Global Issue Reflection Activity: E-Waste

Every year, millions of electrical and electronic devices are discarded as products malfunction or become obsolete and are then thrown away. These discarded devices are considered e-waste and can become a threat to the environment and human health if they are not treated, disposed of, and recycled appropriately. Common items in e-waste streams are large household appliances, computers, medical equipment as well as mobile phones. Every year, millions of tonnes of e-waste are processed using techniques that harm the environment. This waste is likely stored in homes and warehouses, dumped, exported or recycled under inferior conditions. When this happens, e-waste can release as many as 1000 different chemical substances into the environment, including harmful neurotoxicants such as lead. Pregnant women and children are particularly vulnerable due to their unique pathways of exposure and their developmental status. Even worse, the International Labour Organization (ILO) estimates that 16.5 million children were working in the industrial sector in 2020, of which a subsector is waste processing.

Global Perspective on E-Waste

E-waste refers to discarded electronic devices that have a battery or plug. Small devices that include e.g. microwave ovens, vacuum cleaners and kettles account for the largest share of e-waste generated worldwide, with more than 20 million tons in 2022. Meanwhile, solar panels accounted for less than one percent of e-waste generated. However, as the use of photovoltaic energy increases worldwide, it is expected to become a growing source of e-waste as more devices reach the end of their useful life.

Asia accounts for nearly half of global e-waste production, and most of it is produced in China, the world's largest producer of e-waste. Although Asia generates far more e-waste than any other region, Europe holds the title for e-waste per capita, with nearly 18 kilograms per capita produced in 2022. Oceania and the Americas also had several generations of e-waste per capita. much more than the world average of 7.8 kilograms. E-waste contains large amounts of valuable raw materials such as gold, palladium, silver, iron, copper and rare metals. In 2022, however, only 22.3 percent of the world's e-waste was collected and properly recycled, or about 14 million tons. In fact, the amount of e-waste has almost doubled since 2010, but the amount collected for recycling has only increased. 70 percent in the same period.

According to the United Nations, each inhabitant of the planet will produce an average of 7.6 kg of e-waste in 2021, which means that the world will generate a whopping 57.4 million tons of e-waste. Only 17.4% of this e-waste, which contains mixtures of harmful substances and valuable materials, is properly collected, treated and recycled. Many initiatives have been taken to address this growing concern, but none can be fully effective without an active role and proper consumer education. The fate of the millions of tons of e-waste generated each year is largely unknown, and it is estimated that a large portion ends up in landfills. Due to a lack of recycling infrastructure, many countries in the Global North deal with their e-waste by exporting

large quantities to developing regions that lack proper waste management systems and regulations. France, Germany and the UK are all the biggest exporters of e-waste in the world.

Stats and Data

- A record 62 million tonnes (Mt) of e-waste was produced in 2022, Up 82% from 2010
- On track to rise another 32%, to 82 million tonnes, in 2030
- Billions of dollars worth of strategically valuable resources are squandered and dumped
- Just 1% of rare earth element demand is met by e-waste recycling
- E-waste is the fastest-growing solid waste stream in the world
- In 2019, an estimated 53.6 million tonnes of e-waste were produced globally, but only 17.4% was documented as formally collected and recycled
- Lead is one of the common substances released into the environment if e-waste is recycled, stored or dumped using inferior activities, such as open-burning
- E-waste recycling activities may have several adverse impacts on human health. Children and pregnant women are particularly vulnerable
- ILO and WHO estimate that millions of women and child labourers working in the informal recycling sector around the world may be at risk of e-waste exposure

Global Solutions

No one expects the amount of e-waste we generate to fall dramatically - partly because the prices of new electronics are falling, fueling global demand for them thanks to a growing middle class in digital nations. After all, half of the world's homes have access to the Internet and more than 7.7 billion people have a mobile phone. How can we stop the problem of e-waste? The first is to keep all used electronics out of our trash and landfills. The same goes for simply piling devices in closets or desk drawers, where their valuable features remain unused. And there are proven solutions to reduce e-waste.

<u>Recycling</u>

More consumers should get into the habit of taking their used electronics to an experienced recycling company that can disassemble them, separate and sort the contents by materials, and clean and then mechanically cut them for sorting with advanced equipment.

<u>Education</u>

Another important solution is to educate people about the importance of e-waste recycling. One way to start is by leading by example, committing to taking all of your unwanted or unused electronics to a recycling facility instead of tossing them in the regular trash

<u>Teach</u>

It is important to spread this message to your family, friends, neighbours and co-workers, but it is also important to reach our future leaders - our children. Writing about the environmental benefits of e-waste recycling on social media is also a good place to start spreading the word.

Keep Learning

Just as the technology that creates smartphones and other devices is constantly changing, so is e-waste. In the United States, 25 states now have laws that either prevent used electronics from being sent to landfills or encourage recycling. The European Union has set new targets to increase the recycling of e-waste. The United Nations has launched a Step Initiative to introduce a holistic approach to e-waste management and prepare professionals to work in e-waste management.

Personal Opinion

Understanding the global impact of e-waste has influenced the way I think about garbage collection and environmental sustainability. It made me more aware of the interplay between personal choice and the broader environmental impact that something as little but as prominent as electronic devices can have in our lives. I am personally inspired to embrace a more sustainable lifestyle and advocate for initiatives that showcase the impact of our waste in the global ecosystem. Learning about the global efforts to fight for the proper disposal of e-waste also gave me a sense of responsibility. As a human being, I believe that I owe it to my planet as it has provided me with the resources to live in the first place. I can do the common good by making smart choices, supporting local and international projects, and spreading awareness in my society.

As a result, examining the global e-waste problem in-depth has been eye-opening. This not only expanded my understanding of the challenges faced by people around the world but also encouraged me to become more involved in the pursuit of our planet's health. This experience has profoundly impacted my life, inspiring me to bring about change on a personal, local, and global scale.

Links to articles

- https://unitar.org/about/news-stories/press/global-e-waste-monitor-2024-electronic-waste-rising-five-times-faster-documented-e-waste-recycling
- https://www.who.int/news-room/fact-sheets/detail/electronic-waste-(e-waste)
- https://www.nrdc.org/stories/59-million-tons-our-e-waste-problem-getting-out-control
- https://www.statista.com/topics/3409/electronic-waste-worldwide/#topicOverview
- https://www.genevaenvironmentnetwork.org/resources/updates/the-growing-environmental-risks-of-e-waste/
- https://www.sciencedirect.com/science/article/pii/S2773167723000055
- https://www.globalewaste.net/