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Global Action on Electronic Waste

Introduction

In today's technological age of laptops and iPods, it is not unusual for a computer or other technological device to become obsolete within a few short years. Although the United States Environmental Protection Agency estimates that approximately three quarters of computers sold in the U.S. are stored unused in garages and closets (a statistic that is soon to be worldwide), the question of how to deal with electronic waste when it is thrown away will become an exponentially increasing problem as technology continues to flourish.

As Chairs, we encourage delegates to embrace the challenge that electronic waste poses. It is a problem that has only in the recent decades become prevalent; and an issue that will continue to become more pressing in our lifetimes. Without examples of direct correlation to look to in the past, it will be necessary to be innovative in order to address all the environmental concerns that electronic waste poses.

Topic Background

Most common technological devices fall under the category of electronic waste once they become obsolete or no longer function. These include televisions, computers and monitors, audio equipment, VCRs, DVD players, video cameras, telephones, fax and copy machines, mobile phones, wireless devices and video game consoles. The United Nations Environment Programme (UNEP) estimates that up to 50 million tons of e-waste is generated every year internationally. In addition, the e-waste of developed nations is considered to be the fastest growing fraction of the municipal waste stream. The increasing speed at

which new products are introduced into the mainstream and the decreasing costs of computers and other electronic devices often makes it cheaper and more convenient to replace a broken or obsolete object, rather than repairing or upgrading it. E-waste can be valuable because discarded equipment often can be reused or repaired, and also can contain precious metals or other useful materials. However, this growing amount of e-waste is a problem because there are toxic substances in e-waste that can bleed into the environment, poisoning the water, soil, and atmosphere if improperly disposed.

The most prevalent toxic substances of e-waste are heavy metals and plastics. For instance, present in circuit boards are hard metals such as lead and cadmium. Lead is especially dangerous because the metal accumulates in the human body and targets the central nervous system. It has the potential to cause serious and permanent damage to the brain and nervous system, resulting in behavioral changes and mental retardation. Cadmium also accumulates in humans and can cause significant damage to the kidneys because of its long half-life. In the cathode ray tubes, batteries, capacitors, transformers, plastic cables and insulation of computers and other electronics, other toxic substances can be found - including mercury, lead oxide, polychlorinated biphenyls, and brominated flame retardants. Mercury is the most common toxic metal in e-waste and leads to cell damage by enzyme inhibition if accumulated in living organisms. However, plastics are the most abundant substance of e-waste. Because plastics come from a large number of sources and are not biodegradable, their disposal and recycling presents a problem for the world. Often, plastic ends up in



landfills or openly burned, which releases toxic substances into the environment. Because of the danger of these substances found in e-waste, regulation of its disposal is needed.

Presently, e-waste is predominantly disposed of in one of four ways - landfills, incineration, recycling or exportation. Each of these methods has health and environmental hazards associated with it, if unregulated.

A large amount of e-waste ends up in landfills, which can be dangerous because over time, hazardous chemicals in electronics can leach into the land. Several European countries have introduced regulations to limit the amount of e-waste in landfills, but it is still a popular method of disposal in most countries, including the United States of America and China.

The incineration of e-waste releases heavy metals and other toxins into the air, which can adversely affect neighboring ecosystems and communities.

Recycling is the best way to discard e-waste; however toxic chemicals could potentially pose a threat to the workers in the recycling yards, and nearby communities. This is less of a problem in developed countries because special facilities and conditions are available for the recycling of e-waste. However, it is not uncommon for e-waste to be recycled in developing countries instead, where controls and regulations for the safety of the workers and environment are not present.

Exportation of electronic waste from developed countries to third world countries is of major concern because of the practice's exploitation of the poor and their children. In some developing countries, the recycling and separation of e-waste is a major source of income for its people, who take the electronics apart and extract parts that can be reused, and then burn or dump

the rest of the waste. The workers often lack protective outerwear and tools, and thus are extremely vulnerable to any toxins that are in the electronic waste. Also, they often use unprofessional techniques which result in toxic substances flowing into the surrounding water, soil and atmosphere, thus creating health and environmental hazards. The practice of exportation creates an unfair situation where the developing nations suffer most from its disposal even though industrialized nations are the largest generators of e-waste. Unfortunately, it is a popular practice because of the cost benefits. For example, it can cost up to thirty dollars to dispose of one computer properly, however, if a country or company exports the waste to a developing country, it can instead make a profit off of the waste. China, India and countries in Africa are popular places for the exportation of electronic waste.

