

Fueling the Future: Transforming Waste into Energy

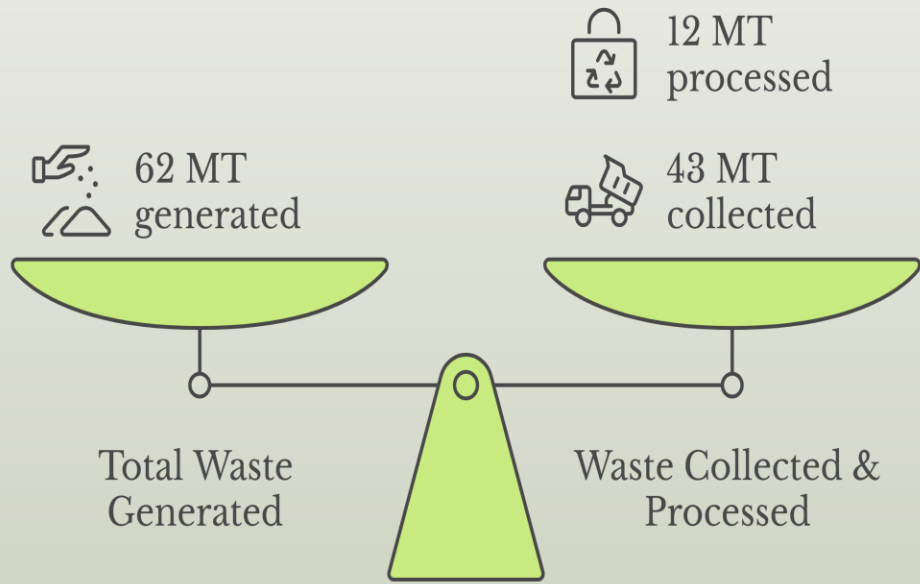
SANKHYA (संख्या)

“There cannot be a good plan for economic progress without adequate data and there cannot be adequate data without a good plan for collecting them...”

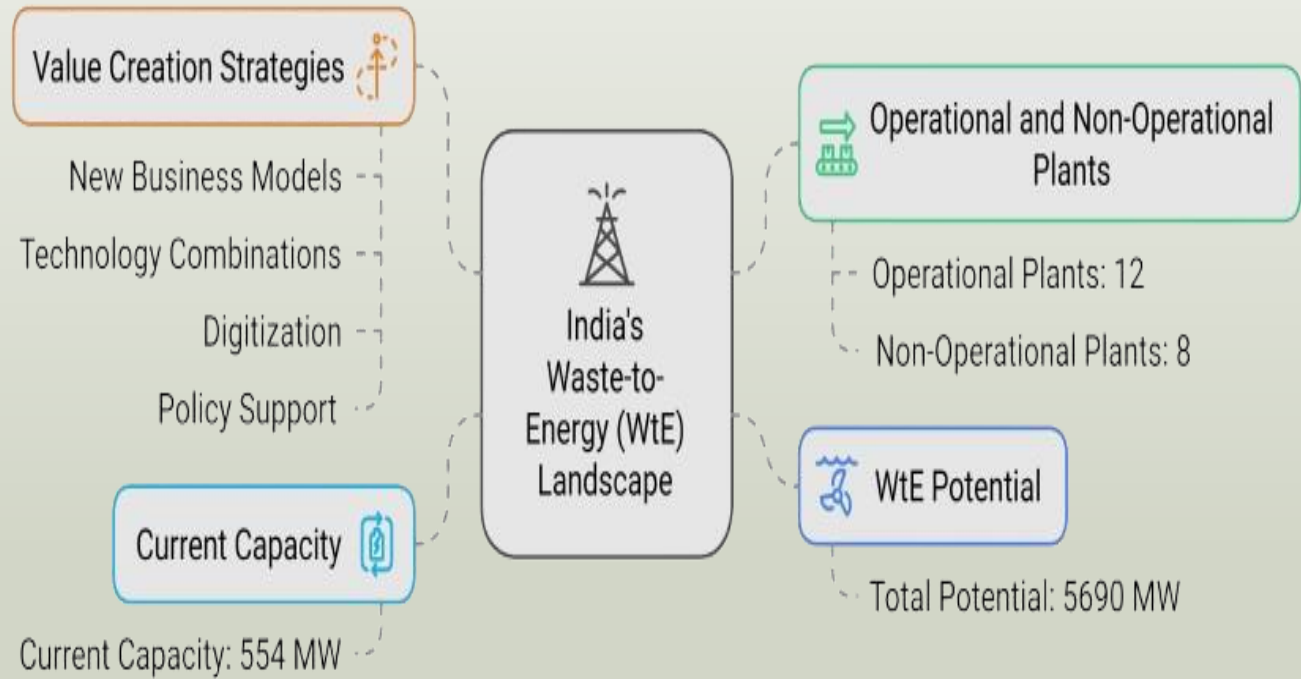
P.C Mahalanobis, Member, First Planning Commission of India & Scientist

