AquaNES

Demonstrating Synergies in Combined Natural and Engineered Processes for Water Treatment Systems

Circular Economy on the water pathway - H2020 project AquaNES

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www.aquanes.eu

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Facts and figures

Funding
Horizon 2020 (EU), 7.8 M€
+ SERI (CH) 0.87 M€

Call: H2020-WATER-2015-two-stage, Topic WATER-1b-2015

30 partners: industry & SMEs, utilities, research

Duration: 36 months
(Juni 2016 – Mai 2019)

Demonstrators: 13 sites in Europe, Israel und India

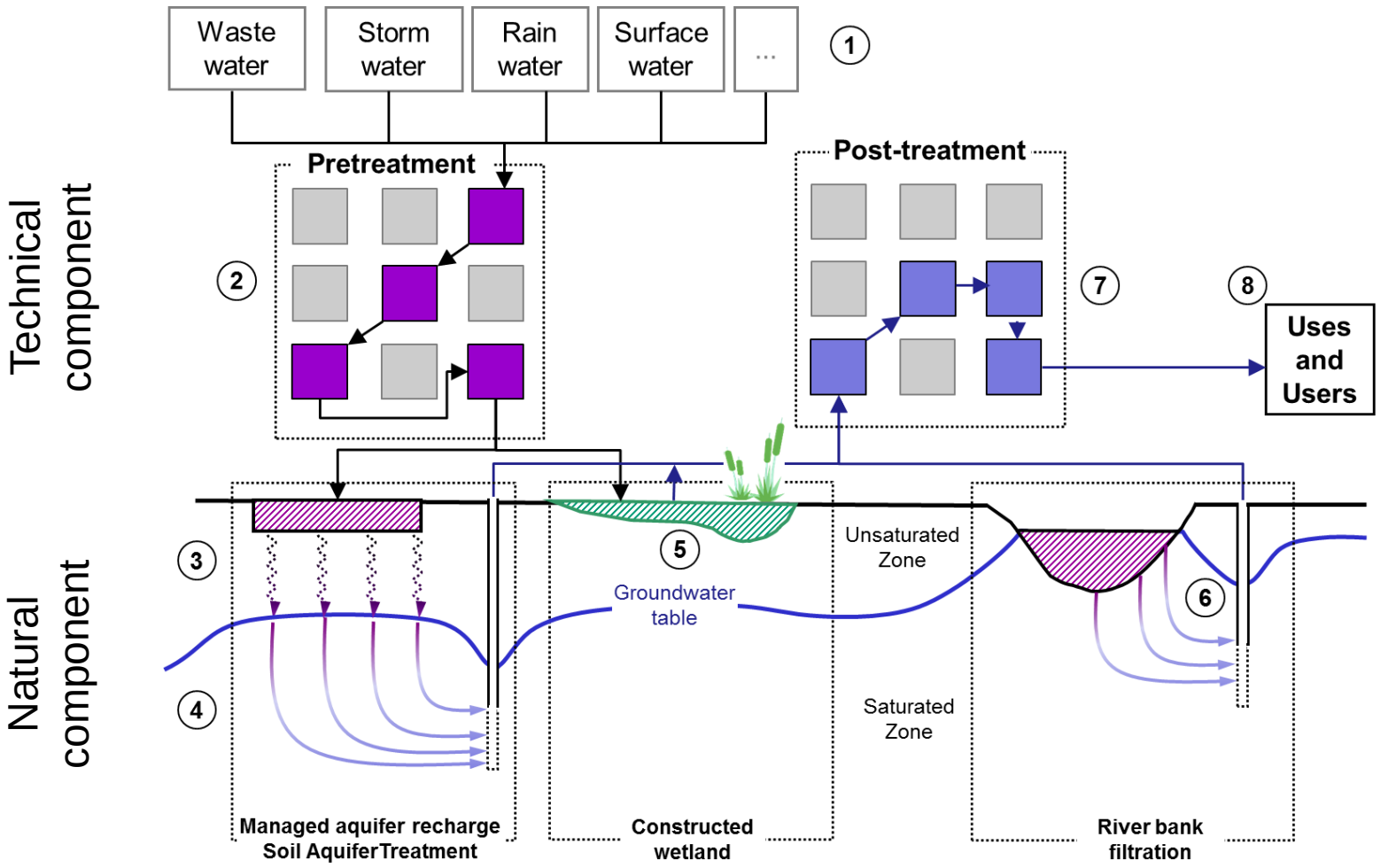
The AquaNES Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 689450

