



ELECTRICAL AND ELECTRONIC WASTE: A GROWING ISSUE

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Abstract:

“WEEE” or Waste electrical and electronic equipments”

A computer complete with monitor, keyboard, mouse and the central processing unit weight about 32 kg. But with no scientific system of recycling in place they are dumped as E-waste. Pile after pile of chips and assorted bits and pieces of computers are contributed by IT companies. As the IT segment tries to keep pace the recycling market gets flooded with fresh stocks of electronics materials - stripped, pounded and extracted. The BPO/IT segment is one of the largest generators of e-waste.

As the problem of e-waste continues to grow bigger, the need to evolve clean means of disposal has become more urgent. Some private companies are working on scientific recycling of waste. The bulk of e-waste still travels to the scrap yards and the backroom recycler.

Keywords: *E Waste Introduction; Problems by E-Waste Recycling.*

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1. Introduction

Abandoned monitor Electronic waste, "e-waste" or "Waste Electrical and Electronic Equipment" ("WEEE") is a waste type consisting of any broken or unwanted electrical or electronic appliance. It is a point of concern considering that many components of such equipment are considered toxic and are not biodegradable.

Electronic Waste includes computers, entertainment electronics, mobile phones and other items that have been discarded by their original users. While there is no generally accepted definition of electronics waste, in most cases electronic waste consists of electronic products that were used for data processing, telecommunications, or entertainment in private households and businesses that are now considered obsolete, broken, or unrepairable. Despite its common classification as a waste, disposed electronics are a considerable category of secondary resource due to their significant suitability for direct reuse (for example, many fully functional computers and components are discarded during Upgrades), refurbishing, and material recycling of its constituent raw materials (listed below in this paper). Reconceptualization of electronic waste as a resource thus preempts its potentially hazardous qualities. Some important information which are given in this paper.

2. Definition of Electronic Waste

Electronic waste includes computers, entertainment electronics, mobile phones and other items that have been discarded by their original users. While there is no generally accepted definition of electronic waste, in most cases electronic waste consists of electronic products that were used for data processing, telecommunications, or entertainment in private households and businesses that are now considered obsolete, broken, or unrepairable. Despite its common classification as a waste, disposed electronics are a considerable category of secondary resource due to their significant suitability for direct reuse (for example, many fully functional computers and components are discarded during upgrades), refurbishing, and material recycling of its constituent raw materials (listed in this paper). Reconceptualization of electronic waste as a resource thus preempts its potentially hazardous qualities.

- Large household appliances (ovens, refrigerators etc)
- Small household appliances (toasters, vacuum, cleaners etc) Office & communication (PCs, printers, phones, faxes etc) Entertainment electronics (TVs, HiFis, portable CD players etc) Lighting equipment (mainly fluorescent tubes)
- E-tools (drilling machines, electric lawnmowers etc)
- Sports & leisure equipment (electronics toys, training machines etc) Medical appliances and instruments.
- Surveillance equipment
- Automatic issuing systems (ticket issuing machines etc)

3. Problems Caused by Electronic Waste

Electronic waste is a valuable source for secondary raw materials, if treated properly, however if not treated properly it is major source of toxins. Rapid technology change, low initial cost and even planned obsolescence have resulted in a fast growing problem around the globe. Technical solutions are available but in most cases a legal framework, a collection system, logistics and other services need to be implemented before a technical solution can be applied.

Due to lower environmental standards and working conditions in China, India, Kenya and elsewhere, electronic waste is being sent to these countries for processing - in most cases illegally. Delhi and Bangalore in India and Guiyu in Shantou region of China have electronic waste processing areas." Uncontrolled burning and disposal are causing environmental and health problems due to the methods of processing the waste. Trade in electronic waste is controlled by the Basel Convention.

Electronic waste is of concern largely due to the toxicity of some of the substances if processed improperly. The toxicity is due in part to lead, mercury, cadmium and a number of other substances. A typical computer monitor may contain more than 6% lead by weight. Up to thirty-eight separate chemical elements are incorporated into electronic waste items. The unsustainability of discarded electronics and computer technology is another reason for the need to recycle - to perhaps more practically, reuse Electronic Waste.

