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E-CEMETERIES: WHERE ELECTRONIC WASTE NEVER DIES

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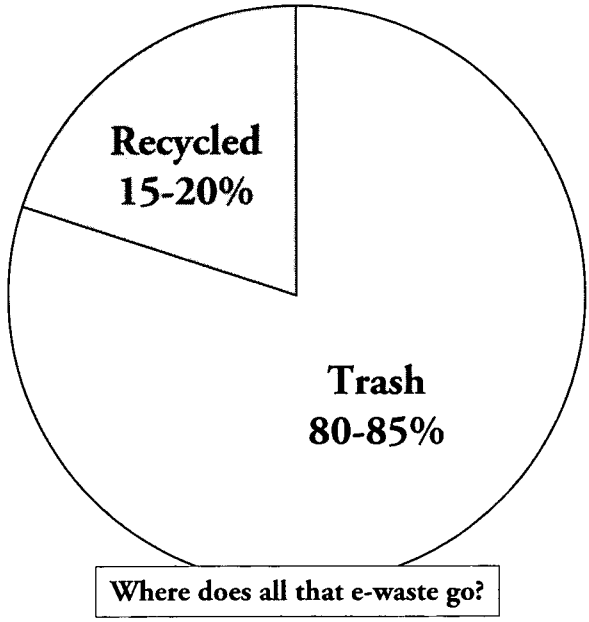
After a long journey from the typical workplace or home, computers, printers and other e-products become the mountains of discarded electronic parts that are laid to rest in rural communities throughout China.[1]

Over the past twenty years, the boom of the electronics industry has made access to electronics commonplace in countries around the world. In 2006, more than one billion cell phones were shipped worldwide.[2] In 2007, companies shipped more than 250 million personal computers.[3]

The proliferation of technology, however, has spawned a potentially harmful by-product: electronic waste. Exhibit A is the cell phone.

The reality is that there are billions of cell phones in use,[4] and the average cell phone is replaced after just 18 months.[5] The question is: Where do the discards go?



Source: U.S. Environmental Protection Agency, Frequent Questions, available at http://www.epa.gov/epaoswer/hazwaste/recycle/ecycling/faq.htm#concern.

When these products have reached the end of their lives, whether through obsolescence or consumer upgrade, the by-product is termed e-waste. Common sources of e-waste are everyday electronic products: cell phones, televisions, computers and radios.[6]

Because there is no uniform U.S. federal regulation addressing the proper disposal of most e-waste, thousands of pounds of consumer electronics either end up in landfills or are exported to rural communities.[7] And while a handful of states have enacted laws promoting various solutions ranging from manufacturer responsibility to more stringent disposal procedures,[8] some critics question whether the status quo of legislative and consumer action is enough to combat the gravity of e-waste.[9]

"[W]ith federal regulators slow to implement a comprehensive e-waste reduction program, Congressional action is necessary to curb the rising tide of this toxic waste," said Representative Louise Slaughter (D-NY).[10] "We can no longer afford to ignore this growing problem."[11]

Why E-Waste Is Problematic

The problem with e-waste is that electronic equipment often contains hazardous chemicals, according to the U.S. Environmental Protection Agency (EPA).[12] Though these chemicals are important elements for performance, they can nevertheless cause serious health and environmental problems if not properly managed upon disposal.[13]

Older television monitors are one problematic source of e-waste because they use cathode ray tubes (CRTs) which contain lead.[14] Exposure to lead can cause intellectual impairment in children and can damage the nervous, blood and reproductive systems in adults.[15]

Flat-screen televisions may have a better picture, but they are just as dangerous. These screens contain mercury, which can damage the brain and central nervous system.[16]

CRTs and flat screens are just two examples. The EPA estimates that of the 1.9-2.2 million tons of used or unwanted electronic equipment in the United States,[17] 1.5-1.9 million tons were discarded in landfills, and only 345,000-379,000 tons were recycled.[18]

It is projected that as much as 80 percent of U.S. electronic products are not recycled.[19] Their fate is either incineration, being sent to a landfill, put into 'storage or reuse' or exported.[20]

Improper disposal and export to rural communities place citizens, both makeshift recyclers and uninvolved persons, at grave risk of health and environmental problems, according to Greenpeace International.[21]

Exporting E-Waste is Big Business

Though the toxic-trade industry is largely underground, officials estimate that it began to rise in the 1980s.[22] As industrialized countries began to tighten their restrictions on hazardous waste disposal, companies had to look elsewhere to dispose of the waste, and developing countries without such restrictions became targets.[23] International concern over this practice led to the drafting and adoption of the Basel Convention.[24]

The Basel Convention, a joint resolution of the United Nations, aims to address the trade and transport of hazardous materials.[25] It seeks to limit this trade by encouraging disposal in the waste generator's own state, and it recognizes any nation's "sovereign right to ban the entry or disposal of foreign hazardous wastes and other wastes in its territory."[26]

