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Research Article

What E-waste is all about

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Abstract E-waste is a collective term for the waste arising from electronic and electrical devices. The disposal of electric and electrical goods is a growing global problem. In this modern day of technology, mountains of hazardous e-waste are accumulating around the globe and causing significant health and environmental problems. This paper highlights e-waste problem and offers solutions to the problem.

Keywords electronic waste, recycle, digital garbage

Introduction

Electronic waste (or e-waste) or Waste Electronic and Electrical Equipment (WEEE) refers to disposal of electrical/electronic devices such as computers, monitors, printers, keyboards, cell phones, television sets, electronic toys, air conditioners, and refrigerators. These devices contain potentially harmful components such as lead, mercury, cadmium, chromium, or beryllium which contaminate the land, water, and air. They also contain precious metals such as silver, gold, platinum, and palladium. Television sets and computer monitors use cathode ray tubes (CRTs) which contain significant amounts of lead.

The level of e-waste is increasing all over the world as six billion humans generate an awful lot of e-waste. In the U.S. alone, 130,000 computers and more than 300,000 cell phones are trashed every day [1]. In 2005 alone, more than 1.36 million metric tons of e-waste were discarded in the U.S. Roughly 40 million metric tons of e-waste are produced worldwide each year.

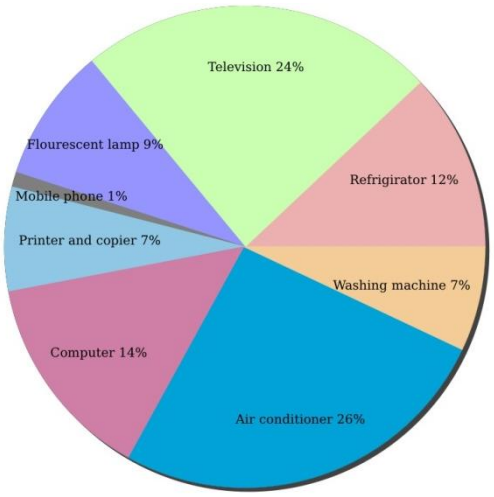

Figure 1: Proportions of e-waste in China in 2013 [3].

The e-waste problem of developing nations such as India, China, and African countries could double or even quadruple by the next decade. For example, the volume of e-waste in India is growing because of the domestic consumption of electronic products and the illegal import of e-waste from developed countries [2]. The proportions of e-waste in China in 2013 are shown in Figure 1 [3].

Solutions for E-waste

Industries worldwide should minimize the amount of waste they generate. Developing countries with rapidly growing economies handle e-waste from developing countries and from their own consumers [4]. The government of China, for example, has gradually developed a regulatory framework for its e-waste management. Some states in the US have enacted some form of e-waste legislation that will make the manufacturers responsible for the costs of recycling their old electronic equipment.

Developed nations such as Canada and Switzerland are employing the 3Rs (recycle, reuse, and reduce) approach in managing e-waste. There are formal recyclers, which are institutions that recycle e-waste with mechanized processes under legally approved conditions [5]. Recycling of electronic devices will minimize e-waste. For example, recycling of microwave oven transformer can provide small electricity distribution to people who are without access to electricity [6]. The lifetime of electronic devices can be extended through recycle and reuse.

What can an individual do about e-waste? You can be part of the solution. If you are an engineer, designing products for the environment is starting in the right direction. Reducing e-waste has the side benefit of improving your company's image. As a consumer, the best thing to do with your old, dead or end-of-life electronics is to donate or recycle them so that they end up being used by someone in need or recycled in the safest way possible. Companies such as E-stewards (e-stewards.org), Best Buy (bestbuy.com), Staples (staples.com), Office Depot (officedepot.com), E-cycle (e-cycle.com), and Call2recycle (call2recycle.org) have cycling programs.

Conclusion

Hazardous materials in e-waste can cause toxic pollution if they are disposed of in crude methods. The complexity of the e-waste problem demands an interdisciplinary approach.

However responsibility of e-waste is assigned, the problem is urgent. With the rapidly growing production and consumption of electronic products, e-waste has come to stay. Younger generations, particularly college students, should be made to be aware of e-waste management.

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