

## 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 dices

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

*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](#)