Because the United States has not ratified the Basel Convention, however, American firms can legally send e-waste abroad.[27]

Currently, the EPA only examines the export of CRTs. In 2005, "approximately 61 percent (about 107,500 tons) of CRT monitors and TVs collected for recycling were exported for remanufacture or refurbishment."[28]

According to a U.S. Government Accountability Office survey of American recyclers, some U.S. businesses sell obsolete e-products to foreign brokers because of the prohibitive cost of safe, domestic disassembly.[29]

Unlike the United States, China has ratified the Convention,[30] yet the import of e-waste to China continues. Because China allows the import of plastic waste and scrap metal, this exception has allowed traders to skirt the Convention and send old computers to China, which eventually end up in its rural areas.[31]

Combating E-Waste

Environmental justice groups, individual states and the EPA are working to combat e-waste.

Greenpeace advocates two main platforms to confront e-waste: individual producer responsibility and improved product design.[32]

Individual producer responsibility calls for companies to "take financial responsibility for their products once discarded by customers."[33] Furthermore, the principle calls for "the cost of waste management to be incorporated into the product price, i.e. the 'polluter pays' principle."[34]

California is one of several states to have e-waste laws.[35] The California Electronic Waste Recycling Act of 2003 established a funding system for the collection and recycling of certain electronic wastes.[36] Electronics retailers collect an "Electronic Waste Recycling Fee" from consumers on covered electronic devices.[37] The retailers then remit these fees to California's Board of Equalization to fund proper recycling efforts.[38] The fee for televisions, for example, can range from $4 to $10, depending on the size of the television.[39]

Christopher Newman, a researcher in the EPA's Materials Management Branch, says that such laws will require people to think differently about waste.

"People are used to throwing trash out for free," said Newman. "Now [some governments] are asking them to pay extra to recycle. People will have to build this [new idea] into their thinking and budgeting."[40]

While the EPA does not have approved methods for electronic recyclers, it does encourage safe recycling practices.[41] For example, the EPA calls on recyclers to reuse or refurbish electronics when possible, and to ensure that downstream facilities are using materials in an environmentally-responsible manner.[42]

Greenpeace also encourages manufacturers to limit and replace the amount of hazardous chemicals used at the initial design phase.[43]

Large electronics producers have already begun to implement safer alternatives into their products.

Steve Jobs, CEO of Apple, recently made public the changes his company is making in both product design and recycling efforts.

"Apple plans to completely eliminate the use of arsenic in all of its displays by the end of 2008," said Jobs. "Apple [also] plans to reduce and eventually elim-

inate the use of mercury by transitioning to LED backlighting for all displays when technically and economically feasible."[44]

Apple says it is directly addressing the harmful export industry.

"All the e-waste we collect in North America is processed in the U.S., and nothing is shipped overseas for disposal," Jobs said. "We carefully review 'environmental fate' submissions from each vendor, so we know how raw materials are handled at the end of the recycling process."[45]

While Greenpeace was initially critical of Apple's environmental policies,[46] it recently has praised Apple for its new initiative.[47]

What Does the Future Hold?

The long-term solution to e-waste disposal and export may depend on both educating the public and increasing accessibility to e-waste recyclers.

Newman believes that consumers can also educate themselves to ensure proper recycling practices of electronics. He believes that "individuals can inquire where the recycling is going, and what processes [the recyclers] use."[48]

The need for e-waste education will be particularly critical as the United States prepares for the transition to digital television transmission.[49]

Among those consumers who are aware of the transition, at least 24 percent of consumers believe they will need to throw away all of their analog television sets."[50]

The National Computer Recycling Act may also facilitate the education process.[51] This legislation was introduced on Jan. 4, 2007.[52] The aim of the bill is to "establish a grant and fee program through the Environmental Protection Agency to encourage and promote the recycling of used computers and to promote the development of a national infrastructure for the recycling of used computers, and for other purposes."[53]

Newman agrees with the need for increased accessibility to e-recycling facilities.

"Accessibility [to e-waste recycling] is not as readily available as curbside aluminum recycling. [Formal e-waste recycling] may only happen one or two times a year."[54]

Greenpeace, however, advocates for a collaborative technique to end the export of e-waste. It states that the challenge will be to "substantially increase collection rates and at the same time to develop an infrastructure and capacity where e-waste is safely dismantled, recycled or reused domestically."[55]

Ultimately, Greenpeace would like the export of e-waste from the United States. to be stopped altogether.[56]

NOTES

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20 *Id.*

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32 *Supra*, note 2 at 5.
33 *Id.*
34 *Id.*
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38 *Id.*
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50 *Id.*
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53 *Id.*

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55 *Supra*, note 2 at 50.
56 *Id.*