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## E-WASTES ARISE NEW CHALLENGE OF ENVIRONMENT POLLUTION IN INDIA

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### ABSTRACT:

Due to increased sales and rapid obsolescence, discarded electronic equipment (ewaste) is one of the fastest growing waste streams in the industrialised world. Ewaste includes a wide range of electronic goods, such as TVs, laptops, refrigerators, air conditioners, and hand held cellular phones, that include toxic compounds that pose occupational and environmental health dangers and pollute the environment severely. Dumping e-waste, especially computer garbage, into India from industrialised countries has exacerbated the waste management problem, hence computer waste management is a significant emphasis of this study. The report discusses e-waste sources and quantification. Environmental and occupational dangers related with e-waste processing are characterised by examining hazardous material, composition, and handling procedures. Analyzing current waste management systems helps build a better approach. The document provides a plan for improving e-waste management, including technological improvements, institutional arrangements, and operational plans.



**KEY WORDS:** increased sales and rapid obsolescence, environmental health dangers.

### A. INTRODUCTION

IT and telecom sectors have boosted electronic equipment use. Faster product upgrades force users to discard obsolete electronics rapidly, adding e-waste to the solid waste stream. Growing e-waste needs more recycling and better management.

E-waste is formed when electronic and electrical equipment is no longer usable or has expired. E-waste includes computers, servers, mainframes, monitors, CDs, printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, iPods, medical equipment, washing machines, refrigerators, and air conditioners (when unfit for use). Due to rapid technological breakthroughs and manufacture, many electronic devices are quickly replaced. This has increased e-waste exponentially. People prefer newer models, and product life has diminished.<sup>1</sup>

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<sup>1</sup> Ms Akanksha Manish & Dr Paromita Chakraborty, E-Waste Management in India: Challenges and Opportunities, Available on :- <https://www.teriin.org/article/e-waste-management-india-challenges-and-opportunities>, Visited on; 15/05/2021

E-waste includes metals, plastics, CRTs, PCBs, cables, etc. Processed e-waste can provide copper, silver, gold, and platinum. Liquid crystal, lithium, mercury, nickel, polychlorinated biphenyls (PCBs), selenium, arsenic, barium, brominated flame retardants, cadmium, chromium, cobalt, copper, and lead make e-waste hazardous if dismantled and treated crudely. E-waste harms people, animals, and the environment. Mercury, lead, beryllium, and cadmium pose a harm to the environment even in small amounts.<sup>2</sup>

E-waste management depends on consumers. Extended Producer Responsibility (EPR), Design for Environment (DFE), Reduce, Reuse, Recycle (3Rs), and a digital platform for integrating the market to facilitate a circular economy aim to encourage consumers to properly dispose of e-waste and develop sustainable consumer habits. In rich countries, e-waste management is a top priority, but in poor countries it is compounded by adopting or replicating the developed countries' e-waste management and by a lack of investment and technically qualified people resources. E-waste lacks infrastructure and relevant laws. Inadequate definition of stakeholders' and institutions' roles in e-waste management, etc. The Ministry of Environment, Forest and Climate Change (MoEFCC) revised the E-waste (Management) Rules in 2016. (GOI, 2016).<sup>3</sup>

More than 50 MT of e-waste is generated globally each year, making it the fastest-growing trash kind. Obsolescence in the electronics market is a primary cause of rapid ewaste development and market growth.<sup>4</sup> Most Western electronics have a short lifespan. Such commodities are routinely changed every two years, then abandoned or transferred to underdeveloped countries with a need for used goods. In wealthy countries like the US and EU, e-waste has expanded dramatically in the last two decades. EU produced 7x10<sup>6</sup> t e-waste annually, US 5x10<sup>6</sup> t. (EPA) WEEE is one of the fastest-growing waste categories, accounting for 8% of municipal waste. In growing countries like China and India, per capita e-waste generation is 1 kg year<sup>-1</sup>, but rising quickly. Given their large populations, these two countries' e-waste will soon surpass that of the west. Imports of e-waste from wealthy countries also increase e-waste in newly industrialised and emerging countries. 50–80% of e-waste created in developed markets is exported to underdeveloped countries for reuse and recycling,<sup>5</sup> often in violation of international rules.<sup>6</sup> 4 lakh tonnes of electronic garbage are generated annually, according to the CAG. Government, public, and private (industrial) sectors generate 70% of India's electronic trash.

