

When one man's trash isn't another man's treasure

BY ANNA ILARIA-MAYRHOFER

Worldwide, 20 to 50 million metric tons of electronic, or e-waste, are generated annually. A shocking 70 percent of this, along with the toxic materials it contains, ends up in developing countries that are ill-equipped to deal with it safely. The blatant continuation of the practice, in spite of multilateral efforts to control both the movement and disposal of such substances, is a catastrophe waiting to happen.

One shouldn't wonder why the amount of e-waste has reached monumental proportions. After all, technology providers are constantly touting the latest "gadget of the month" – cell phones that boast yet another "must-have" feature; slimmer, swifter computers; and higher-resolution plasma-screen televisions, to mention just a few. Consumers in the industrialized world are quick to embrace the latest technological fads and just as quick to discard devices that are far from reaching the end of their useful lives. And thanks to planned obsolescence, it's generally cheaper to replace an electronic device than have it repaired.

Toxic substances

Hazardous substances in electronics abound, particularly heavy metals such as lead, beryllium, mercury, copper, cadmium and silver. Although benign when safely ensconced in their casings, these materials can become highly toxic when

liberated. When heavy metals are ingested or inhaled, they accumulate in the body and can cause neurological damage and have deleterious effects on the internal organs and skeletal system. Constant exposure can even be fatal.

The following are examples of toxic materials that can be found in electronics: lead, beryllium and hexavalent chromium (a human carcinogen when inhaled) can be found in Central Processing Units (CPUs) of computers. Cathode-ray Tubes (CRTs), from older monitors and televisions, can contain up to 3.5 kilograms of lead. Circuit boards also have lead, as well as cadmium and mercury. Casings are coated with flame retardants that release noxious gases when burned. Lead and nickel-cadmium can be found in cell phone batteries. Cables and wiring are coated with PVC coverings which releases dioxins when burned.

There are also, however, high-value materials in e-waste, albeit in tiny

amounts. These include copper, gold, platinum, silver, palladium and iridium, all of which can be recovered and recycled.

Many countries have made it illegal for e-waste to simply be discarded with regular waste. In unlined landfills heavy metals can leach into the soils and contaminate water supplies, and when burned, release noxious vapors and ash into the environment.

Recycled or dumped?

Conscientious consumers take their unwanted equipment to the nearest recycling facility. But what has come to light, thanks to the vigilant efforts of environmental watchdogs, is that there are a vast number of unscrupulous recycling companies. These businesses are making hefty profits from selling electronics to scrap brokers, who illegally tranship them to developing countries, particularly in Africa and Asia. In so doing, ►



Although some imported electronic equipment can be repaired, most items are no longer usable and end up being dumped along with their hazardous components.

◀ they avoid the expense of processing these items in an environmentally-sound fashion. While most legitimate recyclers require the disposer to pay a fee for each discarded item to help recover their costs, illegal entities draw in consumers by promising free recycling. Tragically, it is poor people in the recipient countries that ultimately end up paying the price – with their health.

Out of sight, out of mind: recycling via the informal sector

So what happens after old electronics are unloaded from the shipping container? Items clearly broken are tossed into unsafe waste dumps; others might be repaired for resale. The majority, however, will end up being recycled via the “informal sector.” Some of the worse-affected cities are Accra, Ghana; Delhi, India and Lagos, Nigeria. Here, a typical day in the life of a worker, many of them children, involves being surrounded by mounds of e-waste for dismantling and sorting. The air is rife with acrid smoke from the mass burning of cables and wiring to expose their copper. Circuit boards are either bathed in acid or burned over an open fire to extract precious metals. CRTs, which contain leaded glass and yield highly toxic dust that is easily inhaled, are smashed open for processing. Chemicals leach unfettered into drainage ditches and drinking water sources. Meanwhile, the workers are unaware of the health hazards they are facing each day while merely trying to eke out an existence.

The Basel Convention

These practices are widespread despite the illegality involved, and a number of laws and conventions have been drawn up to combat the situation. One of the most important multilateral agreements is the *Basel Convention on the Control of*

Transboundary Movements of Hazardous Wastes and their Disposal, which was conceived in the late 1980s under the auspices of the United Nations Environment Program (UNEP). It entered into force in 1992 and presently has 172 members, or Parties. The Convention urges Parties to minimize the use of hazardous materials in the production of goods, and to recycle e-waste locally whenever possible. If materials bearing hazardous waste are to be shipped elsewhere, prior consent from the exporting and importing countries must be reported to keep the process transparent.

