

# Gadgets Are at Its Expiry: A Brief Account of Disposal and Management of E-Waste in India



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E-waste or electronic wastes are generated when any electrical gadget becomes unfit for use or it has crossed its expiry date. Due to the advancement of the technology, newer models of the electrical equipment are produced which are much more consumer friendly. So, there is a replacement of the older ones. But it causes an exponential increase in the disposal of e-waste in India. Moreover, due to improper e-waste management, increase in health risk and environmental deterioration are becoming a serious issue. This article contains a brief highlight on ancient e-waste disposal methods, their management status, legislation and technologies used in India. Electronic goods are mostly classified into three main categories – White goods that consist of household appliances, Brown goods includes television and cameras and Grey goods includes computers, printers and scanners. It is known from studies that Grey goods are more hazardous than white and brown goods.

Disposal of e-waste is mainly caused because of huge consumption, manufacturing and mass production, Eutrophication and Human Population. Now we move our eyes to the ancient methods which are employed for the disposal of

e-waste, each coming with their own set of environmental issues.

- *Land Filling* - This process refers to the practice of making a massive hole in the ground, then filling it up with waste and then covering it back with soil.
- *Acid Bath* – In this the electronic circuits and other parts are soaked in powerful Sulfuric, Hydrochloric, or Nitric acid solutions thus separating the metals from the electronic pathways.
- *Incineration* - One of the crude e-waste disposal processes involves burning the waste in an extremely high temperature incinerator. This has the dual benefit of significantly reducing the volume of the waste and also generates energy that can be repurposed for other applications.
- *Recycling* – As such many items of e-waste can be dismantled and their component parts repurposed or refurbished into new products. This technique can recover precious metals from circuit boards and be melted down to make new devices.
- *Reuse* - The most environmentally friendly e-waste disposal technique is reuse.

As we know, almost all the e-wastes contain some form of recyclable materials which includes plastic, glass and metals however due to improper disposal methods and techniques these materials cannot be retrieved for other purposes. Few other



Source: teriin.org

processes like dismantling the components, wet chemical processing are also used to dispose the waste and it result in direct exposure and inhalation of harmful chemicals. Some substances such as cadmium, lead, and mercury inevitably find their way into the soil and groundwater, causing contamination. Moreover, this incineration process produces major quantities of toxic gasses which include cadmium and mercury, which are released into the atmosphere.



Very recent studies on recycling of e-waste have pointed towards increasing concentrations of PCBs, dioxins and furans, plasticizers, bisphenol-A (BPA), PAH and other heavy metals in the surface soils of the four major metro cities of India – New Delhi, Kolkata, Mumbai and Chennai where e-waste has been processed by the informal sectors.

We should use different upgraded procedures to ensure that the e-waste is managed with care. They can be:

- e-waste collection and transportation.
- Sorting and shredding if required
- Categorizing into core materials and components
- Dust extraction and magnetic separation
- Preparing the recycled materials for sale

From the recent studies it is found that, around the globe this e-waste constitutes greater than 5% of

all Municipal Solid Waste (MSW) and day by day there is an increase with the rise of sales of various electronic goods in all the developing countries. But, various recycling companies in developed countries follow strict environmental regulatory rules and the exponential increase in the cost of waste disposal makes them in finding exportation to small traders of developing country more profitable than doing recycling in their own countries.

Now, the Environmental effects of hazardous waste arise mainly due to the primary, secondary and tertiary emissions of hazardous waste. Primary emissions include hazardous waste present in e-waste including heavy metals like lead, arsenic, mercury and PCB whereas secondary emissions occur generally due to incomplete treatment of e-waste for which dioxins

and furan are generated. Lastly, the Tertiary emissions occur because of the harmful chemicals which are used in recycling purpose of hazardous waste. It ultimately causes serous health issues which causes permanent damage to the body.

Some major health impacts include affecting reproductive systems of both male and females, affecting growth retardation and damaging lymphocytes. Presence of toxic chemicals in e-waste can damage our central nervous system and vital organs including liver and kidney. Continuous handling of such corrosive materials without the use of protective gear can cause skin cancer, anemia and carcinogenic tumors and may causes hormonal problems. Some other complications like hypertension and psychological problems also occur.

So, we should spread the anthem of **'erase your e-waste.'**

**e-erase  
your  
e-waste**