



E-Waste Management in India

For Prelims: [Indian Cellular and Electronics Association](#), [Circular Economy](#), [E-waste management](#), [Extended producer's responsibility](#), E-Waste (Management) Rules, 2022.

For Mains: Status of E-Waste Management in India.

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Why in News?

The [Indian Cellular and Electronics Association \(ICEA\)](#) has released a comprehensive report titled '[Pathways to Circular Economy in the Indian Electronics Sector.](#)'

- This report highlights the urgent need to **rethink e-waste management and explore opportunities to harness its potential.**
- The report suggests that this transformation could unlock an additional **USD 7 billion market opportunity.**

What are the Major Highlights of the Report?

- **The E-Waste Landscape in India:**
 - According to the ICEA report, **e-waste management in India is predominantly informal**, with approximately **90% of e-waste collection and 70% of recycling being managed by a competitive informal sector.**
 - The informal sector excels at salvaging older electronic devices for spare parts and profitably carrying out repairs.
 - Industrial hubs like Moradabad specialize in **processing printed circuit boards (PCBs) to extract valuable materials like gold and silver.**
- **Circular Economy Principles:**
 - The report emphasizes the **need to shift the outlook on e-waste management towards establishing a circular economy.**
 - China serves as an example, **targeting to use 35% of secondary raw materials in the manufacturing of new products by 2030**, reflecting a circular economy approach.
 - **Proposed Strategies for a Circular Economy in E-Waste:** The ICEA report outlines several key strategies to usher in a circular economy for e-waste in India:
 - **Public-Private Partnerships (PPP):** Collaboration between **government bodies and private enterprises** is essential to distribute the costs of setting up a reverse supply chain.
 - This complex endeavor involves collecting devices from users, erasing personal data, and channeling them for further processing and recycling.
 - **Auditable Database:** The creation of a **transparent and auditable database of materials** collected through the reverse supply chain process can enhance accountability and traceability.

- **Geographical Clusters:** Establishing **geographical clusters where discarded devices are gathered and dismantled** can optimize the recycling process, making it more efficient and cost-effective.
- **Incentivizing 'High-Yield' Recycling Centers:** Encouraging the development of high-yield recycling facilities can help **maximize the value extraction from electronic products**, including rare earth metals in semiconductors.
- **Promoting Repair and Product Longevity:** Policy recommendations include **encouraging repair and making products last longer**.
 - This could involve supporting a **user's right to repair**, reducing the environmental burden of electronic waste.

Note: In a circular economy, **discarded electronics can be given a new life**, either as **standalone devices or by reintroducing their components** and precious metals into new hardware.

- It views all materials produced on Earth as valuable resources rather than waste.

What is the Status of E-Waste Management in India?

- **About E-Waste:**
 - **Electronic waste (e-waste)**, is a generic term used to describe all types of **old, end-of-life or discarded electrical and electronic equipment**, such as household appliances, office information and communications equipment etc.
 - E-waste contains numerous toxic chemicals including metals such as **lead, cadmium, mercury, and nickel**.
 - India currently ranks **third among the largest generators of e-waste globally**, behind only China and the US.
 - The volume of e-waste in India has witnessed a significant surge to **1.6 million tonnes in 2021-22**.
 - The **65 cities in India generate more than 60% of the total generated e-waste**, whereas 10 states generate 70% of the total e-waste.
- **E-Waste Management in India:**
 - In India, the management of electronic waste was addressed within the framework of the **Environment and Forests Hazardous Wastes (Management and Handling) Regulations of 2008**.
 - In 2011, a significant notice pertaining to the **E-waste (Management and Handling) Regulations of 2010**, governed by the **Environment (Protection) Act of 1986**, was issued.
 - **Extended producer's responsibility (EPR)** was its main feature.
 - **E-waste (Management) Rules, 2016** was enacted in 2017, with over **21 products (Schedule-I)** included under the purview of the rule. It included **Compact Fluorescent Lamp (CFL) and other mercury containing lamps**, as well as other such equipment.
 - In 2018, the 2016 rules underwent an amendment that broadened their scope to emphasize the promotion of **authorization and product stewardship**.
 - **Product stewardship** is a concept and approach that emphasizes the responsibility of **producers, manufacturers, and other stakeholders** for the entire life cycle of a product, from its creation to its disposal or recycling
 - Government of India notified **E-Waste (Management) Rules, 2022** with a major aim to **digitize the e-waste management process** and enhance visibility.
 - It also restricts the use of **hazardous substances (such as lead, mercury, and cadmium)** in **manufacturing electrical and electronic equipment** that have an adverse impact on human health and the environment.

How can India Work Towards Reducing and Recycling E-Waste More Effectively?

- **Formalizing E-waste Collection:** There is a need to create a **comprehensive regulatory**

framework for e-waste collection, incorporating **mandatory registration and licensing of collection centers** and recyclers to formalize and standardize the process.

- **E-Waste Tax Credits for Manufacturers:** Implementing a tax credit system that provides incentives to electronics manufacturers for designing products with **extended lifespans and repairability features**.
 - This approach aims to **promote eco-friendly design practices while discouraging planned obsolescence**.
- **E-Waste ATMs:** Installing E-Waste ATMs in public places, where individuals can deposit old electronic devices, and in return, **receive small financial incentives or vouchers for public transportation or essential goods**.
 - These ATMs could also **feature educational displays to raise awareness about e-waste recycling**.
- **E-Waste Tracking and Certification:** Establishing a [blockchain-based system](#) to track the **entire lifecycle of electronic devices**.
 - Each device could have a digital certificate that records its manufacturing, ownership, and disposal history.
 - This would make it **easier to trace and hold responsible parties accountable** for improper disposal.
- **E-Waste Art and Awareness:** Promoting awareness through **art installations made from e-waste**. Encouraging artists to create sculptures or exhibits in public spaces to visually depict the magnitude of the e-waste problem and raise awareness about proper disposal.

UPSC Civil Services Examination Previous Year Question (PYQ)

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)**

PDF Reference URL: <https://www.drishtiias.com/printpdf/e-waste-management-in-india>