



# IZZIVI IN PRILOŽNOSTI PRI PREDELAVI BLAT IZ KOMUNALNIH ČISTILNIH NAPRAV

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Odpadek šteje.





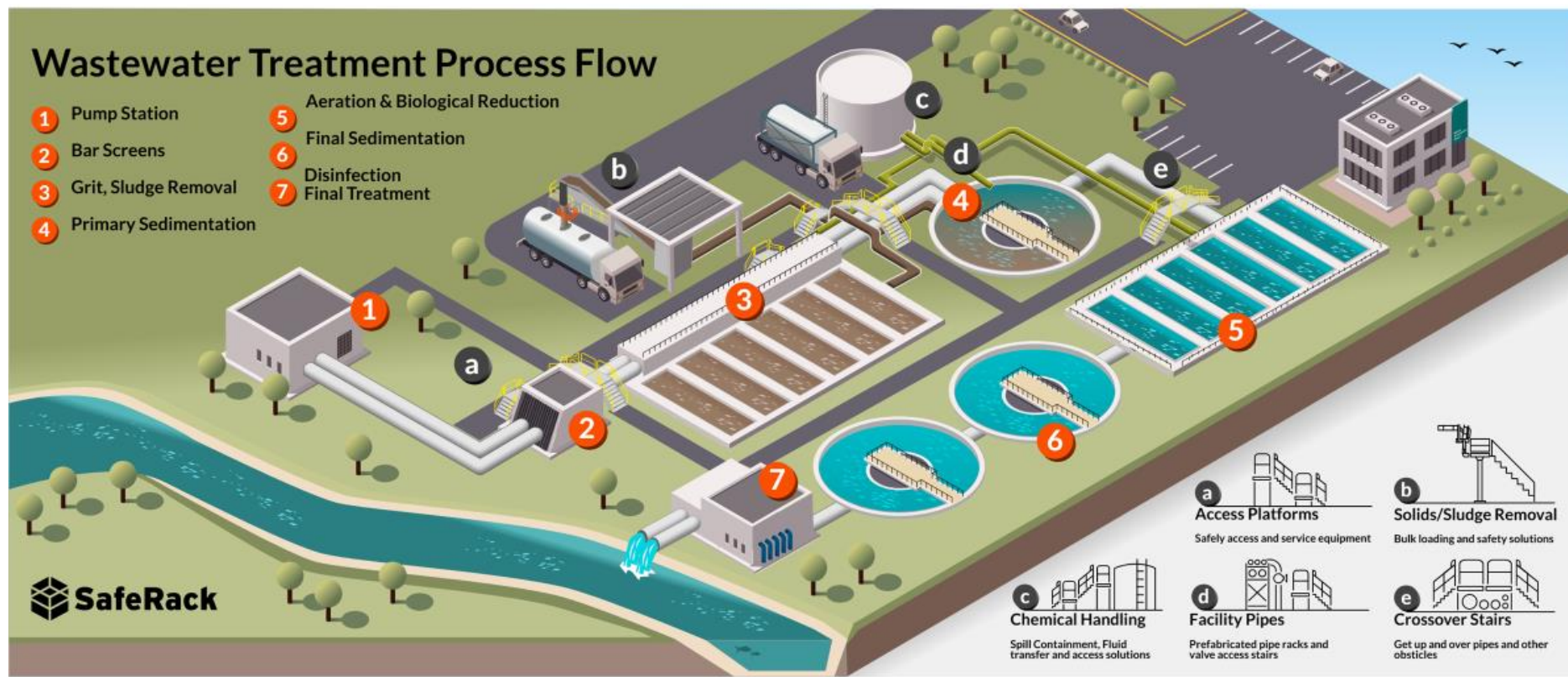
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Odpadek šteje.

