

Decentralised and off-grid wastewater management:

Best practice from Switzerland and neighbouring countries



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Citywide inclusive sanitation

Approach guiding the upcoming «**Integrated Sanitation Strategy for Greater Tirana**»

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Coordinator of Albanian stakeholders :



Project duration : 21 months, April 2024 to June 2026

Project area: greater Tirana including
Tirana, Kamza and Vora Municipalities & Utilities



In partnership with

ECOPSIS (Switzerland )

in association with

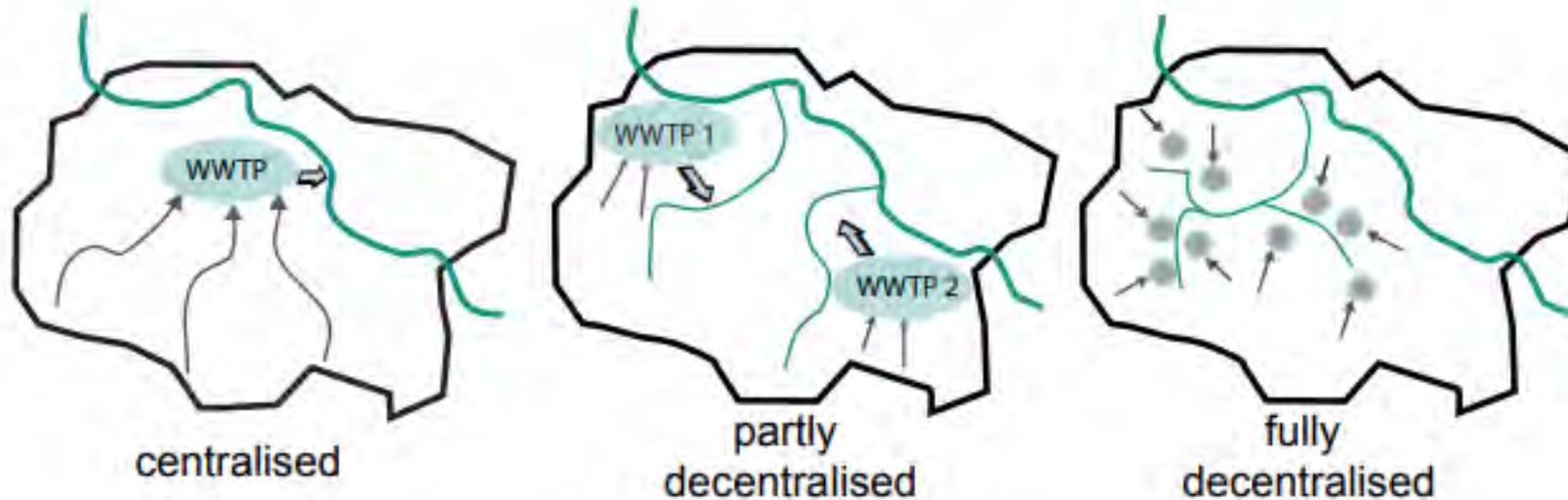
EBS (Albania )

Why decentralised sanitation ?

- Protection of the water quality on beaches, in rivers, lakes
- Climate change and increasing episodes of water scarcity
- Alignment with revised EU UWWT Directive
- Increase opportunities for water reuse and nutrient recycling.

What is a decentralisation of wastewater treatment?

“Sanitation system that collects and treats wastewater at or near its point of generation, using a sewerage network and a small-scale sewage treatment plant.”



Solutions for settlements < 2,000 PE

Key decision factors

- Should be robust
- CAPEX and OPEX as low as possible
- Capacities of the owner (be a municipality, a utility or a private owner)
- Space availability and slope
- Interest for water reuse

⇒ **Activated sludge systems are efficient, but costly and technically advanced.**

⇒ **Their sustainability will depend on the management capacities.**

Solutions for settlements < 2,000 PE

A few appropriate technologies for rural areas:

