Urban Solid Waste Management

What is the issue?

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- Rising incomes and changing lifestyles are generating more and a different kind of waste,.
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- We need to set up systems to deal with this huge pileup.
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What was happening before 1970s?

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- In the past, in rural areas, food discards were returned to the soil.
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- Food leftovers were fed to animals and the cattle-shed wastes were **thrown in a pit to decompose**.
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- This returned both NPK (nitrogen, phosphorus, potassium) nutrients as well as micronutrients to the soil.
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- In Portuguese Goa, bullock carts would move from bungalow to bungalow, collecting kitchen leftovers for on-farm composting.
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- This was the earliest Indian version of **doorstep waste collection.**
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- These age-old practices have kept Indian soils rich in carbon, up to 4%.
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What is happening now?

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- Everything changed with the beginning of the **plastic era** in the 1970s.
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- When farmers took mixed waste of plastic and degradable items, to their farms, the fields started wearing a non-biodegradable plastic film.
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- It prevented rain from entering the soil and kept seeds from germinating through them (an example of negative urban-rural connectivity).
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- This assorted mixed waste presented a **major management challenge** for the municipal authorities.
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- City managers forced to deal with this and they began collecting and **dumping the waste outside the city limits.**
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What are the ill-effects?

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- Heaps of waste without exposure to oxygen **emit methane** which is 21 times more potent as a heat trapping gas than carbon dioxide.
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- It also generated **ammonia** and **hydrogen sulphide.**
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- These heaps also started to produce **leachate,** a black liquid oozing out from the waste.
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- It usually take 25-30 years to slowly decompose, continuously releasing methane and leachate.
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- The leachate seeped down into the soil and contaminated open wells and even **polluted bore wells** through natural water channels.
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- There is no way to treat this deep underground contamination.
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- It made the wells and bore wells unfit for drinking and even for irrigation for decades.
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What could be done?

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- Households need to be made to stop mixing biodegradable waste with dry

waste and keep hazardous domestic waste completely separate.
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- The segregation of waste at source into **‘wet’, ‘dry’ and ‘sanitary’** categories is now compulsory for all citizens of India in the **Solid Waste Management Rules 2016** (SWM Rules).
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- **Tirunelveli in Tamil Nadu** is the latest of over 20 urban local bodies to achieve near zero waste to landfill.
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- The correct way to manage fresh waste is to **expose as much of it to air** as soon as possible via **windrows**.
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- Windrows are parallel heaps of waste, not more than two metres high, which are designed to achieve the best conditions for aerating the waste.
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- Weekly turning of the waste ensures that all parts of the waste are fully decomposed.
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- The process can be speeded up by the addition of **composting bio-cultures** (ex.fresh cow dung).
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- This bio-stabilising of biodegradable waste would make a city fully compliant with the SWM Rules 2016.
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Source: The Indian Express

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