



ICID2015

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*Reuse of agro-industrial (vegetable processing) wastewater in agriculture.
Full-scale tertiary treatment (4500 P.E.)*



**STORNARELLA,
APULIA REGION**



Alfieri POLLICE

IRSA CNR

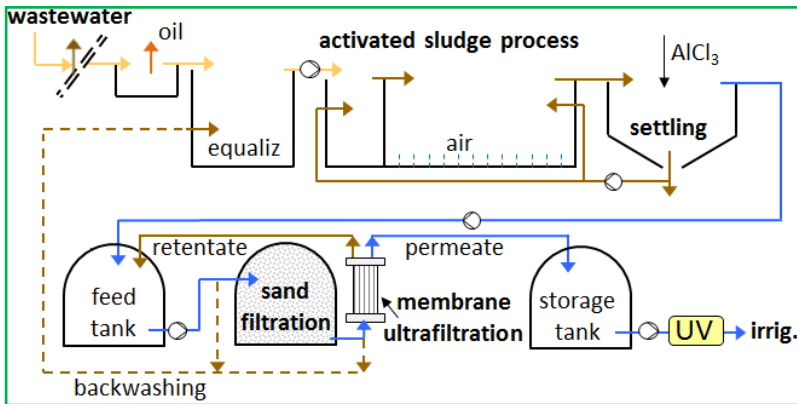
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Description of the case study

Project's name	Country	City	Start Date-End Date	Water Sources	Uses
Agroindustrial ww reuse	Italy	Stornarella (FG)	2012 -	Treated agroindustrial wastewater	Irrigation



Sources

Origin	Agro-industrial wastewater
Water reused (m³/Y)	1000 ÷ 2000

Uses

Crops	Tomato and Broccoli (cabbage)
Irrigated Area (Ha)	0,3
Cost of the Cubic meter (€/m³)	0,2 ÷ 0,4

Water Reuse Chain

Treatment	Activated sludge, tertiary sand and membrane filtration
Disinfection	Membrane ultrafiltration, UV (on-demand)
Irrigation	Drip
Storage Capacity (m³)	Tanks (20 m ³)

How do I illustrate the question:

Which practices, technologies and institutional framework to create effective, safe and cost effective water reuse chain?

For reuse in irrigation

Membrane ultrafiltration (MBR or tertiary filtration) allows to comply with standards for reuse with no need of disinfection.

Cloth filtration (disk filters, etc.), followed by UV disinfection, represents a cost effective tertiary treatment scheme.

Nitrogen conservation by performing only nitrification (no denitrification) limits the needs of external fertilization.

How do I illustrate the question:

Can we successfully reuse raw or low treated waste water?

For reuse in irrigation

No need to remove nitrogen (algal blooms in storage tanks can be controlled by removing phosphorus).

Fecal contamination indicators (E. Coli) have a very limited persistence in topsoil and on plants, and their movement through the soil is overcome by bacterial decay.



Vergine et al. (2015) Fate of the fecal indicator *Escherichia coli* in irrigation with partially treated wastewater. Water Research, 85, 66-73.

- Partially treated wastewater can safely be used for irrigation;
- Current standards are often too strict and imply costly overtreatment.