Topic Background[1]

The worldwide use of information and communications technology (ICT) equipment and other electronic equipment is growing. Consequently, there is a growing amount of equipment that becomes waste after its time in use. This growth is expected to accelerate, since equipment lifetime decreases with time and growing consumption; As a result, e-waste is one of the fastest-growing waste streams. The United Nations University (UNU) calculates in their second Global E-waste Monitor that 44.7 million metric tonnes (Mt) of e-waste was generated globally in 2016[2].

The annual global consumption of new electrical and electronic equipment (EEE) was around 60 Mt in 2016. The consumption and use of EEE is probably most prevalent in the developed world, but developing countries show a rapid growth of consumption and use of EEE. Typically, developed countries have growth rates of 1% to 5 % annually on weight basis. Developing countries typically range from 10% to 25%[3].

Some less-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. In order to treat e-waste in an environmentally-sound manner, it needs to be regulated. This means that an appropriate system needs to be created and financed, a recycling infrastructure needs to be developed or improved, and workers' health and safety standards need to be implemented, to name a few prerequisites[4]. Those conditions aid in the creation of jobs, one of the conditions to eradicate poverty and simultaneously "green" the economy, according to the UNEP[5]. However, suboptimal treatment and illegal activities are not limited to low and middle-income countries. In developed countries as well, large flows of undocumented e-waste are found that may be treated (illegally or semi-legally) with inferior standards, or simply disposed of and mixed with other waste streams[6].

The disposal structure of e-waste in Eastern European countries such as Russia, Ukraine, and Moldova is not as advanced as in the EU, and e-waste collection and recycling is insufficient despite numerous initiatives by the private sector, which doesn't receive subsidies from the government. In this regard, many initiatives have been started to assist those countries in tackling e-waste, develop ad hoc legislation, and raise awareness. In countries such Poland, Czech Republic, Hungary, and Bulgaria, collection and recycling are mainly led by the private sector. In the 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. In 2017, Russia will start an Extended Producer Responsibility (EPR) programme for electrical and electronic scrap. Manufacturers and importers must help collect and process obsolete electronics in line with Russian circular economy legislation.[7]

Past and Current Actions

The Partnership on Measuring ICT for Development established a Task Group on Measuring E-Waste (TGEW) in 2013 to support the compilation of reliable data on e-waste as a basis for political decision making and further action on the environmentally sound management of used and end-of-life ICT equipment. The immediate objective of the task group has been met, by developing e-waste statistics framework based on internationally

---

[1] Vanessa Forti, Kees Baldé, and Ruediger Kuehr, "E-waste Statistics: Guidelines on Classifications, Reporting and Indicators, Second Edition," UNU Collections, 2018, , accessed April 30, 2018, https://collections.unu.edu/view/UNU:6477, 10.

[2] Baldé, C.P., Forti V., Gray, V., Kuehr, R., Paul, S, "The Global E-waste Monitor – 2017, United Nations University (UNU)", International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna, 2017.

[3] Balde, et al, "The Global E-Waste Monitor - 2017."

[4] Wang, F., Huisman J., Meskers C.E., Schluep M., Stevels A., Hagelüken C, "The Best-of-2-Worlds philosophy: Developing local dismantling and global infrastructure network for sustainable e-waste treatment in emerging economies." Waste Management 32(11): 2134 - 46, 2017.

[5] UNEP, "Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers", www.unep.org/greeneconom, 2011.

[6] Balde, et al, "The Global E-Waste Monitor - 2017."

[7] Balde, et al. 74.

defined indicators that have been verified with experts in the field. The first edition of the guidelines was published in January 2015. Next to the methodological work, the first Global E-waste Monitor was published in 2015 and received great media exposure in over 70 countries. Between 2015 and 2017, United Nations University joined forces with the United Nations Economic Commission for Europe (UNECE), the Organisation for Economic Co-operation and Development (OECD) and the United Nations Statistics Division (UNSD) to improve the global data coverage. This led to the use of pilot questionnaires 2 on e-waste, following the principles of those guidelines. In 2017, the Global E-waste Statistics Partnership was established by the ITU, the UNU, and the ISWA. Its objective is to help countries produce e-waste statistics and to build a global e-waste database to track developments over time. The Partnership will make an important contribution to addressing the global e-waste challenges by raising awareness, encouraging more governments to track e-waste, and by carrying out workshops to build national and regional capacities for their respective e-waste inventories. It further aims to map recycling opportunities from e-waste, pollutants, and e-waste-related health effects, along with contributing to Sustainable Development Goals (SDG) 11.6 and 12.5 by monitoring relevant waste streams and tracking the ITU Connect 2020 target 3.2. In December 2017, the second edition of the Global E-waste Monitor was released, and received again great exposure[8].

