

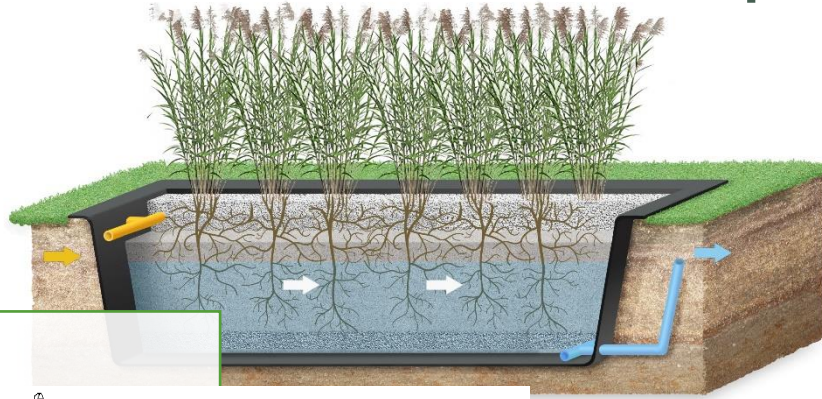
Wastewater treatment wetlands

Alenka Mubi Zalaznik
Sava Youth Parliament
Webinar on NBS
30.3.2023

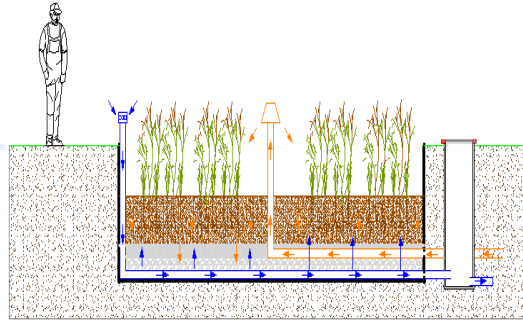


Treatment wetlands for various problem areas

Wastewater treatment – constructed wetlands



Sewage sludge stabilisation & treatment



Floating treatment islands



Leachate treatment (landfill, industry)



