

Committee: Environmental Commission

Issue: The reduction and management of electronic waste

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Introduction

Electronic waste (E-waste) is a broad and growing range of electronic devices which have been discarded by the consumer with no intention to resume. The toxic chemicals released from the electronic devices are thrown into the environment, creating harm for a long period of time due non biodegradable matter. In 2014, E-waste was estimated to be 41.8 million tonnes and is rapidly increasing and only 15-20 percent is recycled.

In essence, there are two main challenges related to E-waste. The first refers to inappropriate waste management that can cause damage to human health and the environment, due to hazardous materials in electronics for human consumption. The second deals with the loss of economic opportunities due to the inadequate and ineffective way of recovering the metals without creating environmental impacts.

E-waste is creating health and environmental concern in developing countries. The challenges include unhealthy environments, which are responsible for one-quarter of young child deaths, according to two new reports from the United Nations health agency WHO, which reviewed the threats from pollutants such as second-hand smoke, UV radiation, unsafe water and e-waste. More than 20 million tons of e-waste are produced every year. The chemicals in electronics such as arsenic, lead, beryllium, and mercury leak into the ground creating water intoxication, atmospheric hazards, and health complications. E-waste is one of the fastest growing waste streams globally.

Definition of Key Terms

Electronic waste

Any discarded electronic or electrical devices or their parts.

Waste management

The process of treating solid wastes, it also offers a variety of solutions for recycling items that do not belong in the trash.

Waste reduction

A process of elimination that involves reducing the amount of waste produced in society and helps to eliminate the generation of harmful and persistent wastes, supporting the efforts of a more sustainable society.

Environmental impacts

Possible adverse effects caused by a development, industrial, or infrastructural project or by the release of a substance in the environment.

Health impact assessment

A combination of procedures, methods, and tools by which a policy, program, or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population

Biodegradable

Capable of being decomposed by bacteria or other living organisms

Biomagnification

The concentration of toxins in an organism as a result of its ingesting other plants or animals in which the toxins are more widely dispersed.

Background Information

The origin of electronic waste began through the industrial revolution 1889 when the first electronic device by John Fleming was made. Production and innovation increased which created a huge impact on the environment. It was then discovered that there were many health hazards from the chemicals of electronics, especially their batteries. Chemicals such as sulfuric acids, which can be found in many electronics, can create permanent blindness and damage to internal organs which can then lead to death. The Environmental Protection Administration (EPA) and the EPA Taiwan (EPAT) had set up in

2011 the International E-Waste Management Network (IEMN), to share best practices from Asia, Africa, Latin America and North America on e-waste management.

E-Waste is taken into consideration by the 12th Sustainable Development Goal (Sustainable Consumption and Production). The UN Environment program aims to minimize the adverse effects of chemicals on human health and the environment. The 12th goal, Ensure Sustainable Consumption and Production Patterns, calls for substantially reducing waste generation through prevention, reduction, recycling and reuse by 2030.

1950s was when the digital revolution came to place. The shift from mechanical to technological advances created an overwhelming increase in the economy. The global population had grown from 1 billion in 1800 to 7.6 billion in 2017. This means that the increase of demand for productivity has increased drastically. More technology is needed in order for maintaining a GDP.

Since the economy is growing so is the ratio between needs and wants, now that people can afford more luxuries, technology has been increasing creating more waste from old gadgets. Most of this e-waste was produced by the United States and China, which together make up approximately one third of the global waste stream. The amount of Electronic waste is expected to increase by 19 %between 2014 and 2018, up to 50 million metric tonnes.

Limited waste management

In 2014, the world discarded 41.8 million metric tons of electronics, and a recent report conducted by the United Nations University reveals that only 16% of those electronics were recycled by officially sanctioned government or commercial enterprises. Many regions began receiving increases of E-waste however the management to prevent this problem is weak. The sub-Saharan African region e-waste is considered a crisis with no end in sight yet; there is lack of structures and regulations to manage. The sub-Saharan African region e-waste is considered a crisis with no end in sight yet.; There is lack of structures and regulations to manage. E-Waste grew by 33% from 2013 to 2017, Says the Global Report.

Occupational Poisoning

The effects of the use of chemicals on people's bodies. Director of UNEP, Achim Steiner talks about how intolerable these chemicals are and how sound managements of chemicals is something which have brought governments, civil society and the private sector and chemical industry together to overcome.

Emerging Threats to Children

According to a report from WHO “Exposing children to toxins can lead to reduced intelligence, attention deficit, lung damage, and cancer,” the UN agency reported. The toxins in E-waste have created poisoning in children, for example in China there has been an increase of blood lead levels in children, toxins such as lead can attack the brain and nervous system in children. Direct and Indirect exposures to e-waste has significantly affected the health of the children which has led to many diseases due to the physical vulnerability especially in developing countries where health care isn't advanced.

Harmful Chemicals and Biomagnification

Harmful chemicals in electronic devices work themselves through the food chain – such as fluoride, lead and mercury, as well as the impact that climate change and UV rays have on children's development.

