

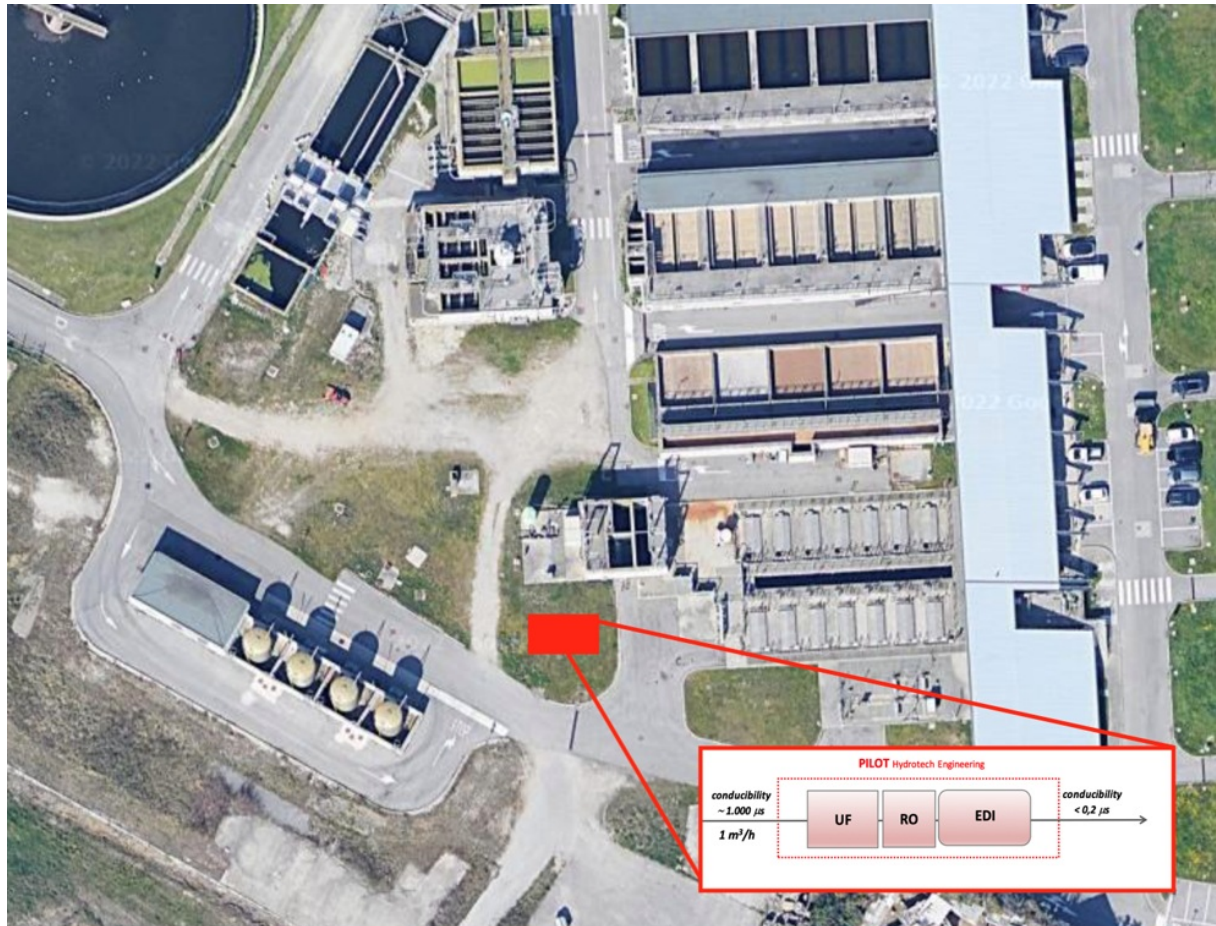
 Case study factsheet

Venice, Italy

Last update on 2023-03-24

 **B-WaterSmart** Project B-WaterSmart

Veneto Region; Venice city and surrounding Lagoon , Italy



Description

In the Venice Living Lab the application of resource recovery and circular economy in the field of water, especially wastewater, are strategic to achieve climate change resilience. Currently, the pursuit of these goals is slowed and prevented due to several issues (technical but mainly regulatory) related to wastewater process management, not much to effluents from wastewater treatment plants, rather when referring to nutrients and sludge. The limits and slowdown of the virtuous paths towards resource recovery and circular economy are also sensibly linked to a lack of shared and transparent knowledge on the quality and opportunities connected to the reuse itself, and to an overevaluation of risks which together lead to a low social acceptance. There are several goals in Venice LL: i) the contribution to complete the reuse goals envisaged (but not still reached) by another important funded regional project (the Integrated Fusina Project PIF) which, alongside other important reclamation goals for the industrial area, provides for the reuse of the effluent of the municipal treatment plant (WWTP) Fusina for "non-potable" purposes; ii) the possibility of resource recovery from wastewater processes for high quality fertilizer production and carbon footprint reduction; iii) tackling the tough issue of the management of sludge produced by municipal WWTPs, still profoundly conditioned by a limited vision and knowledge which condition the choice and can hinder the pursuit of the most sustainable management pathway (such as its physiological destination to the environment and to the soil).

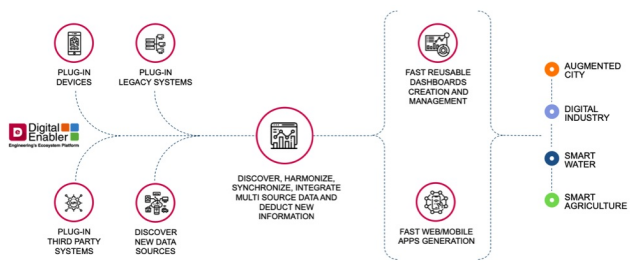