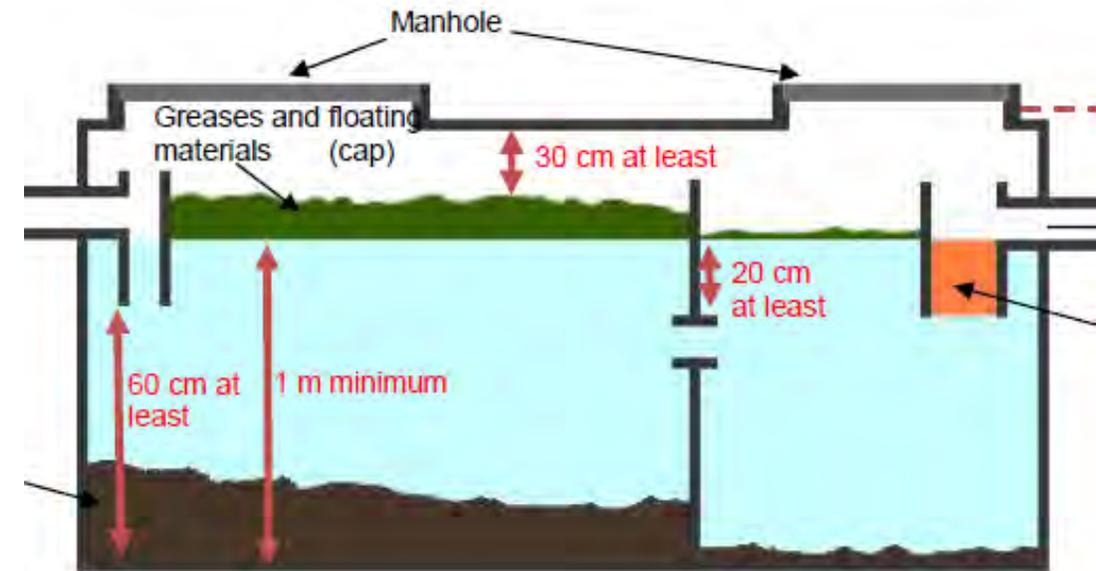
- Vertical-flow constructed wetlands
- Rotating biological contactors
- Trickling filters

Example of countries where these systems are widespread:
France, Austria, Germany, Portugal, ...



Improving onsite systems

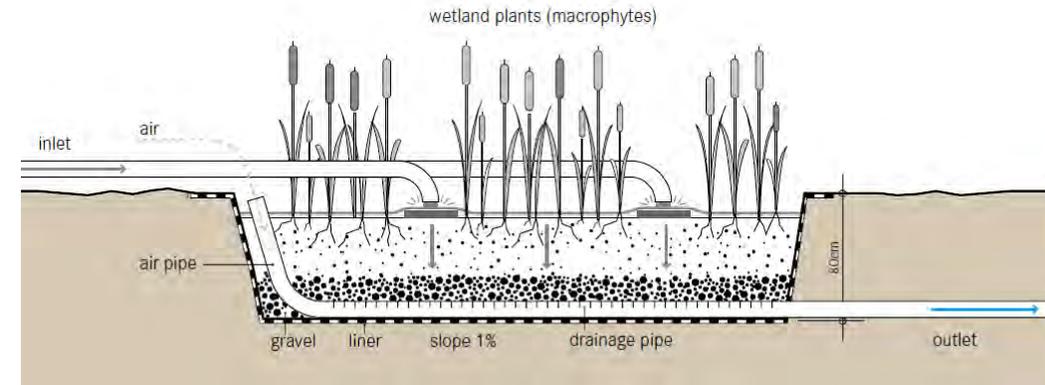
1. Enforce best practice designs and implementation of the septic tanks (see OIE, 2012)
2. Improve the disposal of the effluent (i.e. avoid direct discharge in natural water bodies) - add a basic secondary treatment step:
 - ✓ *Infiltration method, or a nature-based system like a small constructed wetland*
3. Create a GIS database
4. In countries like Germany and France, onsite secondary treatment is a must.