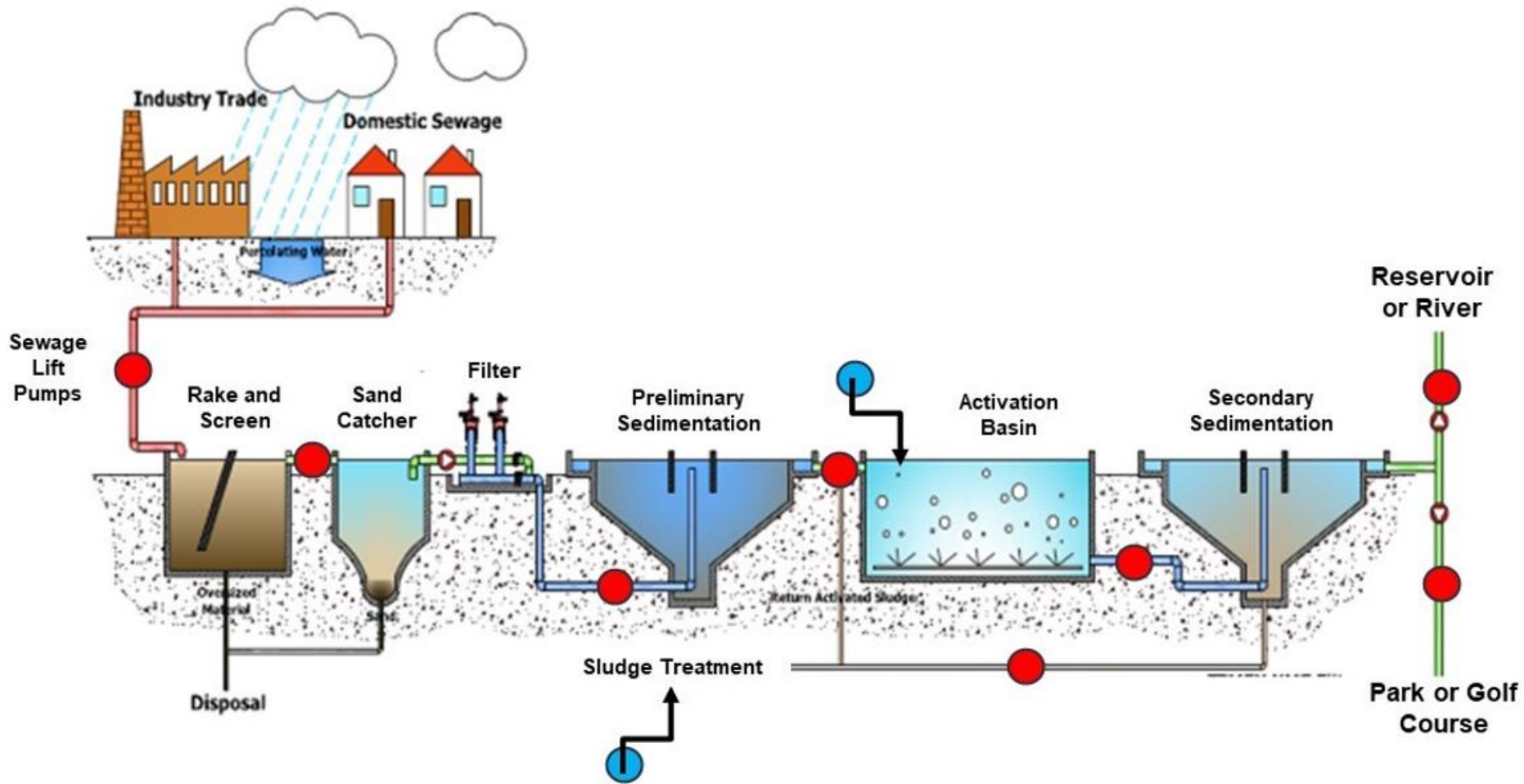
# Wastewater Treatment Process Flow

- 1 Pump Station
- 2 Bar Screens
- 3 Grit, Sludge Removal
- 4 Primary Sedimentation
- 5 Aeration & Biological Reduction
- 6 Final Sedimentation
- 7 Disinfection
- Final Treatment

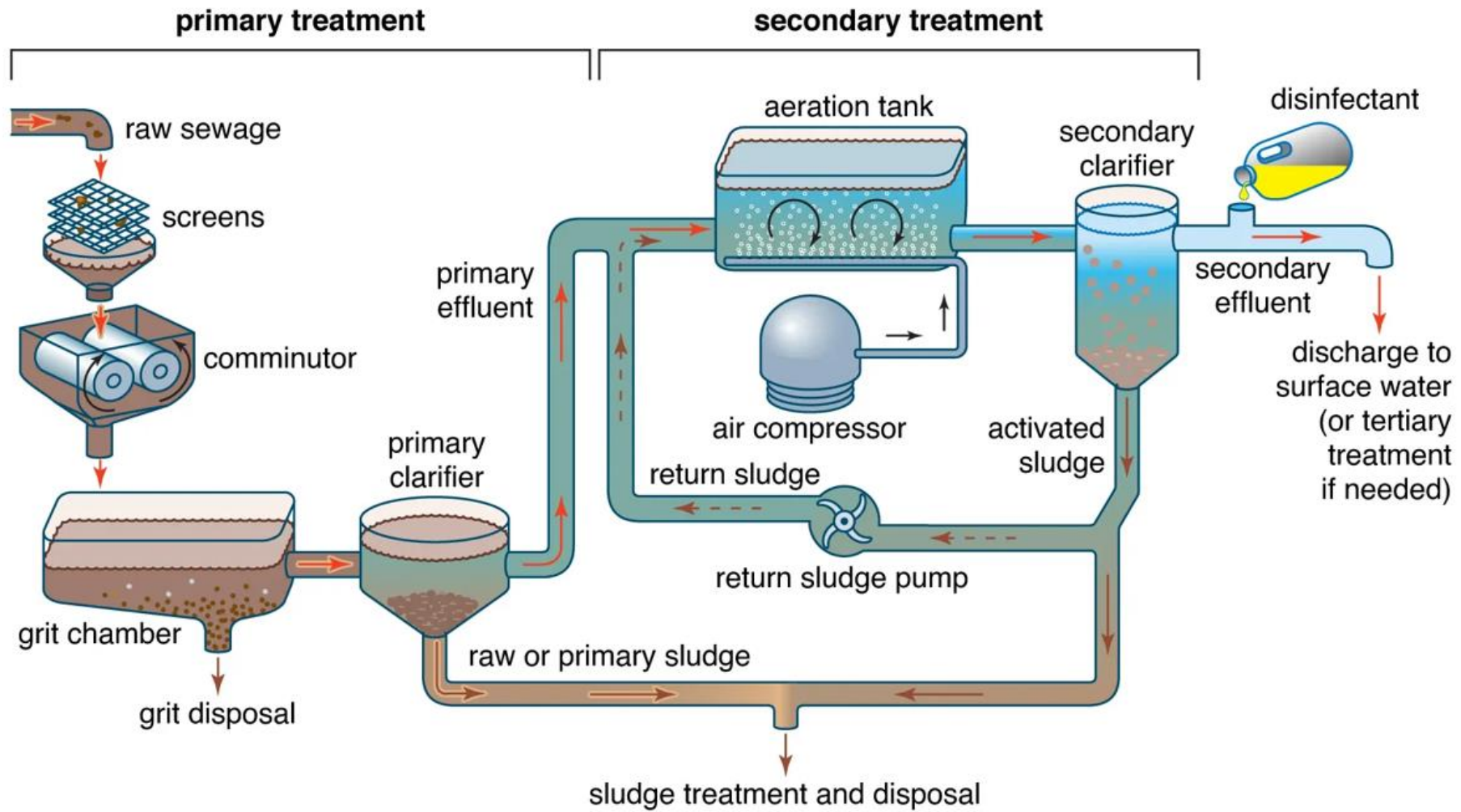


- a** Access Platforms  
Safety access and service equipment
- b** Solids/Sludge Removal  
Bulk loading and safety solutions
- c** Chemical Handling  
Spill Containment, Fluid transfer and access solutions
- d** Facility Pipes  
Prefabricated pipe racks and valve access stairs
- e** Crossover Stairs  
Get up and over pipes and other obstacles

Vir: <https://www.saferack.com/wastewater-treatment-plant/wastewater-treatment-process-illustrationv2/>



Vir: <https://www.metrixvibration.com/applications/vibration-monitoring-of-water-wastewater-and-stormwater-treatment-plants/wastewater-treatment>





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Vir: <https://www.petrol.si/poslovne-resitve/resitve/ciscenje-komunalnih-odpadnih-vod-jzp#murska-sobota>



