**Committee: United Nations Environment Program**

**Issue: E-waste disposal in Less Economically Developed Countries**

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## INTRODUCTION

With our growing appetite for electrical and electronic devices, combined with rapid innovation and ever-shorter product lifespans, e-waste has now become one of the greatest threats that our planet faces. E-wastes constitute a wound for humanity, as they can cause environmental pollution, human diseases and they reinforce the climate crisis. Despite the fact that developed countries are able to take care of their correct removal and reuse, less economically developed countries, due to lack of funds and equipment undermine the efforts. This insufficient tolerance affects also the western societies and the e-wastes redundant is something that affects all of us.

My name is Nestoras-Marios Apostolopoulos and I am going to be a deputy chair in the UNEP committee. Alongside my Co-Chairs, we hope to make this MUN a memorable one. I hope this study guide will help you familiarize yourselves with the topic. If any clarifications are needed, feel free to contact me on my e-mail: nestoras.apostolo@gmail.com

# Important note from the chairs' team

In order for the chairs to fully understand the dynamics of the committee, discovering any misunderstanding prior to the debate and for the better preparation of the delegates you are asked to proceed as indicated below;

1) Conduct your chairs via email and informing them about your mun experience so that they can know what exactly to expect of you.

2) Prepare and send your chairs by 11:59 of the 6th of November one position papers for each of the topics you are going to discuss during the conference. You can conduct the expert chair, of each topic for further information concerning your country's policy if needed, and for general guidance when it comes to your position papers (word limit structure etc). You are going to receive general comments during the lobbying for your position papers as well as personal feedback and grades for your papers. The points you will receive will add up to your general score which is one of the factors that determine the best delegate award. **If you for any reason fail to send your papers before the final deadline you will not be eligible for any award.**



## DEFINITION OF KEY TERMS

### Developed/Developing Countries

The list of developed and developing countries is decided upon by the United Nations Economic and Social Council. The lists are formed through separation among the countries according to some criteria. The basic criteria for inclusion are related to per capita GNI, a human assets index and an economic vulnerability index.

### Electronic waste

Electronic waste, or e-waste, refers to all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of re-use (Step Initiative 2014). E-waste is also referred to as WEEE (Waste Electrical and Electronic Equipment), electronic waste or e-scrap in different regions and under different circumstances in the world.

### Electronic devises

Electronics or electronic devises comprise the physics, engineering, technology and applications that deal with the emission, flow and control of electrons in vacuum and matter.

### Recycling

Recycling is the process of converting waste materials into new materials and objects.

## BACKGROUND INFORMATION

The problem was firstly spotted by the 1930s but it was on a much smaller scale. By the mid-60s the problem had already taken larger extent and till then it is getting larger and larger. According to the United Nations' calculations, more than 60 million tons of e-waste are released to the environment every year.

### E-wastes in less economically developed countries

Despite the fact that the consumption and use of electronic devices is more common in economically developed countries the last years is also shown a rapid rise of these materials also in developing nations. Some less economically developed countries lack a waste treatment infrastructure and waste management laws and enforcement. As a result, the e-waste in those countries will often be treated in suboptimal ways by the informal sector. This leads to severe consequences for the environment and human health.

**E-wastes categorization**

E-wastes can be categorized into six categories. Each product of the six e-waste categories has a different lifetime profile, which means that each category has different waste quantities, economic values, as well as potential environmental and health impacts if recycled inappropriately. These categories are:

1. Temperature exchange equipment, more commonly referred to as cooling and freezing equipment. Typical equipment includes refrigerators, freezers, air conditioners, heat pumps.

2. Screens, monitors. Typical equipment includes televisions, monitors, laptops, notebooks, and tablets.

3. Lamps. Typical equipment includes fluorescent lamps, high intensity discharge lamps, and LED lamps.

4. Large equipment. Typical equipment includes washing machines, clothes dryers, dish-washing machines, electric stoves, large printing machines, copying equipment, and photovoltaic panels.

5. Small equipment. Typical equipment includes vacuum cleaners, microwaves, ventilation equipment, toasters, electric kettles, electric shavers, scales, calculators, radio sets, video cameras, electrical and electronic toys, small monitoring and control instruments.

6. Small IT and telecommunication equipment. Typical equipment includes mobile phones, Global Positioning Systems (GPS), pocket calculators, routers, personal computers,
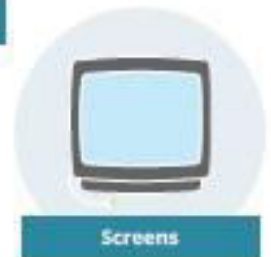
printers, telephones.

