



Reuse, Recovery and Resource efficiency,
Innovations in urban wastewater treatment



This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 619093.

R3Water

Demonstration of innovative solutions for Reuse of water, Recovery of valuables and Resource efficiency in urban wastewater treatment

Workshop on:

From Innovation to Market: The Second Valley of Death

Leeuwarden, 11th of February 2016

R3water vs RTWQM links and synergies

RTWQM Action Group Objective: **to foster solutions to water challenges based on online water quality monitoring technologies and affordable monitoring strategies**

- Water sectors: water bodies, drinking water and **waste water, including water reclamation and reuse**
- Applications:
 - **Resource efficiency**, in terms of chemical dosing and energy, in water treatment processes for both water supply and waste water;
 - Early warning systems to detect pollution of surface water, ground water catchments and drinking water resources;
 - Control networks to monitor industrial and urban waste water discharges and **water reuse** schemes.

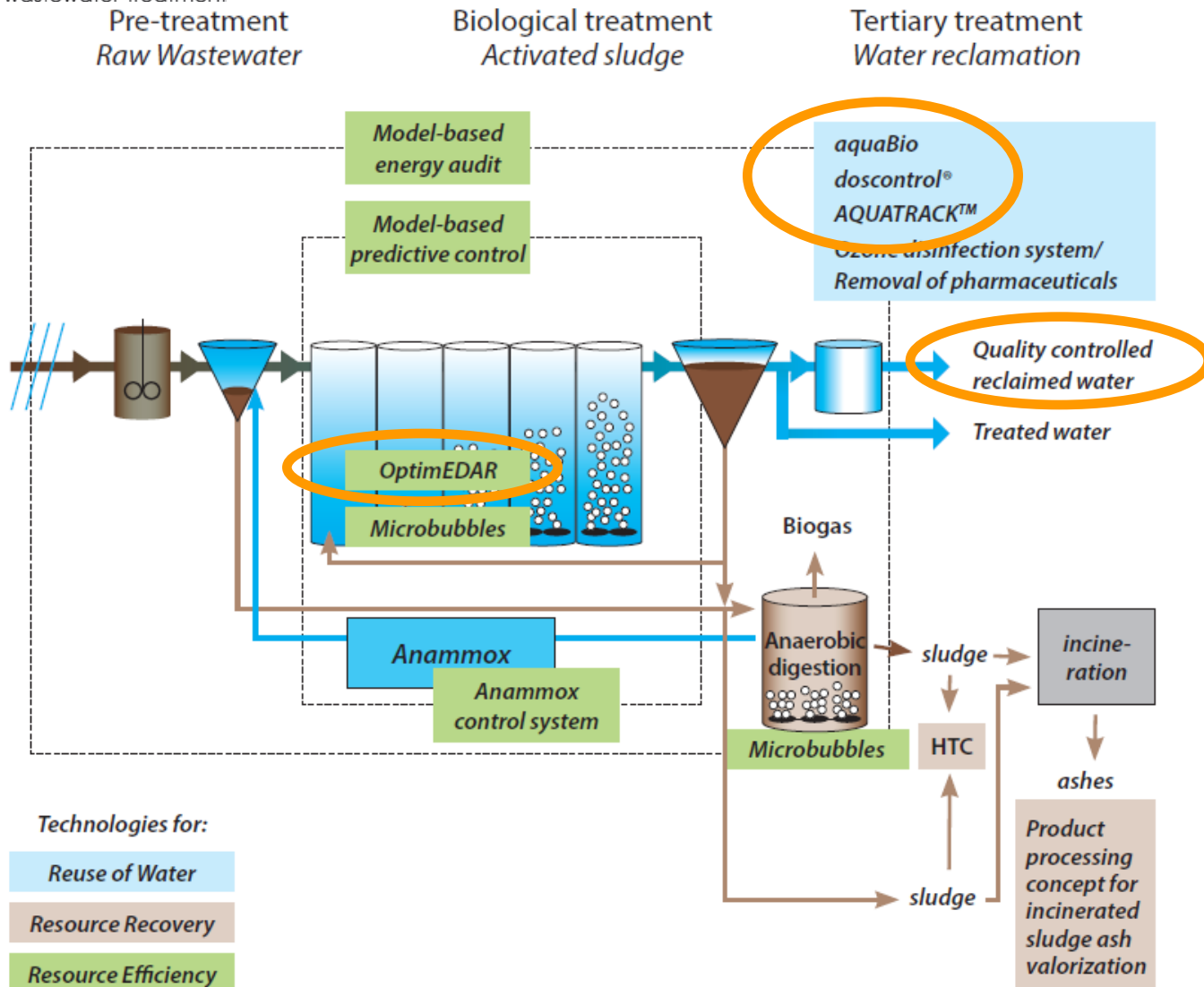
R3water vs RTWQM joint activities

R3Water consortium has been involved from the early stages of the RTWQM AG foundation, contributing with 5 key partners as activity leaders.

Moreover, some of the RTWQM AG innovative concepts are being tested in the R3Water demonstration sites

- Joint dissemination activities during the EIP Water Conference 2014 in Barcelona
- Contribution to the Commission's initiative on water re-use (DOC WD/2015-1/5)
