Committee: Environmental Committee

Issue: The question of e-Waste in LEDCs

Student Officer: Vithleem Rammou

Position: Co-chair

INTRODUCTION

The amount of electrical and electronic waste (e-waste) produced each day has been growing to an alarming rate around the globe with the usage of electrical and electronic equipment (EEE) on the rise. In 2016, 44.7 million metric tonnes of e-waste were generated, which is equivalent to almost 4,500 Eifel Towers. Most e-waste is disposed in landfills, since effective reprocessing technology, which recovers the valuable materials with minimal environmental impact, is very expensive. But, instead of developing new recycling techniques, countries with a high production of e-waste, transport it illegally overseas. Consequently, less than one-sixth of e-waste is properly recycled. In 2014, 41.8m tonnes of fridges, washing machines and other domestic appliances (e-waste) were discarded in Less Economically Developed Countries (LEDCs).

ELECTRONIC WASTE[1]

The citizens of LEDCs are forced by the constantly growing landfills to burn or break the e-waste in order to decrease the size of these landfills. But the fact that most LEDCs do not have the infrastructure to safely deal with electronic waste leads to selective recycling methods, which are not in compliance with UN standards.

Inappropriate disposal of e-waste not only causes environmental pollution, but also harms human health. Recycling of valuable elements contained in e-waste, such as gold and copper, has become a source of income in those countries. However, both adult and child workers are exposed to a range of hazardous substances by the use of primitive recycling techniques (e.g., burning cables for the extraction of copper).

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[1]"Each U.S. Family Trashes 400 IPhones' Worth of E-Waste a Year." National Geographic, National Geographic Society, 13 Dec. 2017, https://news.nationalgeographic.com/2017/12/e-waste-monitor-report-glut/.

The direct contact with the harmful material that e-waste contains (e.g., lead, cadmium, chromium, brominated flame retardants or polychlorinated biphenyls), the inhalation of the toxic fumes while burning and the accumulation of these chemicals in soil, water and food, results in many health risks. Moreover, e-waste can give rise to a number of toxic by-products likely to affect human health (e.g., milk or meat from grazing cows in a toxic environment). Especially in Ghana, animals graze near e-waste landfills and thus there is a high possibility that their products are affected and therefore eventually unsuitable for consumption.

DEFINITION OF KEY-TERMS

Electronic waste (e-Waste)

Electronic waste is a term for broken, obsolete or no longer wanted electronic devices; their parts are recyclable for reconstructing a similar device. E-waste contains hazardous materials (e.g., beryllium, cadmium, mercury and lead) as well as precious metals, including gold, silver, copper, platinum and palladium. However, hazardous materials require special handling during the disposal process (e.g., cathode ray tube monitors). The most common discarded electronic products include cell phones, computers, televisions, monitors, printers and fax machines.

Electrical and Electronic Equipment (EEE)

Electrical and Electronic Equipment consists of devices based on the technology of electromagnetic fields or electric currents so as to work properly. EEE is also equipment for the production, transfer and measurement of such currents and fields and it is generally every piece of equipment that has a battery or needs a power supply to work properly.

Electronic Waste Recycling Fee

The electronic waste recycling fee is imposed by governments on new purchases of electronic products. This fee is used to cover the cost of the future recycling of these products, as many of them contain hazardous materials and require special recycling methods.

Closed-loop manufacturing

The closed-loop manufacturing systems maximize efficiency, reuse or recycle waste or scrap materials, use recycled materials, have very sustainable operations and utilize reusable energy. The goal of this manufacturing method is to convert waste to the feedstock for new products, eventually requiring no outside resources.

Informal processing/Informal recycling

When electronics are taken apart by individuals, who do not use proper health and safety precautions, and therefore put themselves as well as their surrounding

environment in danger through exposure to unsafe materials and chemicals (acids, mercury, lead, toxic fumes, etc.), informal processing and recycling of these electronics occurs.

BACKGROUND INFORMATION

Consumption of electronic devices

The beginning of e-waste

Around 1970, the production of electronics became more and more widespread and the public had easier access to these products. Consequently, mass production of electronic devices rose dramatically in the 1970s and at the same time, due to globalisation of shipping, transboundary movement of e-waste became more accessible to MEDCs. Meanwhile, many LEDCs were seeking for foreign currency and therefore the trade in hazardous waste grew rapidly, especially in such countries.

Life span of electronic devices

Nowadays, the life span of electronic devices is getting shorter, while there is also the tendency of throwing away many products once they are no longer functional in order to replace them with new ones. Multinational companies, even though they are aware of these circumstances, intentionally plan the obsolescence of their goods by discontinuing support for older models. In this way, it usually becomes easier and more cost-effective to buy a new product than to repair an old one and at the same time manufacturers, by updating the design or software of the new devices, urge the public to buy the newest ones instead of repairing them.