**E-waste transportation**

It is known that a great amount of MEDC's is exporting e-waste in LEDCs, despite the legal prohibition that has been signed until the 1990s. This may happen because they either don't have the facilities needed in order to deal with trash or they are not willing to take the environmental risk having techno trash buried underneath their surface. Moreover, some countries don't have enough land to make garbage landfills so they have to export their trash. Western Europe and North America are the main regions of origin of these wastes sending millions of tons of e-waste every year. Countries that receive these amounts of wastes are mostly poor Asian and African nations.



**E-waste recycling**

Recycling e-waste is practiced both formally and informally. Proper or formal e-waste recycling usually involves disassembling the electronics, separating and categorizing the contents by material and cleaning them. Items are then shredded mechanically for further sorting with advanced separation technologies. Companies are obliged to force health and safety rules and use pollution-control technologies that reduce the health and environmental hazards of handling e-waste. All these measures that are needed to be taken, make formal recycling expensive. As a result, many companies and developed nations

choose to illegally transfer their e-waste to poor nations, where the necessary measures are overcome and the procedure is much cheaper. On poor nation the existence of informal recycling is a common phenomenon. At these informal recycling workshops, men, women and children recover valuable materials by burning devices to melt away non-valuable materials, using mercury and acids to recover gold, and dismantling devices by hand to reclaim other materials of value. They do not wear protective equipment and lack any awareness that they are handling dangerous materials. Moreover, a significant amount of harmful gases and toxic material are released to the environment.

## MAJOR COUNTRIES AND ORGANISATIONS INVOLVED

### Afghanistan

The government of Afghanistan has bound to revive its country's poor contribution to the e-waste matter and revive its recycling accommodation. Some parts at major cities like Kabul has been given on PPP, with really hopeful results, compared to government services. Recycling master plan and electricity generation, gas production and fertilizer production from Solid waste has been planned by various municipalities to adopt in the coming future.

### Austria

Under the Austrian Ordinance on Waste Prevention, Collection and Treatment of Waste Electrical and Electronic Equipment (WEEE Ordinance), TE is required to provide arrangements for the collection, treatment, recycling and recovery of WEEE that your new purchase replaces, on a one-for-one, like-for-like basis. The old equipment that your new purchase from TE replaces is referred to as Historic WEEE. TE has established a recycling contract with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of the equipment on arrival at the EARN recycling facility in Austria. All New WEEE that arises from the purchase of TE products is classed as non-hazardous waste.

### China

The top e-waste producer not only in Asia, but in the world is China, which generates 7.2 Mt of e-waste. China plays a key role in the process as it is the most populous country in the world, so the demand for EEE is very high. Furthermore, China has a big role also in the refurbishment, reuse, and recycling of e-waste.

### Eswatini

Eswatini is hosts a pilot project identifying local e-waste recyclers (collectors and transporters of e-waste) and introducing e-waste collection points. The national e-waste assessment report with recommendations on improvements on the e-waste management system in Swaziland was prepared.

### Ethiopia

The "Ethiopian E-Waste Management Project" focuses on the upscaling of e-waste prevention and management activities in Ethiopia in order to help the country develop the technical, legal and administrative capacity to handle the expected growth in e-waste in a socially- and environmentally-sound manner before it becomes a significant problem in the country. For that purpose, the Refurbishment and Training Facility in Akaki was found.

### Gabon

Waste management is mostly done by the private sector.

### Germany

Germany had the highest quantity of e-waste in Europe in 2016, with 1.9 Mt.

### Great Britain

Great Britain, in 2016 had the second highest of e-waste in Europe, with 1.6 Mt, as and the second highest quantity of e-waste per inhabitant in Europe (24.9 kg/inh).

### Greece

In 2011, the Hellenic Recycling Agency (HRA) was first staffed, as the authority of the Ministry of Environment and Energy responsible for the design and implementation of the recycling policy in Greece. It is also responsible for approving the national EPR schemes for each stream of products and for surveying the progress of recycling within Greece. The collective ERP schemes are financed by EEE producers, who, in this way, fulfill their obligations as outlined in the above-mentioned directives. The producers provide a financial fee to the schemes, calculated according to the quantities and the categories of the EEE that they place on the national market.

### Haiti

The trash and waste problem in Haiti is an ongoing nightmare for the people living there, with a mountain of garbage filling the streets, as there is no place to put the tones of rubbish that have been accumulated. Haiti has few landfills or dumpsters, and there is no apparent place to dispose of its increasing volume of waste.