 - Providing feedback to the **Guidance on Water Reuse** during the consultation process
 - Participating in the side event **Water reuse - status and contribution to the EU initiative** (EIPwater Conference 2016) with an R3water success case

R3water Technology schema



Technologies for:

- Reuse of Water
- Resource Recovery
- Resource Efficiency

Continuous measurement equipment for: *Escherichia coli* and total coliforms

- Used technique: Defined Substrate Technology® (DST®) and detection system by measuring fluorescence and absorbance.
- E. coli is a bacteria widely used as an indicator of faecal contamination, and also key indicators for determining the potential uses of reclaimed water from a WWTP tertiary treatment.

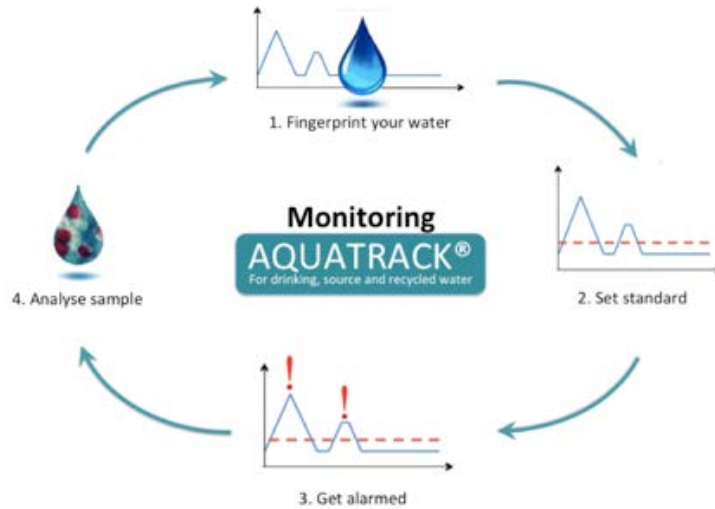
Benefits

- Early warning in case of the water reclamation plant malfunctioning.
- Efficient production of reclaimed water, avoiding overdosing of disinfection chemicals and excess of UV power consumption.
- Allows the production of fit-for-purpose reclaimed water.



AQUATRACK®

Early Warning System with sampler for pathogens in reclaimed/recycled water



- 1) Connect AQUATRACK® to your water stream and always access the water quality changes wireless.
- 2-3) Decide the highest permissible amount of variations of your process water and get alarmed when variation occurs.
- 4) The variation that trigger the alarm is automatically sampled and stored for further analysis.



Automatic sampling is triggered when the water quality changes.

