

E-WASTE MANAGEMENT IN INDIA: A BIG UPCOMING CHALLENGE

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Introduction:

Electronic waste, as known as e-waste, is generated when any electronic or electrical equipment becomes unfit for the intended use or if it has crossed its expiry date. Due to rapid technological advancements and the production of newer electronic equipment, the old ones get easily replaced with new models. It has particularly led to an exponential increase in e-waste in India. People tend to switch to the newer models and trending technologies; also, the lives of products get reduced with time. But the issue is left with e-waste management in India and its challenges.

What is E-waste?

E-waste poses the huge risk to humans, animals, and the environment. E-waste typically consists of plastics, metals, cathode ray tubes (CRTs), printed cables, circuit boards, and so on. The valuable metals like copper, silver, gold, and platinum can be reused from e-wastes once they are scientifically processed. The presence of toxic substances like liquid crystal, lithium, mercury, nickel, selenium, polychlorinated biphenyls (PCBs), arsenic, barium, brominates flame retardants, cadmium, chrome, cobalt, copper, and lead makes it very hazardous, in case e-waste get dismantled and processed in a crude manner with the rudimentary techniques.

The computers, mainframes, servers, monitors, printers, scanners, compact discs (CDs), copiers, calculators, battery cells, cellular phones, fax machines, transceivers, TVs, medical apparatus, iPods, refrigerators, washing machines, and air conditioners are examples of e-waste when they become unfit for its use. The presence of highly toxic substances and heavy metals like mercury, lead, beryllium, and cadmium pose a significant threat to an environment even in minute quantities.

Polluted environment endangers the human race by threatening its survival on planet earth. Boundaries of any nation can not limit these environmental problems to a particular country and region, but its impact is global one. This large scale environmental degradation has caused a global concern about the conservation and protection of the earth's environment. Hence, efforts are being made for inculcating environmental consciousness or awareness among the masses. It is education which can make the human being conscious and knowledgeable about environment and environmental problems. Moreover, awareness is essential for the action. The main purpose of environmental education in schools is to acquaint and sensitize the young minds to the environmental problems and concerns, to inculcate in them healthy personal and social attitude and behaviour towards environment. Thus, students must have awareness about environment and the problems associated with it

so that they can play their role very effectively. Hence, it is necessary to know how far the students are aware about environment and environmental problems.

➤ **Objectives of the Study:**

Following are the broad objectives of study:

- 1) To study E-waste & its types
- 2) To study the E-waste Disposal Rules by Government
- 3) To know the challenges in E-waste Management

➤ **Legislative Measures:**

The Ministry of Environment and Forests (MoEF), Government of India is the nodal agency for policy, planning, promoting and coordinating the environmental programme including electronics waste. The management of e-waste was covered under the Environment and Forests Hazardous Wastes(Management and Handling) Rules 2008.

An exclusive notification on E-waste(Management and Handling) Rules, 2010 under the Environment (Protection) Act, 1986 has been notified (S.O. 1035) on 12th May 2011 to address the safe and environment friendly handling, transporting, storing, recycling of e-waste and also to reduce the use of hazardous substances during manufacturing of electrical and electronic equipments. These rules will come into effect on 1st May 2012. The Table 1 provides the salient features of the Rules. The Central Pollution Control Board (CPCB) India had released guidelines during 2008 for environmentally sound management of e-waste, which should apply to all those who handle the e-waste.

Table 1: Salient features in E-waste Rule (S.O. 1035)

Chapters, schedules and forms	Titles	Issues Addressed
CHAPTER I Preliminary	1. Short title and commencement 2. Application 3. Definitions	Chapter discusses the title and commencement of the laws, applicable stakeholders and related definitions of the terminology
CHAPTER II Responsibilities	4. Responsibilities of the producer 5. Responsibilities of collection centers 6. Responsibilities of consumer or bulk consumer 7. Responsibilities of dismantler 8. Responsibilities of recycler	Responsibilities and the dos and don'ts of the stakeholders are discussed in this chapter
CHAPTER III Procedure for seeking authorization for handling e-wastes	9. Procedure for grant of authorization 10. Power to suspend or cancel an authorization 11. Procedure for grant of registration	Chapter discusses the procedure and formalities for potential e-wastes handlers to obtain authorization. Procedure for grant of registration at State Pollution Control Board (SPCB) is also discussed.
CHAPTER IV Procedure for storage of e-waste	12. Procedure for storage of e-waste	Maximum permissible storage period of e-waste with any consumer is 180 days. SPCB may extend the period, if no authorised recyclers are found in that state.

