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E-WASTE AND THE IMPORTANCE OF ELECTRONICS RECYCLING

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This article looks at some of the basic questions, such as defining e-waste, exploring why it is important, how consumers can recycle their old electronics devices and current practices in developed and developing countries.

У статті розглядаються основні питання по переробці електричних виробів. Представлено визначення електронних відходів та вивчення важливості даного питання. Досліджено як споживачі можуть переробляти свої старі електронні пристрої. Розглянуто методи переробки в розвинутих країнах та країнах, що розвиваються.

Problem setting. Although developed countries are currently producing large amounts of electronic waste (e-waste), the rate at which e-waste production is growing in developing countries is a major concern. The unsafe disposal of this e-waste is a growing problem for the environment human health. E-waste is a very underestimated cause of pollution on this planet and more people need to be aware of the affect it has on the environment. It effects on the environment negatively but also mankind. E-waste is electronics that have been leftover and considered outdated and obsolete. The leftover electronics usually end up getting sent to China or other countries in order to get valuable parts.

Basic materials of research. The amount of E-waste is growing, and with that comes the need for effective electronics recycling programs. People are looking for information about TV, computer recycling, and other programs that will help them responsibly get rid of unwanted equipment with minimal risk of information or identity theft.

With new cheap devices, society has reaped tremendous benefits. This explosive growth in the electronics industry, however, has led to a rapidly escalating issue of end-of-life (EOL) electronics or e-waste.

This issue is receiving considering attention of politics, industry, and consumers. This is good news because many consumers are still not sure how to safely dispose their old computers, smartphones or other electronic devices. According to report, nearly 75 percent of old electronics continue to be stored in households because of the unavailability of convenient recycling options.

What Does Electronics Consist of?

Electronics consists electrical circuits, which contain hazardous material: Sliver, Lead, Mercury, Arsenic, Cadmium, Sliver. For example: Computer Batteries contain nickel-cadmium, lithium or sealed lead acid.

How can consumers recycle their old electronics devices?

Consumers have access to a number of recycling opportunities, depending upon where they live. Thinking in terms of the electronics recycling hierarchy, the best choice is to donate computer equipment that can be refurbished or reused if you erase all personal data. Other recycling opportunities include authorized electronics recycler locations, electronics recycling events, or corporate take back programs.

Current practices in developed and developing countries.

Two major types of e-waste recycling methods that are used throughout the world are formal and informal e-waste recycling. Formal recycling primarily occurs in more developed countries due to the increase in the costs necessary to use this method. It costs more money to recycle the e-waste properly in a formal facility than to recycle the e-waste informally. Informal recycling facilities are primarily used in developing nations.

Formal recycling practices: In developed countries, formal recycling practices are taken very seriously. These e-waste management systems are comprised of three components: the national registry, collection systems, and logistics. Dismantling and pre-processing only require minimally skilled workers capable of performing mechanical processes with drills and wrenches. End-processing requires highly skilled workers and complex equipment such as integrated metal smelters which can be very costly. These intricate systems have been designed such that the handling and disposal of e-waste has minimal impact on the environment. However, these facilities can cost hundreds of millions of dollars to construct and operate. This formal recycling process has proved to be effective but finding a way to apply these techniques in developing countries poses financial challenges.

Informal recycling practices: Ideally, all e-waste should be recycled in formal recycling facilities. However, because the formal e-waste facilities are expensive to construct and operate, especially in less developed countries, informal recycling sites are prevalent. The informal e-waste sector consists of sites that extract the valuable parts of the electronics using crude recycling and disposal methods usually without any kind of safety equipment such as goggles or gloves or the assistance of technology. These crude procedures used in the informal sectors are what lead to environmental contamination because the processes toxic chemicals emission from the e-waste into the surrounding environment.

How to get rid of electronic waste safely?

There are 3 major ways in which electronic waste can be treated:

1. Burning the waste

Advantages: the volume of electronic waste is immensely reduced, and energy may be produced through the process of burning the waste. Disadvantages: Specific substances such as lead and mercury produces highly toxic pollution.

2. Recycling the waste

3. Repairing the electronic waste then selling it to be re-used.

Advantages: Electronic waste can be used more than once, where no chemicals are leaked into the environment, conserve our natural resources, and avoid air as well as water pollution, reduced amount of landfills. Social benefits: many recycling programs proceeds of the programs can be used to charitable organizations, create green jobs. Disadvantages: recycling can generally be a very slowly process that requires time, money, and effort, many electronics are not fixable products, high initial cost, recycled and re-used products may not last very long.

Electronics recycling in Ukraine.

Currently, electronic waste is an increasing problem for Ukraine, because, instead of sorting, separating of a solid waste, transferring to recycling and final processing - used office equipment only accumulating, getting to landfills with household garbage or stored in warehouses, basements, households. premises of enterprises and institutions.

Proper utilization of obsolete, worn out and broken office equipment in Ukraine will allow to return back to use up to 95% of these products in one form or another after processing. The experience of our country in sorting, transferring to the recycling, processing of office equipment, should be based on the European experience in handling such hazardous waste as electronic garbage.

The methods of utilization are divided into "light" and "heavy" materials. In the second variant, the plastic is separated from the metal in the prefabricated electronic devices.

Possible Solutions of E waste Control

Boosting eWaste Awareness: A large scale awareness campaign is required to sensitize consumers about what electronic waste is and how it can impact on health and the environment.

Take Back Program: The government should ensure that every electronic manufacturer in the country has an eWaste take back program for proper and safe disposal of discarded gadgets.

Reuse: Discarding old or defective gadget is simply not the solution. We should inculcate the habit of repairing and reusing old electronic products. If not, we should at least give them to re-commerce websites where the gadgets are refurbished and sold at discounted prices, making the same gadgets affordable for others.

Conclusion. Manufacturers and producers need to become more involved in implementing more successful take-back systems for their electronic devices so that they will be recycled properly at formal facilities that will mitigate the negative environmental and health impacts.

As far as e-waste is concerned, today it has emerged as one of the fastest growing waste streams worldwide. Electronic equipment is one of the largest sources of heavy metals and without effective collection, reuse, and recycling systems, they will be dangerous to the environment. Reuse and recycling of electronic equipment is a beneficial alternative than disposal. Product design by using safe and environment-friendly raw materials and most emerging technologies. Awareness about e-waste. Implementation of legislation.

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