

# From gadget to garbage: tackling the problem of discarded technology

By Orange County Register, adapted by Newsela staff on 01.14.14

Word Count **940**



Old computer keyboards fill a box as EXPC employee Diego Cuellar walks through the company's warehouse on Dec. 17, 2013, in Santa Ana, Calif. In California, e-waste is recycled with funds paid by consumers as a fee when they purchase electronics. Mindy Schauer/Orange County Register/MCT

Christmas gifts of years gone by meet a sad end at Absolute Green Electronics Recycling in California. Computers are dismantled, the parts sorted into cardboard bins. One holds nothing but hard drives, another AC adapters. Bins stretch in rows across a huge warehouse. There are bins for cellphones, VHS camcorders, digital cameras, cables and network switches.

Stacked-up printers form a miniature mountain. Old-fashioned picture tube TVs sit face-down on pallets. Flat-screen monitors cluster along a wall like tombstones.

"There are different grades of boards," said owner and president Victor Kianipay, stepping past huge, dust-covered projection TVs to poke into apple boxes filled with circuit boards. "Everything gets separated," Kianipay said. "There are so many layers and layers of product."

This is electronic waste, or e-waste. It's a source of income for Kianipay. He moved 25,000 pounds of discarded items in last January's post-Christmas frenzy.



## **Stopping "Digital Dumping"**

E-waste also is an environmental problem of global proportion. The ever-rising tide of electronic junk now totals nearly 50 million tons a year worldwide, according to the Solving the E-Waste Problem Initiative, a coalition of governments, scientists and industry groups based in Bonn, Germany.

Within five years, the annual figure may reach 65 million tons — enough to fill trucks parked bumper to bumper encircling three-quarters of the Earth, the coalition estimates. The waste is a particular concern in part because much of it contains lead, mercury and other hazardous substances. Those substances are released when the waste is melted down to recover gold, silver and copper.

The widespread practice of exporting electronic waste to developing countries has created a bustling scrap metal business in poor parts of China and Africa. But it has also exposed large numbers of people to poisonous toxins and carcinogens.

"You see all these thousands — literally thousands — of women and young kids whose job is to cook circuit boards," said Jim Puckett, founder of the Seattle-based Basel Action Network. The group is named after the Swiss city where international agreements were drafted in the late 1980s and early 1990s to stop the "digital dumping."

Although 35 nations have adopted the principles of the Basel Convention, Puckett said, the United States — by far the largest producer of e-waste — has not.

The U.S. Environmental Protection Agency, in a report posted on its website, said "most discarded consumer electronics end up in our landfills." That's a completely separate environmental problem. No one is sure how much e-waste ends up being exported from the U.S., the EPA says, but "the United States government is concerned that these exports are being mismanaged abroad, causing serious public health and environmental hazards."

## **California's Recycling Incentives**

Puckett, who has spent years investigating the issue, estimates that "about 50 to 80 percent of what is handed over to recyclers is exported."

Spurred by environmental activists, Congress and state governments are trying to ensure that e-waste gets properly recycled here. The federal Responsible Electronics Recycling Act was introduced in July. If passed, it would prohibit the export of electronic junk containing toxins to nations that cannot process them safely.

In addition, President Barack Obama established a task force in 2010. Its role is to encourage development of "greener" electronic devices and to boost domestic recycling.

California became a national pioneer by enacting the Electronic Waste Recycling Act of 2003. The law created a system of incentives to prevent the disposal of most video-display devices and certain other types of electronic equipment in landfills. The law especially targets outmoded picture tube TVs and computer monitors — not flat screens.

The old TVs are particularly bad because they contain both lead and mercury, said Mark Oldfield. He's a spokesman for the state's Department of Resources Recycling and Recovery.

More than 1.5 billion pounds of video-display equipment has been collected directly because of the law since 2005, Oldfield said.

## **An Explosion Of Devices**

Inside a cluttered warehouse at EZPC Recycle in Santa Ana, Calif., owner Chris Chun has a workbench where his staff tests discarded computers and network switches. Devices that still work are sold on the secondhand market. Computers are offered at a steep discount to schools and churches.

"I have kids. I want them to have a clean, safe environment," said Chun, a father of two boys. If electronic equipment gets tossed into a dump, "it just stays there," Chun said. "It's never going to decompose."

Still, e-waste is never particularly easy or clean even when handled properly. Taking apart some equipment requires removing up to 50 screws, Chun said.

Industrial-scale shredders turn circuit boards and hard drives into huge bits of glass, metal and plastics. Those pieces have to be melted in a smelter to isolate the gold, silver, copper and palladium, said Ted Smith, founder of the San Francisco-based Electronics TakeBack Coalition.

"There are no smelters that do this in the U.S.," due to the environmental effects of the smelting process, Smith said. Therefore, the shredding companies "send the metals by rail car all the way to northern Quebec, where there is a smelter."

So far, nearly half the states have passed e-waste recycling laws. But, environmentalists fear they are only losing ground because of the astonishing explosion of devices.

Consumers upgrade their cellphones even when the old ones still function. Whole classes of gadgetry have come into being, such as GPS systems and Google Glass.

"Four hundred million gadgets a year get thrown away in this country," said Annie Leonard, founder and president of The Story of Stuff Project in Berkeley, Calif. Nationally, she said, less than one-fourth gets recycled. "The way we make, use and throw away products in this country is a cause for national embarrassment."