E-waste in LEDCs

Disposal of e-waste in LEDCs

As mentioned in the introduction, the disposal of e-waste in LEDCs does not occur by international safety standards. The disposal methods in LEDCs lack know-how and facilities and, as a consequence, the process of e-waste disposal is dangerous for both people and the environment.

Health risks caused by false disposal of e-waste

Some of the injuries that it is likely to afflict people, who falsely dispose e-waste, are burns, eye sight damage, lung problems, untreated wounds, anorexia, chronic nausea, respiratory problems and debilitating headaches. Almost everyone involved in this situation suffers from insomnia. Moreover, careless workers unaware of the risks of walking around in flimsy footwear or inhaling invisible toxins (e.g., cadmium) and smoke

are being harmed and, consequently, most of them die in their 20s from cancer. The hazardous substances that e-waste contains have strong neurobehavioral and neurodevelopmental effects, especially on children. Changes in mental health, including attention deficit, behavioral disturbances, conduct issues and hyperactivity have been reported after childhood exposures to lead, polychlorinated biphenyls, aluminium and mercury.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

Ghana

Agbogbloshie, a district close to Accra in Ghana, is the world's biggest e-waste dumpsite. Containers labelled as "Development Aid" or "Second-Hand Products" find their way, illegally, to Tema Harbour, 20 miles east of Agbogbloshie. Customers around the globe expect proper recycling for their electronic waste, but illegal dumping became a lucrative business. Young people, aged between 7 and 25, smash e-waste with any tools given so as to “extract” precious metals.

BURNING OF WIRES FROM AUTO HARNESSES AND ELECTRONICS FOR COPPER RECOVERY AT AGBOGBLOSHIE, GHANA 2018[2]

China

As China is the largest importer of electronic waste, e-waste is a serious environmental issue for the country. Furthermore, China “hosts” the biggest dumpsite of e-waste worldwide, namely the electronic waste site of Guiyu. More specifically, this dumpsite covers 52 km and endangers the health of many citizens. Almost 80% of the children living in or near this area are suffering from lead poisoning. The Chinese government has made numerous efforts to implement the e-waste import ban and as a result the situation in Guiyu has slightly improved since 2007, but it still remains a huge problem for the residents. In order to clean up its environment, the country managed last year to ban the imports of every plastic waste.

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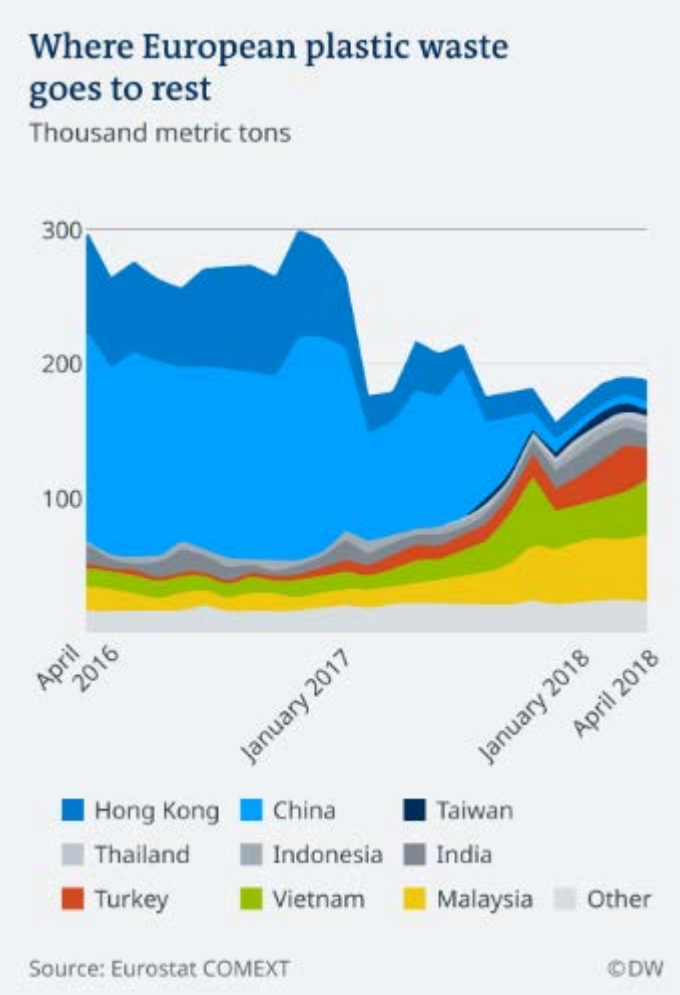
[2] “Agbogbloshie.” Wikipedia, Wikimedia Foundation, 2 July 2019, https://en.wikipedia.org/wiki/Agbogbloshie.