In 1991 the first electronic waste recycling system was implemented in Switzerland beginning with the collection of refrigerators. Over the years, all other electric and electronic devices were

gradually added to the system. Legislation followed in 1998 and since January 2005 it has been possible to return all electronic waste to the sales points and other collection points free of charge. There are two established PROs (Producer Responsibility Organisations): SWICO mainly handling electronic waste and SENS mainly responsible for electrical appliances. The total amount of recycled electronic waste exceeds 10 kg per capita per year.

4. Trends in Electronic Waste Recycling

WEEE Man in the 1990s some European Countries banned the disposal of electronic waste in landfills. This created an e-waste processing industry in Europe. Earl), in 2003 the EU presented the WEEE and RoHS directives for implementation in 2005 and 2006.

Many Asian countries have legislated or will do so, for electronic waste recycling.

Chemical elements contained in electronic waste-lead, zinc, chromium, cadmium, mercury, copper.

Elements in trace amounts-germanium, barium, nickel, tantalum, indium, vanadium, terbium, beryllium, gold, europium, titanium, ruthenium, cobalt, palladium, manganese, silver, antimony, bismuth, selenium, niobium, yttrium, rhodium, platinum, arsenic, lithium, boron, americium. Other-silicon, carbon, iron, aluminium, tin, copper.

The European Union is implementing a similar system described in the Waste Electrical and Electronic equipment Directive (WEEE 2002/96/EC). The WEEE Directive has been transposed in national laws and become effective. The manufacturers became financially responsible for the compliance to the WEEE directive since 13 August 2005. By the end of 2006 - and with one or two years' delay for the new EU members - every country has to recycle at least 4 kg of e-waste per capita.

Electronic waste processing systems have matured in recent years following increased regulatory, public and commercial Scrutiny, and a commensurate increase in entrepreneurial interest. Part of this evolution has involved greater diversion of electronic waste from energy intensive, down-cycling processes (eg. conventional recycling) where equipment is reverted to a raw material form. This diversion is achieved through reuse and refurbishing. The environmental and social benefits of reuse are several: diminished demand for new products and their commensurate requirement for virgin raw material (with their own environmental externalities not factored into the cost of the raw materials) and larger quantities of pure water and electricity for associated manufacturing, less packaging per unit, availability of technology to wider swaths of society due to greater affordability of products, and diminished use of landfills.

5. Discussion

Challenges remain, when materials cannot or will not be reused, conventional recycling or disposal via landfill often follows. Standards for both approaches vary widely by jurisdiction, whether in developed or developing countries. The complexity of the various items to be disposed of, cost of environmentally sound recycling systems, and the need for concerned and

concerted action to collect and systematically process equipment are the resources most lacked - though this is changing. Many of the plastics used in electronic equipment contain flame retardants. These are generally halogens added to the plastic resin, making the plastics difficult to recycle.

Some states in the US developed policies banning CRTs from landfills. Some e-waste processing is carried out within the US. The processing may be dismantling into metals, plastics and circuit boards or shredding of whole appliances. From 2004 the state of California introduced a Electronic Waste Recycling Fee on all new monitors and televisions sold to cover the cost of recycling. The amount of the fee depends on the size of the monitor. That amount was adjusted on July 1, 2005 in order to match the real cost of recycling.

A typical electronic waste recycling plant as found in some industrialized countries combines the best of dismantling for component recovery with increased capacity to process large amounts of electronics waste in a cost effective manner. Material is fed into a hopper, which travels up a conveyor and is dropped into the mechanical separator, which is followed by a number of screening and granulating machines. The entire recycling machinery is enclosed and employs a dust collection system. The European Union, South Korea, Japan and Taiwan have already demanded that sellers and manufacturers of electronics be responsible for recycling 75% of them.

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