The main technical solutions proposed are: i) a combinatory pilot plant (UF unit + RO unit + EDI unit), tested on Fusina WWTP effluent for industrial water reuse; ii) two pilot stripping technologies, tested on concentrated WWTP stream(s) for ammonium sulphate production; iii) two IT platforms, the Water Reuse Strategic Platform and the Sludge Management Platform, to assess the best reuse opportunities and valorization pathways firstly at local/Regional scale and then transferable at National/EU scale for water and sludge respectively.

Applied technologies

- **Membrane systems**
- **Ultrafiltration or nanofiltration with RO regenerated membranes**
- **Ammonium sulphate production (air stripping & scrubbing)**

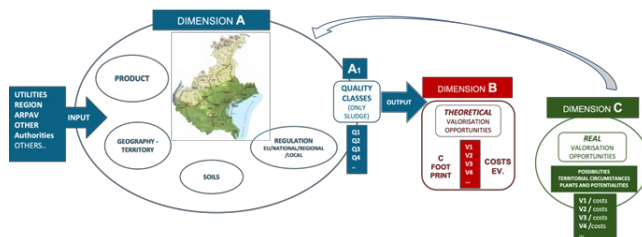
Applied products

Digital Enabler



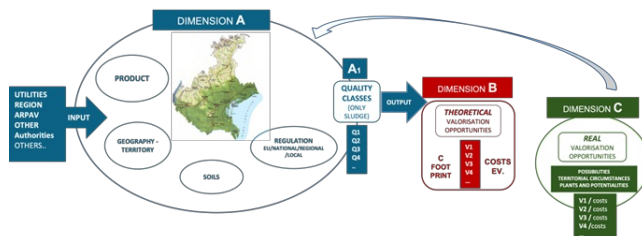
<https://mp.watereurope.eu/d/Product/30>

Water reuse strategic platform



<https://mp.watereurope.eu/d/Product/60>

Sludge management platform



<https://mp.watereurope.eu/d/Product/62>

Scales

Operational scales of this case study related to the application of tools and technologies

- Local scale
- Metropolitan scale
- Regional scale
- National scale

Challenges

Challenges that are addressed through the application of tools and/or technologies to the case study

- Water Scarcity
- Limitations to water reuse and recovery due to low acceptance
- Untapped efficiency potential of water resources
- Need for reuse and recovery schemes for wastewater & sludge

Related tags

ammonium sulphate

Resource recovery

Water reuse

Circular Economy

Sludge management

Contact data

Contact person

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Involved organisations

1.  **SINTEF**

SINTEF AS (SINTEF)

2.  **VERITAS**

Veneziana Energia Risorse Idriche Territorio Ambiente Servizi SpA (VERITAS)

URL

<https://b-watersmart.eu/living-lab/venice-italy/>