20 June 2025

#EU GREEN WEEK

EU Green Week Partner Event

SLOVENIA: Ajdovščina WWTP

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WASTEWATER AS A RESOURCE:
REGIONAL WORKSHOP ON
SEWAGE SLUDGE MANAGEMENT
AND ENERGY EFFICIENCY

WWTP AJDOVŠČINA

The Ajdovščina Central Wastewater Treatment Plant was built in 1981 as a mechanical biological wastewater treatment plant with anaerobic stabilization of sludge in digesters.

In 1999 Ajdovščina started the restoration and extension, which was completed 2005.

The reconstructed WWTP operates as a conventional flow-through plant with pre-denitrification and anaerobic stabilization of the sludge.

Demonstration center Ajdovščina

UNIVERSITY OF LJUBLJANA | ZF Faculty of Health Sciences

UNIVERSITY OF LJUBLJANA | BF Biotechnical Faculty

Research since 1989
Different projects and pilot scale experiments

Zero discharge; woody biomass production

Evapotranspirative willow system

WW after primary treatment

DEMO center

Treatment wetland

Water for irrigation

High-rate algae pond

Water for irrigation + algal biomass for fertilization (biostimulation)

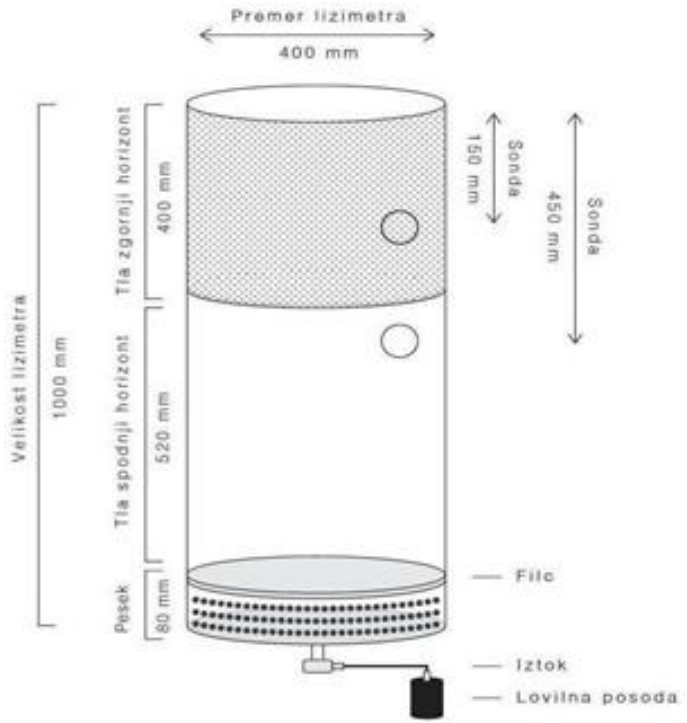
Test fields with lysimeters

Irrigation with reclaimed water

Lab research

Elimination of contaminants of emerging concern

Lysimeter test field



- 30 lysimeters buried in the soil with a size of 400 mm × 1000 mm,
- each equipped with two soil sensors for water content and salinity of the soil.

2019

4 different waste water irrigation sources:

- WW from a constructed wetland (CW),
- WW treated with algae technology (AT),
- WW from the WWTP with additional fertilization (WWTPf) and
- WW from the WWTP without fertilization (WWTPnf) + CONTROL

2022

4 different waste water irrigation sources:

- Waste water
- Waste water + CEC,
- Tap water (control)
- Tap water (control) + CEC

- Drip irrigation
- Tomatoes

What is next?

TWW presents a new water source

No differences between irrigation with different sources of TWW in metal concentrations and different parts of the plant

What about sludge use?

Using TWW for irrigation presents benefits but also environmental, health and economic challenges

TWW irrigation impacts on soil, water resources and public health

The use of TWW for irrigation promotes sustainable water use and encourages the promotion and development of sustainable agriculture