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**industrija**



**mesta**



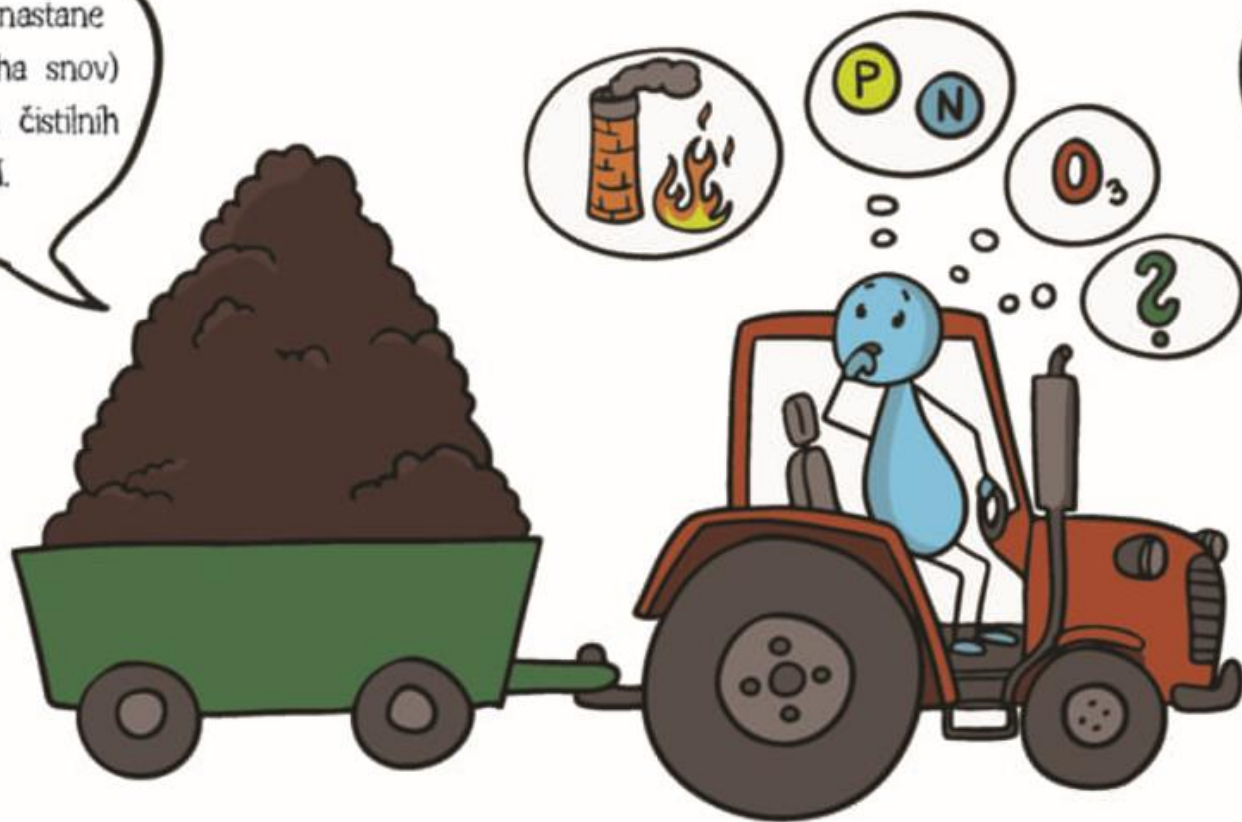
**ruralna območja**



**blato**

Vir: lastni

V Sloveniji letno nastane do 40.000 ton (suha snov) blata iz komunalnih čistilnih naprav KČN.



90 % blata konča v tujini.

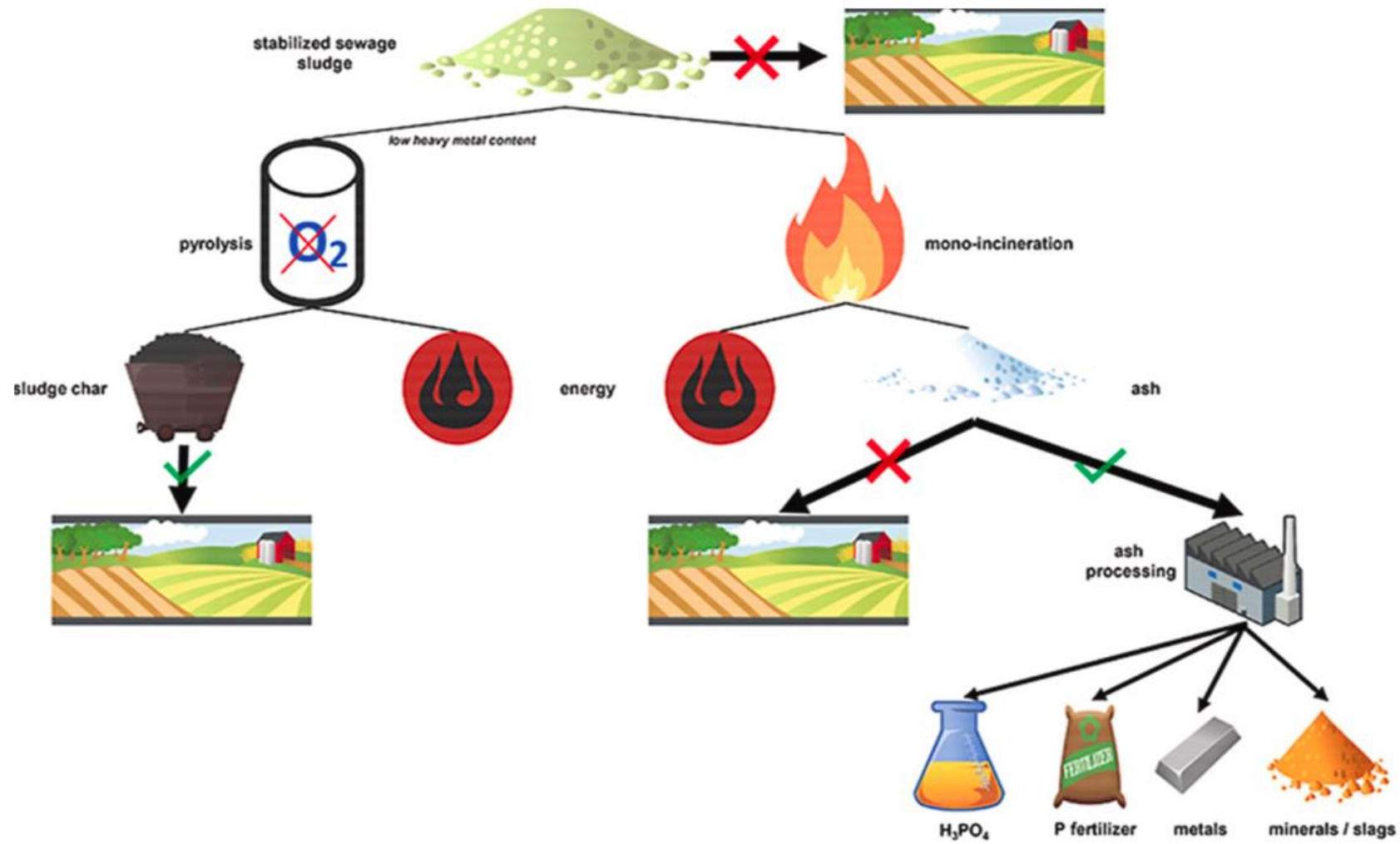


**Table 1.** Characterization of the sewage sludge.

Moisture	Ash	Organic composition (wt.% daf.) <sup>a</sup>			
(wt.%)	(wt.% dry)	Proteins	Carbohydrates	Lipids	Others
97.98	39.75	44.08	16.04	17.37	22.51
Elemental content (wt.%) <sup>b</sup>					HHVs <sup>c</sup>
C	H	N	O <sup>b</sup>	S	(MJ/kg)
29.54	5.61	5.26	18.84	0.79	14.88

Notes: <sup>a</sup>: daf.: dry, ash-free basis; <sup>b</sup>: calculated by difference; <sup>c</sup>: HHVs (Higher heating values) calculated by the Dulong formula [28].