## B. E-WASTES

E-waste threatens humans, animals, and the environment. E-waste includes plastics, metals, CRTs, printed wires, circuit boards, etc. Once processed, e-waste can be utilised for copper, silver, gold, and platinum. The presence of toxic compounds such liquid crystal, lithium, mercury, nickel, selenium, polychlorinated biphenyls (PCBs), arsenic, barium, brominates flame retardants, cadmium, chromium, cobalt, copper, and lead makes e-waste hazardous if dismantled and handled crudely.<sup>7</sup>

E-waste includes computers, mainframes, servers, monitors, printers, scanners, CDs, copiers, calculators, battery cells, cellular phones, fax machines, transceivers, TVs, medical apparatus, iPods, refrigerators, washing machines, and air conditioners. Mercury, lead, beryllium, and cadmium pose a harm to the environment even in small amounts.

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<sup>2</sup> Mal, Monica & Kumar, Sunil & SHEKDAR, A.. (2004). E-waste: A new challenge for waste management in India. *International Journal of Environmental Studies*. 61. 265-279. 10.1080/0020723042000176060.

<sup>3</sup> Ms Akanksha Manish & Dr Paromita Chakraborty, E-Waste Management in India: Challenges and Opportunities, *Available on :-* <https://www.teriin.org/article/e-waste-management-india-challenges-and-opportunities>, *Visited on;* 15/05/2021

<sup>4</sup> Bastiaan C, Zoeteman J, Krikke HR, Venselaar J. *Int J Adv Manufacturing Technol* 2010;47:415.

<sup>5</sup> Directive 2002/96/EC of the European Parliament and of the Council of the 27 January 2003 on waste of electrical and electronic equipment *O Journal of the EU L3*; 2003. p. 24–38.

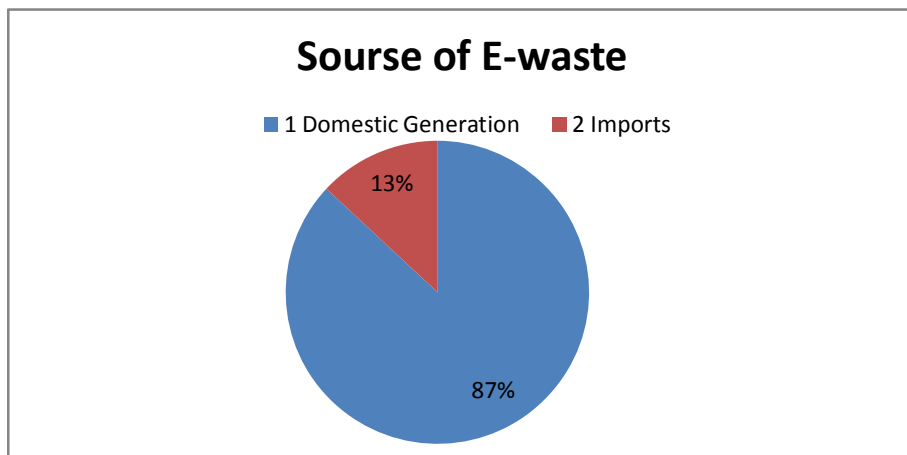
<sup>6</sup> Jirang Cui, Roven J. *Waste – a handbook for management*. Elsevier: Academic Press; 2011. p. 281–96.

<sup>7</sup> E-Waste Management in India: Challenges and Strategies, *Available on:-* <https://hindrise.org/resources/e-waste-management-in-india/>, *Visited On;*-12/06/2022

### C. INDIA POSITION ON E- WASTE

In India, among top ten cities, Mumbai ranks first in generating e-waste followed by Delhi, Bangalore, Chennai, Kolkata, Ahmadabad, Hyderabad, Pune, Surat and Nagpur. The 65 cities generate more than 60% of the total generated ewaste, whereas, 10 states generate 70% of the total e-waste. The pie chart at Table.1 and Fig-1 indicates the area wise generation of e-waste.

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



### D. MANAGEMENT OF ELECTRONIC WASTE IN INDIA

Despite India's extensive spectrum of environmental rules, there are no explicit regulations or guidelines for electronic trash in 2004. According to the Dangerous Waste Rules (1989), e-waste isn't considered hazardous until it has a significant concentration of specified substances. PCBs and CRTs always exceed these limitations, however there are various grey areas. Basel Convention's A1180 and B1110 entries cover mercury, lead, and cadmium. Electronic trash is covered in Schedule-3 of the Hazardous Wastes (Management & Handling) Rules, 1989, as modified in 2000 & 2003. This garbage import requires Ministry of Environment and Forests clearance.

As the informal sector collects and recycles electronic wastes in the country, the government has taken the following actions to promote environmentally sound management of electronic waste:

1. The Central Pollution Control Board organised several electronic waste workshops (CPCB).
2. CPCB is assessing E-Waste in key cities quickly.
3. The National Working Group is developing an E-Waste management strategy.
4. The Department of Information Technology (DIT) and Ministry of Communication and Information Technology issued a technical reference on "Environmental Management for the IT Industry in India."
5. The DIT at Indian Telephone Industries has established several demonstration projects for PCB copper recovery.
6. Lack of reliable data makes it difficult for policymakers to establish an e-waste management strategy and for industry to make investment decisions.

