



# Diverting biowaste from landfill – Green waste composting facility in Novi Sad

Conference ‘Diverting biowaste from landfills, small and big scale treatment facilities’

Novi Sad, September 14<sup>th</sup>, 2022



Sprovedeno od strane:

**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

# Background

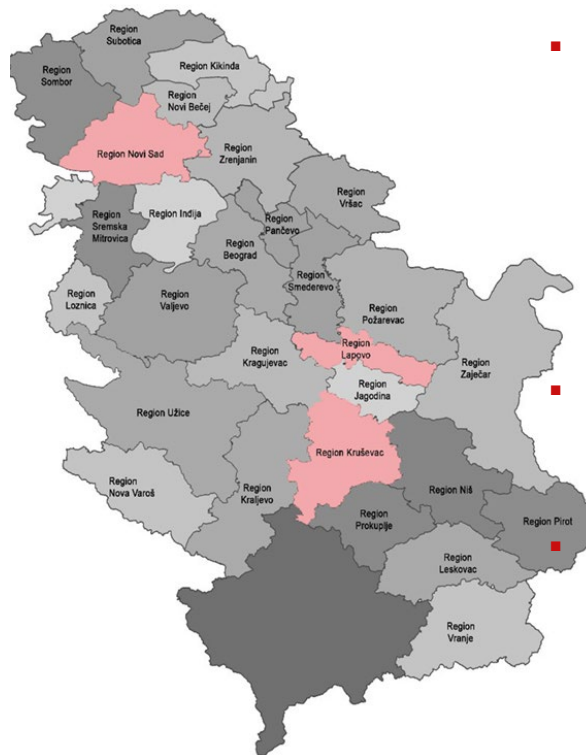
## Project: 'Climate Sensitive Waste Management'

*Project goal:*

**Mitigation of climate changes through implementation of CE in waste management in the selected regions in Serbia**

**Political partner: Ministry of environmental protection**

Duration: 01/2018 – 06/2021  
German contribution: 5,000,000 EUR



- Support to Novi Sad in further development of its regional waste management system, taking into account climate mitigation and circular economy principles
  - Revision/development of local waste management plans in line with CE for the City of Novi Sad and 7 municipalities
  - Development of a Regional waste management plan for South Backa region
- Full commitment and professional approach by the City of Novi Sad and all responsible persons throughout the whole project implementation
- Additional step closer to the EU standards in waste management Serbia is aiming for, especially EU landfill directive

# Regional Waste Management Plan for South Backa Region: Goals for biodegradable waste

- Very high share of biodegradable fraction in municipal waste
- Composting at the very low level (1% of generated waste) / home composting + piloting of green waste composting
- No existing capacities for biodegradable waste treatment / landfilling without pre-treatment
  
- 200 080 t of municipal waste generated per year
- 65% share of biodegradable waste
- 98% of citizens / collection coverage
- 3% (of total municipal waste) of green waste from parks and public areas
- 125 864 t total assumed amount of biodegradable municipal waste in the reference year (2008)
  
- Amount of biodegradable waste allowed to be landfilled:
  - **By 2023, max 75 %** in relation to the year 2008 (47 461 t)
  - **By 2026, max 50 %** in relation to the year 2008 (82 298 t)
  - **By 2030, max 35 %** in relation to the year 2008 (106 413 t)



# Regional Waste Management Plan for South Backa Region: Plan for reduction of biodegradable waste

- ✓ Introduction of **home composting** for at least **20%** of individual households in the Region
- ✓ Introduction of separate collection of "green waste" (waste from parks and public areas) as well as garden waste from households and their treatment ("open" composting) within the **green waste composting facility**
- ✓ Separate collection of the remaining biodegradable waste stream at the local level, transport and further **treatment in the future regional MBT plant** (based on biostabilization) within the Regional Center for Waste Management in Novi Sad