Vir: <https://doi.org/10.3390/w16091289>





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1

**kompostiranje  
mulja**



2

**kompoziti**



3

**piroliza**

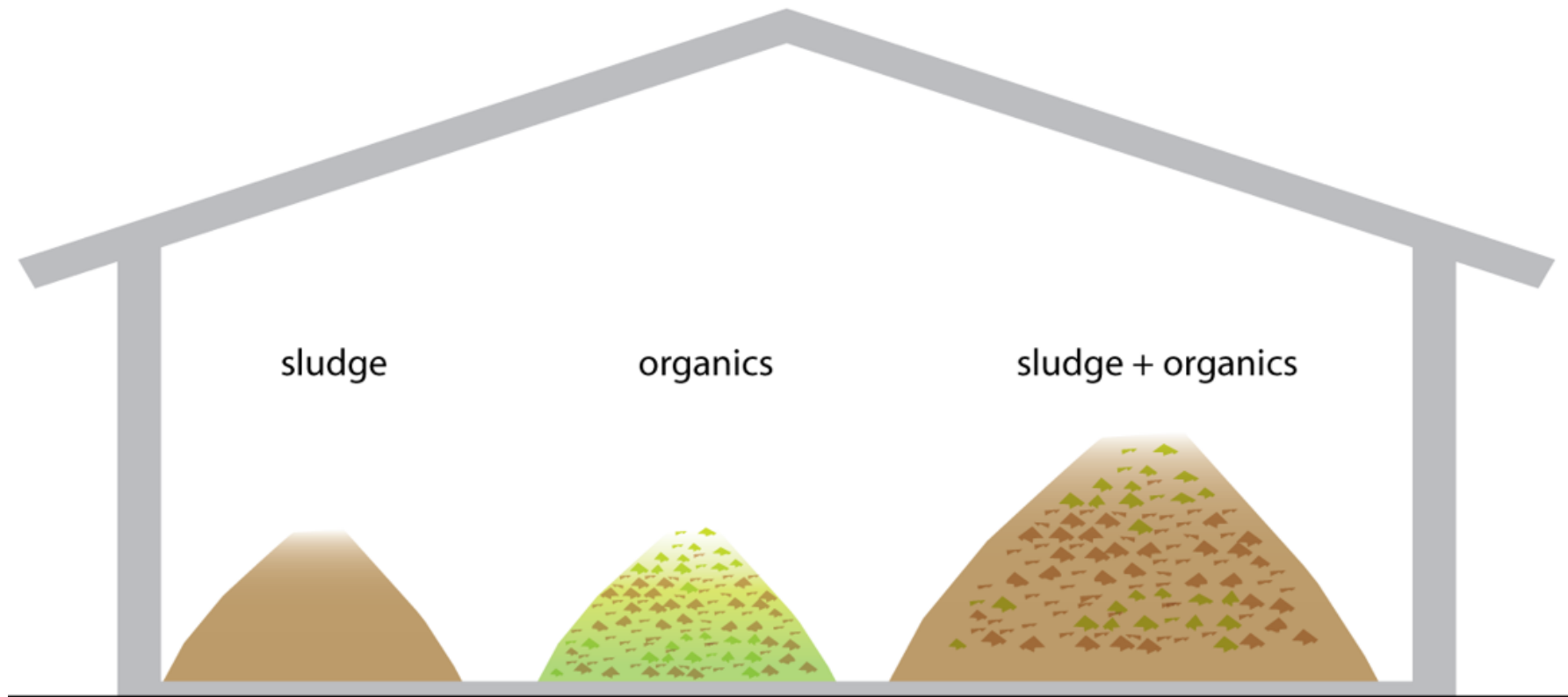
# Preliminarni poskusi z muljem



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# Preliminarni poskusi

