

Landfill fire in Kochi's Brahmapuram of Kerala

Why in news?

Recent incident of landfills fire in Kochi's Brahmapuram of Kerala.

What is a landfill?

- A landfill also known as a tip, dump, rubbish dump, garbage dump, or dumping ground, is a site for the disposal of waste materials.

Types of landfills

- **Municipal Solid Waste Landfills (MSWLFs)** - Specifically designed to receive household waste, as well as other types of nonhazardous wastes.
- **Bioreactor Landfills** - A type of MSWLF that operates to rapidly transform and degrade organic waste.
- **Industrial Waste Landfill** - Designed to collect commercial and institutional waste (i.e. industrial waste), which is often a significant portion of solid waste, even in small cities and suburbs.
- **Construction and Demolition (C&D) Debris Landfill** - C&D materials often contain bulky, heavy materials, such as concrete, wood, metals, glass and salvaged building components.
- **Coal Combustion Residual (CCR) landfills** - An industrial waste landfill used to manage and dispose of coal combustion residuals (CCRs or coal ash).
- **Hazardous Waste Landfills** - Facilities used specifically for the disposal of hazardous waste.

What are the causes of landfills fire?

- **Waste containing flammable materials** - Openly disposed waste includes flammable material like low-quality plastics, which have a relatively higher calorific value of about 2,500-3,000 kcal/kg
- **Summer being dry and hot** - The biodegradable fraction composts much faster, increasing the temperature of the heap to beyond 70-80° C.
- **Low efficiency in waste processing** - India's municipalities have been collecting more than 95% of the waste generated in cities but the efficiency of waste-processing is only 30-40%
- **Poor segregation of waste at source** - Municipalities are expected to process the wet and dry waste separately and to have the recovered by-products recycled
- **Huge unprocessed waste** - Remains in open landfills for long periods.

What are the impacts of landfill fire?

- **Greenhouse gases**- The landfill fires emits greenhouse gases affecting the environment
- **Schools Education System** -Affects schools education system since landfill fire leads to closure of schools in nearby areas
- **Carcinogens** -The waste may contain carcinogens materials which increases the chances of being affected by cancer causing dyes

What are the various challenges faced by municipal corporation in safe disposal of waste?

- Lack of Funding
- Communication gap between central and state government
- Failure of waste-to-energy projects
- Loopholes in the municipal corporations at every stage of waste management
- Lack of manpower
- Insufficient number of professionals in the waste management technology field.
- Lack of research and development for new technological practices
- Lack of coordination by public in segregation of waste at source

What are the measures to combat landfill fire?

Precautionary Measures	Short Term Measure	Long Term / Permanent Solutions
<ul style="list-style-type: none"> • The landfill site should be equipped with water tankers with sprinklers for immediate action. • The municipality should work with the nearest fire department and have a plan of action in advance. • Waste-processing workers (plant operators, segregators, etc.) should have basic fire-safety and response training • The municipality should have routine round-the-clock video surveillance of the most flammable portion of the landfill 	<ul style="list-style-type: none"> • The first immediate action is to divide a site into blocks depending on the nature of the waste • Blocks that have been capped using soil are less likely to catch fire, so portions like these should also be separated out • To advice people to stay in indoors • Distribution of N95 masks to the people 	<ul style="list-style-type: none"> • Clear the piles of waste through bioremediation • Bio mining - should be introduced for safe and low cost disposal of waste • Completely cap the site with soil

Bio mining is the technique of extracting metals from ores and other solid materials typically using prokaryotes, fungi or plants.

What are the government measures for solid waste management?

- **Solid Waste Management Act 2002** - An Act to establish a National Solid Waste Management Corporation
- **Solid Waste Management Rules (SWM), 2016** - The rules have mandated the source segregation of waste.
- **Pollution Control Boards** - The Pollution Control Boards are directed to take action for persuading the civic authorities in proper management of municipal solid wastes.

References

1. [The Hindu | landfill fire](#)
2. [The Hindu | Impact Of Landfill Fire](#)
3. [USA Environmental Agency | Types Of Landfill](#)
4. [Times Of India | Challenges In Waste Disposal](#)