7. Due to the lack of a customer take-back programme, only a fraction of e-waste is recycled.
8. The lack of a safe official e-waste recycling infrastructure and reliance on the informal sector pose serious threats to the environment and human health.
9. Existing e-waste recycling systems are business-driven and government-free.

## E. CHALLENGES

The specific to developing and industrializing countries in WEEE management after assessing management issues from China, India, and South Africa. These difficulties are summarized below:

- > “although the quantity of indigenous e-waste per capita is still relatively small and in populous countries such as China and India are already huge producers of e-waste in absolute terms;
- > These countries also display the fastest growing market for EEE;
- > Some developing and transition countries are importing considerable quantities of e-waste. Some of them arrive as donations to help „the poor“ while others are mislabeled.”

The challenges facing End of Life management of e-waste in developing countries are enormous and include the following items.

1. The increasing volume of e-waste imported illegally into the developing countries. Second-hand EEE imported into the developing countries are rarely tested for usage. This significant quantities used in EEE imports estimated at between 25– 75%.
2. Ignorance of the toxicity or hazardous nature of e-waste. There is lack of awareness in government and public circles of the potential hazards. The present management of WEEE in the developing countries to human health and the environment. These two were involved in the dangerous crude recycling activities..
3. There is absence of infrastructure for the recycling or appropriate management of e-waste following the principles of sustainable consumption/development. In Africa formal recycling facilities for e-waste exists only in South Africa at 2005
4. Lack of funds and investment to finance profitable improvements in e-scrap recycling. There is loss of resources, energy wastages and environmental pollution as a result of the crude „backyard“ recycling activities.
5. Absence of legislation dealing specifically with e-waste. There is also a near absence or ineffective implementation of existing regulations/legislation relating to the control of trans-boundary movement of hazardous wastes and recyclables.
6. Absence of mandated or effective voluntary take-back programmes (EPR) for end-of-life EEE in the developing countries. There is also the unwillingness of consumers and enterprises to hand out their obsolete EEE or pay for WEEE recycling.

## F. JUDICIAL RESPONSE ON E-WASTE POLLUTION

2016 E-Waste Rules These Rules placed trash management on Take Back goods manufacturers. This was to return products to approved dismantlers and recyclers. In most sections of the country, such attempts haven't been successful, which calls into question the formulation of such Rules. In *Re Outrage as Parents End Life after Child's Dengue Death*<sup>8</sup>, the Supreme Court suo moto took up the subject and fined several state governments and Union Territories for not complying with such Rules. Three years later, administrative and political lethargy rule. 2018 E-Waste Amendment Rules After the Supreme Court's comments and lack of execution of the 2016 Rules, the 2018 Amendment was introduced with substantially the same goal. The 2018 Amendment formalises e-waste recycling. From 2023 forward, the phased collection target has been revised to 70% of garbage generation. New producers have separate e-waste collection goals. Producer Responsibility Organizations (PRO) must

<sup>8</sup> E-Waste Management (Amendment) Rules, 2018, sched. III., Available On:- [rsrr.in/2019/11/30/electronic-waste-management-the-crisis-everyone-saw-coming/](https://rsrr.in/2019/11/30/electronic-waste-management-the-crisis-everyone-saw-coming/), Visited at:-12/06/2021

apply to the Pollution Control Board for registration to conduct rules-mandated activities.<sup>9</sup> Lofty policy measures have not been backed by credible action for collection, management, and disposal of e-waste. Lack of awareness of the Rules and no effort to comply further illustrate the legal framework's problems. 2016 Waste Management Rules The 2016 Rules supersede the Municipal Solid Garbage (Management and Handling) Rules, 2000, and aim to govern and facilitate responsible and scientific waste disposal in urban areas. E-waste is solid garbage. District Magistrate, Central Pollution Control Board, and local authorities have distinct responsibilities. Rule 17 requires disposable product makers to help local governments build a waste management system. The 2016 Rules require each cluster of towns or urban settlement to have a solid waste processing and disposal facility or regional sanitary landfill, however they do not sufficiently handle e-waste management. India must avoid a box-checking approach to e-waste management, which is unique. Common doctrines like user-generator cost for waste and spot fine for littering would not help manage e-waste with expanding modernity and emphasis on digital India. Most poor people in India's informal e-waste sector labour without safety gear. National Center for Biotechnology Information reports that India imports 50,000 tonnes of trash for recycling.<sup>10</sup> In the context of e-waste management, China's 1.3 billion people have enough rubbish of their own to cope with. The 2016 Rules suggest that e-waste is a separate class within and outside the Rules, but the administration lacks the focus and understanding needed to solve its difficulties.