SMEs & Industry

Water Utilities

Universities & Research Institutions

Project concept



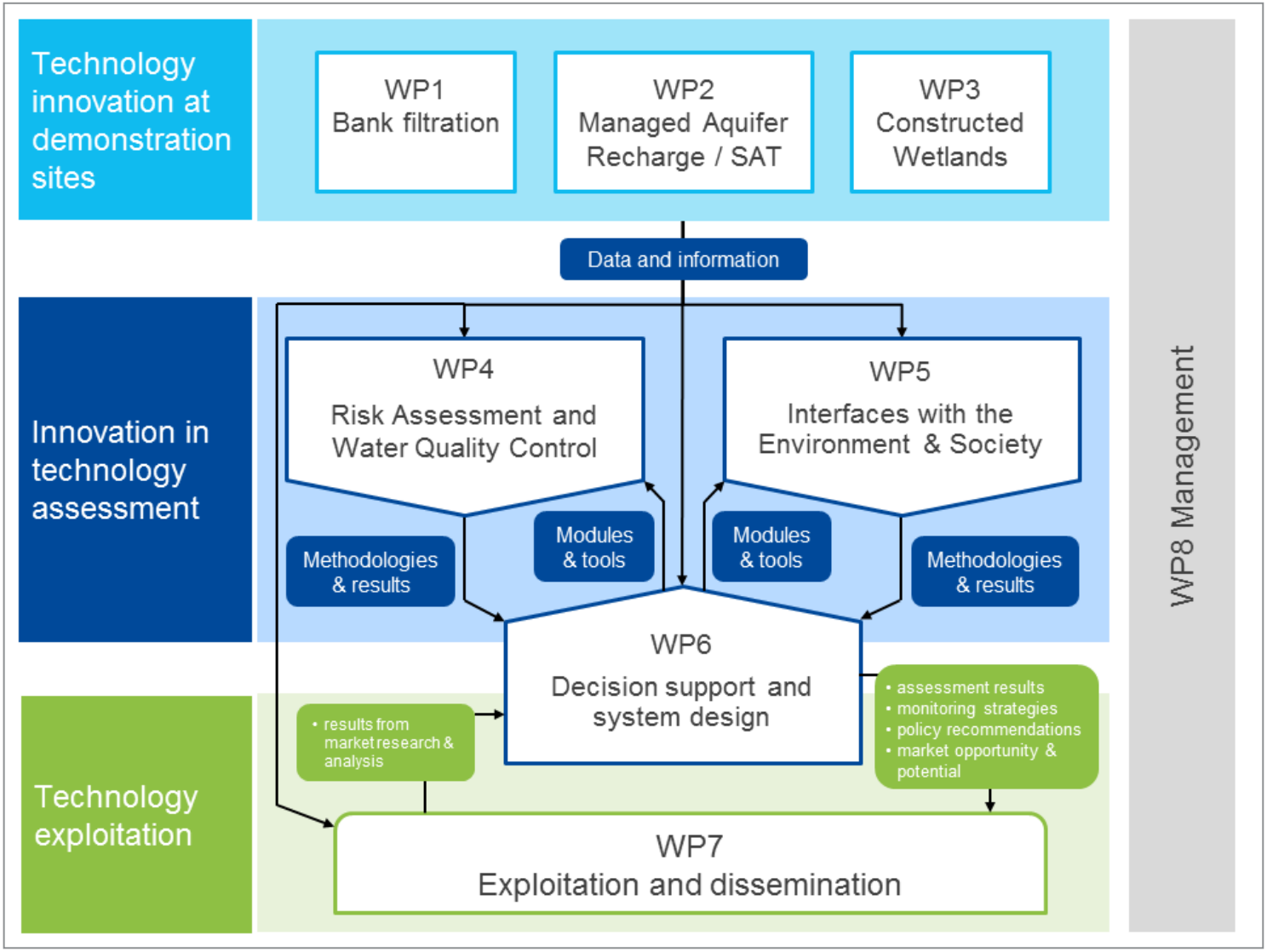
Challenges and objectives

Promotion of cNES* up-take by

- Increasing the **understanding of the capacity** of natural treatment steps
  - Enhance and maintain performance through adequate pre-treatment
  - Make up for variation through post-treatment, complement
- **Assuring water quality**
  - Micropollutants, pathogens and indicators, ARG, nutrients
- Developing adapted **operating and monitoring concepts**
- Assessing the **environmental impact and costs**
  - Energy demand, use of chemicals …
  - Land requirements and use
- Providing **decision support**
- **Demonstrating benefits of a circular water economy**