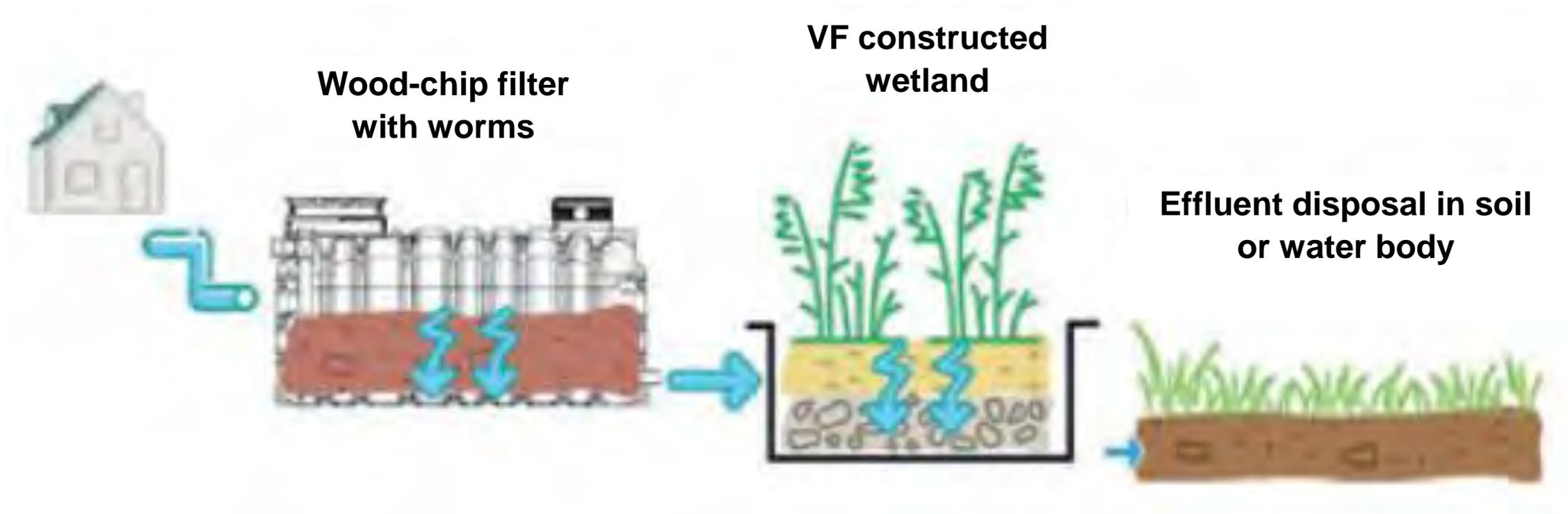
Standardised constructed wetlands

The example of Aquatiris (France)

- > 13,000 systems
- Vertical-flow constructed wetlands recognised as valid onsite treatment system
- «Sanitation garden»
- System licensed for < 20 PE
- Also for agritourisms and larger hotels
- Standardised components
- Franchise system