### G. JUDICIAL COURT DECISIONS

In *Shailesh Singh v. State of Uttar Pradesh*,<sup>11</sup> The National Green Tribunal (NGT) ordered the Central Pollution Control Board to provide a 'review and action-taken' report by 31 January 2020. The Principal Bench issued this order after hearing a plea for action against improper e-waste disposal, which contaminated groundwater and acidified soil. The Ministry of Environment, Forest, and Climate Change issued a compliance report on 14 September 2018 showing that India is the fifth greatest producer of e-waste. Only 5% of e-waste is recycled by the formal sector. Total e-waste recycling is unclear. E-waste, like other aspects of India's policy and legal enforcement, is only addressed when Courts and the NGT are asked for help. The adversarial approach to finding solutions has obvious limitations, as the e-waste problem requires a programmed and targeted response. Judicial activism in e-waste is unlikely to replace the legislative, executive, and local bodies in this area. *Mahendra Pandey v Union of India*<sup>12</sup> fined the UP Government Rs.10,00,000 for not removing hazardous e-waste from river Ram Ganga. Despite the NGT's instruction to the District Magistrate to set up temporary treatment, storage, and disposal facilities, the Ram Ganga disaster shows the stakes involved if e-waste is treated as casually as it is now. In *Research Foundation for Science, Technology and Natural Resource Policy v. Union of India*<sup>13</sup>, the Court's consideration of the Petitioner's Basel Convention and High Powered Committee of Prof. Menon contentions paved the way for the Hazardous Waste Management and Handling Rules, 2003 to come into force. The verdict outlawed harmful material imports, but the reality is different. State governments must oversee manufacturers, producers, and recyclers under EPR.<sup>14</sup> How many organisations truly follow the EPR is unknown. The government must come up with new methods like combining CSR and EPR to implement e-waste management's lofty aims. Even though the

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<sup>9</sup> E-Waste Management (Amendment) Rules, 2018, r. 2(b)(I).

<sup>10</sup> Needhidasan, Santhanam et al. "Electronic waste – an emerging threat to the environment of urban India." *Journal of Environmental Health Science & Engineering*, vol. 12:36. 20 Jan. 2014, Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3908467/#B26>. Visited on:-18/04/2022

<sup>11</sup> Shailesh Singh v. State of Uttar Pradesh, original application no. 512/2018 CIVIL APPEAL No. 734 OF 2021

<sup>12</sup> 2018 SCC OnLine NGT 2468.

<sup>13</sup> 2012 7 SCC 769

<sup>14</sup> Shreya Mishra, "Extended Producer Responsibility: Possibilities In Indian Context" SCC Blog, March 2019, Available At:- <https://www.sconline.com/blog/post/2019/03/31/extended-producer-responsibility-possibilities-in-indian-context/>. Visited On:- 12/05/2022

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74th Amendment to the Constitution provided Nagar Panchayats and Municipal Corporations the right to impose taxes, duties, tolls, and fees for service,[xix] their performance is far from adequate.<sup>15</sup>

## CONCLUSION

Underdeveloped countries, like India, struggle to handle e-waste. This is a growing public health issue. Integrating the informal and formal sectors is vital for collecting, treating, and disposing of e-waste and diverting it from landfills and open burning. Developing and transition countries need safe and sustainable e-waste management and treatment procedures.

Promoting environmentally sustainable e-waste management requires more information campaigns, capacity building, and awareness. Improving collection and handling procedures is urgently needed to reduce illegal e-waste trade. Reducing harmful compounds in e-products will help prevent certain e-waste streams.

Nokia is one of the few corporations that has taken this seriously since 2008. The companies were responsible for collecting and disposing of e-waste according to a CPCB-approved EPR Authorization plan in India. Some significant corporations' import licences were suspended for E-waste violations. Such measures impact India's e-waste management. Every endeavour needs incentives to attract stakeholders. In e-waste management, the government must offer tax reductions or refunds to ensure industry compliance. E-waste collection targets must be evaluated and renewed to ensure compliance across India.

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<sup>15</sup>Electronic Waste Management – The Crisis Everyone Saw Coming

Available At:- : [rsrr.in/2019/11/30/electronic-waste-management-the-crisis-everyone-saw-coming/](https://rsrr.in/2019/11/30/electronic-waste-management-the-crisis-everyone-saw-coming/) rsrr.in/2019/11/30/electronic-waste-management-the-crisis-everyone-saw-coming/, Visited On:- 12/05/2022