* combined Natural and Engineered Systems

Project structure



Demonstration sites locations

- Drinking water production from intensively used surface water
- Adapted wastewater treatment for *'small communities'* or for enhanced removal of certain target compounds
- Water reuse (for irrigation purposes and indirect potable reuse quality)
- Covering a range of climatic, hydrogeological and socio-economic settings

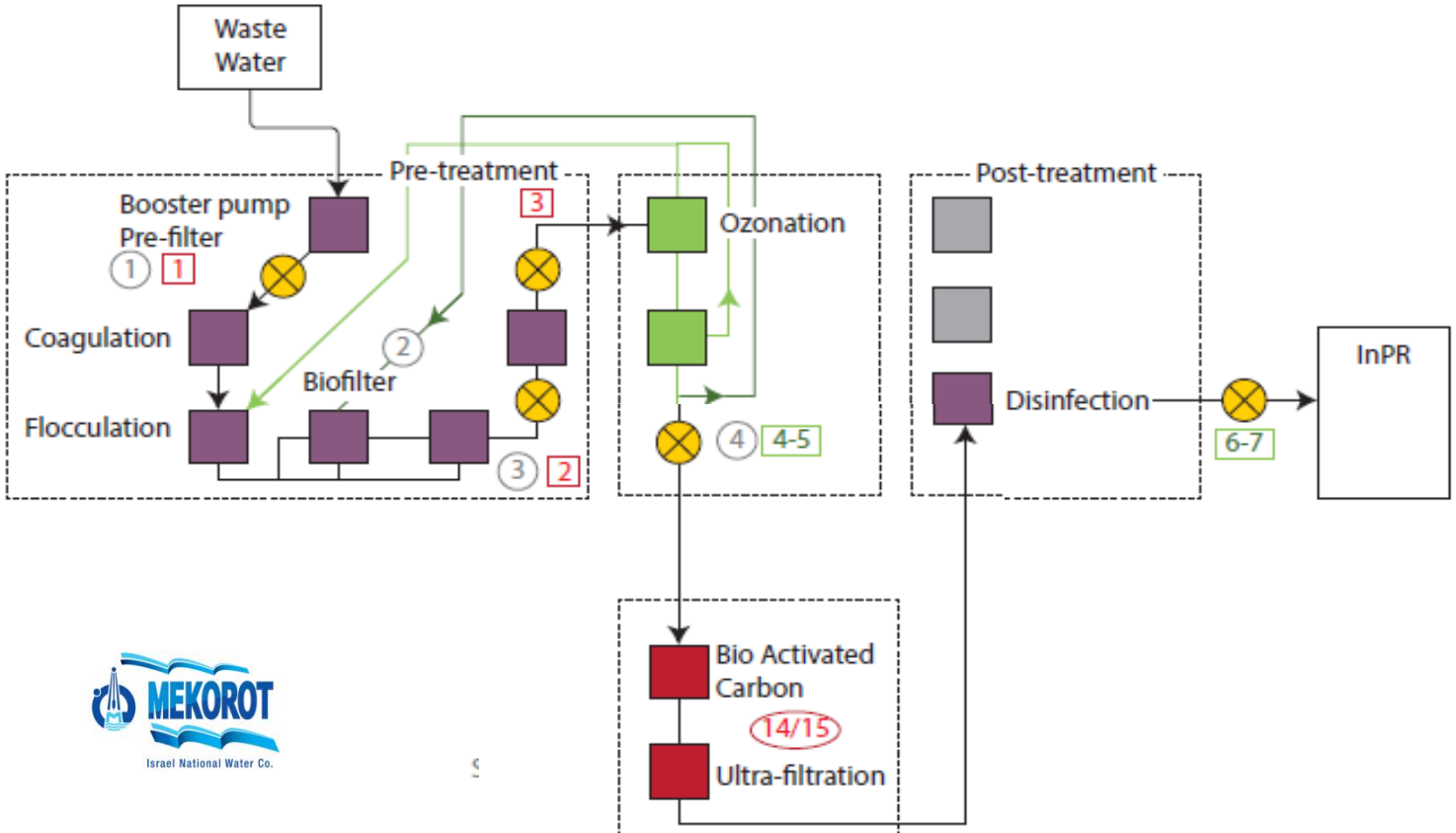
Demonstration sites: technology combinations