The Convention notwithstanding, illegal shipments were still rife, a situation which gave rise to the adoption of the Ban Amendment to the Convention in 1995. The Amendment prohibits the export of *any* kind of hazardous waste from developed to undeveloped countries. Unfortunately, it has not yet entered into force, as the required three-fourths ratification of the Amendment has not taken place. There are, nonetheless, Parties such as the European Union (EU) that observe this rule.

Why e-waste is still ending up where it shouldn't

One glaring omission in the list of Convention Parties is the United States, despite the fact it generates a significant amount of e-waste. According to an estimate of the US EPA (United States Environmental Protection Agency), 2.63 million tons of e-waste was produced in 2005. And while some export restrictions exist, such as prohibiting the export of broken CRTs, regulations controlling other electronic waste are lacking. This issue was brought to light in a recent report released by the US Government Accountability Office (GAO): *Electronic Waste: EPA needs to better control harmful US exports through stronger enforcement and*

more comprehensive regulation. In fact, the GAO carried out a “sting” operation where they posed as foreign buyers in Hong Kong, India, Pakistan and other countries. They found 43 US companies that were willing to export broken CRTs. The report also notes that in January 2007, customs officials at a port in Hong Kong, China sent back 26 containers of CRTs to the US¹. One can only speculate how many other containers have “slipped through the net.”

Concerns have also been highlighted in a report by the European Environment Agency *Waste without Borders in the European Union (EU)*? The report states that illegal exports are also likely to be originating from EU countries. For instance, it notes that between 1997 – 2005, shipments of “mostly hazardous and problematic waste” from EU to other EU and non-EU countries increased by almost fourfold. And while the waste shipments were reported accordingly, it does raise the question as to *why* so much e-waste was shipped elsewhere for processing instead of domestically. Another case that supports the premise of rules being flouted within the EU are statistics that show the average value per unit of color televisions exported from the EU to Africa in 2005 was €64, and even lower – €28 – for those shipped to Ghana, Nigeria and Egypt. These figures are in stark contrast to the average unit price of €339 for *all* shipments, including those to the US, and strongly suggest that the cheap items shipped to Africa were little more than scrap.

Circumventing the system

Although shipments must bear an international code that states what they contain, there is no specific code for e-waste. Thus, e-waste brokers are falsely ▶

¹ In 2002 China imposed a ban on the import of e-waste



Workers crack piles of burned computer components to remove the copper inside unaware of the danger to their health.

◀ reporting on their declaration documents that their shipments comprise “scrap metal” or “second hand goods.” And while containers may indeed hold some working items, the majority do not. Some containers are never scanned, and certainly not every device is tested to ascertain whether it is in working order. Tip-offs to customs officials from whistleblowers have revealed how often this occurs.

Despite these daunting challenges, some organizations are making a concerted effort to tackle the issue. One example is Empa, a research institute that is carrying out pilot projects with Hewlett Packard and the Global Digital Solidarity Fund to seek sustainable e-waste management solutions. UNEP is also engaged in myriad programs worldwide and works closely with manufacturers to develop products that contain fewer hazardous materials. Another is StEP, an initiative created by various UN institutions and

partners with governments, NGOs, leaders of industry, among others to resolve e-waste problem.

Some of the “whistleblowers”

As mentioned earlier, much of the awareness of the e-waste situation would not have been possible without the staunch efforts of environmental watchdogs. One highly-dedicated NGO is the Basel Action Network, or BAN. Despite the smallness of its operation, BAN has made a tremendous difference in exposing the e-waste trade. In addition to publishing pioneering reports and filming documentaries, BAN also serves as an “information clearinghouse.” Another NGO, Toxics Link, based in Delhi, India, has undertaken a wide range of on-the-ground-work in

areas such as municipal solid waste management, handling and safe disposal of bio-medical waste, promoting cleaner industry practices, food safety and devising solutions to the e-waste problem. The organization has also published numerous information materials.

What can be done?

The e-waste issue is not a simple one and cannot be resolved swiftly. International support must be rallied to achieve global ratification of the Basel Convention and Ban Amendment. More awareness must be raised of the issue – from the consumer and grass-roots level to the national level. If this does not occur, what has been aptly referred to as “toxic colonialism” will continue to prevail. ■

LINKS

<http://www.basel.int/index.html>

<http://www.gao.gov/products/GAO-08-1044>

<http://www.eea.europa.eu/>

www.ban.org