Current global initiatives to address electronic waste

United Nations Environment Program (UNEP)

The United Nations Environmental Program states that recycling is an effective means to reduce energy use, CO2 emissions and waste at the same time. As well as partnering with EPA and WHO in interventions to increase managements of E-waste. Other programs in the United nations such as United Nations Environmental Protection Agency, is the co-host of the International E-waste Management Network, provided solutions-oriented dialogue, scientific knowledge sharing, and developed effective policies for e-waste prevention.

World Health Organization (WHO)

The world Health Organization has for the past few years had calls of actions for strategic interventions for managing e-waste. WHO is still in the process of working on finding the main sources as well as main sources and potential health risks of e-waste by doing successful interventions. This includes discussions world wide for example conferences with the EU. THE European Union's legislation on e-waste states The Directive on waste electrical and electronic equipment (WEEE Directive) and the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive),

Timeline of Events

Date	Description of event
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1976	The resource Conservation and recovery act which set forth a framework for the management of non-hazardous solid wastes and gave EPA the authority to control hazardous gases.
1986	14,000 tons of toxic electronic waste has reached the atlantic ocean creating many problems in ecosystems and the environment.
1986	The Basel Convention is opened: international treaty to prevent hazardous waste
1991	African nations create the Bamako Convention on prohibiting the import of any hazardous waste.
1992	The Basel Ban, which prohibits dumping waste on lesser developed nations, is enacted by 175 countries.
2003	California enacts Electronic waste Recycling act, helping to decrease the pollution united states has created.
2004	Stockholm convention, aims to eliminate or restrict the production and use of persistent organic pollutants (POPs).
2007	Electronic Manufacturers Recycling Management is formed by companies for this joint venture (Panasonic, Sharp and Toshiba) leaders are in green electronic programs and committed to the sustainable stewardship.
2009	H.R. 1580 Electronic Device Recycling Research and Development Act is introduced.
2010	E- waste task force and campaigning recycling.
2013	Equivalent conditions for waste electrical and electronic equipment (WEEE) recycling operations taking place outside the European Union
2017	The Commission adopted the "WEEE package" including implementing regulation for all EU members against e-waste

UN Involvement, Relevant Resolutions, Treaties and Events

UN resolutions

These resolutions are official decisions made by the United Nations to discuss and research world wide, they give an inside on the problem which then is discussed to solve these issues around the world in conventions. Since more Industrialization is increasing the utilization of electronics will be increasing, this creates growing amounts of electronics wastes. The resolutions try to find a way manage a monitor the wastes especially in countries which suffer of the exposure of toxins in the electronics.

Global E-waste monitor

The collaboration on this resolution included, the United Nations and Europe which were hosted by Sustainable Cycles Programs. The main topics discussed the quantities of e-waste exposed globally, flows of toxins and how to prevent them and resources which are exposed and how to manage E-waste. Quantities, Flows, and Resources

- Baldé, C.P., Wang, F., Kuehr, R., Huisman, J. (2015), The global e-waste monitor – 2014, United Nations University, IAS – CYCLE, Bonn, Germany.

United nations System wide Tackling E-waste

The reports based on system wide and responding to tackling e-waste demonstrates efforts made by the United Nations Management group which have shown successful activities to prevent e-waste. It also highlights the requirement of improving management of e-waste and a world wide approach to recycling.

- United Nations System-wide Response to Tackling E-waste
- First published in September 2017 by the United Nations Environment Management Group

Emissions Gap Report

In the reports parties must deliver an urgent settlement to be able to ensure that the Paris Climate Agreement goals must be met. The report discusses about goals as a world wide community to decrease emissions in the atmosphere. It calls for keeping global temperature rise this century to well below 2 degrees Celsius above pre-industrial levels.

- The UNDP Synthesis Report
- UN environment 2017

UN Declarations

- This report, United Nations System-wide Response to Tackling E-waste, signals the importance of collaboration and coordination among UN entities in sustainably solving the global e-waste problem.
 - United Nations University (UNU), Solve the E-waste Problem (StEP), Massachusetts Institute of Technology (MIT), National Center for Electronics Recycling (NCER). World e-waste map reveals national volumes, international flows.
1. United Nations Environment Program (UNEP), Division of Technology, Industry, and Economics, International Environmental Technology Center. E-waste volume I: inventory assessment manual. 2007.

UN Agreements

- United Nations puts forward conclusions as well as recommendations on increasing the collaboration and coordination of efforts by the UN system in tackling e-waste.
- As well as the Basel Convention, for which the Geneva meeting is the 12th Conference of Parties, the eleven-day '2015 Triple COPs: Setting the Scene for Sustainable Management of Chemicals and Waste, Worldwide' will also cover the Seventh Conference of Parties to both the Rotterdam and the Stockholm Conventions.
- Global Plan of Action issued at the International Conference on Chemical Management ICCM3 in 2012. Currently, there are a number of international initiatives that are addressing global e-waste management and trade concerns, as well as issues with environmental pollution due to e-waste.
- International E-Waste Management Network (IMN), The 7th annual meeting of the International E-waste Management Network (IEMN) was co-hosted by US EPA, Taiwan EPA and Indonesia's Ministry of Environment and Forestry in Jakarta, Indonesia.

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