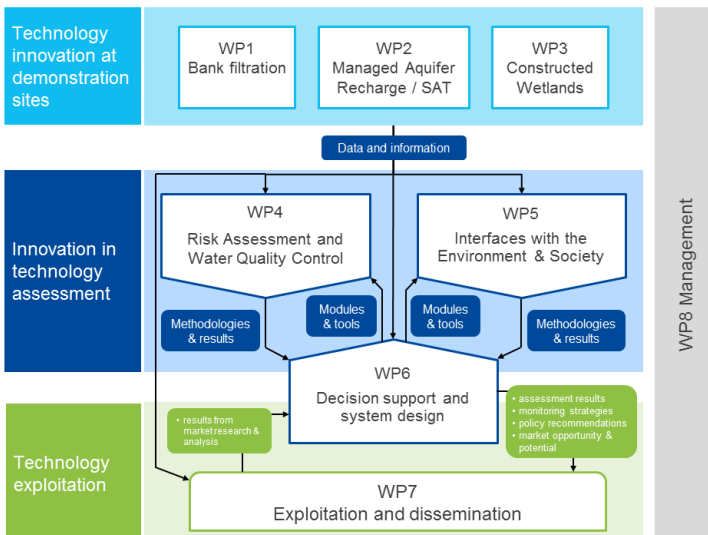
[www.aquanes.eu](http://www.aquanes.eu)



## Demonstrating synergies in combined natural and engineered processes for water treatment systems



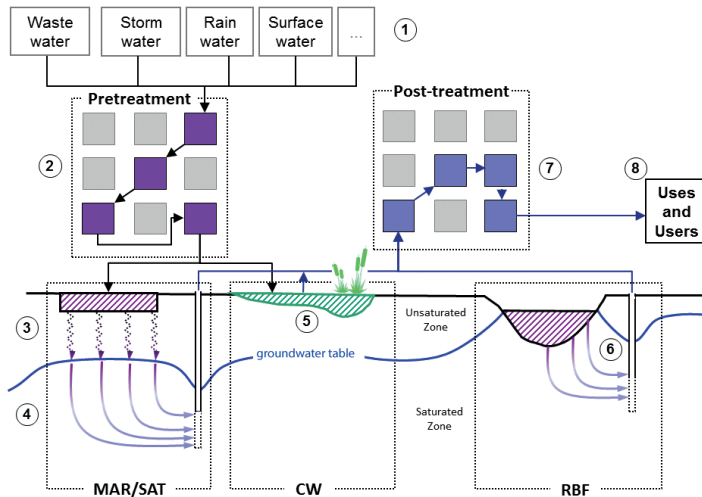
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# AquaNES project

AquaNES pursues the concept of combined natural and engineered water treatment systems (cNES) as response to water management challenges. We consider

- bank filtration (BF),
- managed aquifer recharge (MAR)/soil-aquifer treatment (SAT),
- constructed wetlands (CW),
- plus engineered pre- and post-treatment options.



# AquaNES objectives

- to demonstrate cNES as adaptation to issues such as water scarcity, excess water in cities and micropollutants in the water cycle
- to advance the innovative cNES technologies from from small scale testing to prototype validation
- to evidence reductions in operating costs and in energy consumption
- to aid water governance by addressing the unclear responsibilities of the various stakeholders
- to provide decision support by delivering a sound basis for water managers and governments for proper process assessment and selection

# Demonstration sites

The project focuses on 13 demonstration sites in Europe, India and Israel covering a representative range of regional, climatic, and hydro-geological conditions.

## Bank filtration

Five sites to demonstrate the benefits of post-treatment options such as

- nanofiltration, and other membrane technologies,
- activated carbon,
- ozonation and
- electrochlorination

after bank filtration for the production of safe drinking water. Sites no. 1-5 located in Germany, Hungary, Poland and India

## Managed aquifer recharge (MAR)

Four sites to validate

- the full exploitation of the treatment and storage capacity of soil-aquifers systems,
- in combination with conventional or oxidative pre-treatments in both drinking water production and water reuse.

Sites no. 6-9 located in France, The Netherlands, Switzerland and Israel.



## Constructed wetlands (CW)

Four sites to demonstrate the combination of constructed wetlands (CW) and other natural treatment systems with different technical post- or pre-treatment options such as

- ozonation,
- bioreactor systems or
- disinfection processes

in pilot and full-scale sizes for innovative and resource-efficient treatment of wastewater and combined sewer overflows.

Sites no. 10-13 located in UK, Germany and Greece.