Prior UN Action

On March 22, 1989, 167 countries of the UNEP, with the exception of Afghanistan, Haiti, and the U.S., adopted the Basel Convention, which stated that there would be no "transboundary movement of hazardous wastes and their disposal" between countries. Countries that decided to support the Basel Convention agreed that they would neither import nor export any electronic waste that may contain toxic chemicals. The Convention also sought to minimize the generation of hazardous wastes, as well as treat and dispose of wastes as close as possible to where they originated from. The terms and regulations of the Basel Convention came into effect in 1992. It distributes several publications which describe how to implement the Convention, including technical guidelines and a manual called



“Model National Legislation for the Transboundary Movement and Management of Hazardous Wastes.”

More recently, in November 2006, a week-long conference in Nairobi was held to review the Basel Convention, and aimed to tighten controls on the exportation and disposal of e-waste, as well as push countries that had not yet ratified the treaty to do so. It also discussed the Ivory Coast incident and the ramifications of the tragedy.

Currently 170 countries have signed the Basel Convention. Other international organizations such as the European Union and Organization for Economic Cooperation and Development have also adopted policies aimed at e-waste management. Yet, incidents of exportation and adverse environmental effects continue to be documented, indicating that more can be done in order to address the growing problem of e-waste globally.

Case Studies

Guiyu, People’s Republic of China

The rural town Guiyu of the Guangdong Province in China has been the main destination for the export of e-waste since 1995, with many e-waste recycling shelters and yards alongside rice fields. Unfortunately for the town, most of its recycling operations are unsafe and unregulated, including open burning, cathode ray tube cracking and dumping, and plastic melting. The inhalation of toxic fumes from incineration and the ingestion of contaminated water and food result in adverse health effects for the workers. To make matters worse, most workers lack sufficient protective gear and are further directly exposed to the toxic substances. The amount of e-waste imported to Guiyu is so large that much of it does not even

undergo recycling and is dumped straight into open fields, where it greatly contaminates the water and soil.

Measurements of toxic hard metals taken from the Liangjiang River, which is next to Guiyu, were significantly above the World Health Guidelines and the Environmental Protection Agency’s Water Standards. For example, 1.9 milligrams per liter of lead was found in the river, whereas the World Health Guideline is only 0.01 milligrams per liter. Guiyu is not the only town that has been exploited as an e-waste processing center, and it shows the huge environmental and social effects that e-waste exportation has.

Abidjan, Cote d’Ivoire

Another incidence of inappropriate export of toxic waste would be the Ivory Coast incident. In early September of 2006, residents of Abidjan, Cote d’Ivoire had problems with noxious fumes that were produced by inappropriately discarded waste. At least 10 people died and more than 70,000 others sought medical treatment. Ivorian authorities blamed the incident on the corruption of senior officials since it was determined that ministers granted a license to a Nigerian business man to accept the waste in a few sites of the city. It was estimated that about \$30 million would be needed to clean and restore the contaminated sites. Although the incident was not caused by e-waste, it shows the vulnerability of African nations to waste importation and the seriousness of health hazards caused by unregulated waste.

Points and Questions to Consider

What is the best way to ensure the safe recycling and management of e-waste?



How can regulations on transboundary movement of hazardous wastes be enforced?

What types of e-waste regulation does your country have and are they effective?

Does your country import or export e-waste?

What economic effect does the importation or exportation of e-waste have on your country?

What is to be done about the large amount of e-waste that has already accumulated in developing countries?

How should the U.N. respond to any disasters potentially caused by e-waste?

How do you accommodate for the increasing rate at which e-waste is being generated?

Works Cited

United Nations Environment Programme (UNEP). "Homepage". (revised 2007), <http://www.unep.org> (accessed August 11, 2007).

UNEP Production and Consumption Branch. "E-Waste Management". (revised 2006), http://www.uneptie.org/pc/pc/waste/e_waste.htm (accessed August 10, 2007).

Basel Convention. "Welcome to Basel Convention". (revised 2007), <http://cop8.basel.int/> (accessed August 11, 2007).

Greenpeace International. "Hi-Tech: Highly Toxic". (revised 2007), <http://www.greenpeace.org/international/ca>

mpaigns/toxics/electronics (accessed August 10, 2007).

EarthTrends. "Environmental Information". (revised 2007), <http://earthtrends.wri.org/index.php> (accessed August 11, 2007).

