Global E-waste Monitor 2024

For Prelims: The Global E-waste Monitor 2024, e-waste **recycling**, United Nations Institute for Training and Research (UNITAR), E-waste (Management) Rules, 2016**,** Extended producer's responsibility (EPR).

For Mains: The Global E-waste Monitor 2024, Environmental pollution and degradation, Environmental impact assessment.

Source: DTE

Why in News?

Recently, the **United Nations Institute for Training and Research (UNITAR)** has released the *Global E-waste Monitor 2024*, which states that the world's generation of electronic waste is rising five times faster than documented e-waste **recycling.**

Note

- The UNITAR is a **training arm of the United Nations** that helps governments, organisations, and individuals overcome global challenges.
- UNITAR offers **learning events and solutions,** including workshops, seminars, conferences, public lectures, and online courses. It also provides organisational advisory services, conference and retreat facilitation, and online learning solutions.

What are the Key Highlights of the Global E-waste Monitor 2024 Report?

- **E-waste Generation Trends:**
  - There is a **significant increase in global e-waste generation,** rising from 34 billion (bn) kg in **2010 to 62 bn kg in 2022.**
    - This trend is projected to continue, **reaching 82 bn kg by 2030.**
  - Of this 62 bn kg, only 13.8 bn kg is documented as **'formally collected and recycled in an environmentally** sound manner'.
    - 62 bn kg of e-waste includes 31 bn kg of metals, 17 bn kg of plastics and 14 bn kg of other materials (minerals, glass, composite materials, etc.)
- **Drivers of E-waste Generation**:
  - Factors driving the increase in e-waste generation include **technological progress,** higher consumption rates, limited repair options, short product life cycles, growing electronification, and inadequate e-waste management infrastructure.
- **Informal Recycling Sector:**
  - A significant portion of e-waste (both in high- and upper-middle-income countries as well as low- and lower-middle-income countries) is handled by the **informal sector due to inadequate formal e-waste management** infrastructure.

- **Environmental and Health Impacts:**
  - The improper management of e-waste, including informal recycling practices, leads to the release of hazardous substances such as mercury and plastics containing **brominated flame retardants into the environment**, posing direct and severe impacts on both the environment and public health.
    - A brominated flame retardant is a chemical compound containing bromine that is added to materials to inhibit or suppress the ignition and spread of fires.
    - They work by interfering with the combustion process, **reducing the flammability of materials** and slowing down the rate at which flames spread.
  - A whopping 58,000 kg of mercury and **45 million kg of plastics containing brominated flame** retardants are released into the environment every year.
- **Regional Disparities:**
  - Europe has the highest rate of documented formal collection and recycling of e-waste (42.8%), while Africa **struggles with low recycling rates** (<1%) despite generating lower amounts of e-waste.
  - Asia, including India, generates a **significant portion of global e-waste** but has made limited advances in e-waste management.
    - Countries in Asia generate **almost half of the world's e-waste (30 bn kg)** but relatively few of them have enacted legislation or established clear e-waste collection targets.
- **Per Capita E-waste Generation and Recycling Rates:**
  - Europe (17.6 kg), Oceania (16.1 kg) and the Americas (14.1 kg) generated the highest amount of e-waste per capita in 2022.
    - They also had the **highest documented per capita collection** and recycling rates (7.53 kg per capita in Europe, 6.66 kg per capita in Oceania and 4.2 kg per capita in the Americas).
    - This was because their collection and **recycling infrastructure was the most advanced.**
- **Recycling Rates by Equipment Type:**
  - Collection and recycling rates are highest for heavier and bulkier equipment like **temperature exchange equipment** and screens and monitors.
  - Thus, while toys, microwave ovens, vacuum cleaners and e-cigarettes comprise a third (20 bn kg) of the world's e-waste, recycling **rates for them are very low 12% globally.**
    - Small IT and telecommunication equipment — laptops, mobile phones, GPS devices and routers — constitute 5 bn kg of e-waste.
    - But just 22% of this is **documented as formally collected and recycled.**
- **Policy Adoption:**
  - 81 countries have adopted e-waste policy, legislation or regulation.
  - Sixty-seven countries have legal provisions on **Extended Producer Responsibility (EPR) for e-waste.**
  - Another 46 have provisions on e-waste collection rate targets. Finally, 36 countries have provisions on e-waste recycling rate targets.

What is an 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.

What are the Provisions regarding E-waste Management in India?

- 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** were introduced 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.
- Government of India notified **E-Waste (Management) Rules, 2022** with a major aim to digitise 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.
- A **Deposit Refund Scheme** has also been introduced as an additional economic instrument wherein the producer charges an additional amount as a deposit at the time of sale of the electrical and electronic equipment and returns it to the consumer along with interest when the end-of-life electrical and electronic equipment is returned.

UPSC Civil Services Examination, Previous Year Questions

Prelims:

Q. Due to improper/indiscriminate disposal of old and used computers or their parts, which of the following are released into the environment as e-waste? (2013)

1. Beryllium
2. Cadmium
3. Chromium
4. Heptachlor
5. Mercury
6. Lead
7. Plutonium

Select the correct answer using the codes given below:

(a) 1, 3, 4, 6 and 7 only
(b) 1, 2, 3, 5 and 6 only
(c) 2, 4, 5 and 7 only
(d) 1, 2, 3, 4, 5, 6 and 7

Ans: (b)

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)**