Concerns with Waste to Energy (WtE) plants

What is the issue?

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

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

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- There are five municipal WtE plants operational in India, with a total capacity to produce 66.4 MW electricity per day.
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- Many cities across different states vying for such plants as a solution to the very complex challenge of solid waste management in urban India.
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- But the WtE plants in India burn mixed waste.
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- 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.
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- Dioxins and furans are among the most dangerous chemical agents.
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- They are known to be carcinogenic and can lead to impairment of immune, endocrine, nervous, and reproductive systems.
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- They are also extremelydifficult and costly to measure.
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- Appropriate filtering mechanisms need to be installed to control such dangerous emissions.
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- 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.
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- Even when incineration takes place under optimal conditions, large amounts of flue gases, mercury vapour and lead compounds are released.
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- 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.
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Why are WtE plants inefficient in generating energy in India?

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- **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.
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- This gives our waste a very high moisture content and very low calorific value.
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- **Calorific value** - Also, Indian households have traditionally been recycling their waste such as paper, plastic, cardboard, cloth, rubber, etc., to local recyclers.
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- This further lowers the calorific value of our waste, which is about 1000-1300 Kcal/kg.
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- 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.
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- **Mixed waste** - India's Solid Waste Management (SWM) policy requires that wet and dry wastes should not be mixed.
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- This will ensure that only non-compostable and non-recyclable wastes with at least 1500 Kcal/kg should reach WtE plants.
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- However, such waste comprises only 10-15% of the total waste in India.
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- **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.
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- Compacting compresses the waste and makes even gross segregation at the plant site impossible.
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- 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.
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- **Implementation delay** - SWM Rules 2016 require that PVC be phased out in incinerators by April 2018.
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- But it is impossible to identify and remove PVC beverage labels, for example, from mixed waste streams.
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- 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.
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- But the directions merely remained on paper and was not properly implemented at the ground level.
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What should be done?

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- Waste to Energy plants using municipal solid waste from Indian cities as feedstock pose a serious threat to our health and environment.
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- In this regard, Municipal authorities should be made aware that WtE technologies are being phased out in the West.
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- They should not be allowed unless the waste offered meets the criterion specified by the SWM Rules 2016.
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- 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.
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- There should also be strict penalties for non-compliance, when these contracts were outsourced to private operators.
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- At the same time, India should also explore low cost options such

ascomposting and bio-methanation as an alternate to WTE plants.
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Source: Financial Express

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