Stirling, Victoria. The Women International Perspective. "The Toxic Trade in Electronic Waste: Out of Sight, Out of Mind". (revised 2007), http://www.thewip.net/contributors/2007/08/the_toxic_trade_in_electronics.html (accessed August 12, 2007).



Freshwater Scarcity Management

Introduction

Freshwater scarcity is a global problem with a wide range of consequences from environmental to political - from the extinction of endangered marine animals to conflicts amongst neighboring nations over control of rivers. Populations are increasing, but the availability of freshwater has not undergone much change in recent years, and thus, the distribution and protection of freshwater needs to become a global priority in order to sustain international growth and development. In deciding on a course of action for managing freshwater scarcity, one must take into account that water is essential for all life and consider the far-reaching consequences and implications, whether intended or unintended, of the policy.

As Chairs, we urge delegates to examine how a phenomenally important resource such as water can be protected from exploitation, but still serve humanity's needs. It will be a difficult balance to strike, and a multi-faceted approach to the problem will be necessary to answer the many different aspects of freshwater management.

Topic Background

Water is inarguably an essential component to life and is necessary for survival on a number of levels. However, less than one percent of the world's water supply is easily accessible freshwater. There is optimism in the international community that with smart management and innovative techniques, there is enough water to sustain the world's population of 6 billion people. Unfortunately, the substantial population growth in developing

countries is a problem related to water availability and there is fear that in the future, the demand for water will be too high for the world to sustain. To compound the problem, water demand is growing as the world is becoming more industrialized and agricultural and domestic demands for water increase. Between 1900 and 1995, water consumption globally multiplied by a factor of six, which was more than double the rate of population growth. In addition, climate changes in recent years have become a concern to predictors of water availability.

Even in water-rich nations, it is evident that there is a problem with uneven water distribution, with the rich having significantly greater access to water, when compared to the country's poor. Also, with water being such an important asset to a nation, there is fear that violent conflicts may be raised over the use and ownership of water sources. Lastly, even though the demand for water is rising, many freshwater sources are vulnerable to pollution and overfishing, especially in developing nations. This in turn not only affects the ecosystem, but could also have adverse health effects on any neighboring communities. Policies on freshwater management and protection must cover and consider these three essential points – the large gap between the rich and poor in terms of water distribution, the potential of warfare over freshwater sources, and the protection of freshwater ecosystems.

It has often been a fear that as water becomes scarcer and an ever-increasingly valuable commodity, water wars would be waged for control and access to water basins. Since 1948, only 37 violent conflicts over water have been recorded, with most of them occurring in



the Middle East. However, there are many river basins and underwater water supplies that do not yet have trans-boundary treaties, and have the potential to raise conflicts. About 31 nations depend on rivers that cross international borders for at least a third of their water use, and thus, cooperation and mutual understanding between nations sharing water sources is necessary in order to avoid tensions and potential violence outbreaks. Also, it is important to help nations that do not have any or limited access to freshwater sources, and to ensure that they can adequately provide their populations with water, as well as prevent them from any exploitation from water-rich countries.

Although water equity and rights are important issues, so is the protection of freshwater from pollution, as decreasing quality of groundwater and surface water from pollutants and toxins will only increase the problem of water scarcity. Of particular concern is water sanitation because poor water quality greatly affects health. It has been estimated that by guaranteeing safe clean drinking water and promoting sanitation and hygiene, 1.6 million lives could be saved annually. Alongside pollution, another example of wasteful water use would be inefficient irrigation systems that are used for agriculture. Globally, about 60 percent of irrigation water is lost to evaporation and runoff, and thus does not help the agricultural community at all. From these examples of wasted water, it becomes clear that better water management would equal more water.

While water should be regulated and protected for human use, it is also important that water sources be protected in order to provide for the environmental needs of aquatic ecosystems and its dependent species. In many places, humans

are polluting or abusing water that is needed to sustain a healthy aquatic community, which in turn, hurts fishers and local communities. Approximately 60 percent of the world's major river basins have had their flow seriously fragmented and changed because of the increase in the number of dams being built, which can potentially have some serious consequences to the ecosystems that depend on the rivers.

In addition, policy makers interested in preventing future problems associated with water should also examine ideas and methods of increasing the overall amount of useable clean freshwater. Potential solutions include desalination systems for countries close to oceans, water filtration systems to clean polluted water, rainwater harvesting, better water transport and irrigation systems, and also the development of more drought resistant plants.