The Global E-Waste Monitor provides practical guidelines, tools, mathematical methodologies, and will help countries understand how to gather data sources in order to internationally comparable e-waste statistics. As today, only 41 countries report compiling national statistics on e-waste. More statistics will help to evaluate developments over time, set and assess targets, and identify best practices in policies. Better e-waste data will also eventually contribute to the achievement of the Sustainable Development Goals (SDG), in particular SDG 12, to " ensure sustainable consumption and production patterns," as well as other SDGs. It will also help track the global target to reduce the amount of e-waste set by the ITU's Membership as part of the Connect 2020 agenda[9].

ITU-D is currently developing a study to identify successful electronic waste management projects in all regions. The expected output is to have a strategic report on how ITU can help Member States handle electronic waste management challenges through initiatives related to capacity building on environmentally sound management of e-waste and the establishment of electronic waste management centers in different regions.[10]

Possible Solutions

One million tons of external power supplies are manufactured each year. This highlights the importance of efforts to reduce the number of such power supplies, and to make them more sustainable. In this regard, environmentally friendly standards for power adapters by the International Telecommunication Union (ITU) are an important step towards reducing greenhouse gas emissions, increasing energy efficiency, and reducing the amount of e-waste generation. In one of its latest eco-standards, ITU identifies specific principles for the eco-design of laptop chargers to reduce power consumptions, and to make them compatible with more devices. This will help increase a charger's lifetime and reduce the amount of e-waste resulting from their disposal[11]

Countries measure import and exports flows with international trade statistics, which are usually based on trade from customs. Such statistics use the global Harmonized Trade System (HS) codes. However, the HS codes do not distinguish between new and used electronics. Though there have been some attempts and dialogue between the US and EU to create indicators for used electronics and e-waste within national export systems, the inclusion of used electronics within the trade code systems remains elusive. Countries are providing the Basel Convention Secretariat with statistics on e-waste imports and exports. However, countries do not cover the complete scope of e-waste, and countries are only partly, if at all, fulfilling their reporting obligations. Secondly,

---

[8] Balde, et al.

[9] Global E-Waste Statistics Partnership.

[10] Global E-waste Statistics Partnership, , accessed April 29, 2018, https://www.itu.int/en/ITU-D/Climate-Change/Pages/ewaste/globalewastestatisticspartnership.aspx.

[11] Balde, et al, 21.

the statistics also do not cover trade of equipment that's wasted though functional. Therefore, statistics on imports and exports of used equipment and e-waste are non-existent or of low quality for most countries.

However, over the last decade, it has become clear that oftentimes "e-waste" is classified as "used electronics" because of a potential for reuse, refurbishment, and recycling. It is currently difficult to determine whether the classification of used electronics is correct. This is not only related to the technical status of the product, but also to the market of the importing country. For example, the interest in reusable CRT is globally decreasing at a fast rate. For this reason, it may be too difficult to have countries assess whether their exports and imports are "e-waste", and should turn attention toward collecting information on used electronics.

Methods to quantify a complete overview of imports and exports of used-EEE and e-waste therefore still need to be developed and tested. One potential method is to identify used or waste equipment based on a price threshold of the shipment. Although the method is applicable, it often yields estimates that are too low [12].

National e-waste policies and legislation play an important role because they set standards and controls to govern the actions of stakeholders who are associated with e-waste in the public and private spheres. Moreover, these policies and legislation shall frame the setting of a workable and fair financial and economic model, which must be sustainable and function properly. It is therefore vital that policymakers, together with stakeholders, establish a financial model to cover the collection sites and logistics along with the physical recycling itself. In addition, there is the need to raise awareness of the proposed system, and ensure that stakeholders are complying with their obligations, as well as setting up IT systems to receive and process the data.

Policy development was evaluated using the C2P database9 with the purpose of assessing whether a country has national e-waste management regulations in force until January 2017. This is illustrated in Annex 3. Because of the large population in both India and China (both of which have national e-waste regulations in place), official policies and legislation currently cover around 4.8 billion people, which is 66% of the world population as opposed to 44% in 2014. However, the existence of policies or legislation does not necessarily imply successful enforcement or the existence of sufficient e-waste management systems.

Additionally, the types of e-waste covered by legislation differs considerably across the countries.This also explains the difficulties in coordinating collected and recycled e-waste amounts. Many of the countries that have already adopted e-waste legislation can still increase the coverage to include all products. For example, in the US, the consumer electronic products included in the EPA report series are electronic products used in residences and commercial establishments such as businesses and institutions, and are categorized as video, audio, and information products (U.S. Environmental Protection Agency, 2016). Therefore, many electric and electronic appliances are out of scope in the USA, such as all cooling and freezing equipment, most large equipment like dishwashers, dryers etc, some small equipment and lamps.[13]

In addition, e-waste policies that are already present should contribute to the development of circular economy models through policy measures that don't only favour collection and recycling. Concrete actions are needed to change the direction of policy measures towards reusing, refurbishing, and remanufacturing the end-of-life of EEE. Legislation on e-waste should encourage a better product design at the production stage. This is the key to facilitate recycling and to produce products that are easier to repair or more durable. In addition, policies should point towards both a more efficient use of resources to improve production processes and to the recovery of valuable materials incorporated in EEE.