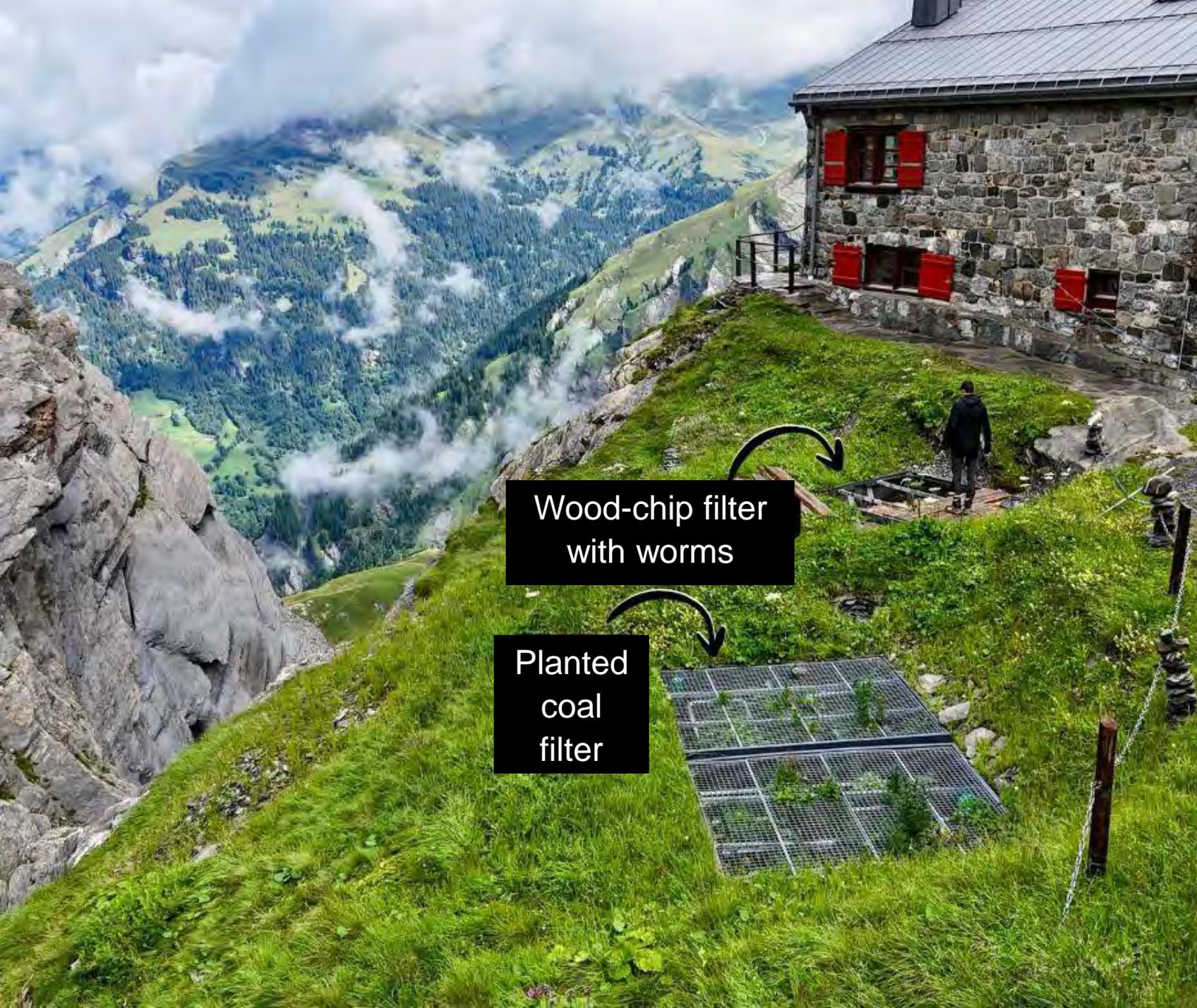


Nature-based solutions for households and agritourism



Source: Aquatiris

*Martinsmad hut, 2002 m.
(source: Vuna)*



Wood-chip filter
with worms

Planted
coal
filter

- Similar system in the Swiss National Park (Cluozza hut)

Off-grid public toilets with service model



Source: Kompotoi



Source: Sanisphère

Off-grid public toilets with service model

A success story for natural areas, but also in Swiss cities!

