



Solid Waste Management

For Prelims: Solid Waste, Hazardous Waste, Solid Waste Management Rules, Government's Initiatives

For Mains: Challenge in managing Solid Waste, Role of Informal sector in waste management, Challenges for informal sector in waste management, related government's initiatives

Why in News?

With **burgeoning population and even faster urbanisation**, there has been an explosion in the generation of **Municipal Solid Waste (MSW)** in Indian cities.

- It is important to note that the engagement of **formal waste management system remains low in the cities**, primarily due to insufficient funds, low sectoral development and lack of know-how about sustainable waste management businesses.
- Hence, in many developing countries, including **India, waste collection and material recycling activities are majorly performed by the informal waste sector**.

What is the Role of the Informal Sector in Solid Waste Management?

- **About:**
 - **Informal waste collectors** include individuals, associations or waste-traders who are involved in sorting, sale and purchase of **recyclable materials**.
 - Waste picker is a person **informally engaged** in the collection and recovery of reusable and recyclable solid waste from the source of waste generation to sale of waste to recyclers directly or through intermediaries.
 - It is estimated that the **informal waste economy** employs about 0.5% - 2% of the urban population worldwide.
- **Challenges:**
 - **Least Rewarding Job:**
 - **The informal sector** is often not officially approved, recognised and acknowledged, besides the fact that they potentially contribute to **waste recycling practices of cities** by collecting, sorting, processing, storing and trading waste materials in the recycling value chain.
 - **Health Issue:**
 - The informal sector lives in **close proximity to dumpsites** and works under **unhygienic and unhealthy conditions**.
 - The workers have **no access to drinking water or public toilets**.
 - They do not have appropriate personal **protective equipment (PPE)** such as **gloves, gumboots and aprons**.
 - Due to the poor living and working conditions, **malnutrition**, anaemia and **tuberculosis** are common among them.
 - **Social Treatment:**
 - They are treated as **dirty and unwanted elements of society**, and they have to deal with exploitative social behaviour.

- **Wages and living conditions** of different strata of informal waste-workers differ greatly.
- **Others:**
 - **Child labour** is quite prevalent and life expectancy being low.
 - Waste-pickers are **not covered under any labour legislation**.
 - As a result, they **do not benefit from social security** and **medical insurance schemes**.

What do we need to know about Solid Waste?

- **About:**
 - **Solid Waste includes** Solid or semi-solid domestic waste, sanitary waste, commercial waste, institutional waste, catering and market waste and other non-residential wastes, street sweepings, silt removed or collected from the surface drains, **horticulture** waste, **agriculture** and dairy waste, treated **biomedical waste** excluding industrial waste, bio-medical waste and **e-waste**, battery waste, radio-active waste etc.
- **India's Status:**
 - Urban India alone generates nearly **0.15 million tonnes per day** of Municipal Solid Waste.
 - It is estimated that about **62 million tonnes of waste** are generated annually in the country, out of which 5.6 million is **plastic waste**, 0.17 million is biomedical waste.
 - In addition, hazardous waste generation is 7.90 million tonnes per annum and 15 lakh tonnes is e-waste.
 - The volume of waste is projected to reach 165 million tonnes by 2031 and 436 million tonnes by 2050.
- **Challenges in Waste Management:**
 - **Increasing urbanisation in India** has resulted in **hyper-consumerism**, resulting in more waste generation.
 - **Organic farming** and composting are not economically attractive to the Indian farmer, as **chemical pesticides** are heavily subsidised, and the compost is not efficiently marketed.
 - **Lack of financial resources** with Municipal Corporations/Urban Local Bodies, result in **poor collection, transportation and management of solid waste**.

What are the Key Features of Solid Waste Management Rules, 2016?

- **Responsibilities of Generators** have been introduced to segregate waste in to three streams:
 - **Wet** (Biodegradable)
 - **Dry** (Plastic, Paper, metal, wood, etc.)
 - **Domestic hazardous wastes** (diapers, napkins, empty containers of cleaning agents, mosquito repellents, etc.) and **handover segregated wastes to authorized rag-pickers or waste collectors** or local bodies.
- Waste Generators will have to pay:
 - **'User Fee'** to waste collectors.
 - **'Spot Fine'** for Littering and Non-segregation.
- **Used sanitary waste** like diapers, sanitary pads should be **wrapped securely in pouches provided by manufacturers or brand owners** of these products or in a suitable wrapping material and shall place the same in the bin meant for dry waste / non- bio-degradable waste.
- The concept of partnership in ***Swachh Bharat*** has been introduced.
 - Bulk and institutional generators, market associations, event organizers and hotels and restaurants have been made **directly responsible for segregation and sorting** the waste and managing in partnership with local bodies.
- All manufacturers of **disposable products** such as tin, glass, plastics packaging etc. or brand owners who introduce such products in the market shall **provide necessary financial assistance to local authorities** for the establishment of a **waste management system**.
- The bio-degradable waste should be **processed, treated** and **disposed** of through **composting or bio-methanation within the premises as far as possible**.
 - The residual waste shall be given to the waste collectors or agency as directed by the local authority.

