Forum: Environment Committee
Issue: The Question of Pollution derived from the Disposal of Electronic Waste
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INTRODUCTION

In most part of the world, underground water is not drinkable directly. Long ago, people simply used to draw up water from wells and drink it. But now, water needs to be purified to become drinkable. Why? It is just one of the many problems and hazards of E-waste. The electronic devices, dead cells and batteries we throw away with other garbage contain lead that easily mixes with underground water, making it unfit for direct consumption. That is just the tip of the iceberg – the problems of e-waste disposal!

Waste of electrical and electronic equipment (WEEE) such as computers, TV-sets, fridges and cell phones is one of the fastest-growing waste phenomenons all around the world, with some 9 million tonnes generated in 2005, and expected to grow to more than 12 million tonnes by 2020.
Electronics contain a number of harmful elements (for example electronic scrap components, such as CPUs, contain potentially harmful components such as lead – which is the most commonly used metal - cadmium, beryllium, mercury or brominated flame retardants (BFRs) that react with air and water to create problems of e-waste such as water, air and soil pollution as well as problems that affect human beings in the form of diseases.
Considering this last point, recycling and disposal of e-waste may involve significant risk to workers and communities and great care must be taken to avoid unsafe exposure in recycling operations and leaking of materials such as heavy metals from landfills and incinerator ashes.

In many countries all over the world, regulations have been introduced to prevent electronic waste being dumped in landfills due to its hazardous content. The first WEEE Directive (Directive 2002/96/EC) was enforced in February 2003. The Directive provided for the creation of collection plans where consumers return their WEEE free of charge. These schemes aim to increase the recycling and/or re-use of WEEE . Despite everything the practice of throwing away technological devices, without knowing the real consequences, still continues in many countries.
Moreover, what is even more harmful is the fact that this phenomenon, instead of decreasing throughout the years it is still increasing without stopping.

KEY TERMS:

• WEEE: Waste of electrical and electronic equipment; it is a complex mixture of materials and components (cathode ray tubes, printed circuit board, chips and other gold components, plastic from printers/ keyboards/ monitors, computer wires etc.) that because of their hazardous content, and if not properly managed, can cause major environmental and health problems.
• Waste management: all the activities and actions required to manage waste from its inception to its final disposal.
• Landfills: sites where the disposal of waste materials, such as electronic devices, is accomplished.
• Incineration: waste-treatment process that converts the waste into hash, heat and fuel gas.
• Developed countries: countries with an economic base built largely on manufacturing and technology rather than agriculture. Moreover these states have a highly developed economy and advanced technological infrastructure compared to other less industrialized nations.
• Developing countries: countries, also called Less Developed Countries (LDC), with a less developed industrial base and a low Human Development Index (HDI) compared to other countries. In these nations citizens have lower life expectancy, less education and less income then in developed states.
• Basel convention: the Basel Convention was adopted on 22 March 1989. It is an international treaty that was designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to LDCs. Moreover it is also intended to minimize the amount and toxicity of wastes generated.

MAJOR PLAYERS INVOLVED:

In many EU states and also in the USA, plastics from e-waste are not recycled to avoid brominated furans and dioxins being released into the atmosphere. For the same reason those countries do not put all the e-waste in landfills as there is the risk of the impact that it could have on the environment and on nearby communities. Therefore developed countries usually export their e-waste in LDCs, in India, for example or in China and Africa: here laws to protect workers and the environment are inadequate or not enforced. It is also cheaper to 'recycle' waste in developing countries and it is for those reasons that this practice is still used.
• U.S.A. : In the U.S.A. this phenomenon is irreversibly growing every year, and it is becoming very difficult to manage. We just have to think about the fact that only in 2012 were generated 3.412 million tons of e-waste, of which only 1 million tons was recycled, according to EPA (Environmental Protection Agency), while the rest was trashed, in landfills or incinerators. Over 100 million computers, monitors, and TV- sets are disposed of yearly in the U.S.
Although there is an enormous amount of electronic waste in the United States, EPA has found that only 13% of electronic waste is disposed and recycled properly. It is also estimated that 50-80 percent of the waste collected for recycling is being exported in China, Far East, Africa and India. This practice is legal because the US have not ratified the Basel Convention yet. The United States signed the Basel Convention in 1990 and the Senate gave its advice and consent to ratification in 1992, but before the President can ratify the treaty, implementing legislation is required. The United States supports ratification of the Convention, but to date no implementing legislation has been enacted.