Malaysia

After China banned the imports of plastic waste, countries that shipped their waste there started seeking for new regions to discard them, including Malaysia. During the first months of 2018, plastic waste, including e-waste exported from the USA to Malaysia, was more than double compared to that of the previous year according to a recent Greenpeace report. The Malaysian government decided to return contaminated plastic waste to the countries that originally shipped it. In April 2019, Malaysia shipped five containers of waste to Spain and it is expected that other countries will similarly receive their plastic waste containers. Last year, Malaysia and 186 further countries, agreed to add plastic as a hazardous material to the Basel Convention, which controls the international shipping of such materials, so as to prevent further damage to the environment and to combat the dangerous effects of plastic pollution.



WHERE EUROPEAN WASTE GOES TO REST[3]

Vietnam

Each year, domestic e-waste in Vietnam is growing by about 25%, with up to 113,000 metric tonnes (124,500 tonnes) discarded only in 2015. Due to the huge landfills of waste, a new programme was established by American technology giants, Apple and Hewlett-Packard. This platform, namely The Vietnam Recycling Platform, helps customers and manufacturers to follow regulations on collecting and recycling of waste.

[3] Deutsche Welle. "After China's Import Ban, Where to with the World's Waste? | DW | 05.04.2019." *DW.COM*, www.dw.com/en/after-chinas-import-ban-where-to-with-the-worlds-waste/a-48213871.

United Kingdom (UK)

The Basel Action Network (BAN) conducted a two-year investigation in order to ensure that the Basel Convention agreement was not violated. Through this investigation, researchers managed to track 3 suspicious exports which originated from the Council recycling facilities of the UK and were shipped to Nigeria, Tanzania and Pakistan.

United States of America (USA)

The United States is the biggest producer of e-waste annually among all other countries. Almost 6.3 kilotons of e-waste is thrown away every year, out of which only 12.5% is properly recycled, according to EPA. According to National Geographic, this number is equivalent to 400 phones being thrown away by every American family within a year.

Canada

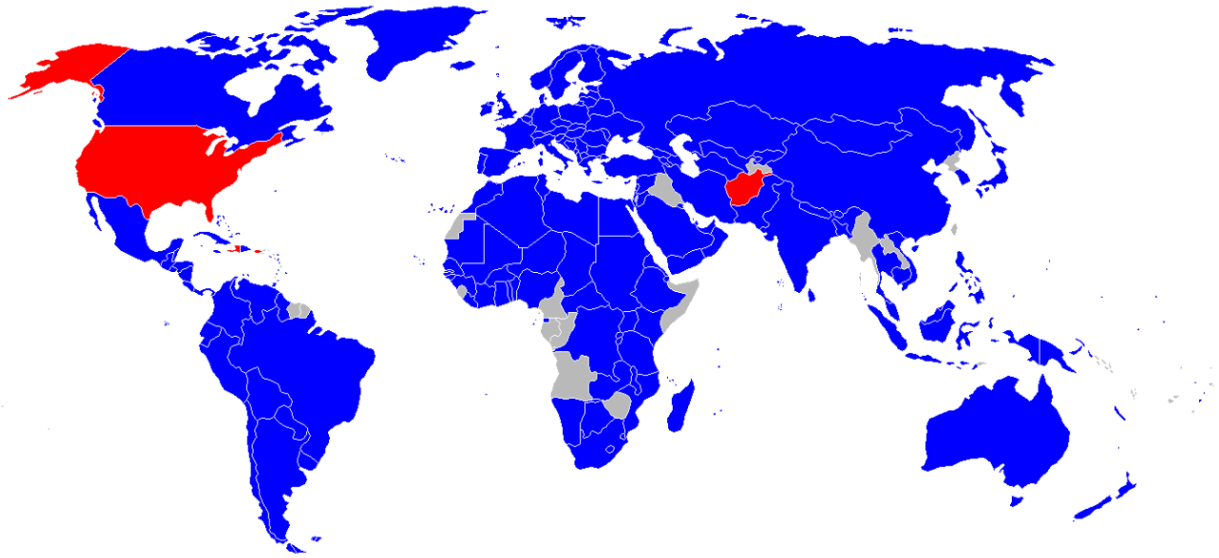
Canadian households produced approximately 14.3 million tonnes of waste in 2012. The report entitled “Export of e-Waste from Canada. A Story as Told by GPS trackers” conducted by the Basel Action Network, showed that some waste, for instance, broken electronic devices, are leaving Canada and end up in various locations around the world, including LEDCs, which lack the infrastructure for e-waste disposal and consequently the environment and people’s health are in jeopardy.

Australia, France, Italy and Spain have an increased production of e-waste too. Some illegal transports of electronic waste from these countries to LEDCs have been noticed, especially from Spain to Malaysia.