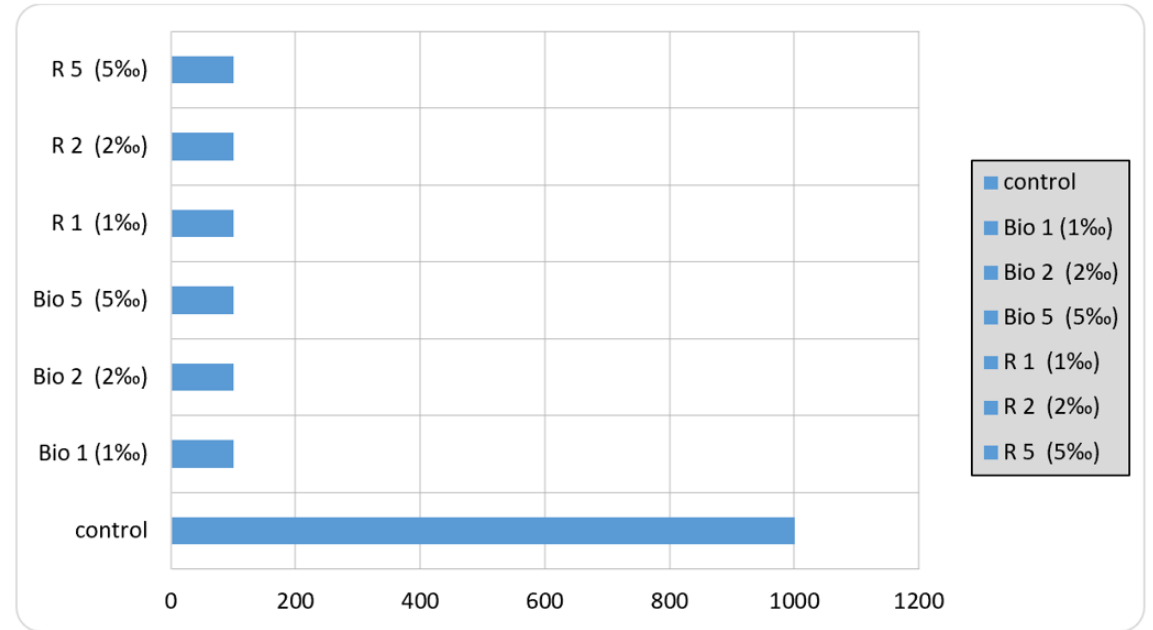
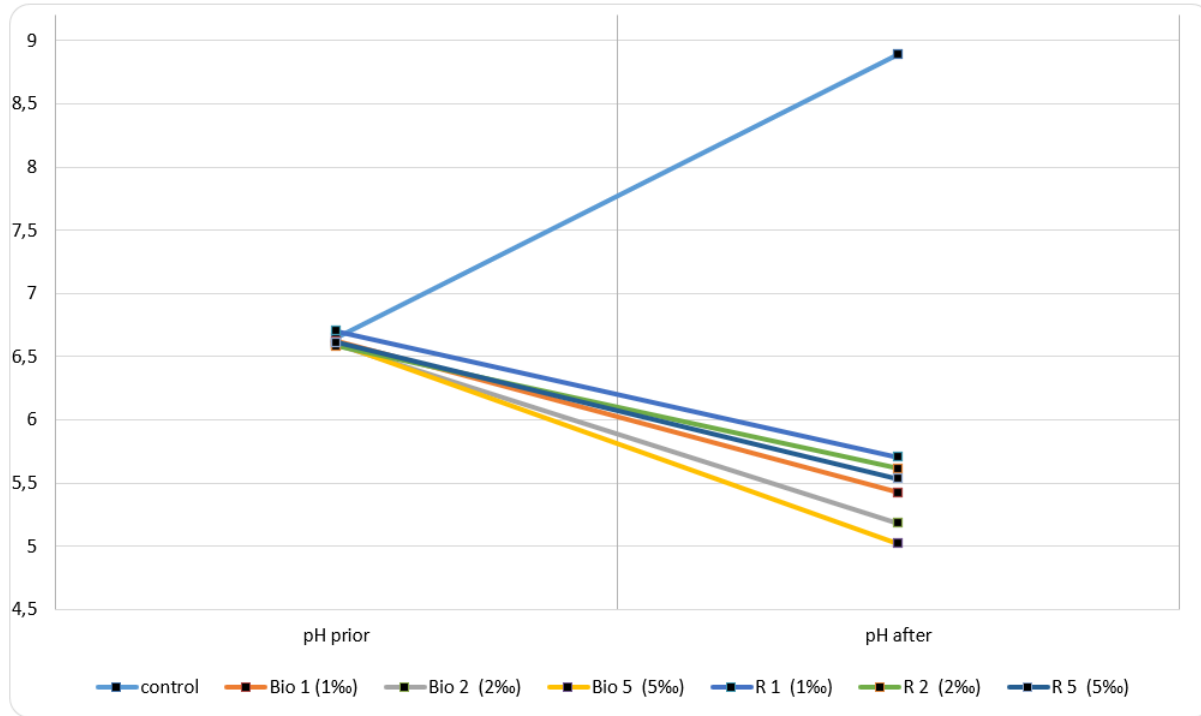


Figure 2. Number of *E. coli* in control and in the treated samples.

# Preliminarni poskusi

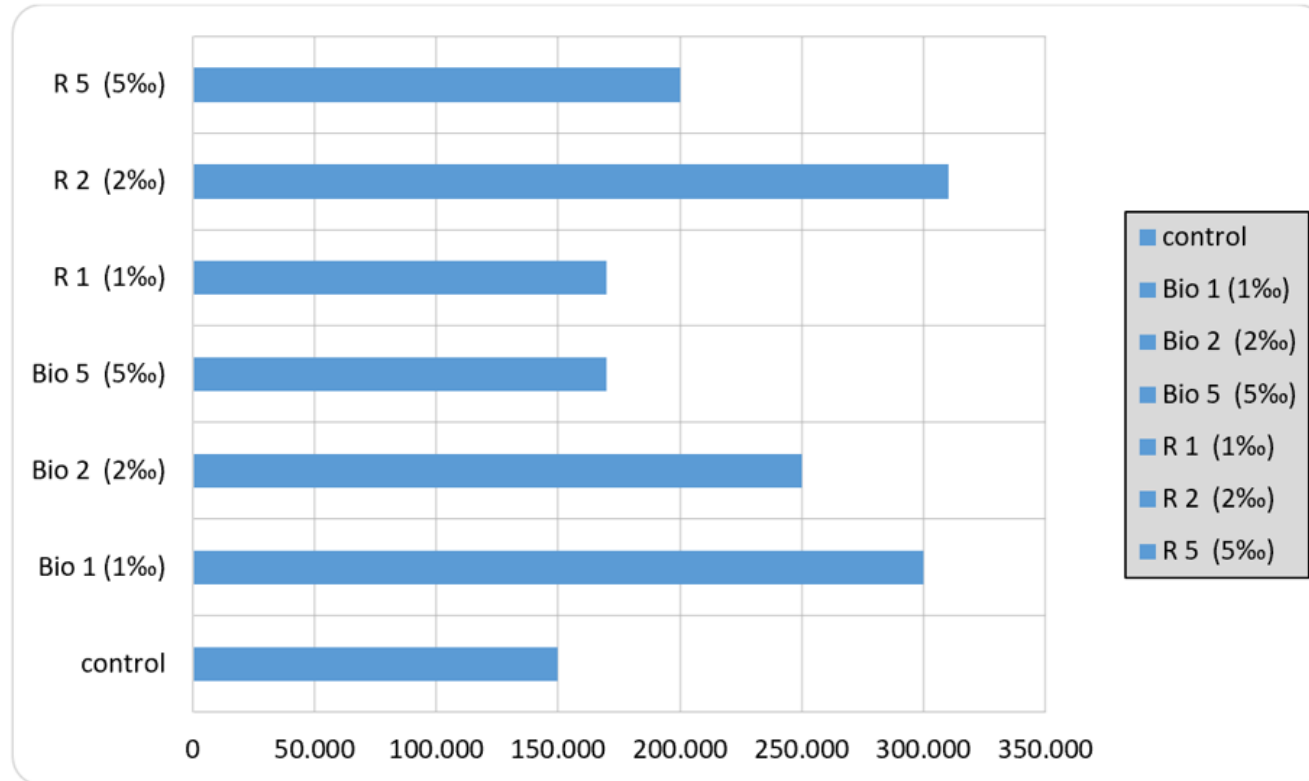


Figure 3. Number of *lactobacillus sp.* in the control and in the treated samples.

