Haileybury MUN
Research report

Environmental Commission 1
The question of the disposal of electrical devices

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Definitions

WEEE- Waste Electric and Electronic Equipment

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E-waste- covers all items of electrical and electronic equipment and its parts that have been discarded by its owner as waste without the intention of reuse

Miniaturization- the process of making something very small using modern technology: The silicon chip is a classic example of the benefits of miniaturization.

E-cycling- recycling of electronics, which allows the parts to be reused and recycled instead of being dumped into a landfill, where potentially harmful chemicals from electronics can seep into the ground.

Introduction

Global consumption of electrical and electronic equipment is on the rise. When these products enter a used and end-of-life state, a large amount of this equipment is sorted incorrectly and shipped illegaly around the world, to then be disposed of or treated under rudimentary conditions.

E-waste is a complex and fast-growing waste stream that covers a large variety of products. The composition of this waste stream, that is, its constituents including toxins and its resource potential, varies significantly by product which makes e-waste very difficult to manage. Rapid product innovation, miniaturisation and replacement, especially for information and communication technology (ICT) products and consumer equipment, are fuelling the increase of e-waste.

Key points

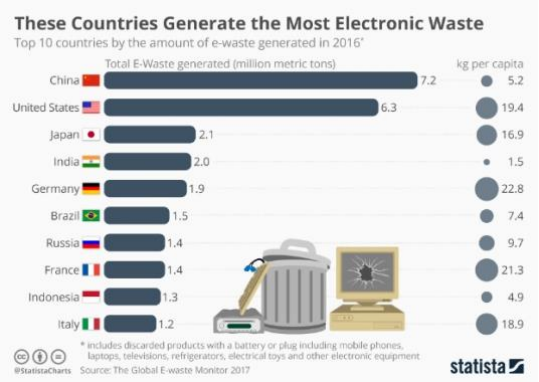
Members of the Issue Management Group on Tackling E-waste (UN), emphasise that where possible in UN entities' projects, programmes and mandates on tackling e-waste, more attention should be paid to the early stages of the life-cycle of electrical and electronic equipment; such as design and production

whilst at the same time ensuring that all stages are considered from design, to use, to final disposal.

<u>The regional distribution of UN and related entities' activities on e-waste</u>

- centered substantially in the African and Asian regions
- less activity in Europe and significantly less in North America, Australia and New Zealand.
- The Latin American and Caribbean region in recent times has attracted increasingly more activity.
- More attention in Africa and Asia can be attributed to the more curative nature of many current approaches to e-waste management in these regions such as open burning and acid baths etc., for separating materials. Moreover, these two regions have long been a hub for near-end-of-life and

end-of life legally and illegally imported EEE.



Common methods of disposal

Landfilling- most common methodology of e-waste disposal.

- not an environmentally sound process for disposing off the e-waste as toxic substances like cadmium, lead and mercury are released inside the soil and ground water.

Acid Bath- involves soaking of the electronic circuits in the powerful sulphuric, hydrochloric or nitric acid solutions that free the metals from the electronic pathways. The recovered metal is used in the manufacturing of other products while the hazardous acid waste finds its ways in the local water sources.

Incineration- a controlled way of disposing off the e-waste and it involves combustion of electronic waste at high temperature in specially designed incinerators.

- quite advantageous as the waste volume is reduced extremely
- the energy obtained is also utilized separately
- not free from disadvantages with the emission of the harmful gases mercury and cadmium in the environment.

Recycling- involves dismantling of the electronic device, separation of the parts having hazardous substances and then recovery of the precious metals like copper, gold or lead

Reuse- most desirable e-waste recycling process where with slight modifications devices can be reused or given as second-hand product. The old electronic equipment can also be donated in the various charity programs and thus helping the persons in need. it.

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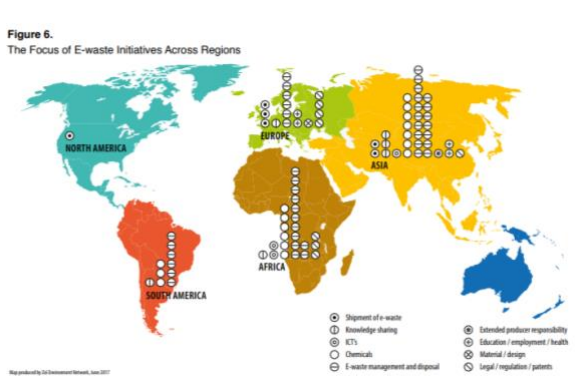

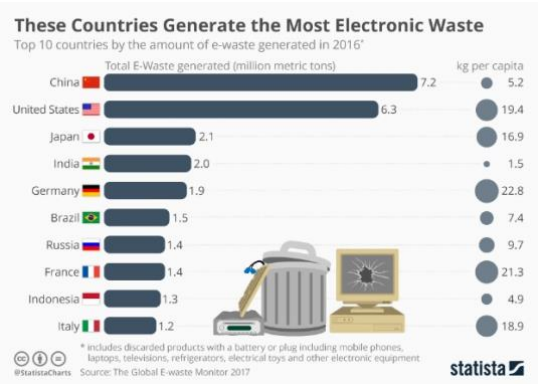

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Key issues

The United States, and other economically established countries, handles some e-waste recycling but the EPA estimates that 25% of recyclable electronic waste is shipped away.

Disposal of e-waste can have detrimental effects on the environment and humans:

Electronic scrap components contain potentially harmful components such as lead, mercury and arsenic - to name but a few. These elements, and others, can have severe human impact through exposure.

If these items aren't handled correctly, they can cause organ damage, neurological damage, and severe illness not only in the workers that handle them directly but also within the communities of the developing countries where they are shipped.

The threat comes from exposure during recycling and disposal efforts. The harmful components can leak into the ground as they are packed into landfills. They can also be released when the items are incinerated, a common method for disposal.

Useful Websites

http://www.hse.gov.uk/waste/waste-electrical.htm

https://www.rubiconglobal.com/blog-electronic-waste-problem/

https://earth911.com/eco-tech/20-e-waste-facts/

https://ifixit.org/ewaste

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