

**“E- Waste: Issues Related to E-Waste in India”**

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Industrial revolution followed by the advances in Information technology during the 21st century has radically changed people's lifestyle. IT industry in India has witnessed unprecedented growth in recent years and has revolutionized the way we live, work and communicate bringing countless benefits and wealth to all its users. Using electronic today is so much a part of our daily lives we hardly think of the way the world would be without electronics. Everything from cooking to music, diagnosing equipments, cameras, automotive engines uses electronics or electronic components in some way. Literally thousands of everyday devices that we constantly use, make use of electronics technology in order to operate. It has led to unrestrained resource consumption. These new developments in the information technology have also led to many serious health related problems and the problem of management of e-waste. The problem of e-waste is the most debated issue amongst the environmentalists. Both developed and developing countries are facing this problem and India is no exception.

**What is E-waste?**

According to Basel convention, wastes are substances or objects, which are disposed of or are intended to be disposed of, or are required to be disposed of by the provisions of national laws. There are different types of wastes like solid waste, bio-medical waste, radioactive waste and so on, E-waste is one among them E-waste broadly describes loosely discarded, surplus, obsolete, broken, electrical or electronic devices. E-waste is otherwise known as Electronic waste, or waste electrical and electronic equipment (WEEE) or End of life electronics. E-waste are electronic device which has no longer value to its owner. Refrigerators, air conditioners, cell phones, television, Ipods, printers, toys, washing machines, electric cooker, medical apparatus are some of the examples of E-waste. Thus, we can see that E-waste is generated as a result of any of the following reasons (1) upgrade and innovation in technology (2) lifestyle changes (3) End of the intended usage. E-waste consist of metals, plastics, Cathode ray tubes, printed circuit boards, cables and so on. Valuable metals such as copper, silver, gold and platinum could be recovered from E-waste. E-waste collection, transportation, segregation, dismantling, recycling and disposal is done manually by untrained labours in informal sector. Due to low awareness and sensitization e-waste is thrown along with garbage which is collected and segregated by rag pickers. It is estimated that more than 50MT of E-waste is generated globally every year but only 20% of this formally recycled. The E-waste produced annually is worth over \$62.5 billion more than GDP of most countries. According to a report from Platform for Accelerating the Circular Economy (PACE) and UN E-waste Coalition, global e-waste production is on track to reach 120MT per year by 2050 if current trend continues. 2020 Global E-waste monitor reveals that

a record 53.6 million MT was generated worldwide last year, 21% increase in 5 years. This expected to reach 74 MT by 2030.

### **Main sources of E-waste –**

Formal sector -

- Importers
- Producers/ manufacturers
- Retailers
- Consumers
- Traders
- Scrap dealers

Informal sector -

- Dissembler / dismantler
- Smelters
- Recyclers

### **Issues related to E-waste management in India**

Some of the issues faced in India are highlighted in the following points:

- E-waste is generated in large volume -

In Indian context, the electronics industry has emerged as the fastest growing segment of Indian industry both in terms of production and Exports. Most of the waste electronic items are stored at households as people do not know how to discard them. Ten states generate 70% of the total e-waste generated in India. Maharashtra ranks first followed by Tamil Nadu, Andhra Pradesh, Uttar Pradesh, West Bengal, Delhi, Karnataka, Gujarat, Madhya Pradesh and Punjab. While 65 cities generate more than 60% of the total e-waste in India. According to recent studies almost 2.7 MT of e-waste are being generated annually in India. As per ASSOCHAM – NEC study report, India is among the top 5 E-waste generating countries in the world besides China, US, Japan and Germany.

- Decent work deficit -

In India, around 25,000 workers including children are involved in crude dismantling units in Delhi alone where 10,000 – 20,000 tonnes of e-waste is handled every year by bare hands. About 4-5 lakh child labourers in the age group of 10-14 years are observed to be engaged in various e-waste activities and that too without adequate protection and safeguards in various yards and

recycling workshops according to ASSOCHAM report. The illegal trade of e-waste management offers little or no protection to the people it employs. It often employs children under age of 15 years.

- E-waste imports –

Formal e-waste recycling usually involves disassembling the electronics, separating and categorising the contents by material and cleaning them. Items are shredded mechanically for further sorting with advanced separation technologies companies must adhere to health and safety rules and use pollution control technologies that reduces the health and environmental hazards of handling e-waste. All this makes formal recycling expensive.