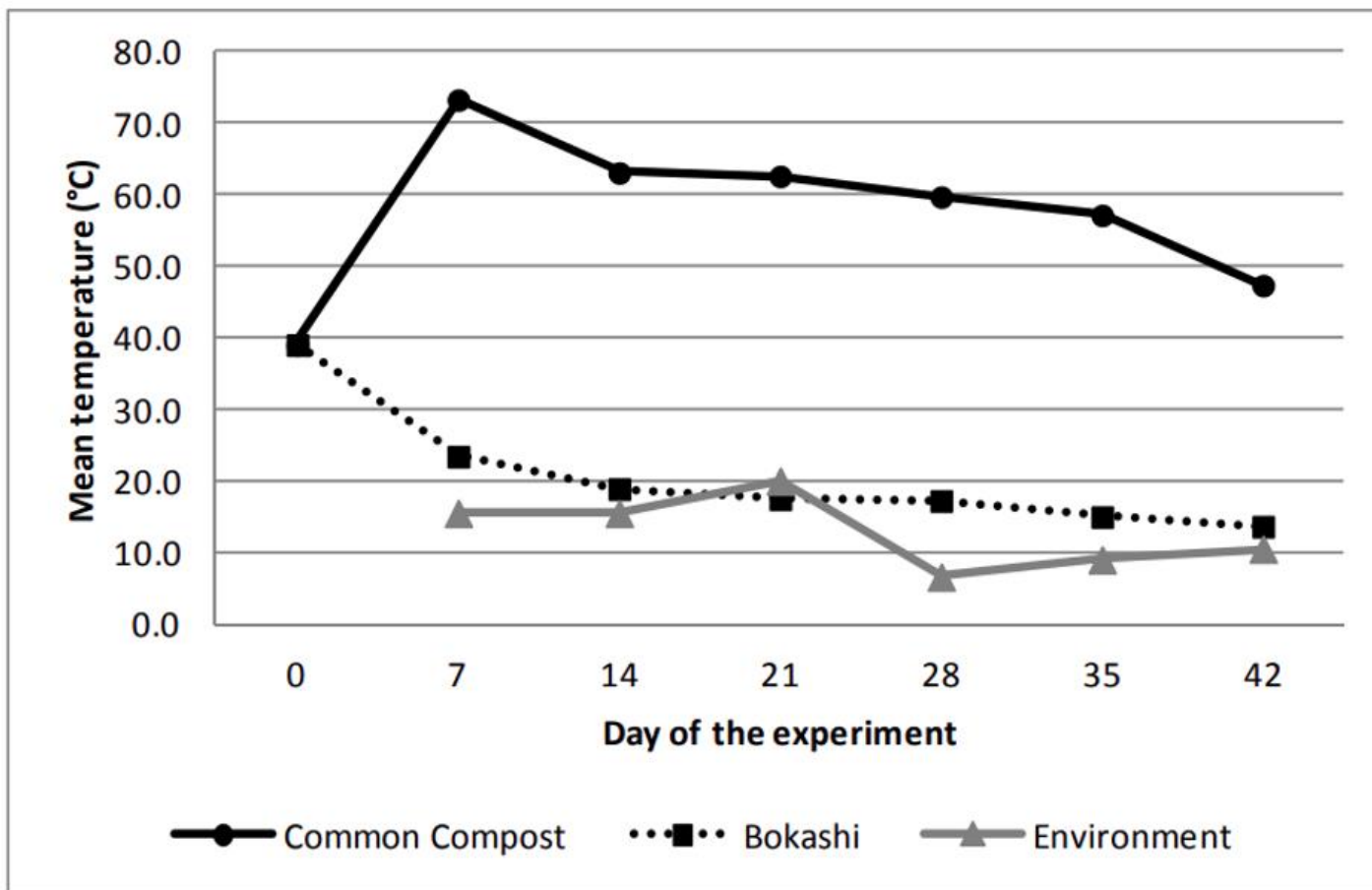


Figure 3: Course of the temperature from Common Compost, Bokashi and the environment.

Vir: Bosch, Marlou et al. "Fermentation ( Bokashi ) versus Composting of Organic Waste Materials : Consequences for Nutrient Losses and CO 2-footprint." (2017).

*Table 2. Losses of material from the Bokashi windrows and the Traditional Compost windrows.*

	Bokashi*		Traditional Compost	
	2013	2015	2013	2015
Total amount at start (kg)	14,330	13,750	13,400	12,820
Kg after 6 (2013) or 8 (2015) weeks	13,870	12,850	5,070	5,070
OM loss (%)	2.2	4.8	49	48
Carbon loss (%)	2.9	5.6	59	69
Nitrogen loss (%)	0.0	1.7	9.6	16.0

\*For the Bokashi, the starting material is including the 930 kg additions of Microferm, Edasil Clay minerals and Ostrea Seashell lime

Vir: Bosch, Marlou et al. ["Fermentation \( Bokashi \) versus Composting of Organic Waste Materials : Consequences for Nutrient Losses and CO 2-footprint."](#) (2017).

1



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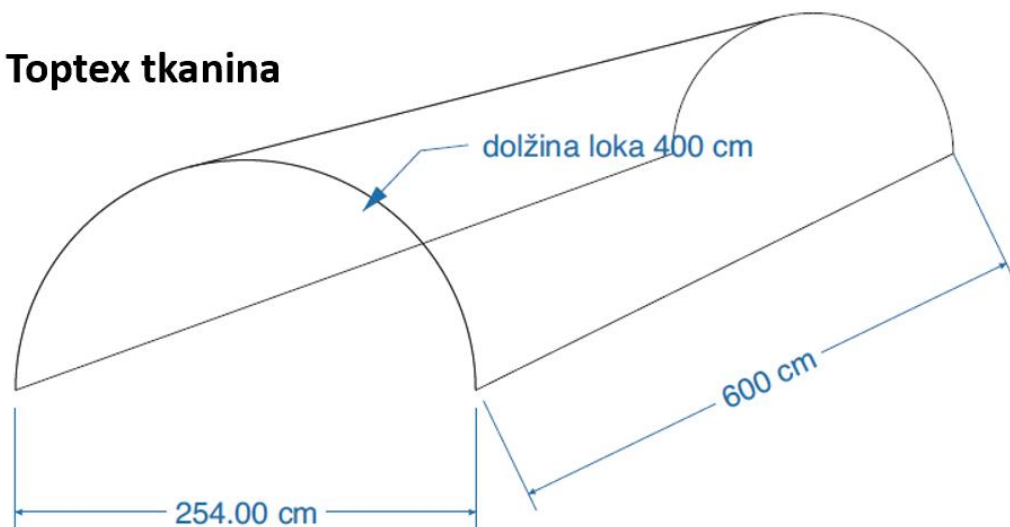


