Concerns with Waste to Energy (WtE) plants

What is the issue?

\n\n

Waste to Energy (WtE) plantsin our cities, using inadequately segregated municipal waste as feedstock, are shown to be highly dangerous to the environment.

\n\n

Why are WtE plants using municipal waste so harmful for us?

\n\n

\n
- There are five municipal WtE plants operational in India, with a total capacity to produce 66.4 MW electricity per day.
\n
- Many cities across different states vying for such plants as a solution to the very complex challenge of solid waste management in urban India.
\n
- But the WtE plants in India burn mixed waste.
\n
- The presence of chlorinated hydrocarbons like PVC in our waste results in the release of dioxins and furans when the waste is burnt at less than 850oC.
\n
- Dioxins and furans are among the most dangerous chemical agents.
\n
- They are known to be carcinogenic and can lead to impairment of immune, endocrine, nervous, and reproductive systems.
\n
- They are also extremelydifficult and costly to measure.
\n
- Appropriate filtering mechanisms need to be installed to control such dangerous emissions.
\n
- But the WtE plants in India was being operated without adequate use of activated charcoal for filtering out dioxins, furans and mercury from the emissions.
\n

- Even when incineration takes place under optimal conditions, large amounts of flue gases, mercury vapour and lead compounds are released.
\n
- Additionally, about 30% residue from incineration in the form of slag (bottom ash) and fly ash (particulate matter) getting released, which are also known to be serious pollutants of air and water.
\n

\n\n

Why are WtE plants inefficient in generating energy in India?

\n\n

\n
- **Moisture content** - Municipal waste in India has a very high biodegradable (wet) waste content ranging anywhere between 60 and 70% of the total, compared with 30% in the West.
\n
- This gives our waste a very high moisture content and very low calorific value.
\n
- **Calorific value** - Also, Indian households have traditionally been recycling their waste such as paper, plastic, cardboard, cloth, rubber, etc., to local recyclers.
\n
- This further lowers the calorific value of our waste, which is about 1000-1300 Kcal/kg.
\n
- In contrast, the calorific value of municipal waste in the West is much higher at about 1900 -2800 Kcal/kg which leads to much higher efficiency in their WtE plants.
\n
- **Mixed waste** - India's Solid Waste Management (SWM) policy requires that wet and dry wastes should not be mixed.
\n
- This will ensure that only non-compostable and non-recyclable wastes with at least 1500 Kcal/kg should reach WtE plants.
\n
- However, such waste comprises only 10-15% of the total waste in India.
\n
- **Compression of waste** - The challenge of segregation at source is compounded by the municipal governments themselves when they use compacters to reduce the transport cost of the waste.
\n
- Compacting compresses the waste and makes even gross segregation at the

plant site impossible.
\n
- In the absence of adequate feedstock of non-compostable and non-recyclable waste, it becomes necessary to use auxiliary fuel, adding to the cost of operating the plants.
\n
- **Implementation delay** - SWM Rules 2016 require that PVC be phased out in incinerators by April 2018.
\n
- But it is impossible to identify and remove PVC beverage labels, for example, from mixed waste streams.
\n
- As a preventive measure, NGT directed the ministry of environment and forests (MoEF) to consider phase out of such single-use, short-life PVC and issue appropriate directions by July 2017.
\n
- But the directions merely remained on paper and was not properly implemented at the ground level.
\n

\n\n

What should be done?

\n\n

\n
- Waste to Energy plants using municipal solid waste from Indian cities as feedstock pose a serious threat to our health and environment.
\n
- In this regard, Municipal authorities should be made aware that WtE technologies are being phased out in the West.
\n
- They should not be allowed unless the waste offered meets the criterion specified by the SWM Rules 2016.
\n
- Also, it needs to be ensured that the waste is not mixed at the source of generation and then that the handling of waste is done in unmixed streams.
\n
- There should also be strict penalties for non-compliance, when these contracts were outsourced to private operators.
\n
- At the same time, India should also explore low cost options such ascomposting and bio-methanation as an alternate to WTE plants.
\n

\n\n

\n\n

Source: Financial Express

\n