TIMELINE OF EVENTS

DATE	DESCRIPTION OF EVENT
21 October 1976	The USA Congress enacted the Resource Conservation and Recovery Act (RCRA) in order to provide financial and technical assistance for the safe disposal of discarded materials and for the development of facilities and management

	plans for the recovery of energy and other resources from discarded materials, and in order to regulate the management of hazardous waste.
22 March 1989	The Basel Convention, a United Nations treaty, was signed. The aim of this international treaty is to reduce the transportation of hazardous waste between nations, and more specifically, to prevent the transport of hazardous waste from MEDCs to LEDCs.
19 February 2019	The European Commission adopted the Implementing Regulation (EU) 2019/290 with which it establishes the format for reporting producers of electronic and electrical equipment to the register.



COUNTRIES THAT HAVE SIGNED AND RATIFIED THE BASEL CONVENTION
COUNTRIES THAT HAVE ONLY SIGNED AND NOT RATIFIED THE BASEL CONVENTION[4]

[4] "Electronic Waste by Country." Wikipedia, Wikimedia Foundation, 9 Jan. 2019, https://en.wikipedia.org/wiki/Electronic_waste_by_country#/media/File:Basel_Convention_signatories.PNG

RELEVANT UN RESOLUTIONS, TREATIES AND EVENTS

WTSA Resolution Nr.79

This resolution was proposed in the World Telecommunication Standardisation Assembly (WTSA) and signed in Dubai, United Arab Emirates in November 2012. The topic at hand was the following: “The role of telecommunications/ information and communication technologies in handling and controlling e-waste from telecommunication and information technology equipment and methods of treating it”.

The United Nations specialized agency in the field of telecommunications, information and communication technologies is the International Telecommunication Union (ITU). The Telecommunication Standardization Sector of the ITU (ITU-T) is a permanent organ of the IT Union and this sector is responsible for operating, studying technical, and tariff questions and it is also responsible for issuing recommendations on them with a view to standardizing telecommunications on a worldwide basis.

Resolution 35

This resolution of the Plenipotentiary Conference was signed in Kyoto (Japan) in 1994 and is about telecommunication support for the protection of the environment.

Resolution 1307

It is a resolution of the ITU Council that was signed in Geneva in 2009; among its topics were information and communication technologies (ICTs) and how they affect climate change.

Resolution 182

This resolution of the Plenipotentiary Conference, signed in Guadalajara in 2010, was about the role of telecommunications/ICTs in regard to climate change and the protection of the environment.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

The Solving the E-waste Problem (StEP) initiative had its official promotion in March 2007. It was created when WEEE started increasing dramatically and the problem was already recognized by the greater public. It is an international initiative, created with the aim to develop solutions to problems connected with Waste Electrical and Electronic Equipment (WEEE). Some of its members are government agencies, NGOs, eminent players in the fields of Production, Reuse and Recycling of Electrical and Electronic Equipment (EEE), and also UN Organizations. This initiative encourages the collaboration of all stakeholders connected with e-waste emphasizing a holistic, scientific yet applicable approach to the problem. A further attempt to solve the issue of

e-waste in LEDCs was the fact that Malaysia started returning all contaminated plastic waste, including e-waste, to its “initial owners”.

POSSIBLE SOLUTIONS

Solving the e-waste problem in LEDCs starts off by raising public’s awareness in MEDCs, especially in countries with a big production of e-waste, about the hazards unrecycled e-waste cause to the environment, as well as about the environmental condition in countries, which receive e-waste. With some effort, almost everything electronic device can be recycled properly.

It is also very important to ensure that every e-waste processor follows certified documented procedures in order to dispose safely electronic waste and to ensure that it is fully certified in safe destruction.

Further solutions include buy-back and return methods for used electronics, according to which consumers may return their old or broken devices to the company and receive money in return. Every electronic device contains precious metals that could be reused for the production of new ones. In this way, companies not only reduce their footprint on the environment, but also minimize the costs of production.

Moreover, measures for durable product design and the ‘dematerialization’ of electronics by replacing outright device ownership with rental and leasing models in order to maximize product reuse and recycling opportunities could help tackling the issue of e-waste in LEDCs.

Research should also be conducted in order to achieve the elimination of hazardous substances during the production and design of electrical and electronic equipment. Through this research, it should also be examined if producers could replace the toxic substances with new eco-friendlier ones.

A large percentage of e-waste collection and processing in LEDCs is undertaken by the informal sector. The formalization of this sector is required in order to both ensure the environmentally sound management (ESM) of e-waste and also to bring rights to these workers.

Last but not least, as already mentioned a large variety of valuable materials and plastics are contained in electric and electronic appliances. In complex electronic devices, up to 60 elements in the periodic table can be found and many of them are technically recoverable, though there are some economic limits set by the market. Through “urban mining”, many of the precious metals could be “extracted”.

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