WASTE TO ENERGY INITIATIVE

Waste-to-energy (WtE) generation consists of converting waste through a treatment process into energy in the form of electricity, heat, or transport fuels (e.g., bio-methane) from a waste source. India produces more than 62 million metric tons (MT) of waste annually

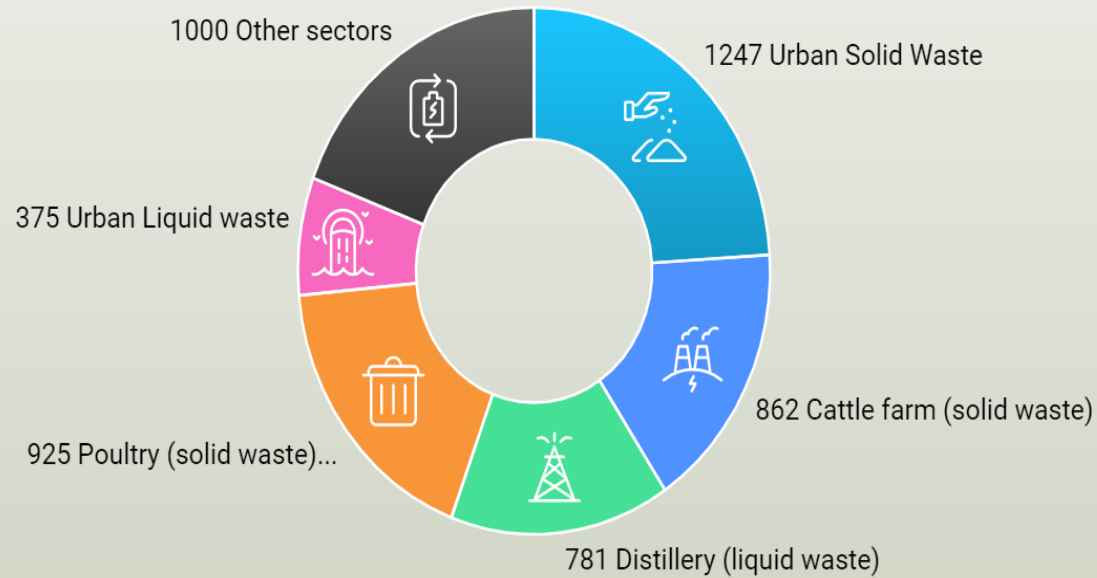


Highlighting the gap in waste management efficiency in India.