Table 1: Salient features in E-waste Rule (S.O. 1035) (cont.)

Chapters, schedules and forms	Titles	Issues Addressed
SCHEDULE III List authorities and corresponding duties	Central Pollution Control Board (CPCB), Delhi	Duties and authorities include preparation of guidelines of environmental sound e-waste management, set target for RoHS compliance, enforcement of non-compliant etc.
	State Pollution Control Board (SPCB)/ Committee of Union Territories	Duties and authorities include Inventorisation of e-waste, registration, grant and authorisation of recyclers, channelization e-waste to authorised recyclers etc.
FORM - 1	Application for obtaining authorization for generation/ collection/storage/dismantling/recycling e-waste	
FORM - 1(a)	Form for granting authorization for generation/collection/ storage/ dismantling/ recycling of e-waste	
FORM - 2	Form for maintaining records of e-waste handled/ Generated	
FORM - 3	Form for filing Annual Returns	
FORM - 4	Application form for registration of facilities possessing environmentally sound management practice for recycling e-waste	
FORM - 5	Form for annual report to be submitted by the State pollution control	

➤ **Current Scenario:**

The following table shows the details of E-waste generation in Metric Tonnes

Sr. No.	Items	Weight (MT)
1	Domestic Generation	332979
2	Imports	50000
3	Total	382979
4	WEEE available for recycling	144143
5	WEEE actual recycled	19000
6	Projected quantity of WEEE by 2011 (without including the imports)	467098

Source: MAIT, GTZ, 2007

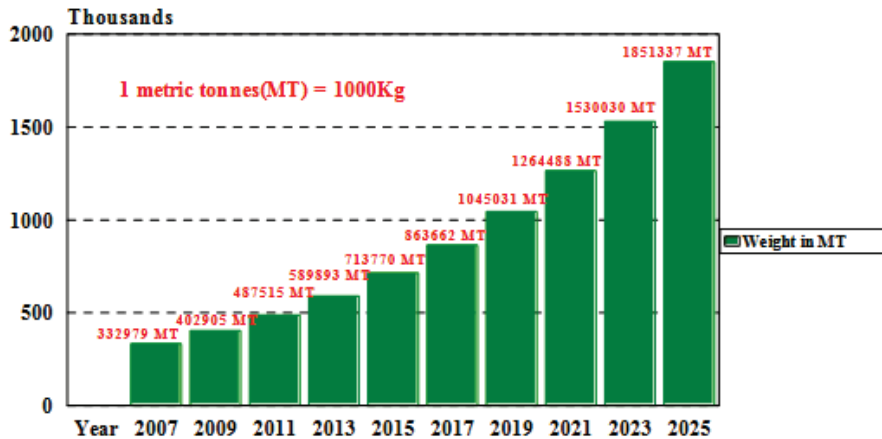


Fig.1: Growth of Ewaste in India

➤ **Challenges in E-waste Management in India:**

- Poor Infrastructure for the Recycling of E-waste
- Lack of Awareness and Financial Incentives
- Less Information on E-waste Generation Rates
- Mismanagement in Market for the End-of-life Products
- Environmentally Unsustainable Informal Sector Practices
- Inadequate Regulatory Design and Enforcement

Conclusion

E-waste management in India is a great challenge for governments of many developing countries. It is becoming a huge public health issue and is exponentially increasing by the day. It has to be collected separately, treated effectively, and disposed of e-waste. It is also a diversion from conventional landfills and open burning. It is essential to integrate an informal sector with the formal sector. The competent authorities in developing countries like India need to establish mechanisms for handling and treating e-waste safely and sustainable manner.

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