

PROPERTY PLUS

Feasible solutions to waste management

FACT FILE

	200 tonne wet waste per day (tpd*) (Anaerobic digestion + sludge dewatering + box composting)		200 tonne dry waste per day (tpd*) for BMT Plant & RDF baling		
	Capital (Rs.)		100 crore		80 crore
	Operating Costs (Rs.)		1.5 lakh/day		1.73 lakh/day
	Income (Rs.)		Power 1.4 lakh/day Compost 1.8 lakh/day		RDF 2.5 lakh/day
TREATMENT OF MUNICIPAL SOLID WASTE (400 TPD* IN THIRUVANANTHAPURAM)					
Wet fraction - 200 tpd* Anaerobic digestion			Dry Fraction - 200 tpd* Bio-drying Mechanical Treatment Plant (BMT Plant)		
Gas Power 1.5 MW	Digestate Compost Plant	Refuse- Derived Fuel	Recovered Metals	Inert fill (for construction)	Reject materials for land fill
*tonne per day					



DECEMBER 17, 2016 00:00 IST

UPDATED: DECEMBER 17, 2016 03:44 IST

Much rhetoric has been made on city's waste management. Much euphoria was created on various solutions. But a feasible and sustainable working solution is yet to be evolved. **Dr. Ajit Haridas**, chief scientist, Environmental Technology at CSIR-NIIST, Thiruvananthapuram, also a noted Chemical and Environmental Engineer speaks to **M.L. Mahesh** on the flaws of the existing waste management techniques and proposes feasible solutions.

On the city Corporation's insistence on waste management at source

As per the Solid Waste Management Rules, 2016, notified by government of India, it is the legal responsibility of local bodies to arrange for door-to-door collection of waste from

households, establishments and temporary dwellings. So they cannot simply get away from their legal responsibility. Households are vested with the responsibility of segregating the wastes into degradable (wet waste) and non-degradable (dry) and handing over it to the waste collectors in time. The local body can levy a fee from the users for collection, transportation, treatment and disposal.

On the kitchen bin being flaunted by the Corporation as a successful working model

Processing waste at its source of generation can be done, but it has practical and economic constraints.

Home digesters can effectively treat food wastes in households, provided they have sufficient space. Aerobins and pipe-composts are unscientific, as it is impossible to establish aerobic conditions within the equipments because the transfer of oxygen is limited. Also it is not practical to treat and dispose dry waste safely at source. Hence, it is essential for a modern city to have a centralised collection, transport and treatment plant for solid waste.

Any estimation done on the cost involved and accruing benefits of such a centralised system

The cost per household of an advanced and scientific waste collection, treatment and disposal system will be Rs.5 per kilogram of waste. The investment required for a central facility for a city like Thiruvananthapuram to process biodegradable and non-degradable waste will be Rs.180 crore.

Such a project can be included under the Smart City scheme. The overall economic cost of a central system is lower than source-level treatment.

For example, home anaerobic waste digester that can only process food waste will cause Rs.25,000 per house whereas a centralised waste processing facility that can process all wastes will cost only Rs.12,000 per house (assuming Rs.180 crore for 1.5 lakh households in Thiruvananthapuram city).

Is it practically possible in our city?

A centralised facility for Thiruvananthapuram will require large anaerobic digesters for wet wastes and a BMT plant (Biological Mechanical Treatment or Biodrying Mechanical Treatment) for dry wastes, each with a capacity of 200 tonnes.

The operational costs for both plants can be met from products recovered during treatment.

Electricity is generated from the biogas from the anaerobic digester and quality compost is produced by dewatering and composting the digestate.

RDF (Refuse-Derived Fuel) obtained from the BMT plant is used as fuel in cement factories as a coal substitute. In advanced countries, up to 50 per cent of the heat consumed in cement plants is produced by burning the RDF.

The central law also stipulates that the treatment facility must be within city limits. The land required for establishing such a system for Thiruvananthapuram city is only 20 acres.

Government land available adjacent to Muttathara sewage treatment plant can be used for setting up the solid waste treatment plant.

Would it not add for more pollution like Vilappilsala?

Vilappilsala residents have to be thanked for putting an end to the old business. Otherwise we would not have thought about a healthy waste management system.

Modern solid waste treatment plants do not cause air or water pollution.

The plant is totally enclosed and under negative pressure so that there is no escape of odour.

It is the failure to provide air and water pollution control that led to objections and closure of the Vilapilsala plant.

The lesson to be learnt from the Vilapilsala experience is that the plant should not be operated by saving on the cost of pollution control.

A modern plant will provide a complete scientific and sustainable solution for the never-ending waste management issues of Thiruvananthapuram city.