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## Toptex tkanina



## Ocena odpadka za Občino Tišina

### Čistilna naprava Petanjci

19 08 05 – Blato iz čiščenja komunalnih odpadnih voda

1 m<sup>3</sup> blata + 2l EM Organo Activ



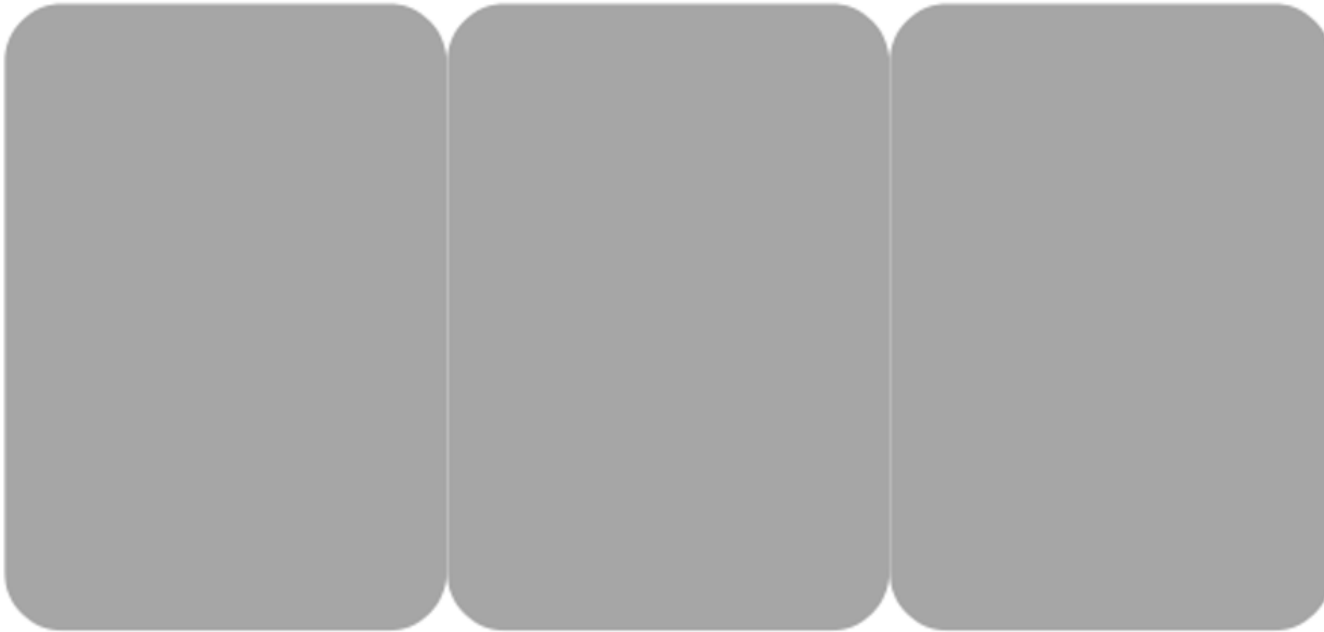
2



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## Zaprti del odlagališča: testna polja za 3 gradbene kompozite



3



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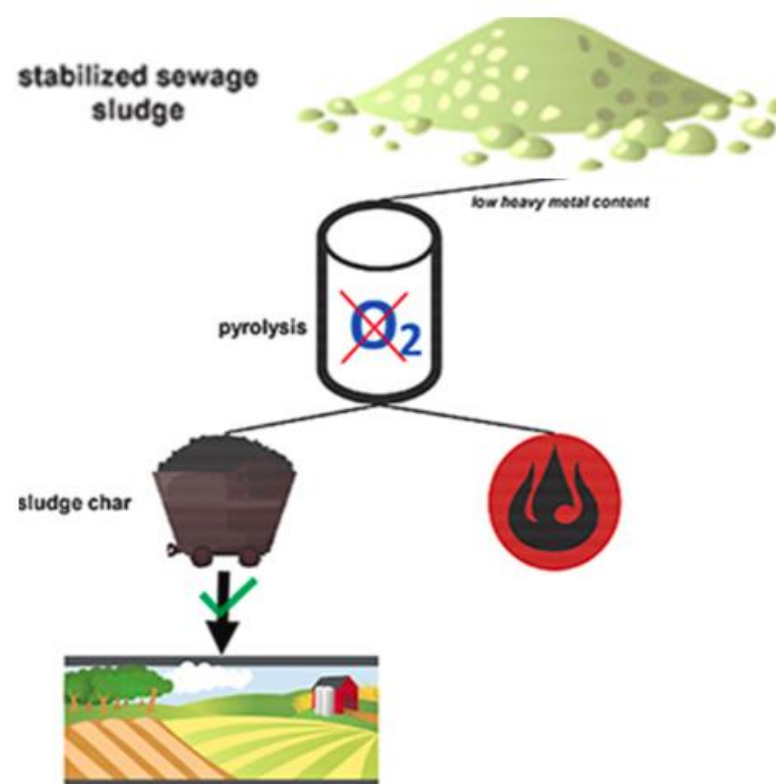


