The Torch
Vol. 2 (1)

Effects of electronic-waste on the environment and public health

Priyanka MR

Waste is an outcome of any product or substance that is no longer suitable for its intended use. E-waste comprises a broad and growing range of electronic devices ranging from large household devices and consumer electronics to computers that have been discarded by their users. E-waste has several heavy metals in them and that is the main reason for concern. Colour cathode ray tubes have 70% lead, semiconductors have arsenic, plated contacts, switches and batteries contain antimony, lighting devices, switches and relays contain the dangerous mercury, and CPU and motherboards are made of beryllium. When these heavy metals are not discarded in the right way, they may enter the food chain of humans and cause deadly impacts on public health. The common routes of exposure to such dangerous heavy metals are inhalation (lungs), contact (skin) and ingestion (mouth). The human exposure pathways are various. A few of the health impacts of these e-wastes are hair loss and neurological issues through selenium; breathing difficulty and lung cancer through beryllium; kidney and central neural system damage by mercury; DNA damage and allergic bronchitis by chromium; and lung cancer and decreased bone density by arsenic. The potential exposure media of such heavy metals are air, soil or dust, water, sediments and food. Heavy metal is defined as any metal that has high atomic weight with a specific gravity that exceeds the specific gravity of water by 5 or more times at 4-degrees Celsius. Several case studies show that exposure to heavy metals is greater among children than among adults. This is because a child's body weight is lesser than that of an adult's weight. Children consume more food in proportion to their body weight and consequently receive higher doses of heavy metals that may be present in their food. Lead and mercury have the capacity to cross the placental barrier, causing potential foetal brain damage. Sometimes chemical pollutants from e-waste recycling sites enter into the water bodies and hence get accumulated in the aquatic animals, such as fish thereby increasing the bioconcentration of hazardous heavy metals. Currently, the main options for the treatment of electronic waste are reuse, remanufacturing and recycling. It is an important area for developing countries to show special care and improvise the guidelines for the disposal of e-waste. Since it is a global problem, it has to be addressed soon by creating proper awareness with appropriate skills.

Keywords: Electronic devices, Developing countries, Contamination, Recycling, Heavy metals

Citation:
Priyanka MR. Effects of electronic-waste on the environment and public health. The Torch. 2021. 2(1). Available from: https://www.styvalley.com/pub/magazines/torch/read/effects-of-electronic-waste-on-the-environment-and-public-health.