PRE-FEASIBILITY STUDY FOR SCALING UP NOVI SAD COMPOSTING PROJECT TO TREAT ORGANIC WASTE FROM THE ENTIRE SOUTH BACKA REGION

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Background

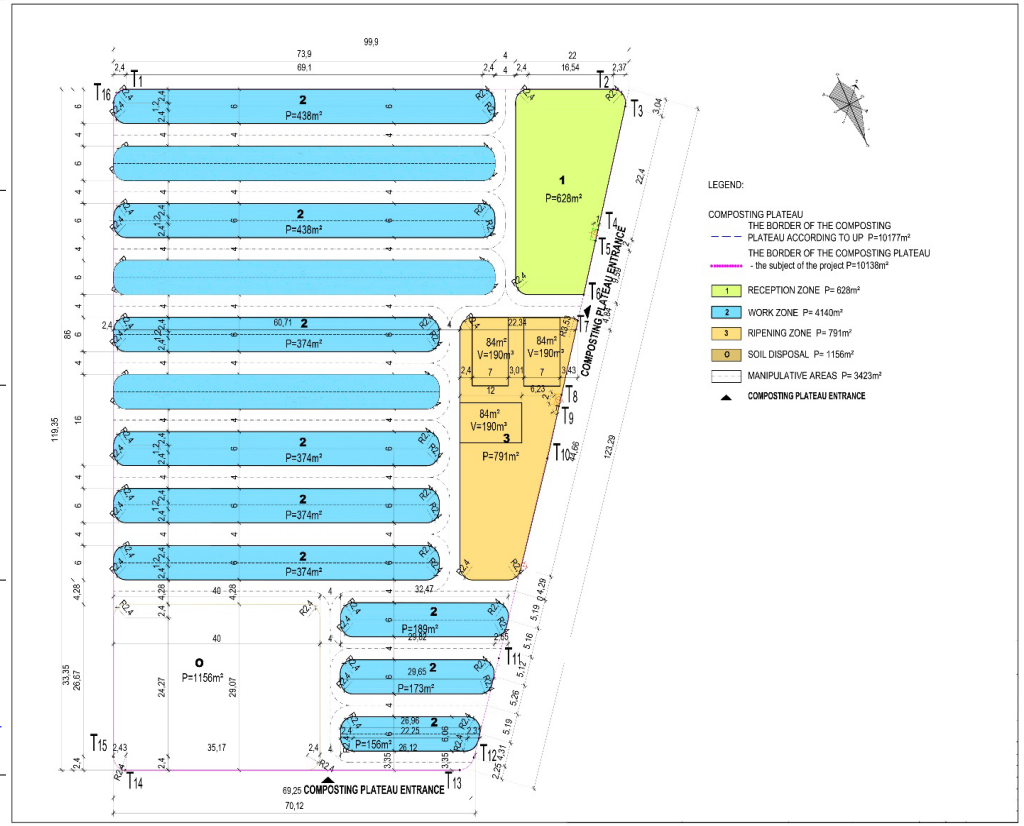
South Bačka Waste Management Region (SBWMR) covers:

- Novi Sad – 2nd largest city in Serbia
- Bačka Palanka
- Bački Petrovac
- Beocin
- Zabalj
- Srbobran
- Temerin
- Vrbas

- Total population: ~600,000
- Waste generation: ~205,000 t/year (~65,000 food waste, 33,000 garden waste and 6,000 green waste – public areas)

Current situation

- GIZ and USEPA assistance – construction initiated in 2020
- Projected capacity of 5,000 t/year – green waste



Current operations

Upgrade plans

- Phase I:
  - Current capacity: 1,500 t/year green waste from the City of Novi Sad
  - Projected capacity of current operations: 5,000 t/year green waste from the City of Novi Sad
- Phase 2:
  - Pre-feasibility to study organic waste generation potential
  - Expand capacity to accept green, garden, and commercial food waste from the greater South Bačka Waste Management Region