Prior UN Action

At the 2002 World Summit on Sustainable Development, the Johannesburg Plan of Implementation was adopted to encourage countries to develop "integrated water resources management and water efficiency plans" by 2005.

Also, in the 1992 United Nations Conference on Environment and Development, known as the Earth Summit, World Day for Water was proposed in Agenda 21, a UN program related to sustainable development that was introduced at the Earth Summit. Starting in 1993, World Water Day has been observed on March 22 every year, during which a UN agency involved with water issues promotes international activities with the goal of implementing UN recommendations. The theme for World Water Day 2007 was "Coping with Water Scarcity" and was



coordinated by the United Nations Food and Agriculture Organization on behalf of UN-Water.

The activities of the United Nations Environment Programme have been striving to guarantee that there will be enough water for all, and have been guided by the goal of “[satisfying] the freshwater needs of all countries for their sustainable development,” as stated in Agenda 21. One of the Millennium Development Goals for water was also to have halved the proportion of people without accessible or sanitary water by 2015.

In addition, the UNEP has created a Water Programme that monitors water quality in over 106 developing countries, and has also developed a World Water Assessment Programme report that provides recent overviews of all regions of the world about the state and uses of water, recording any problems and the communities’ solutions. The UNEP has also published “The Atlas of International Freshwater Agreements,” which contains information on how any states that potentially have conflicts can cooperate and develop an appropriate treaty to address trans-boundary water resources issues.

Case Study

People’s Republic of China

It has been estimated that 1.1 billion people do not have access to enough drinking water and that up to 2.6 billion people do not have access to basic and proper sanitation, to ensure that their drinking water is safe and clean. These people are mostly from regions in China or India, as well as sub-Saharan Africa, and consist of the world’s poorest population. In fact, Africa’s Lake Chad is often cited as an example of decreasing water sources. Since

the 1960s, the lake has grown smaller by about 90 percent because of deforestation and poorly planned irrigation projects.

As an example of how freshwater pollution and overuse affects not only humans, but also other living organisms, the rare baiji dolphins that live only in the freshwater habitat of the Yangtze River of China have recently been declared “functionally extinct.” In December 2006, the dolphins were sadly declared extinct because none could be found after a six week search. However, in August 2007, there was a confirmed sighting of the baiji dolphin, encouraging scientists to put an enormous effort into saving the species. Illustrating the quick decline of the species, the dolphin population had been about 400 in the late 1980s, only to plummet to less than 100 in the mid-1990s. The disappearances of the baiji, as well as the finless porpoise and the Chinese sturgeon from the Yangtze River have been attributed to a number of circumstances, including the deterioration of their natural habitats, overfishing, and heavy fishing traffic.

Points and Questions to Consider

Does your country have any problems with water scarcity?

What methods does your country use to irrigate and make water available to its people?

How can water be fairly distributed?

How can the UN help countries that have water shortages?

What are other potential freshwater sources other than rivers and lakes?



How do you accommodate for rising populations and the increasing need for more water?

http://www.alt3.co.uk/DISCUSSION_files/Water.htm (accessed August 13, 2007).

How do you prevent border disputes that involve freshwater sources?

Lovgren, Stefan. National Geographic. "China's Rare River Dolphin Now Extinct, Experts Announce". (revised 2006), <http://news.nationalgeographic.com/news/2006/12/061214-dolphin-extinct.html> (accessed August 14, 2007).

What implications does water scarcity have on a society (i.e. agriculture, industrialization, health, etc.)?

How do you protect freshwater ecosystems, but also accommodate the needs of developing nations?

Works Cited

UNEP. "Freshwater". (revised 2007), <http://www.unep.org/themes/freshwater/> (accessed August 13, 2007).

World Water Day – 22nd March 2007. "World Water Day 2007... A Great Success Thanks to You!". (revised 2007), <http://www.unwater.org/wwd07/flashindex.html> (accessed August 13, 2007).

dgCommunities. "Water Resources Management". (revised 2007), <http://topics.developmentgateway.org/water/> (accessed August 14, 2007).

EarthTrends. "Environmental Information". (revised 2007), <http://earthtrends.wri.org/index.php> (accessed August 11, 2007).

International Decade for Action. "Water for Life". (revised 2006), <http://www.un.org/waterforlifedecade/> (accessed August 13, 2007).

Chapman, Kevin L. Alt3. "Freshwater Scarcity – A Potential Cause for Warfare". (revised 2007),