

## Where Computers Go To Die

### Where Computers Go To Die: Poor Cities In China Become Dumping Ground for E-waste

Li Xiu Lan, 30, uses a screwdriver to take apart a computer carcass on a Guiyu sidewalk. The migrant worker from Sichuan province earns 17 cents an hour.

GUIYU, China - Here in southern China, where the gritty air stings your throat and circuit boards pile up like dry leaves in the gutter, a group of women squat on the sidewalk using their bare hands to pull apart the hazardous guts of a small mountain of PCs.

This is where many of America's computers go to die.

In the Pearl River Delta less than 180 miles away, in factories as immaculate as Guiyu is filthy, growing legions of young women work up to 18 hours a day, soldering chips and wires to motherboards, making the PC boxes that one day will bear the name of Hewlett-Packard or Dell or IBM.

This is where the world's personal computers are born.

A computer may spend its working days in a comfortable home in Boston or in a programmer's cubicle in San Jose. But at both ends, the dirty work behind a typical PC's life is done in China. This is the dark secret of a famously "clean industry."

At the front end, the industry relies on cheap overseas labor working long hours to make a profit on computers even as they fall in price. At the back end, the industry downplays its responsibility for the toxic chemicals and metals used in its short-lived products.

In the Pearl River Delta and other regions, spotless new factories have made China the world's premier electronics workshop by drawing young women from the desperately poor countryside to work most of their waking hours for 30 cents an hour. These are the kind of labor practices made notorious by apparel factories used by Nike and the Gap in the 1990s.

In Guiyu, as in similar dumping grounds in India, Pakistan and the Philippines, migrant workers are paid pennies to crack open and sort the parts of monitors and circuit boards, exposing themselves to toxic metals like lead, mercury and cadmium. They burn PVC cables to extract copper, poisoning the air. They dip circuit boards and chips in acid to recover small amounts of gold, inhaling the fumes and dumping the acid into a nearby river that is dying.

"Rather than having to face the e-waste problem squarely, the United States has made use of a convenient, and until now, hidden escape valve: exporting the crisis to developing countries in Asia," the environmental groups Silicon Valley Toxics Coalition and Basel Action Network stated in a recent report.

This fall a Mercury News reporter and photographer set out to chronicle this complex cycle, from a computer's birth to its death, and document the little-known story behind Silicon Valley's celebrated success. Its sheer scale is formidable: This year, the global computer industry produced its billionth PC, and it is expected to make 1 billion more by 2008.

Our journey begins in Guiyu, on the banks of the Lianjiang River, its sluggish waters contaminated by shards of lead-shielded glass from computer monitors that crossed the Pacific in containers of electronic trash.

Could this be your old PC that Li Xiu Lan has in her hands?

Escaping poverty

• From farm towns to industrial zone

Li traveled the breadth of China to escape destitution in Sichuan province. Here on a Guiyu sidewalk, she is pulling apart a PC carcass, earning about 17 cents an hour as she exposes herself to a witch's brew of chemicals without gloves, goggles or other protection.

"I don't know yet if I like this work," said Li, 30, who had been on the job about one month. "But back home there are no jobs. There is no money. There is nothing to do."

Guiyu stands out as a relatively prosperous pocket of activity compared with Shantou, a coastal city that the economic boom left behind. But incoming electronic trash litters the town, from bales of plastic monitor shells in a back alley to heaps of cell phone casings on the sidewalk of a grubby street where people live in concrete-block houses above recycling workshops.

A decade ago, this was an idyllic cluster of farming villages nestled around the pristine Lianjiang River. Now the stale air in town is choked with fumes that burn the throat -- a condition that environmental investigators partly attribute to nighttime burning of cables to recover their copper.

Guiyu became a symbol of the global e-waste problem after environmentalists investigated conditions here a year ago. They released their findings in February in a report published by the Silicon Valley Toxics Coalition and the Seattle-based Basel Action Network. The report, "Exporting Harm: The High-Tech Trashing of Asia," indicted the U.S. computer industry for not taking responsibility for the toxic substances that are built into its products. Instead of allowing the problem to be exported, it argued, brand-name PC makers should design products for easier recycling and should monitor the integrity of U.S. scrap recycling. The report also rebuked the U.S. government for failing to ratify the 1992 Basel Convention and an amendment to the accord that would ban exports of hazardous electronic waste. And it embarrassed

U.S. recycling companies were denounced for their "dirty little secret." Many of these companies were collecting monitors and PCs, but instead of recycling them under U.S. standards for hazardous-waste handling, they were shipping the scrap to Asia, where there is a ravenous, unregulated market and wages are dirt-cheap.

#### Tech export

- Most of U.S. scrap is shipped overseas

An estimated 50 percent to 80 percent of the electronic waste collected for recycling in the Western United States ends up shipped to developing countries, and scrap brokers in China are the biggest buyers, industry sources say. Electronic-trash recycling is a lucrative niche in the waste industry.