Constructed wetlands for wastewater

SUBSTRATE

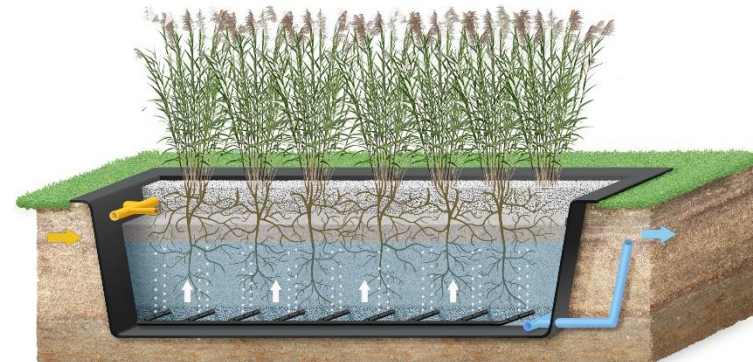
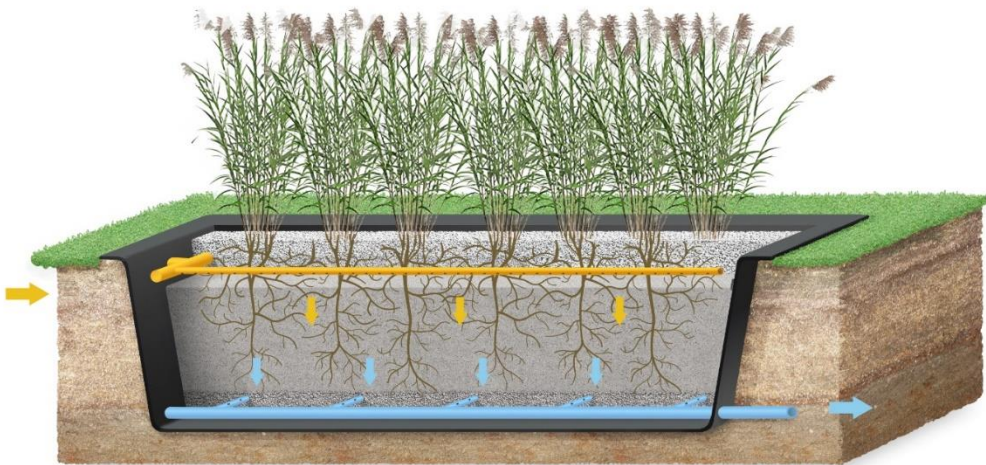
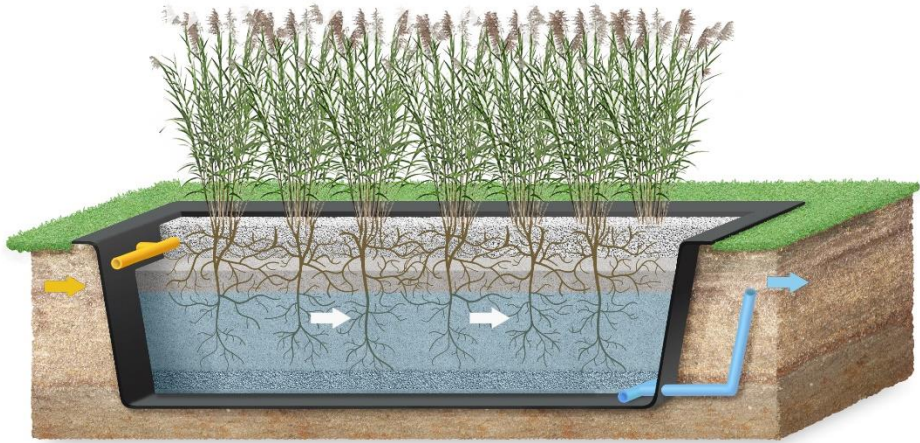
- Filtration, adsorption of pollutants
- Base for plants
- Surface for microorganisms

MICRO-ORGANISMS

- Pollutant removal

MACROPHYTE PLANTS (reeds; *Phragmites australis*)

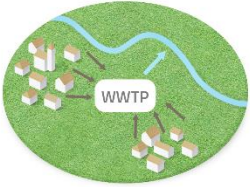
- Filtration, adsorption, oxygen introduction
- Area for micro-organisms
- Hydraulic conductivity



EQUIPPING AGGLOMERATIONS

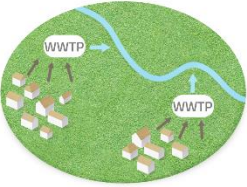
1. Centralized system

Equipping with one sewage system for the entire agglomeration.



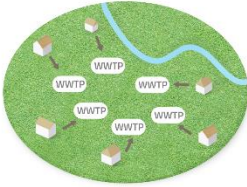
2. Partly decentralized system

Equipping with several sewage systems for groups of buildings in the agglomeration.



3. Decentralized system

Equipping with small wastewater treatment plants with a capacity of less than 50 PE.



- No electricity required
- Very effective
- Low cost
- Peak compensation
- Aesthetic
- Biomass
- Easy upgrading
- Habitat
- Water reuse
- Simple operation & maintenance

