SRM UNIVERSITY – AP, ANDHRA PRADESH

Converting Waste to Resource

Biogas and Vermicompost Turn Campus Food Waste into Cooking Fuel and Organic Manure

SRM University-AP, Amaravati, Andhra Pradesh

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RESPONSIBLE CONSUMPTION AND PRODUCTION

OVERVIEW

Converting Waste to Resource: Biogas and Vermicompost

Food and vegetable waste is the largest organic stream on a residential campus, and SRM University-AP treats it as a resource rather than a burden. Food waste from the mess and canteen is processed in an on-campus biogas plant, which produces gas for cooking, and food waste from the messes and staff quarters is mixed with dead leaves and turned into vermicompost that is used as manure in the campus landscape. Collected food waste is also given to nearby farms. Because these systems keep organic waste out of the waste stream, they are a major reason why about 83 per cent of the campus waste was recycled in 2025.

6 m³	100 kg	6–8 m³	1:1
Biogas plant size	Food waste processed a day	Gas produced a day	Waste to water mixing ratio

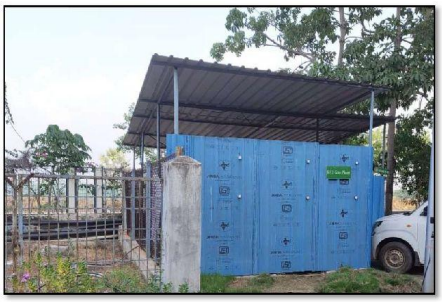


Image 1: Biogas plant on the campus



Image 2: Biogas plant: feed hopper, digester and control panel



Image 3: Crates of material at different stages of decomposition

BIOGAS

The Biogas Plant

Food and vegetable waste generated daily in the mess and canteen is processed in the on-campus biogas plant through anaerobic digestion, in which micro-organisms break down organic matter to produce methane-rich gas. The waste is crushed in a mixer grinder and made into a slurry by adding water. The plant, about 6 m^3 in size, processes around 100 kg of waste a day mixed with 100 litres of water (a 1:1 ratio) and yields nearly 6 to 8 m^3 of gas a day. The gas is used to cook food in the Annapurani Mess, which replaces conventional cooking fuel with energy made from the University's own waste.

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Plant size	Waste quantity	Waste and water mixing	Output gas quantity
6 m^3	100 kg/day	100 kg mixed with 100 litres of water (1:1 ratio)	Nearly 6–8 m^3/day

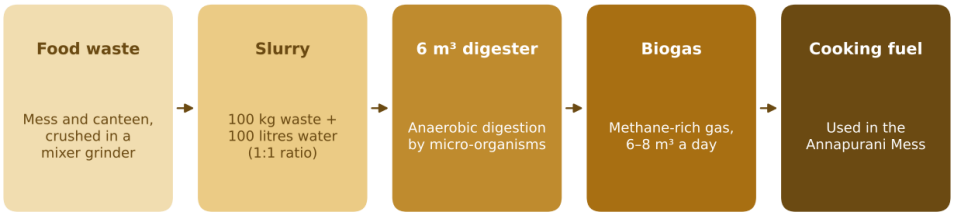


Image 4: From food waste to cooking gas: the biogas process

Food waste from the serving areas is collected in crates and taken to the plant and the vermicompost yard, so that the waste is moved to its treatment point while it is fresh and without spilling in the dining areas.



Image 5: Food waste being collected in crates in the mess serving area



Image 6: Crate of food waste ready to be taken for processing



Image 7: Food waste collection point

VERMICOMPOST

Vermicompost: Waste to Wealth

Food waste from the messes and staff quarters is collected and mixed with the dead leaves gathered on the campus in a set ratio. The mixture is fed into a dedicated machine in which sand and saw dust are mixed in and is then kept in crates to decompose for a set period. Once it has turned a thick black, the material is packed in small bags in suitable quantities and given to the gardening staff as organic manure for the campus landscape. Because the waste decomposes naturally, the manure does not harm the soil, and it replaces chemical fertiliser in the campus gardens.

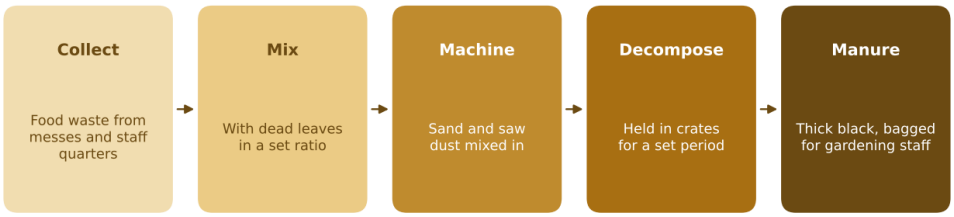


Image 8: From food and leaf waste to organic manure: the vermicompost process

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Image 9: Saw dust mixed with sand



Image 10: Food-waste mixture



Image 11: Material held for decomposition

PRIORITY ORDER

Food Waste: the Order of Preference

The University's policy sets a fixed order for managing food waste: prevention at source first, then redistribution of safe surplus food to people in need, then use as animal feed where permitted, and then composting, vermicomposting or biogas generation. Compost and manure produced are used for campus landscaping, and wherever feasible the University converts waste into value-added products such as compost, manure, biogas or reusable materials. Food waste that reaches the biogas plant and the vermicompost yard has therefore already passed through the earlier steps of prevention and, where possible, redistribution.

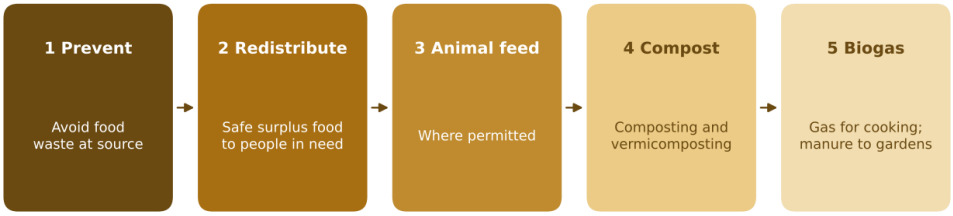


Image 12: The order of preference for food waste in the University's policy

GARDEN WASTE

Garden Waste and Other Organic Material

Garden waste, plant leaves and dead plants are collected daily and composted on campus along with food waste, which keeps horticultural waste out of the general waste stream and returns its nutrients to the soil. Under the policy, food and horticulture waste are preferably processed through composting units or biogas plants, and the Directorate of Facility Management records the quantities treated so that the share of waste composted and recycled can be reported every month and every year.

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