Capacity

- Current: 120m (length) x 3m (width) x 1m (height) x 4 rows x 3 times per year (triangle shape)

1,512 t/year

- Maximum present capacity: 120m (length) x 3m (width) x 1.6m (height) x 4 rows x 3 times per year (trapezoid shape)

3,226 t/year

- Maximum capacity: 1380m (total length of all rows) x 3m (width) x 1.6m (height) x 4 times per year (trapezoid shape)

12.365 t/year

Scenarios

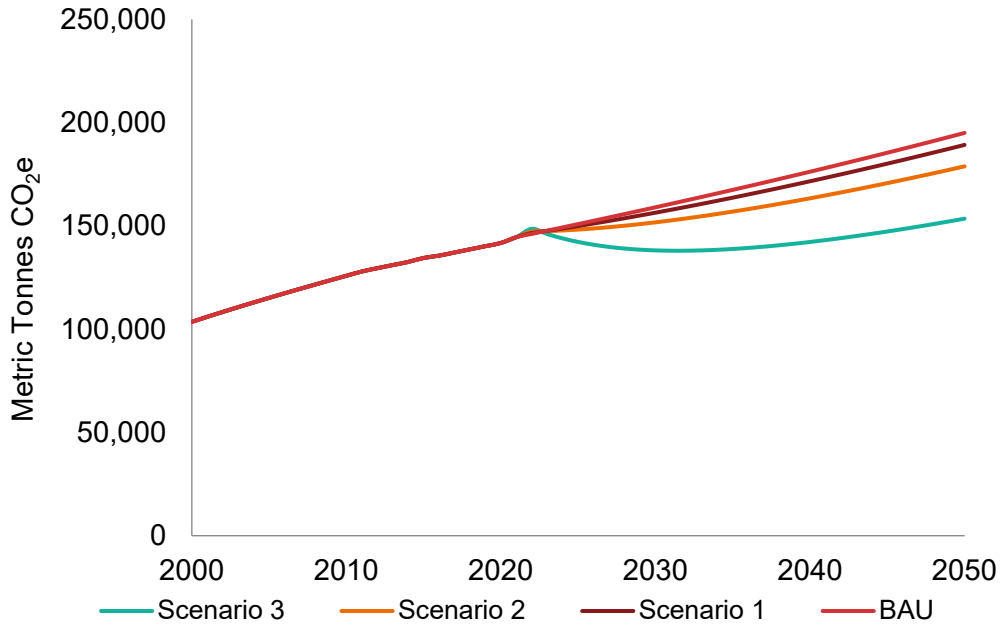
- The first scenario reflects collection schemes that are focused primarily on green waste from public area and parks.
- The second scenario relies on green waste from public areas and garden waste from households.
- The third scenario relies on green waste from public areas, garden waste from households and food waste from commercial sector.

	Green waste	Garden waste	Food waste
Scenario 1	90%	-	-
Scenario 2	90%	30%	-
Scenario 3	90%	70%	20%

Economic analysis - OrganEcs outputs

Scenario	Capacity (t/year)	CAPEX (USD)	O&M/tonne in YR 1 Operations ($/tonne of waste processed)
First scenario: Composting without forced aeration	5,528	$806,700	$36
Second scenario: Composting without forced aeration	15,384	$1,578,700	$30
Third scenario: Composting without forced aeration	41,467	$3,025,500	$30

Environmental analysis – SWEET outputs



- Emissions reduction analysis conducted using EPA's Solid Waste Emissions Estimation Tool (SWEET)
- 30-year reductions
  - Scenario 1: -102,661 CO_2e
  - Scenario 2: -285,696 CO_2e
  - Scenario 3: -767,032 CO_2e
- Sector-wide emissions reductions ranging from 3%-21%

Next steps

- Determine additional capacity to expand types and quantities of organic waste accepted at the Novi Sad composting plant
- Determine investment and training required for the expansion
- Determine how operations will be modified for the expansion
- Discuss the City's timeframe related to organic waste system implementation overall