- China: E-waste is a serious environmental issue as, in this country, the phenomenon is going out of control. In fact the absence of effective laws that regulate the disposal of technological devices, as well as their import from developed countries, leads to the aggravation of the situation. Chinese economy is increasing rapidly, and they have created a need for raw materials, which come from the electronic waste that the United States produce. For this reason in China there is a high demand for used electronics, used parts and used materials. Industries employ thousands of people, many of them in small, family-run workshops to extract lead, gold, copper and other materials that are found in the circuit boards, wiring, chips and other parts of electronic devices. In Hong Kong for example, it is estimated that 10-20 percent of discarded computers go to landfill, and this phenomenon is still growing. Scientists have discovered that Guiyu, China, has the highest levels of cancer-causing dioxins in the world. Seven out of ten children in the villages of Guiyu have too much lead in their bodies; 82% tested positive for lead poisoning. Moreover, because drinking water is so contaminated, villagers have to truck in water from other towns.
- Africa: millions of tonnes' of discarded appliances from all over the world - including the UK - are being dumped every year in Africa. Electronic devices are being illegally exported to African countries and dumped gigantic landfills like Agbogbloshie in Ghana, because it costs less than recycling them in the countries of origin. The problem is compounded by the fact that most countries in Africa do not have e-waste recycling facilities or even policies to support the establishment of e-waste plants. The lack of facilities results in careless disposal of electronic products which can cause significant health and environmental risks.
- India: India’s rapid economic growth has resulted in a substantial increase in solid waste production in urban centres. One well known example is the case of Bangalore: located in southern India, it is often referred to as the "Silicon Valley of India" and has a growing informal e-waste recycling sector. Informal recycling is a new and expanding low cost recycling practice in managing WEEE. It occurs in many developing countries, including China and India, where current gaps in environmental management, high demand for second-hand electronic appliances and the norm of selling e-waste to individual collectors encourage the growth of a strong informal recycling sector.

Export of e-waste

LAWS AND TREATIES:

- 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). The first WEEE Directive (Directive 2002/96/EC) entered into force in February 2003 becoming, in that way European Law. This Directive was provided for the creation of collection schemes where consumers return their WEEE free of charge. These schemes aim to increase the recycling of WEEE and/or re-use.
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008. It lays down some basic waste- management principles: it states that waste has to be managed without endangering human health and harming the environment, and especially without any risk for water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.
- Basel Convention: The text of the Basel Convention was adopted on 22 March 1989 and entered into force on 5 May 1992. Up to now Haiti and the United States of America haven't ratified it yet. It is an international treaty that was designed to reduce the movements of hazardous waste between nations, and specifically to prevent transfer of hazardous waste from developed to LDCs. The Convention is also intended to minimize the amount and toxicity of wastes generated, to ensure their environmentally sound management as closely as possible to the source of generation, and to assist LDCs in an environmentally sound management of the hazardous and other wastes they generate.

POSSIBLE SOLUTIONS:

Improving the environmental management of WEEE treatment and recycling of electronic devices at the end of their life is essential. In fact, even if we cannot go back in time and prevent this phenomenon, we can still try to control its diffusion. First of all we should start by improving recycling rates, working conditions and the efficiency of involved informal players and this is possible only by introducing new policies and laws that will have to control this problem. In fact we should not simply try to stop consumption to minimize the amount of waste being generated, but we should instead make sure that it is properly collected and recycled. There is an opportunity to create jobs and extract those resources currently being discarded.
Otherwise fixing new fines for those industries, that do not respect laws, while disposing electronic devices, could be another good idea.
Moreover, another possible solution could be using less packaging, which is one of the major sources of waste paper and plastics and accounts for one third of all the garbage sent to landfills in America. Packaging should be made up of reusable or recyclable materials.
Another way of controlling this situation is by recycling waste material to transform it into raw material. In this way it will be possible both to reduce the costs of landfilling and incineration but also to substitute used materials for new ones, reducing the demand for natural resources.
Manufactures could use recyclable materials, for example PVC layers, coming from products that cannot be recycled completely, to convert them into something that can be used again. If electronics are refurbished, they could be sold again at a lower price. Thus, both the society and environment will benefit. All vendors could provide a refurbishing facility and be fined if they don't do it.

NOTES FROM THE PRESIDENT

I really hope that this report will be a good and inspiring starting point for you while getting prepared for our conference. Do your best: work, cooperate with other delegates in order to find the best solution to try solving the problem. Naturally it won't be very simple but I am sure that all of you will work hard and will be prepared for the debates. I am looking forward to the conference to start and to see all of you in action during the conference.

USEFUL LINKS

http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0098
http://www.electronicstakeback.com/wp-content/uploads/Facts_and_Figures_on_EWaste_and_Recycling.pdf
http://www.greenpeace.org/international/en/campaigns/detox/electronics/the-e-waste-problem/where-does-e-wasteend-up/
http://www.basel.int/theconvention/overview/tabid/1271/default.aspx
http://ec.europa.eu/environment/waste/weee/index_en.htm