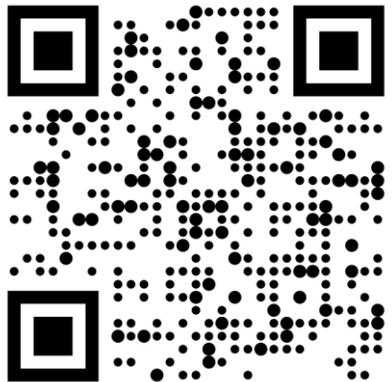
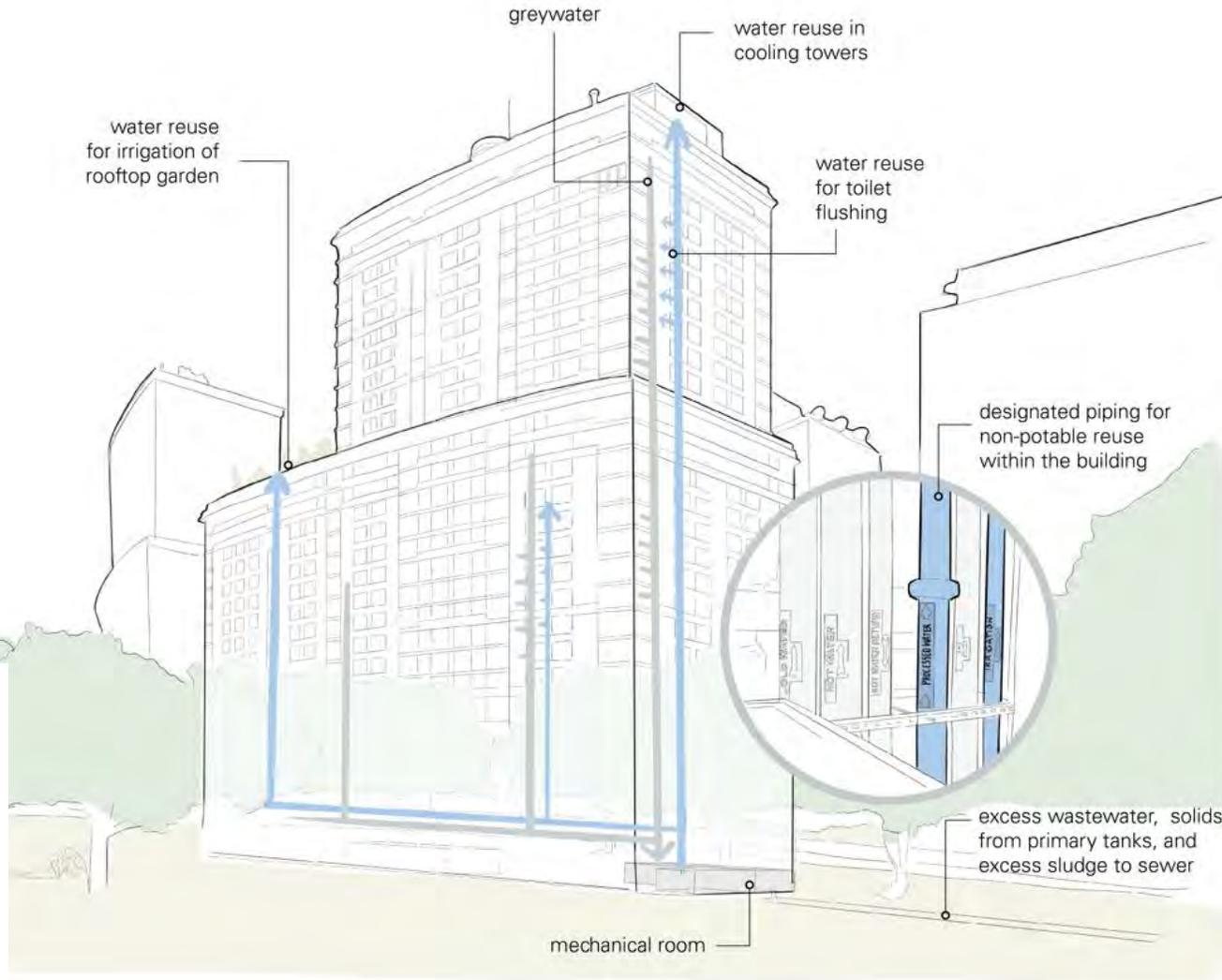
- Urine can be infiltrated or collected for further treatment and used in agriculture
- Faeces are composted with wood chips, or vermicomposted in an offset chamber
 - ⇒ *Volume reduction!*
- Faeces are collected on a regular basis and co-composted/landfilled

Example of service models:

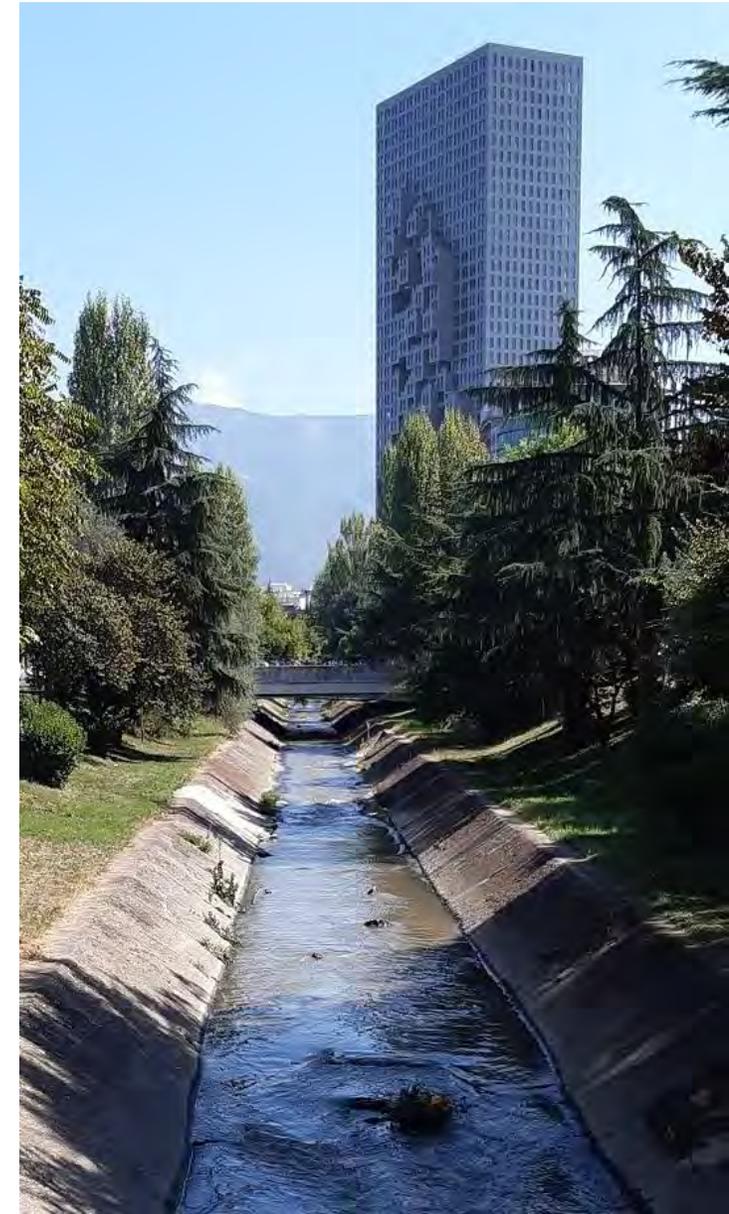
- ❖ **Kompotoi**: contracted by municipalities for implementation and O&M
- ❖ **Sanisphère**: technology provider, franchise system, O&M delegated to national firms