- **Oxidative pre-treatment** (O_3, H_2O_2+UV, electropulse, solare photocatalysis – TiO_2)
- **Post-treatment with membranes** (UF, NF, RO) or **ozone**
- **Biofiltration and biologically activated carbon filtration** (BAC)
- **Disinfection processes** (electrochlorination, UV)
- **Sorptive and biological P-removal** (algae reactor)

Site n°7 Shafdan, (Tel Aviv, IL)Israel Optimized AOP with sSAT for InPR

Technical demonstration

–Improve the biodegradability and reduction of DOC, TrOCs and pathogens with combined **Modified Recirculated Ozonation (MRO)** with short Soil Aquifer Treatment for Indirect Potable Reuse Quality



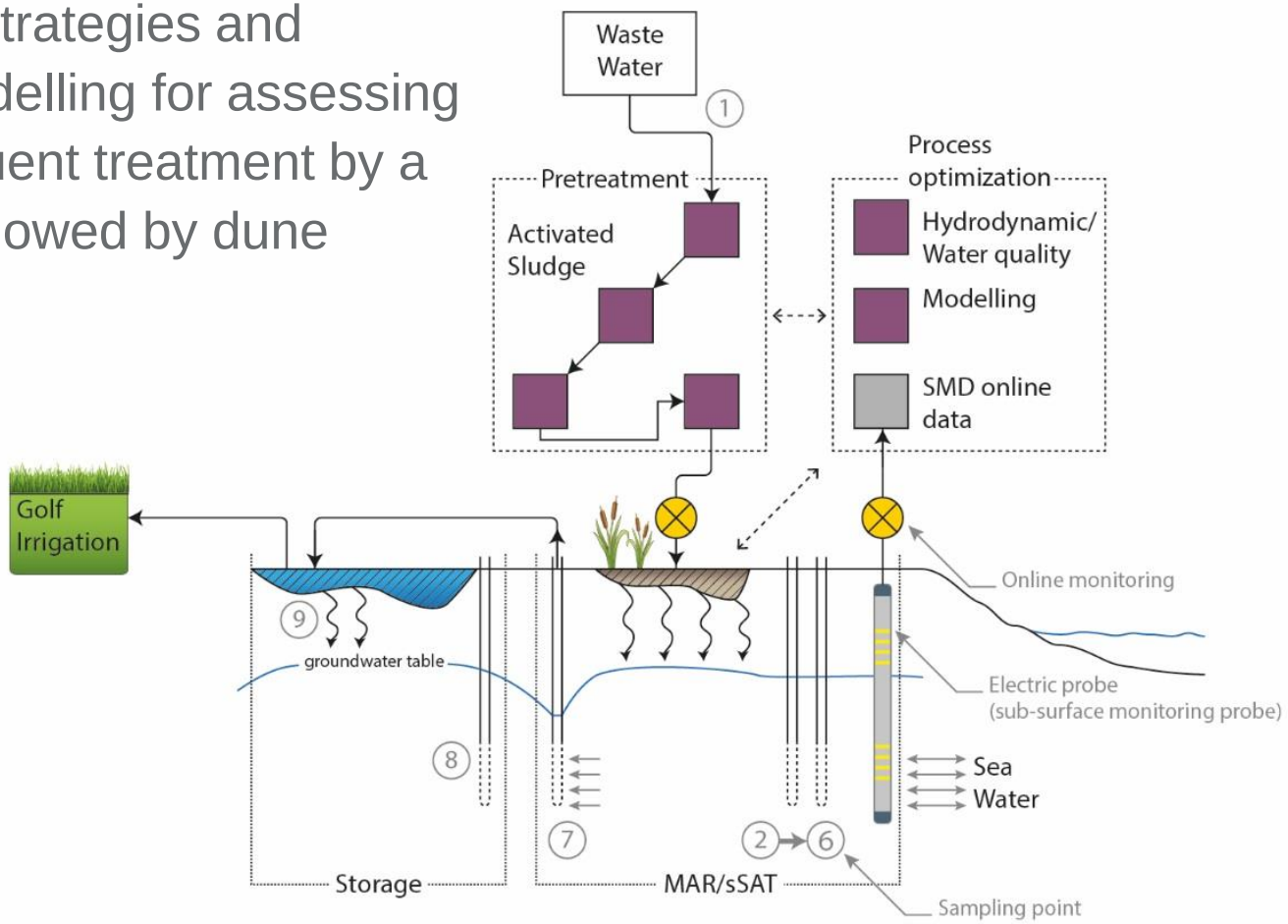
xylem Let's Solve Wat

MEKOROT Israel National Water Co.