### Hungary

In and Hungary collection and recycling are mainly led by the private sector. In recent years, the collection rate in those countries has risen to approximately 46% of the estimated e-waste generated in 2016. All countries in Eastern Europe, except Moldova, currently have national legislation that regulates e-waste.

### Iceland

Iceland is among the top three countries that generated the most electronic waste per capita in 2014, reported by the National Broadcasting Service.

### Italy

The Government of Italy has provided $4 million to implement the Third Phase of the Egyptian-Italian Environmental Cooperation Program (EIECP), which is implemented under the supervision of UNDP.

### Jamaica

A technology center that would have been a hub for the distribution, refurbishing and maintenance of recycled computers provided by the Foundation's parent company, has been established. Also, in 2015, The National Solid Waste Management Authority (NSWMA) had launched a pilot project to collect specific categories of electronic waste (E-Waste).

### Jordan

The changing of economic scenarios and global technological development has contributed to the amount of e-waste in Jordan. The necessary regulations regarding e-waste management are not yet in place, despite the growing demand for proper waste management.

### Latvia

There are more than 50 waste sorting sites for the management of electronic devices in Latvia.

### Lebanon

Lebanon's waste management is mostly done by the private sector. But the amount of 26 private companies is not enough for the correct management of 5 tons of e-wastes released daily among the continent.

### Malawi

In Malawi the rise of the wish of the correct waste management, looking forward to its healthy and profitable effects is undoubtful. But the lack of available funds restricts all the initiatives.

### Malta

In Malta, six civic amenity sites, open both to public and companies are operating, taking care of the country's e-waste.

### Morocco

Morocco has adopted the concept of sustainable development and ratified several international agreements concerning the environment, some of them referring to e-waste management. Nevertheless, there is currently no specific legislation for WEEE in the country.

### Mozambique

Mozambique has only one landfil for the disposal of hazardous waste, located in the south of the country, close to the capital Maputo. The landfil was built in 2005 and has a total capacity of 75 cubic meters, equivalent to 70,000 tons.

### Nepal

Due to the country's quickly development and especially its capital's –Kathmandu- Nepal is facing a great problem of the e-wastes, released through its continent. The Alternative Energy Promotion Centre (APEC) plans to establish a semi-automated recycling plan for lead acid batteries, but experts say it is not enough. Most of the e-waste in Nepal is just dumped with the rest of the trash at landfills.

### Nigeria

Nigeria is one of the countries that is traditionally used as a dumping ground for e-waste. About 15 shipping containers filled with discarded electronics are estimated to arrive in Nigeria every day. A new project launched in Lagos on June 2018, aiming to reform the electronics sector and put an end to the improper management of electronic waste in the country. Over half a million tonnes of discarded appliances are processed in the country

every year. The Nigerian Government, the Global Environment Facility and UN Environment have announced a 15 million dollar initiative to kick off a circular electronics system in Nigeria.

### Panama

The country has a great amount of e-waste disposal. Nevertheless the large extent the problem has taken the last years, the progress noticing is done by private companies and especially "All Green" Company. "All Green" is the premier IT asset disposal company offering services in Panama City and helping all the companies hosted in Panama to recycle their outdated equipment.

### Peru

Peru has a specific regulation for the management of e-waste called the "National Law for the Conduct and Management of Waste of Electrical and Electronic Equipment". This law describes the rights and obligations related to the proper waste management of these devices through the different stages of management. It involves different actors in the management process and proposes cooperation among municipalities, operators of e-waste and consumers or users of EEE so that they assume responsibility for some stages of the management as part of a system of shared and differentiated responsibility integrated into the management of solid waste

### Russia

Despite the fact that the country, in 2016 had the second highest of e-waste in Europe, with 1.6 Mt, together with Great Britain, the disposal structure of e-waste is not as advanced as in the EU, and e-waste collection and recycling is insufficient despite numerous initiatives by the private sector, as there is a lack of subsidies from the government.


### Senegal

According to reports, Senegal has been making progress in managing its e-waste in the last years. Private companies have engaged to handle the country's e-waste. However, their operation looks insufficient, compared with the 35-40 thousand tones of e-waste landing in Senegal every year.

### Serbia/Slovenia

Most of the ongoing projects aim to increase the capacities of the Balkan countries for lobbying and advocacy concerning e-waste management issues and to raise awareness about proper e-waste management among citizens, government officials, and the private sector. Nowadays, the Balkan countries (among which also Serbia and Slovenia) have national legislation on e-waste in effect. Approximately, more than 600kt of e-waste is currently collected in the Balkans.

### Somalia

Somalia is one of the countries that is traditionally used as a dumping ground for the e-wastes from western civilizations. During the civil war that took place in the country in 1992, the local authorities lost control and the country became a huge waste dump. During this period around 35 million tons of waste had been exported to Somalia.