Circular sanitation toolbox

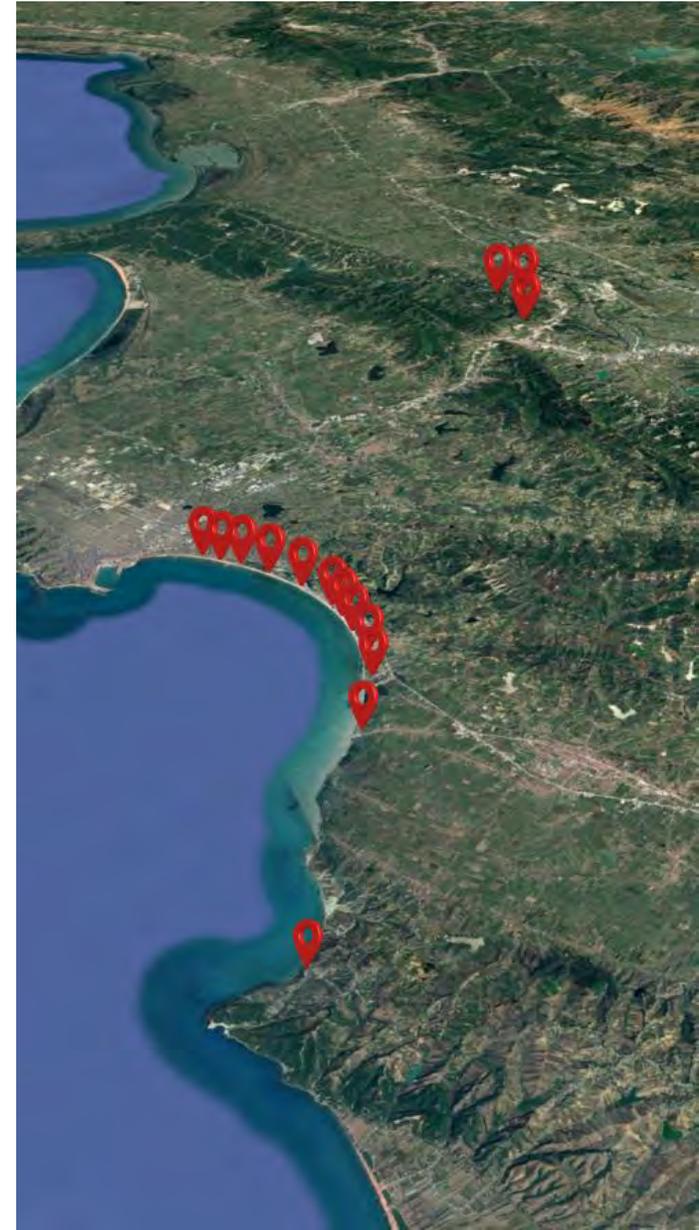


www.eawag.ch/en/wh/toolbox



Conclusions

- ✓ Enable decentralised sanitation for relevant niches
- ✓ Potential of partly standardised systems and franchise models for the region
- ✓ Important role of private O&M services
- ✓ Role of intermunicipal associations in rural areas
- ✓ Create an enabling legal and regulatory framework !



Faleminderit për vëmendjen tuaj !

