Circular Economy in Electronics Sector

Why in news?

Recently, The Indian Cellular and Electronics Association (ICEA) released a report on 'Pathways to Circular Economy in Indian Electronics Sector' to build a system where discarded electronics can have a new life.

Circular economy

- According to the World Economic Forum, a circular economy is "an industrial system that is restorative or regenerative by intention and design."
- It calls for a production model aiming to retain the most value to create a system that promotes sustainability, longevity, reuse, and recycling.
- **Significance**
  - To accommodate the growing *demand for electronics*
  - To bring back e-wastes into economy for *optimum utilization of resources*
  - To *address environmental issues* related to rising environmental pollution and impact of climate change
  - To *achieve Sustainable Development Goal 12* related to Sustainable production and consumption
  - To *create employment* as recycling has the potential to create 6 times more jobs
  - To *save money* as recycling generate around INR 14 lakh crore of additional cost savings by 2030

What are e-wastes?

> *According to Global E-waste Monitor Report 2020, India is the third largest e-waste generator in the world.*

- E-waste (electronic waste) is used to describe old, end-of-life or discarded electric and electronic appliances.
- **India's e-waste Management**
  - **Largely informal in India** – Roughly 90% of collection and 70% of the recycling are managed by a very competitive informal sector.
  - In India, *Mumbai ranks first* in generating e-waste followed by Delhi, Bangalore, Chennai.
  - **Industrial hubs** – Like one in Moradabad, where printed circuit boards (PCBs) gold and silver melted out of them and sold.

- **E-Waste (Management) Rules, 2022** – digitise the process and provide more visibility to the movement of e-waste in the economy.

How can e-wastes be recycled?

- **Encourage manufacturers to use old components** – Like China which targets 35% of secondary raw materials in new products by 2030.
- **Promote public-private partnerships (PPP)** – PPPs can distribute the costs of setting of reverse supply chain.

Reverse Supply chain envisages collecting devices, wiping them clean of data and passing them along for further processing and recycling.

- **Launch an auditable database** – Maintain transparent record of materials collected for accountability.
- **Create geographical clusters**– Concentrate devices in specific areas for dismantling and recycling.
- **Incentivising high yield recycling centres** – Equipping centres can be set to extract the full potential value of the products they handle.
- **Right to repair**– Encourage repair and longevity to reduce the environmental burden of e-waste.

What are the challenges associated in recycling?

- **Lack of Infrastructure** – There is a lack of infrastructure for collection, treating and recycling e-wastes.
- **High costs** – Setting up of recycling centres requires high initial capital costs.
- **Idle e-devices** – Around 200 million devices are estimated to be lying at consumers' homes without getting recycled.
- **Lack of financial incentives** - There is the lack of public awareness of e-waste hazards in India, and recycling is, therefore, very low.
- **Less Information**- There is less understanding of a nature and amount of e-waste that gets imported into the country.
- **Unsustainable Informal Sector Practices**- The sector's waste management practices pose serious environmental and health hazards to the workers themselves as well as the larger public.

Steps taken for e-waste management

- **Resource Efficiency Circular Economy Industry Coalition (RECEIC)** in line with G20 Environment and Climate Sustainability Working Group (ECSWG) held its meeting in 2023 in Chennai.
- **India's first e-waste clinic** *in Bhopal* was setup by Bhopal Municipal Corporation and Central Pollution Control Board (CPCB).
- **E-Waste (Management) Rules, 2016** extend the responsibility to producers to manage a system of e-waste collection, storage, transportation, and

environmentally sound dismantling and recycling through Extended Producer Responsibility (EPR).

- **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS)** provides a financial incentive of 25% on capital expenditure for setting up modern recycling facilities for the extraction of precious metals from e-waste.
- **Directorate General of Foreign Trade (DGFT)** was constituted under the Foreign Trade (Development & regulation) Act 1992 to grant/ refuse licence for hazardous wastes prohibited for imports under the Environment (protection) Act, 1986.
- **Port Authorities and Customs Authorities** under the customs Act, 1962 verify the documents for any illegal traffic of hazardous wastes.
- **Nairobi Declaration of Basel Convention** relates to control of Trans-boundary movement of hazardous wastes including e-wastes.
- *E-waste Day is held on October 14* every year since 2018.

What lies ahead?

- **Enforcing legislation** – Stringent provisions under extended producer responsibility is needed.
- **Facilitate PRO** – Producer Responsibility Organisations (PRO) can be utilized to transfer responsibilities and liabilities.
- **Formal e-waste facility** – Boosting the formal e-waste facility is needed to protect the welfare of labours of informal sectors.
- **Inventories**– Inventories for e-wastes need to be set at both regional and at national level.
- **Clustering of materials** – For efficient recycling process, better clustering of materials is essential.
- **Viable business model** – Viable business model can be developed for better returns and sustainability of the business.

References

1. The Hindu| E-waste management
2. The Hindu Business Line| Circular Economy