- 1 - 2 m²/PE space required;
- Less control
- Dedicated maintenance

Settlements



Montenegro, 500 PE

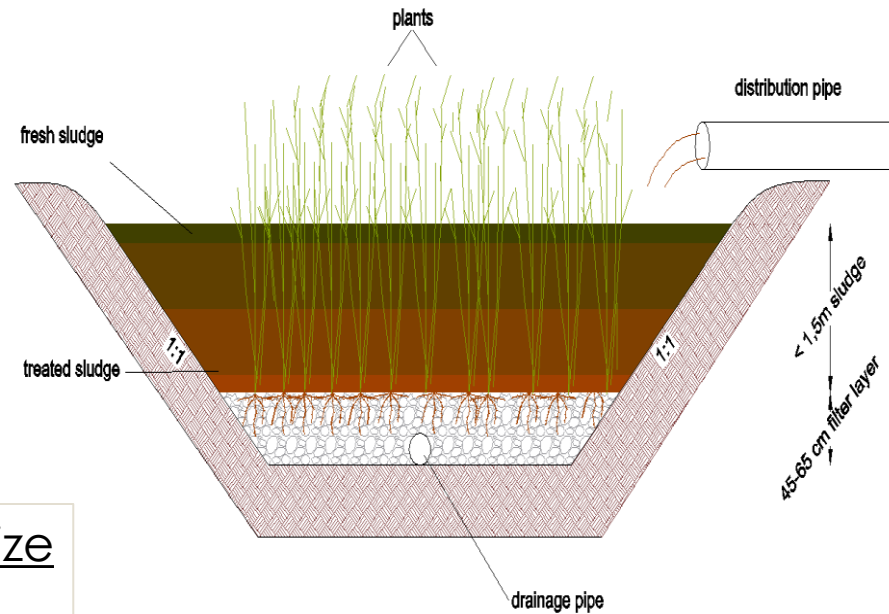


Croatia, 1.900 PE

Individual treatment system (5 – 49 PE)



Sewage sludge drying reed beds



- Dewater, stabilize and mineralize sludge from wastewater treatment
- Water-solid separation occurs by the combination of gravity, filtration, plants
- Advantages: zero energy, low OM costs, reuse



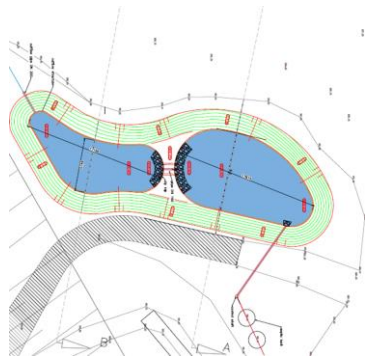
Floating treatment islands

- Water treatment (nutrient removal)
- Habitat support (birds, fish, vertebrates)
- Improve oxygen conditions
- Landscaping



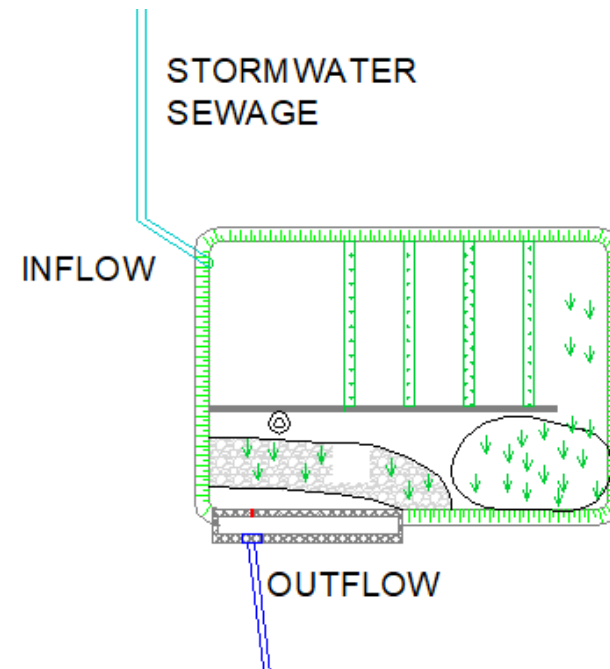
Leachate treatment

Landfill leachate



Passive treatment for closed, inactive and rehabilitated municipal waste landfills

Industrial leachate



Open CW with multipurpose effect:

- Water retention
- Pollution mitigation
- Habitat creation&support
- Water reuse



Thank you for
attention!

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Working with nature to protect the environment

Question

?

- Which plants are most frequently used for treatment wetlands?
 - Water lilies
 - Different types of reed 
 - Willows