As a result, many companies and countries illegally export their e-waste to developing countries where recycling is cheap. Basel convention prohibits developed countries from transporting various types of hazardous waste, including e-waste to less developed countries. Most of the e-waste that is shipped is sent to China, Ghana Nigeria, Pakistan, India and Vietnam. India is second biggest receiver behind China. While exporting castoff goods to poor countries is legal if they can be reused, there are tons of e-waste being sent to Asia or Africa under false pretences. And no one is keeping track of how much waste is actually being spread across the continents. As part of e-waste rules 2016, the import of e-waste is restricted. Only producers which have EPR authorization of central pollution control board (CPCB) are allowed to import old equipment / components only for specific purpose (depending on permission by regulatory agencies) to India.

- Health hazards-

Informal sector exploit the rudimentary methods of waste disposal and recycling. They openly burn the waste, heat circuit boards, expose them to acid baths, dump waste into landfill and so on. E-wastes Hazardous metals gets mixed into the soil or the water or convert into harmful emissions that are liberated into the air we breathe. Pollutants such as dioxins and furans from polyvinyl chloride, lead, beryllium, cadmium, mercury etc get into our environment and cause the following health hazards

- Reproductive issues
- Developmental problems
- Damage to the immune system
- Interference with regulatory hormones
- Damage to the nervous system
- Kidney damage

- Hampers brain development in children
- May lead to lung cancer
- Chronic beryllium disease
- Skin ailments
- Cadmium accumulation on liver and kidney
- Asthmatic bronchitis
- DNA damage
- Muscle weakness
- Endocrine system disruption

- Ineffective legislation

Ministry of environment and forests and climate change notified E-waste Management rules, 2016 in suppression of E-waste (management and handling) Rules 2011. For first time rules brought producers under EPR along with targets. Various producers can have a separate Producer responsibility organisation (PRO) and ensure collection of e-waste as well as its disposal in an environmentally sound manner. Deposit refund scheme has also been introduced. Urban local bodies has been assigned the duty to collect and channelize the orphan products to authorised dismantler/recycler. E-waste (management)Amendment rules 2018 revised EPR targets and made provision for PRO to apply to CPCB for registration. Under Reduction of hazardous substances (RoHS) provisions, cost for sampling and testing shall be borne by the Government but if product does not comply with RoHS provision then cost will be borne by producers. On analysis of the rules dealing with e-wastes, few loopholes can be identified. To start with e-waste rules talks about only manufacturers, producers, collection centres, dealers, refurbishers, recyclers, dismantlers and consumers. It also provides for the mechanism of collection and channelization of e-waste through the stakeholders and tries to enforce a duty upon them to recycle the waste in an environmentally sound manner. The rules don't blatantly address the issue of recycling and dismantling done by the informal sector which is recycling 90% of the e-waste. Further,the rules put forth a mandate of seeking an authorisation from concerned state pollution control board for all facilities to work and about EPR therefore technically these rules seem to cover only the formal sector working for recycling of electronic waste. In reality there are only 178 registered recycling centres in India and the major informal sectors are ignored here. There are no provisions delegating duty upon state authorities to provide for proper infrastructure as well as awareness and skill training to these informal sectors. No penal provisions or penalty could be imposed on these informal workers as they have been ignored.

To strengthen the success of Extended producer responsibility (EPR) based policies in developing countries like India, more region- specific characteristics will have to be incorporated. Most analysis on EPR application has been done

in the context of industrialized countries and there is limited researched understanding and shared experience on implementation in developing countries, despite the fact that EPR has become a guiding principle for a wave of recently passed legislation in developing countries. There is an OECD (Organisation for Economic co-operation and development) guideline for implementing EPR in OECD countries, but hardly any corresponding guidance for developing countries. This policy brief is intended as an initial attempt to fill the gap.

## **CONCLUSION**

India's e-waste scenario is clearly changing. The introduction of a supportive regulatory framework is already encouraging the establishment of many new, large, formal and high tech recycling units. These new plants have the potential if standards are properly monitored and enforced to bring environmental and human health benefits and to more efficiently recover secondary raw materials. But inadequate attention to existing conditions, specially a large, well-established informal sector representing 90% of the country's e-waste activity is already threatening the viability of these new operators. It is the responsibility of the Government to turn away more e-waste flowing from informal to formal sectors and to achieve positive utilization of informal collection networks for collecting e-waste from households thereby developing efficient incentive system for poor collectors and recyclers. Current incentive structures governing India's e-waste market are designed principally for big business. Instead they should focus on more socially just options. Technical improvement of informal recycling processes coupled with proper training in handling WEEE has to be offered to the local industry and community so as to obtain better environmental performance without sacrificing the economic and social benefits. This will provide a remedy for the occupational health hazards related to the informal recycling of e-waste. Developing a better understanding of informal recycling and implementing more supportive policies for the informal sector that could result in hundreds of job opportunities for low skilled workers in a complete safe environment is a sustainable solution for the current issue.

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