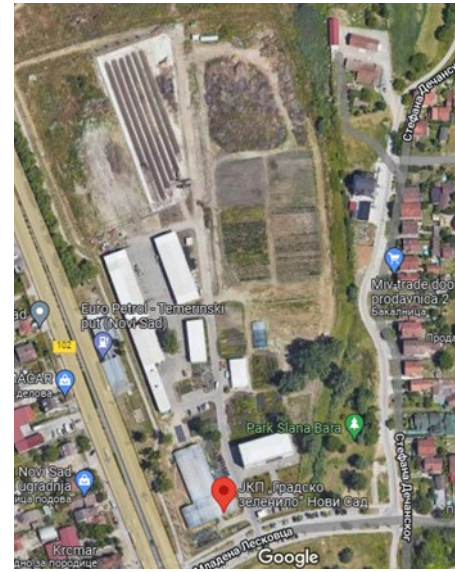
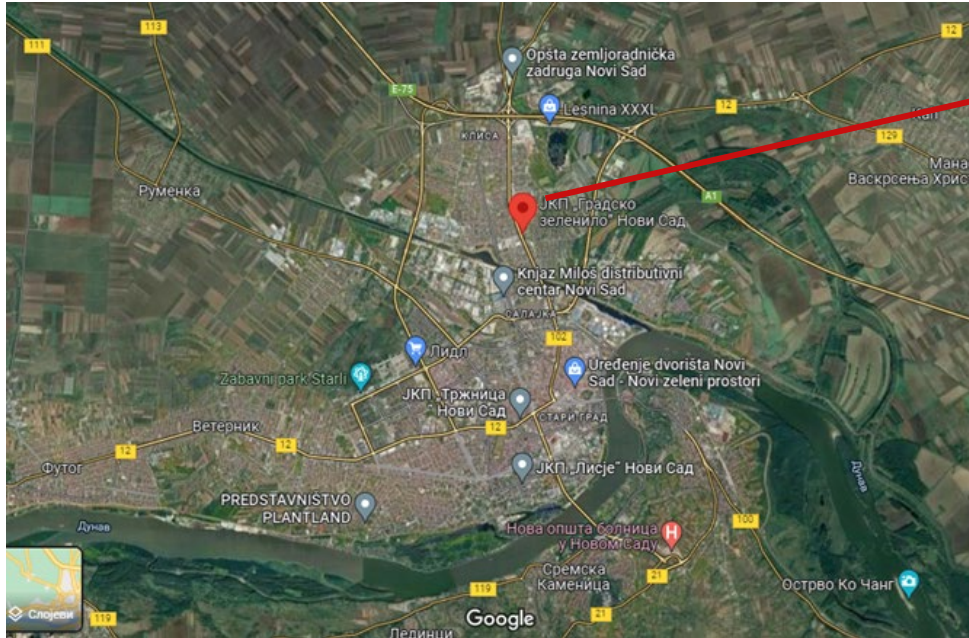
# Project idea – to implementation

- Introduction of separate collection of recyclables and biodegradable waste / utilisation as secondary raw material contributing to savings of natural resources, e.g. fossil fuel (CO2 reduction)
- Recycling activities as a potential for creation of additional jobs
- Providing infrastructure for treatment of green waste from maintenance of green areas in the City of Novi Sad and 7 municipalities (cca. 6650 t + 1500 t/year)
  - Sustainable green waste management
  - Reduction of biodegradable waste on landfills ⇒ GHG mitigation impact
  - Compost as:
    - ✓ Substitution of industrial fertilizer contributing to conservation of natural resources
    - ✓ Used for maintenance of urban green areas
    - ✓ Landfill cover
  - Promotion and education of citizens / home composting
  - Best practice example for other cities
- **Implementation:** September 2019 – January 2021
- Budget: 40 million RSD (The City of Novi Sad) and 390 000 eur (GIZ)



# Location

- PUC 'Gradsko zelenilo' Novi Sad  
Mladena Leskovca 1, Novi Sad





# Construction works – Hangar

- Construction: March – May 2020
- Storage and maintenance of the equipment
- 330 m<sup>2</sup> / 11 x 30 m
- Covid-19 pandemic started in March 2020



Concrete footings



Installation of the steel structure



Installation of panels, roofing and roll-doors

# Construction works – Composting plateau

- Designed (Phase I and II): 10 138 m<sup>2</sup> (10 000 t/year)
- Implemented / Phase I: 5 137 m<sup>2</sup> (5 000 t/year)
- Installations for leachate drainage and recirculation
- Construction: September – November 2020
- Technical Commission/Technical Acceptance: December 2020



Excavation works for the plateau



Backfilling with sand



# Construction works – Composting plateau



Concreting of the plateau



Installed reinforcement for the plateau



Levelling of the concrete

# Start of Operation

- December 31st, 2020
- Official opening: July 1st 2021

PTB  
Novi Sad  
21. Jul 2021. | 13:04 — 17:41 | Izvor: Turajković / Baza Canki

## Prvo kompostno polje Srbije u Novom Sadu

NOVI SAD - Prvo kompostno polje u Srbiji i postrojenje za tretman zelenog otpada sakupljenog sa javnih površina, koje se nalazi u okviru JKP "Opštinsko zelenilo" u Novom Sadu, prvi je primer cikularne ekonomije. Istakao je prilikom obilaska gradonačelnik Novog Sada Miloš Vučević.

"Ova investicija pokazuje da Novi Sad i cela naša država sve više ulažu u prevenciju u kontekstu onoga što je Evropska unija definišala kao zelenu agendu. Više nemate otpad, nego sve ono što smo do juče bacali i predstavljalo je problem danas postaje i jeste ekonomski potencijal. Danas ovaj otpad dobija novu vrednost, prelazi se i pre svega fokusiramo se da ono što je bio biootpad sutra bude kompost odnosno humus i koristimo ga nazad u prevenciju očuvanja životne sredine", naglasio je Vučević.

Ovaj projekat predstavlja zajedničku saradnju Srbije i Nemačke jer se sprovodi u okviru Nemačke razvojne saradnje.



