

E-Waste Management: An Overview

The electronics industry is the world's largest and fastest growing manufacturing industry. Recent policy changes in India have led to an influx of leading multinational companies to set up electronics manufacturing facilities and R&D centres for hardware and software. This has no doubt helped the Indian economy to grow faster and fuelled increase in the consumption rate of electronics products. Along with the economic growth and availability of electronics goods in the market has increased temptation of consumers to replace their household electronics items with newer models for various reasons. The net effect is a higher rate of obsolescence, which is leading to growing piles of e-waste.

The aim of this article is to spread awareness among our readers about the various issues involved in generation and management of e-waste, particularly from Indian perspective.

What is e-waste?



Electronic waste (e-waste) comprises waste electronics/electrical goods that are not fit for their originally intended use or have reached their end of life. This may include items such as computers, servers, mainframes, monitors, CDs, printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, medical apparatus and electronic components besides white goods such as refrigerators and air-conditioners.

E-waste contains valuable materials such as copper, silver, gold and platinum which could be processed for their recovery.

Is e-waste hazardous?

E-waste is not hazardous. However, the hazardous constituents present in the e-waste render it hazardous when such wastes are dismantled and processed, since it is only at this stage that they pose hazard to health and environment.

Electronics and electrical equipment seem efficient and environmentally-friendly, but there are hidden dangers associated with them once these become e-waste. The harmful materials contained in electronics products, coupled with the fast rate at which we’re replacing out-dated units, pose a real danger to human health if electronics products are not properly processed prior to disposal.

TABLE I e-Waste Toxins and Affected Body Parts		
Components	Constituents	Affected body parts
Printed circuit boards	Lead and cadmium	Nervous system, kidney, liver
Motherboards	Berillium	Lungs, skin
Cathode ray tubes (CRTs)	Lead oxide, barium and cadmium	Heart, liver, muscles
Switches and flat-screen monitors	Mercury	Brain, skin
Computer batteries	Cadmium	Kidney, liver
Capacitors and transformers	Polychlorinated biphenyls (PCBs)	
Printed circuit boards, plastic	Brominated flame-retardant casings cable	
Cable insulation/coating	Polyvinyl chloride (PVC)	Immune system
Plastic housing	Bromine	Endocrine

Present Scenario:

E-waste recycling and disposal in China, India and Pakistan are highly polluting. Of late, China has banned import of e-waste. Export of e-waste by the US is seen as lack of responsibility on the part of Federal Government, electronics industry, consumers, recyclers and local governments towards viable and sustainable options for disposal of e-waste.

In India, recycling of e-waste is almost entirely left to the informal sector, which does not have adequate means to handle either the increasing quantities or certain processes, leading to intolerable risk for human health and the environment.

Indian government in 2011 has laid down rules to cater proper disposal and reprocessing of E waste. E-waste authorization is made compulsory. Still implementation of these rules in minor generators of E-waste is issue of a concern.

Sources:

1. <https://electronicsforu.com/resources/e-waste-management-scenario>
2. https://www.google.co.in/search?q=e+waste&tbm=isch&tbs=rimg:CVVq6mcjrljiQ3GUea2xUCRTCnn8kzccWd4MW0xQotKPzG4kHSgKJ1dZnLFBeDW9rv24lCbCjbd9wo2iX2wA_18ioSCZD