What are Government's Initiatives for Solid Waste Management?

▪ Waste to Wealth Portal:

- The Waste to Wealth Mission is one of the nine scientific missions of the [**Prime Minister's Science, Technology, and Innovation Advisory Council \(PMSTIAC\)**](#).
- It aims to identify, develop, and deploy technologies to treat waste to generate energy, recycle materials, and extract resources of value.

▪ National Water Mission:

- It was launched with the objective of **conservation of water, minimising wastage and ensuring more equitable distribution** both across and within states through integrated water resources development and management.

▪ Waste to Energy:

- A **waste-to-energy or energy-from-waste plant** converts municipal and industrial solid waste into electricity and/or heat for industrial processing.

▪ Plastic Waste Management (PWM) Rules, 2016:

- It mandates the **generators of plastic waste to take steps to minimize generation of plastic waste**, prevent **littering of plastic waste**, and ensure **segregated storage of waste** at source among other measures.

Way Forward

▪ **Informal Workers:**

- There is an urgent need to **frame and implement a uniform waste-picker welfare law** that recognises and integrates them into the waste management chain.
 - **It must include basic provisions** related to mandatory identity cards, access to waste for collection, segregation, and sorting, PPE to minimise occupational hazards, right to basic necessities like water, sanitation and facilities for clean living, and health insurance.
- The role of waste-pickers should be formalized by permitting them to use the **designated collection and compaction stations** (transfer stations, material recovery facilities) in a city for the segregation of recyclables.

▪ **Partnership:**

- Government should establish **partnerships with waste-picker organisations**, which is also mentioned in the SWM 2016 Rules.
 - There is a need to identify, organize, train, and empower the waste-pickers.

▪ **Treating Waste as Economic Opportunity:**

- **Generate Energy:**
 - **Gasification of waste:** Solid Waste used as raw material for [**biogas plants**](#).
- **Recycle Materials:**
 - **Recycle at the segregation stage** presents a good economic opportunity.
 - [**Circular economy**](#) path adopted by India could bring in an annual benefit of 40 Lakh Crores (Estimated).
- **Extract resources of value:**
 - **Processing of e-waste** could enable extraction of precious metals such as copper, gold, aluminium etc.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. As per the Solid Waste Management Rules, 2016 in India, which one of the following statements is correct? (2019)

(a) Waste generator has to segregate waste into five categories.

(b) The Rules are applicable to notified urban local bodies, notified towns and all industrial townships only.

(c) The Rules provide for exact and elaborate criteria for the identification of sites for landfills and waste

processing facilities.

(d) It is mandatory on the part of the waste generator that the waste generated in one district cannot be moved to another district.

Ans: (c)

Explanation:

- Solid Waste Management Rules, 2016 replaced the Municipal Solid Wastes (Management and Handling) Rules, 2000.
- The Rules are applicable beyond:
 - Municipal areas and extend to urban agglomerations,
 - Census towns, notified industrial townships,
 - Areas under the control of Indian Railways, airports, airbase, port and harbour,
 - Defence establishments,
 - Special economic zones,
 - State and Central Government organizations,
 - Places of pilgrims, religious and historical importance.
- The responsibility of generators has been introduced to segregate waste into three categories – Wet, Dry and Hazardous Waste.
 - The generator will have to pay 'User Fee' to waste collector and for 'Spot Fine' for littering and nonsegregation.
- Waste processing facilities will have to be set up by all local bodies.
 - Further the landfill site shall be 100 metres away from a river, 200 metres from a pond and 20 km away from airports/airbase.
 - Hence, the rules provide for exact and elaborate criteria for identification of landfill sites and waste processing facilities.
- The bio-degradable waste should be processed, treated and disposed of through composting or biomethanation within the premises as far as possible. The residual waste shall be given to its waste collectors or agency as directed by the local authority.
- There is no such provision that makes it mandatory on the part of waste generator that the waste generated in one district cannot be moved to another district.
- **Therefore, option (c) is the correct answer.**

Mains

Q. What are the impediments in disposing of the huge quantities of discarded solid waste which are continuously being generated? How do we safely remove the toxic wastes that have been accumulating in our habitable environment? **(2018)**

[Source: DTE](#)