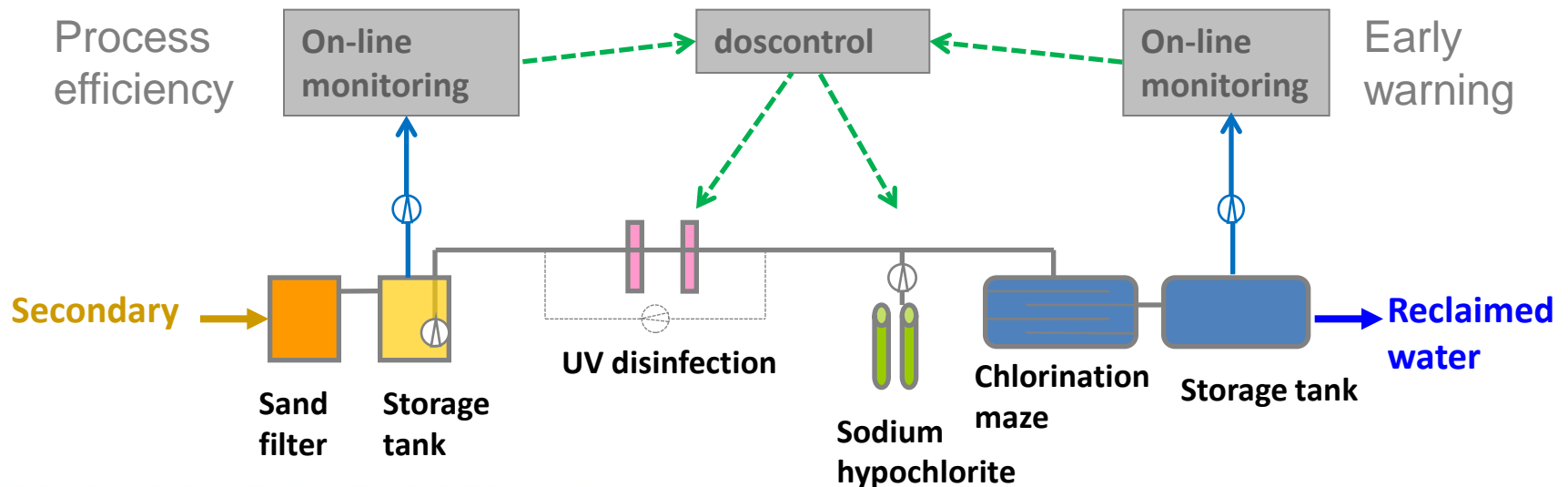
Fingerprint of contaminants visualized on the screen



WATER REUSE

Continuous control of combined disinfection process in water reclamation.

- The appropriated **combination** of chemical + physical disinfection, generates positive synergies delivering **enhanced microbiology load reduction** and substantial reduction of operational **costs and an increase in the safety** of the reclaimed water produced
- The increased disinfection spectrum process ensures a residual concentration of biocide through the distribution network, limiting possible regrowth



OptimEDAR

- Optimal aeration control thanks to an **innovative on-line monitoring** of the biological reactor
- Application of '**virtual sensing**' techniques: calculation of Equivalent Organic Charge (EOC) by measuring DO and Redox
- 'Add-in' solution, easy to install, based on robust probes with low maintenance requirements

Applicability

- Active sludge WWTPs with biological reactor aerated with blowers

Benefits

- Increase the efficiency of the nutrients removal due to denitrification - dephosphatation cycles and provides microbiological stability.
- Reduce energy consumption, by average 20%, by adapting blower operation to the current organic matter load.



RTWQM Open session

Please feel free for joining us in the RTWQM open session:

- 15:30 RTWQM mission and objectives
- 15:40 Presentation and open discussion: Online monitoring, sensors vs. analyzers
- 16:10 Online monitoring vs. discrete sampling: presentation of success cases
- 16:30 Open discussion
- 17:30 Networking session with cocktail/ fingerfood

THANKS FOR YOUR ATTENTION

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