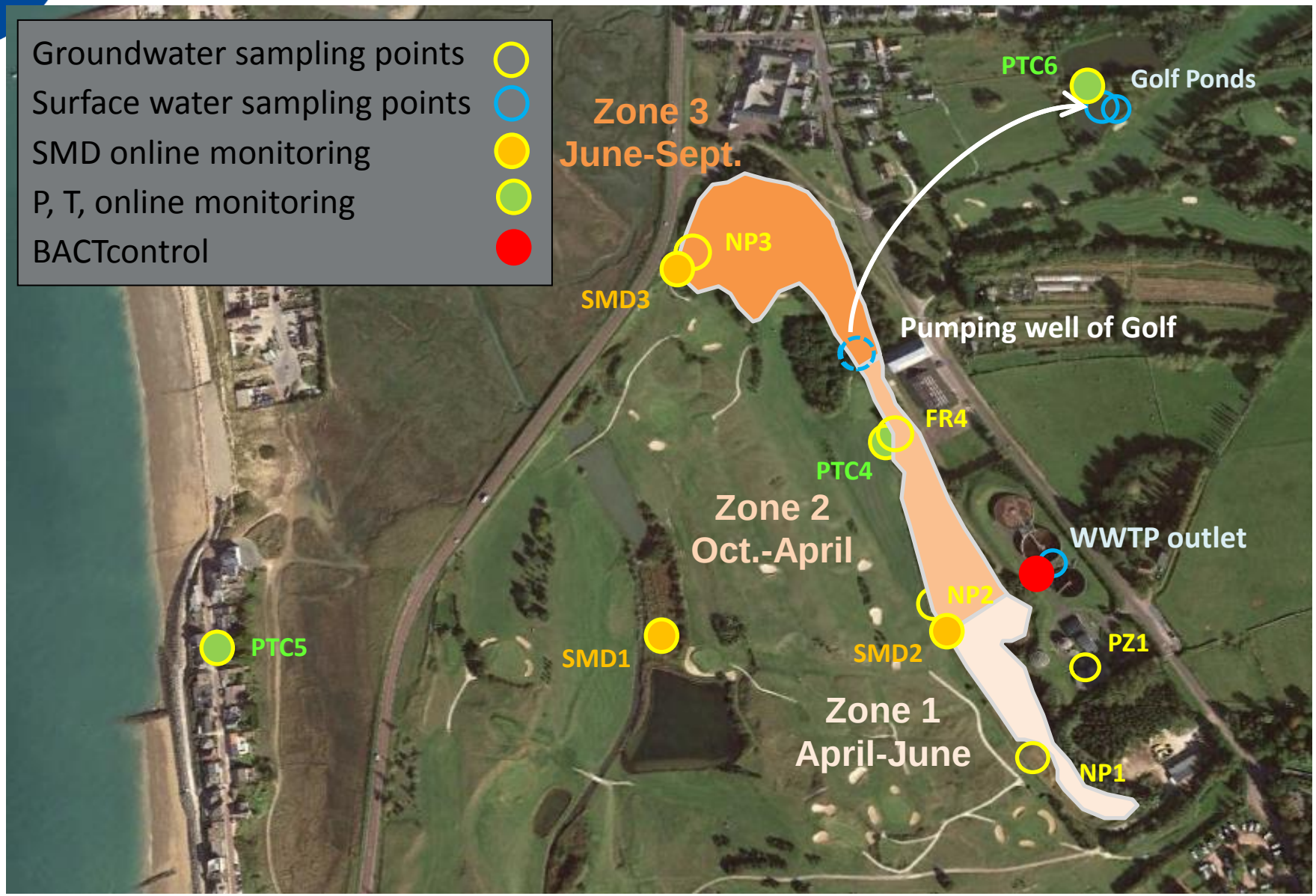
Agon-Coutainville site n°8 - Advanced monitoring-modeling interface for optimised MAR/SAT system design & operation