"You get paid to pick it up, and you get paid by people who want to take it away," said the head of a major recycling company who asked not to be identified.

The U.S. Environmental Protection Agency estimated in 1999 that only about 18 percent of all discarded computers were being recycled, the rest presumably left in storage or going into landfills. That would amount to about 12.8 million computers feeding the electronic-trash supply chains this year.

The tech industry has distanced itself from the problem of e-waste exports, but is grappling with the demand for domestic recycling solutions.

The Electronic Industries Alliance said recently that its members are "working hard to provide Californians with several immediate options to help with the creation of a recycling industry."

In China, the central government has tried repeatedly to stop imports of hazardous material over the past decade, but has been stymied by the nation's poorly developed rule of law and the central government's limited ability to enforce its will in outlying provinces.

Beijing cracked down in Guiyu after the state-run broadcasting network documented the hazardous electronic-scrap recycling in 2000. Later that year, a Hong Kong magazine published an account of Guiyu's environmental blight, citing tests indicating alarming levels of lead in the Lianjiang River.

Then came "Exporting Harm" and its international exposure.

#### Owners identified

- Investigators find lead, other metals

HP, IBM and Kmart were among the brand names on the tags and labels fastened to the scrapped electronics products videotaped by the investigators. Former owners identified on the tags included San Francisco State University, the Los Angeles Unified School District and Xerox Corp. A 16-inch Sony color monitor previously owned by the U.S. Defense Intelligence Agency found its way to Guiyu.

The Basel Action Network and undercover investigators from Greenpeace China collected sediment and water samples from the Lianjiang for testing by an internationally accredited testing agency in Hong Kong. One water sample showed levels of lead to be 190 times higher than the threshold set by the World Health Organization for drinking water. The lab also found sky-high levels of lead, zinc and chromium in one of two sediment samples.

The water is so filthy that Guiyu residents now rely on a town 30 miles away for their drinking water, which rickety three-wheel trucks bring in orange plastic tanks.

No one is studying workers in places like Guiyu for the health effects of hazardous electronic waste, but there are anecdotal reports of respiratory, skin and stomach problems, and an increasing number of miscarriages in the area.

Embarrassed, Chinese officials rushed to Guiyu this year to try to clean up the mess and place it out of sight. Police detained and interrogated a correspondent for Japan's major economic daily, the Nihon Keizai Shimbun, 30 minutes after he arrived in April.

Authorities effectively made Guiyu off limits to foreign reporters and Western diplomats without an official invitation and a guided tour that did not permit sightseeing along the toxic river.

When the Mercury News explored Guiyu in late September to corroborate environmentalists' findings, there were no signs of a police presence on the streets. But there was considerable apprehension among the workers and scrap brokers who agreed to talk.

Workers unloading a truck full of computer chassis chased away the Mercury News team. "No pictures! No pictures!" they shouted in Mandarin.

A rough-looking scrap broker interrupted an interview with his migrant laborers who were cooking motherboards over primitive charcoal stoves beneath a shade tarp near the river, melting the lead solder to retrieve chips and bits of wire.

Source of income

• E-waste a measure of Guiyu's prosperity

"We don't mean to pollute the environment," said the broker, who appeared to be in his early 30s, as he beckoned the journalists into a crumbling brick warehouse.

A green plastic bin of semiconductors rested on the coffee table before him as the man held court, chain-smoking and surrounded by a ragtag gang of associates. He said he was a Guiyu native but would not give his name or allow photos.

"We're just peasants trying to make a decent living," he said. "We're afraid of the government coming here and giving us trouble, because our business is already suffering." The man suggested the journalists should leave town, "and don't come back tomorrow."

Another Guiyu scrap dealer, Yang Xiong Hong, said he buys his electronic waste from dealers in Guangzhou, the provincial capital, and sells the salvaged material to specialized traders in town. He admitted he was burning remnants of cables and motherboards "at a suitable location," but expressed no regrets.

"I can't control what goes on here," said the 24-year-old Yang, who is saving money so he can move to Hong Kong and start a new life. "If I didn't do this work, someone else would."

Guiyu's recycling entrepreneurs insist they process only domestically generated computer scrap, and worry that the ban on imported waste is harming the town's primary source of income.

Officials in Beijing issued a statement Sept. 21 saying the government had struck a blow to the inbound traffic in electronic waste. Customs officials seized 22 containers sent from the United States packed with electronic contraband in Wenzhou, about 400 miles up the coast from Shantou.

The statement did not mention the thousands of cargo containers unloaded at China's 45 major seaports daily, however. Nor were the underpaid customs and public-security officials who live off petty graft taken into account. The statement did not explain why trucks bearing oceangoing containers were still rumbling into Guiyu that very day.

"Things have been backed up for the past three months, and you can't export to China now without a special connection," said Mark Dallura, president of Chase Electronics, an electronic-scrap broker outside Philadelphia. The former computer programmer said he exports material through a Chinese agent in Los Angeles. "We go through this about every year and a half," Dallura said. "Then the flap dies down and it's business as usual."