

KERALA

## A toilet that knows what to do with its waste

### STAFF REPORTER

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The successful performance at a school of a fully off-grid electronic toilet that converts waste into nutrients, energy, and water has prompted Eram Scientific Solutions Pvt. Ltd., the manufacturer, to make the toilet commercially available.

The NEWgenerator (nutrient, energy and water) e-toilet, installed at a school in Pulluvila, has been developed by Thiruvananthapuram-based Eram, an e-toilet manufacturer, and the University of South Florida, with the support of the Bill & Melinda Gates Foundation. The research is directly monitored by the Biotechnology Research Assistance Council (BIRAC) of the Union government. With over 150 users a day, including schoolchildren and the community in the coastal village, the e-toilet has been customised to connect to the waste-processing NEWgenerator system, which uses off-the-grid technology.

It comes equipped with automatic self-flushing and self-cleaning mechanisms with automatic pre-flushing before entry, automatic flushing after use, automatic floor cleaning after fixed intervals, ensuring hygiene.

The water that comes out as waste from the NEWgenerator toilet is recycled and goes back in and is used for flushing, while the solid waste is converted into nitrogen, phosphorus and potassium, which can be stored and used as fertilizers. The gas from waste is converted into methane and could be used for burning.

The machine achieves a high-level of waste treatment through the use of anaerobic membrane bioreactor technology. A high-level of pathogen destruction is achieved to ensure safe sanitation. The system is designed to work completely without electricity and could accommodate large footprints, making it suitable for large communities.

Bincy Baby, director, Eram Scientific, in a statement, said the project period concluded in November, and the e-toilet had proven its technology in field conditions for the past 18 months.