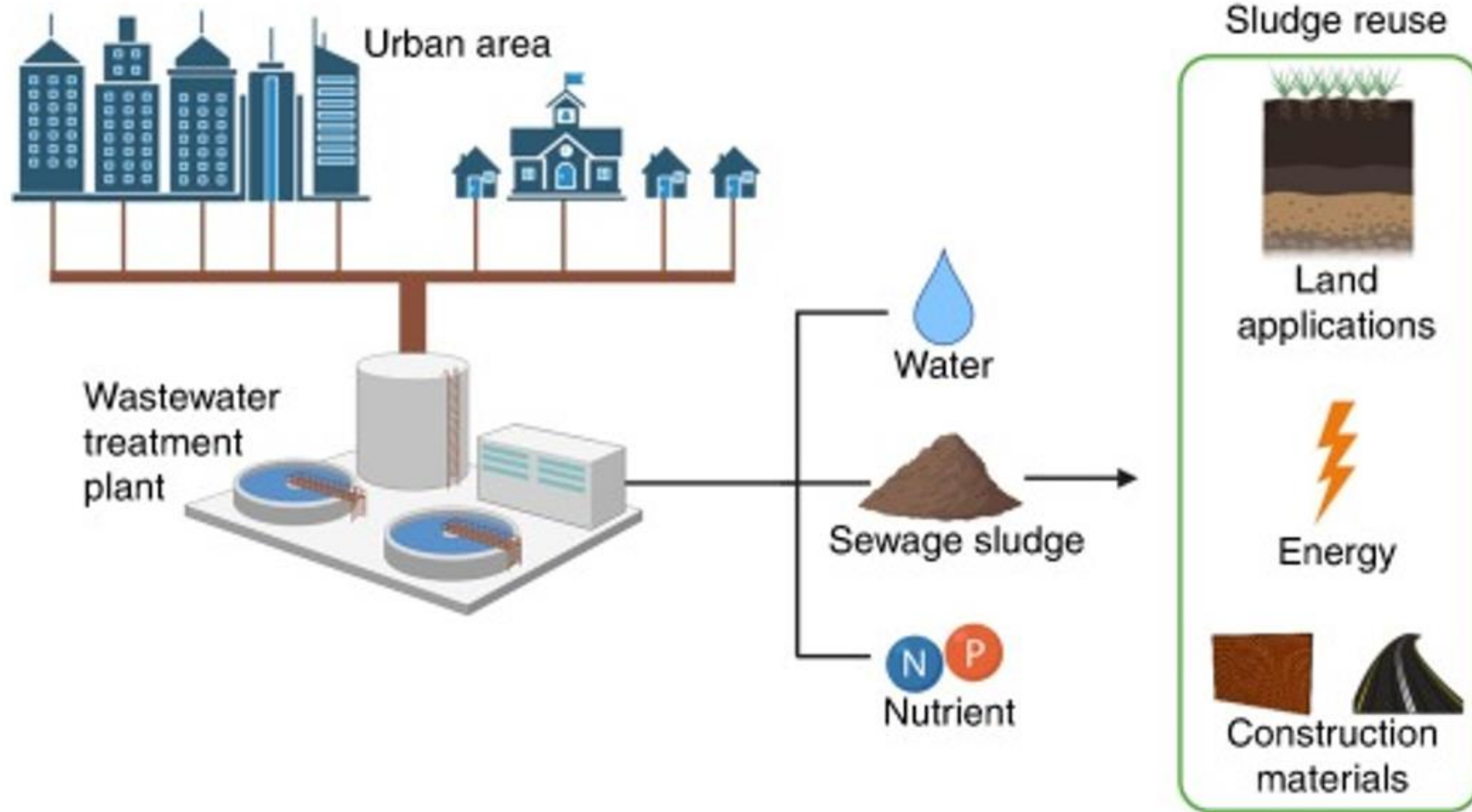
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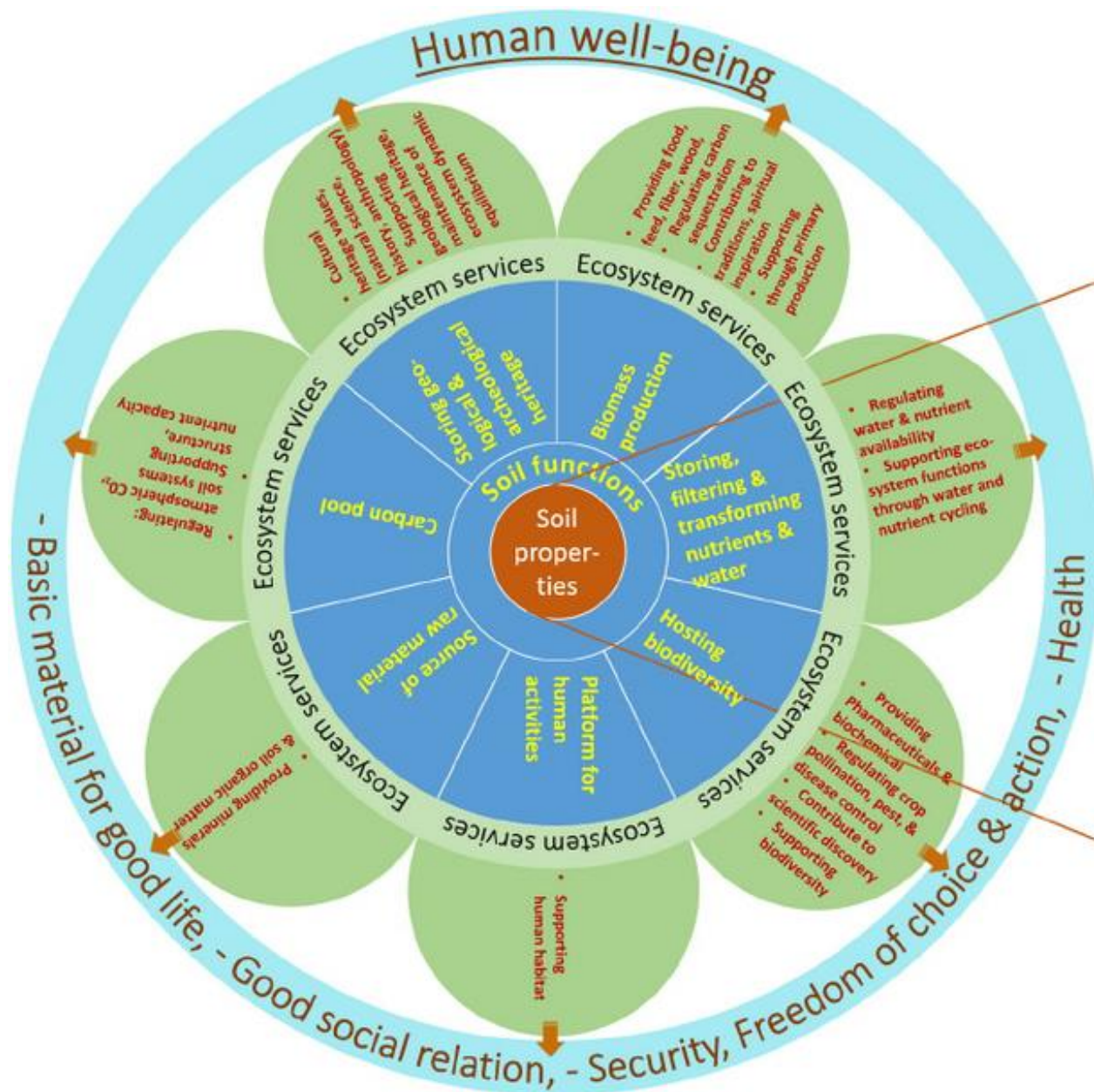
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## Laboratorijski pirolizator





Vir: <https://www.sciencedirect.com/science/article/abs/pii/B9780323999205000111>



- Soil organic carbon
- Sand, silt, clay, & coarse fragments
- Soil pH
- Depth to bed rock
- Bulk density
- Available water capacity
- Cation exchange capacity
- Electrical conductivity
- Soil porosity & air permeability
- Hydraulic conductivity & infiltration
- Soil biota
- Soil structure & aggregation
- Soil temperature
- Clay mineralogy
- Subsoil pans



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**Hvala za pozornost!**

Več informacij:

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