### Spain

In Spain, there are currently seven SIGs, which are a collection of foundations that bring together companies from the electronics sector.

### Sudan

In the capital of Sudan, Khartoum, is fount the biggest amount of country's e-wastes, due to the high rowing market and the big amount of industries hosted there. NGOs try to promote the solution of the problem by promoting public awareness and ignite the public reaction.

### Sweden/Norway/Switzerland

Switzerland was the first country in the world where an official e-waste management system was established and operated. Nowadays, Switzerland, Norway, and Sweden are the three European countries having the most advanced e-waste management program in the world. According to the European Union's data, the best performing countries in Europe, in terms of collection of e-waste, are Switzerland and Norway in the first place which both collect 74% of the waste generated.

### Togo

A large amount of electronic waste is a serious challenge in Togo. Nearly 45 million tons of e-waste were produced in 2018, 15 percent more than in 2017. This amount is expected to exceed 52 million tons by 2021. Lomé's (the capital) FabLab WoeLab is one of the major players in the recycling of the electronic waste in Lomé and an incubator for several start-ups

### Turkmenistan

In the last decade, a bunch of companies have started operating in the country and are dealing with e-waste management. Although, most of them take care only about their profit, skimping the methods they adopt.

### USA

The USA still doesn't have national legislation in effect about the management of e-waste, and instead has regulations by state. 84% of the population in the USA is covered by legislation on e-waste. However, 15 states still don't have legislation in effect, including Alabama, Ohio, and Massachusetts. 25 states, plus Puerto Rico and DC, have some sort of consumer take-back law; 17 states and New York City have landfill bans (mostly CRTs).

### European Union

In Europe, the total e-waste generation in 2016 was 12.3 Mt. In the European Union, e-waste management is regulated by the WEEE Directive. The directive is meant to regulate the collection, recycling, and recovery of e-waste. The Member States shall adopt appropriate measures in order to minimize the disposal of e-waste and achieve a high level of separate collection of e-waste.

### Global Partnership on Waste Management (GPWM)

E-waste management is a focal area of the GPWM, which is coordinated by ITU. GPWM can provide expertise on mainstreaming and disseminating environmentally sound management of e-waste in developing economies.

### Interpol

INTERPOL, through the Countering WEEE Illegal Trade (CWIT) Project, examined the movement of e-waste within and out of Europe.

### Global Environment Facility (GEF)

GEF is a partnership for international cooperation where 183 countries work together with international institutions, civil society organizations and the private sector, to address global environmental issues. It has provided funding for several projects relating to e-waste, mostly at the period between 2006 and 2018.

### International Labor Organization (ILO)

Since 2012, the ILO has undertaken a series of studies and produced a selection of corresponding reports exposing the interactions between labor and e-waste.

## TIMELINE OF EVENTS

| Date | Description of Event |
|---|---|
| 1976 | The Resource Conservation and Recovery Act is the principal federal law in the United States governing the disposal of solid and hazardous waste. This lead the way to the export of e-waste to developing nations. |
| 22 March, 1989 | The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was signed. |
| 1991 | It was implemented the first e-waste recycling system in Switzerland. |
| 1994 | The Basel Ban, adopted by certain countries, bars shipments of hazardous waste from developed countries to less- developed countries. |
| 2005 | The Khian Sea incident happened, which touched off the e-waste issue. A major amount of toxic waste was disposed of in Ivory Coast and more than 10,000 tons ended into the Atlantic and the Indian Ocean. |
| 2011 | E-waste exportation to developing countries is totally officially prohibited by the federal government under the requisition of 30 leading electronic waste recyclers. |

## UN INVOLVEMENT: RELEVANT RESOLUTIONS, TREATIES AND EVENTS

E-waste issue constitutes a scourge for 21st-century communities and its combat has a strong place into the United Nations agenda, with many resolutions having been signed, looking ahead to decrease the problem.

- UN Environment plays both a normative and operational role in tackling the various lifecycle stages of EEE, with the objective of applying this role at the global, regional and national levels. Through these approaches, UN Environment can link the UN system to national governments by providing advisory and technical assistance directly to the country level.

- UNDP supports countries in strengthening their e-waste management capabilities through research, innovation, institutional and regulatory means and provides expertise with regards to end-of-life-treatment and final disposal activities.

- The United Nations Industrial Development Organization (UNIDO) supports developing countries and countries with economies in transition to develop sustainable recycling industries, including in the e-waste management sector. Aside from establishing an effective recycling process, UNIDO supports countries to develop effective legal frameworks and identify financing options.

