



Scaling up organic waste management in Serbia's South Backa Waste Management Region



The Global Methane Initiative (GMI) is an international public-private initiative that advances cost-effective, near-term methane abatement and recovery and use of methane as a clean energy source.

Background

Novi Sad, the second-largest city in Serbia, and seven surrounding municipalities form the South Backa Waste Management Region (SBWMR). The SBWMR produces approximately 204,770 metric tons (t/year) of solid waste annually, half of which is organic material.

To reduce the amount of organic waste sent to the landfill, Novi Sad developed the first municipal composting plant in Serbia in 2020 with financial support from the German Corporation for International Cooperation (GIZ) and assistance from the U.S. Environmental Protection Agency (EPA), Global Methane Initiative (GMI), and Climate and Clean Air Coalition (CCAC). The plant was designed to initially accept green waste from Novi Sad before expanding to accept various organic wastes from the SBWMR. Expansion of the plant will help achieve the goal to divert at least 50 percent of organic waste by 2026.

This case study summarizes the results from the Solid Waste Emissions Estimation Tool (SWEET) which was used by EPA to analyze the emissions reductions benefits from three alternative scenarios for scaling up the Novi Sad composting plant. SWEET was developed by EPA on behalf of the GMI.

Baseline

At its current capacity, used as the baseline for the SWEET analysis, the Novi Sad composting plant accepts 1,512 t/year of green waste from Novi Sad's public areas. The baseline represents 1.5 percent of the SBWMR's total organic waste.

Alternative Scenarios

The three alternative scenarios (see graphic) build upon the baseline scenario using various levels of organic waste diversion across the entire SBWMR.

Modeled Results

Comparing the SWEET results for each of the three alternative scenarios from 2021 to 2050, the study found that scaling the composting facility could reduce greenhouse gas (GHG) emissions by up to 767,032 t/year of carbon dioxide equivalent (CO₂e) when compared to the baseline. These results highlight the environmental benefits of scaling up the Novi Sad composting plant. Scaling up the plant to Scenario 3 would reduce total emissions by 15 percent compared to the baseline scenario. The climate benefits of each alternative scenario help the project team justify scaling up the Novi Sad composting plant to accept additional organic waste from the entire SBWMR.

Alternative Scenarios of Organic Waste Diversion

Scenario 1	Scenario 2	Scenario 3
Green Waste 5,529 t/year	Green Waste 5,529 t/year	Green Waste 5,529 t/year
103,000 t/year CO ₂ e reduction	Garden Waste 9,857 t/year	Garden Waste 22,998 t/year
	286,000 t/year CO ₂ e reduction	
		Food Waste 12,942 t/year
		767,000 t/year CO ₂ e reduction