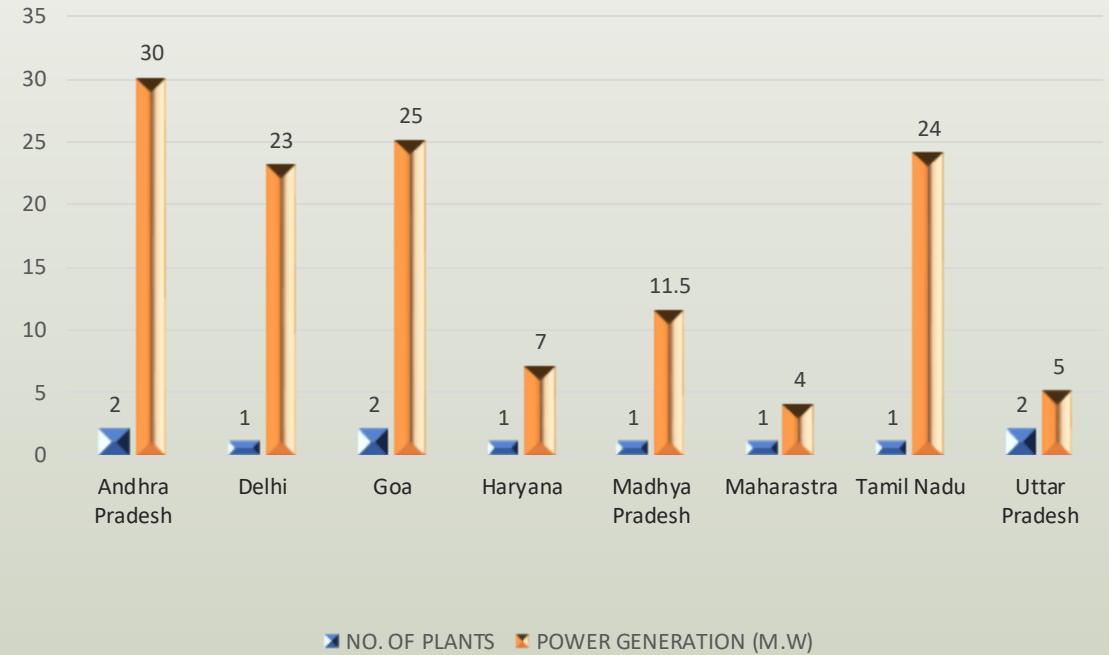


HOW WASTE TREATMENT WORKS

Energy Potential from Various Sectors (MW)



Operational Plants in India



Values derived from MNRE, available at <https://mnre.gov.in/waste-to-energy-overview/>

Values derived from Annual Report on Solid Waste Management, 2021-2022, CPCB, Delhi

Waste Management Technologies Overview



Waste-to-energy technologies convert waste into usable energy through various methods. Anaerobic digestion produces methane-rich biogas from organic waste in sealed environments. Combustion burns waste to generate heat and steam for power. Pyrolysis and gasification break down organic materials into syngas or producer gas for electricity. Landfill gas recovery captures methane from decomposing waste in landfills as an additional energy source.

POLICY RECOMMENDATIONS AND SUGGESTIONS

- India's waste-to-energy sector can improve by adopting plasma gasification. This process efficiently handles various waste types, including hazardous waste, and converts them into clean synthetic gas for electricity or chemical production while significantly reducing waste volume.
- Strategies to enhance waste-to-energy (WTE) should include public education on waste segregation, investment in WTE infrastructure, supportive policies, and private sector incentives. A strong regulatory framework, integration of the informal sector, and R&D will further advance WTE technologies, promoting sustainability and cost-effectiveness.
- Upscaling energy generation from waste treatment requires significant investments and policies focused on skill development to nurture human resources, making this a crucial policy intervention.
- Fostering public-private partnerships through efficient policy frameworks, particularly with an emphasis on decentralisation, will enhance funding in the waste-to-energy sector and help establish a sustainable waste-processing ecosystem.

WANT TO SUBMIT IDEAS FOR
SANKHYA OR GIVE YOUR
VIEWS ON OUR PAST
EDITIONS?

*Share your views, analysis, ideas and
questions*

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Sankhya* is an initiative of Bridge Policy Think Tank to create interface snapshots in statistics and policy analysis while promoting critical thinking and analysis.

** Sankhya means numbers and is also a school of rationalist Indian philosophy. According to Sankhya philosophy reliable knowledge comes from only three pramanas (proofs)- pratyakṣa ('perception'), anumāṇa ('inference') and śabda (āptavacana, meaning, 'word/testimony of reliable sources').*