Most legislation and policies currently refer to the principle of "Extend Producer Responsibility", which emerged in academic circles in the early 1990s. It is generally seen as a policy principle that requires manufacturers to accept responsibility for all stages in a product's lifecycle, including end-of-life management.

---

[12] Balde, et al, 44.
[13] Balde, et al. 48.

There are three primary objectives of the EPR principle:

• Manufacturers shall be incentivised to improve the environmental design of their products and the environmental performance of supplying those products.
• Products should achieve a high utilisation rate.
• Materials should be preserved through effective and environmentally-sound collection, treatment, reuse, and recycling.

The key principle behind the reasoning that producers or manufacturers should be primarily responsible for this post-consumer phase is that most of the environmental impacts are predetermined in the design phase.[14]

Purpose of the Committee

The International Telecommunication Union (ITU) is the leading United Nations agency for information and communication technologies (ICTs), driving innovation in ICTs together with 193 member states and a membership of nearly 800 private sector entities and academic institutions. Established over 150 years ago in 1865, ITU is the intergovernmental body responsible for coordinating the shared global use of the radio spectrum, promoting international cooperation in assigning satellite orbits, improving communication infrastructure in the developing world, and establishing the worldwide standards that foster the seamless interconnection of a vast range of communications systems. From broadband networks to cutting-edge wireless technologies, aeronautical and maritime navigation, radio astronomy, oceanographic and satellite-based earth monitoring, as well as converging fixed-mobile phone, Internet and broadcasting technologies, ITU is committed to connecting the world.[15]

ITU-D is working on the development of guidelines and specific recommendations to create national policies, laws and regulations in order to help governments establish effective environmental frameworks in the areas of Telecom/ICT generated e-waste.[16] Together with the United Nations University (UNU) acting through its Vice Rectorate in Europe hosted Sustainable Cycles (SCYCLE) Programme and the Solid Waste Association (ISWA), have joined forces to form the Global e-waste Statistics Partnership.

Further Research:
Guiding Questions

1. What are the levels of unmanaged e-waste in your state?

2. What is the known scale of effects from unmanged e-waste in your country?

3. Have your country implemented a strategy for a responsible e-waste management system?

4. What roles play public and private actors in the waste management and legislature?

5. Does your country cooperate with ITU-D working group?

Research Sources

- https://www.itu.int/en/ITU-D/Climate-Change/Documents/2018/EWaste_Guidelines_final.pdf - "E-Waste Statistics guidelines on classification reporting and indicators. second edition"
- https://drive.google.com/open?id=1COOsmVQOSQJkSQxUfNkN3CzXWi0sUtcQ - "Global E-Waste Monitor - 2017".

---

[14] Balde, et al, 49.
[15] Baldé, et al, 2.
[16] Global E-Waste Statistics Partnership

- http://www.unep.or.jp/ietc/Publications/spc/EWasteManual_Vol2.pdf - UNEP Waste Management Manual Volume II.
- http://ec.europa.eu/environment/archives/enlarg/handbook/waste.pdf - "Waste Management Legislature" - The European Comission.

Works Cited

Baldé, C.P., Forti V., Gray, V., Kuehr, R., Paul, S, "The Global E-waste Monitor – 2017, United Nations University (UNU)", International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna, 2017.

E-waste Statistics Guidelines. Accessed April 30, 2018. https://www.itu.int/en/ITU-D/Climate-Change/Pages/E-waste-Statistics-Guidelines.aspx.

Forti, Vanessa, Kees Baldé, and Ruediger Kuehr. "E-waste Statistics: Guidelines on Classifications, Reporting and Indicators, Second Edition." UNU Collections. 2018. Accessed April 30, 2018. https://collections.unu.edu/view/UNU:6477.

Global E-waste Statistics Partnership. Accessed April 29, 2018. https://www.itu.int/en/ITU-D/Climate-Change/Pages/ewaste/globalewastestatisticspartnership.aspx.

 UNEP, "Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers." 2011. www.unep.org/greeneconom.

Wang, F., Huisman J., Meskers C.E., Schluep M., Stevels A., Hagelüken C, "The Best-of-2-Worlds philosophy: Developing local dismantling and global infrastructure network for sustainable e-waste treatment in emerging economies." Waste Management. 2017. 32(11): 2134 - 46.