- The biggest convention signed ever against the e-waste is the Basel Convention, which covered almost the whole issue of e-waste and fired up its methodical conformation. The convention was signed on the 22nd March 1989 and entered into force by the 5th of May 1992. Till then 182 countries have signed the convention and tent to implement common policy, trying to minimize the problem.

- According to the resolution topic A/RES/44/226, signed on 22nd December 1989, the United Nations prohibits traffic in and disposal of e-waste and control and transboundary movements of toxic and dangerous products and wastes.

- The Rotterdam Convention, signed in 1998, promotes shared responsibilities and touched off a series of actions of the nations, trying to collaborate and decrease the international trade of certain hazardous chemicals in order to protect human health and the environment.

- The Waste Electrical and Electronic Equipment Recast Directive, European Union (2012) is based on the existing WEEE Directive, by setting high recycling collection targets.

- On 21 March 2018, some organizations from the United Nations signed a Letter of Intent paving the way for coordination and collaboration on United Nations system-wide support for e-waste management.

- UN Environment aims to soon publish a study 'The Long View - Exploring product lifetime extension', which provides recommendations on the opportunities available to consumers, the private sector and governments of

both developed and developing economies, to address product lifetime extension, including EEE.

## PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

Based on the mapping exercise, there has been a steady increase in the attention paid to e-waste by the UN system since 2004. Especially, from 2012 to the present day, the number of e-waste initiatives has continued to grow with reasonable strength. Figure two below presents an overview of the 154 identified UN initiatives, divided across a period of 14 years from 2004- 2017. By including past and completed initiatives in this report, it can be ensured that notable and prominent practices and experiences have been undertaken by UN and related entities have become part of this learning process with regards to the UN and e-waste.

Initiatives focus on addressing or directly tackling the environmentally sound management of e-waste. To date, only a small number of UN and related entities have been focusing on issues such as:

- Extended producer responsibility
- The materials used in electrical and electronic equipment (EEE)
- The design of EEE

With regards to the 'types' of initiatives found across the UN system, the three most common types include the development of guidelines and manuals, country and regional projects or studies and reports; an example being 'Guidelines' on E-waste Management Technologies' currently under development by IETC.
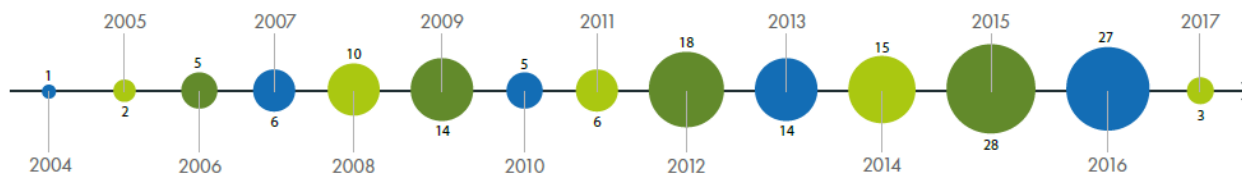


Initiated in 2004 and formally launched at the UN secretariat in New York in 2007, Step (Solving the E-waste Problem) is an international initiative created to develop solutions to address issues associated with e-waste from an applied, based on a scientific point of view. It acts as a multi-stakeholder platform with members including UN entities,

manufacturers, dismantlers, recyclers, academia, NGOs and governments. Several tools have been produced by Step.

## POSSIBLE SOLUTIONS

The change in governmental policies is not enough to tackle the e-waste issue. There are several things people and companies can do so as to help. Firstly, is needed to be made efforts by the governments to ensure that your e-waste is recycled properly and to reduce health and environmental hazards while maintaining the informal recycling system. One strategy would give informal recyclers financial incentives to divert e-waste to formal collection or recycling centers, or they could restrict the law and the bureaucracy so that to urge them to voluntary conversion. Secondly, manufacturers need to design electronic devices that are safer, more durable, repairable and recyclable, in other words, use less toxic materials. Furthermore, the issue must take more publicity than is happening now. Raising public awareness, especially in countries with high use of electronic devises and e-waste, can act as a catalyst for the minimization of the problem. On a personal level, people should use their electronic devices until they break down and not replace it every time that a new model comes to the market. Also, before they recycle their electronic devices, they have to seal up any broken parts in separate containers so that hazardous chemicals don't leak and withdraw them old to responsible recyclers.

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I hope this study guide will be quite helpful and will be capable to get you familiar with the topic, the terms and issues that will be discussed and your country's position. If you need any clarifications feel free to contract me on my e-mail: nestoras.apostolo@gmail.com Your deputy president, Nestoras-Marios Apostolopoulos.