"Ovde se vidi suština dobre saradnje Srbije i Vlade Nemačke jer smo uspeeli da sve inovativne projekte implementiramo veoma uspešno. Grad Novi Sad prepoznaje u tome i uopšte vidimo kako kvalitivnost grada radi intenzivno na zaštiti životne sredine. Kompost koji se dobije ovako imaće višestruku primenu. Bice značajna primena u proizvodnji zemljišta pre svega i takođe kada govornimo o grejanju, smanjuje se i aerizacija u ovom delu grada, nema više zelenog otpada koje se zapaljivalo zemlju. Ovde se na najbolji način to pokazuje", dodala je ministarka zaštite životne sredine Inna Vučković.

<https://ptb.nsk.rs/mediaserver/25340>





# Work in Progress



Grinder / 150-200 m3/h capacity



- Open windrow composting / passive piles
- 4-6 months composting cycle



Roto sieve / 4 m3/h capacity



Attached compost turner / 1000 m3/h capacity



# Compost Production and Utilisation

- **316 m3** of mature, sieved compost in 2021 (input: branches, leaves, grass / cca 1 000 t/y)
- **300 m3** of mature, not-sieved compost and around **200 m3** of compost in windrows in the production process by September 2022
- Analysis of the mature compost done by the Institute of Field and Vegetable Crops Novi Sad confirmed good quality of compost
- The compost is used for:
  - Planting trees and other plants (flowers, bushes, etc.)
  - In the nursery for the production of plant material
  - Repairing the soil structure in urban areas



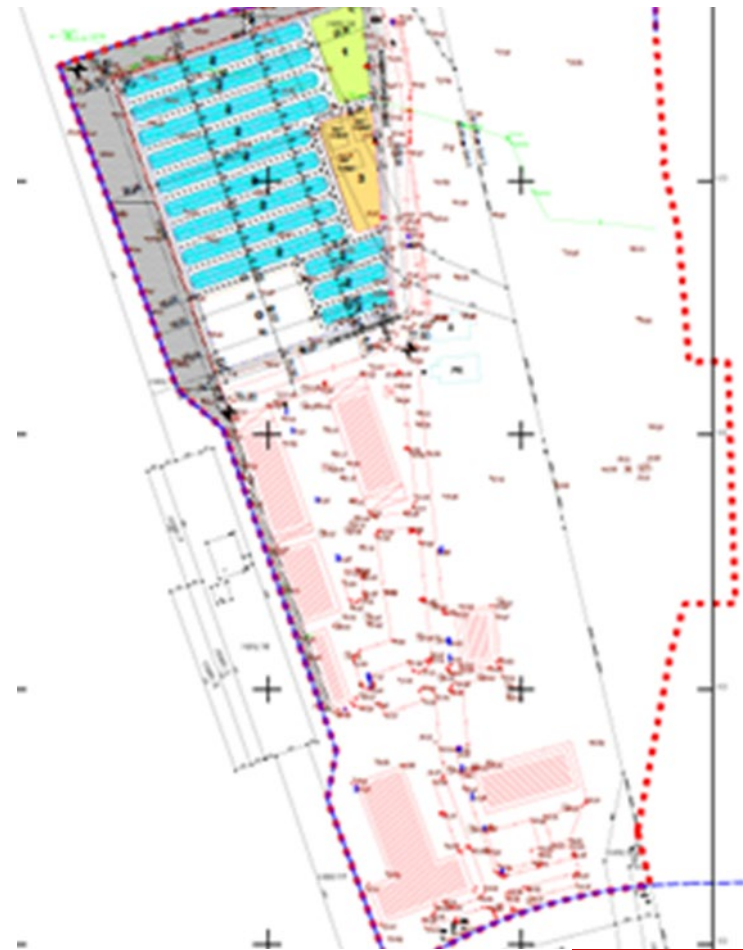
# Benefits

- Improved waste management system – introduction of CE principles
- Diverting biowaste from landfill – reduction of GHG emissions
- Reduction of costs:
  - Transport costs to landfill
  - Landfilling
  - Procurement of soil for greening, planting and soil recovery / utilisation of produced compost for maintenance of green urban areas
- Creation of opportunities for new jobs



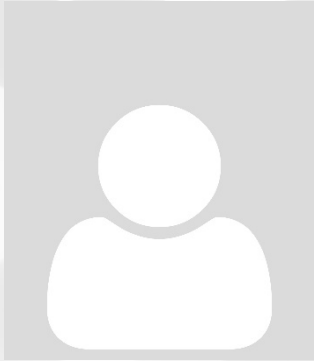
# Need for further improvements

- Construction of Phase II
  - Due to the small reception area and the undeveloped Phase II of the planned composting site, the largest part of the biodegradable material is currently in passive piles at the composting site and next to the composting plateau
- Procurement of a higher capacity self-propelled compost turner
  - Could significantly increase composting capacity (over 50%) which is currently limited due to the space needed for tractor manoeuvring
- Procurement of a higher capacity roto sieve / minimum 35 m<sup>3</sup>/h
- Procurement of a tractor with a loader
  - Ensures parallel operations of grinding and sieving of mature compost





# Contact



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