Technical demonstration

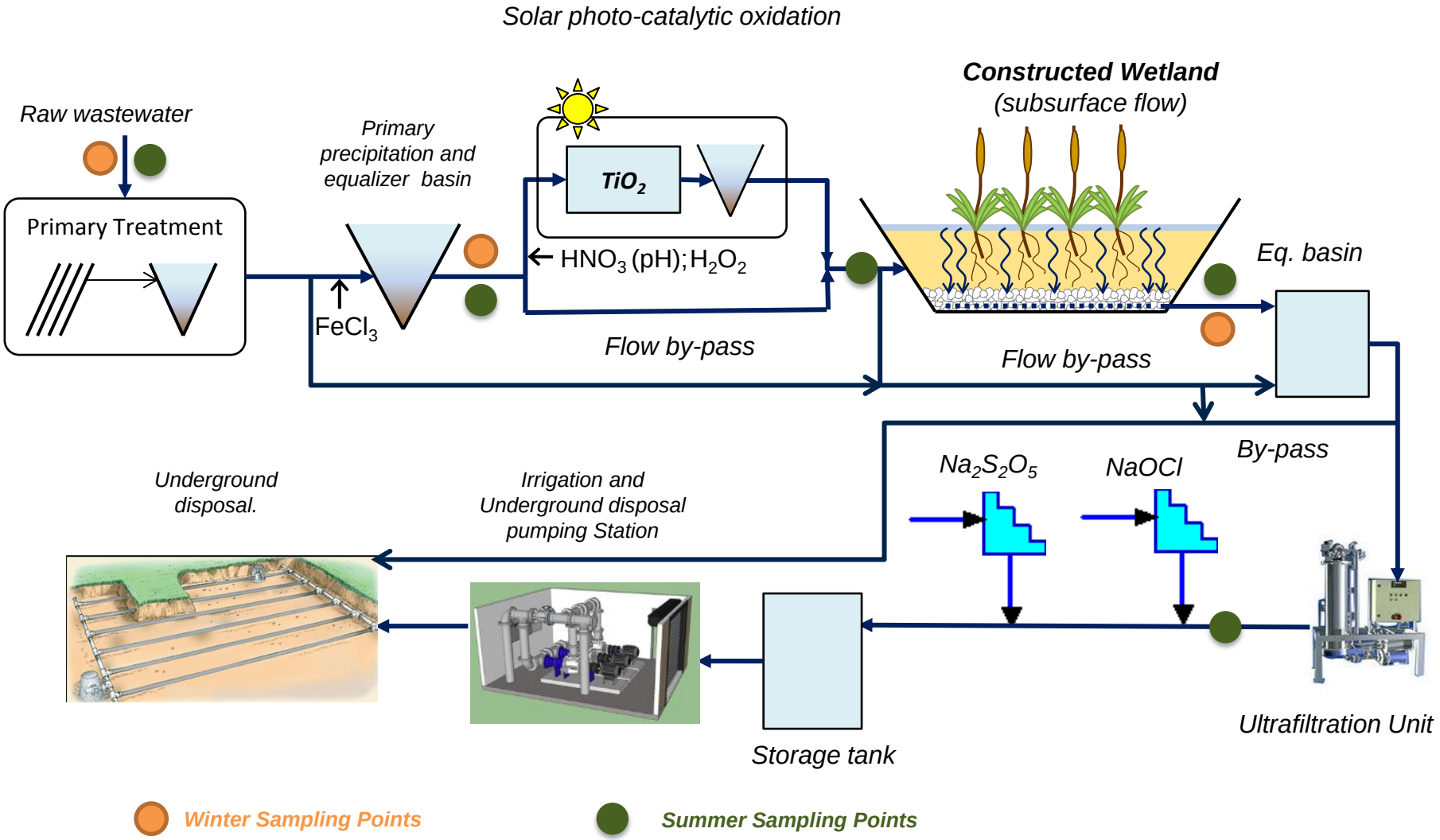
- Demonstrate innovative monitoring strategies and process modelling for assessing efficient effluent treatment by a reed bed followed by dune filtration



Agon Coutainville innovating monitoring system



Site 10b: Thirasi -Flow scheme



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