



Testimony

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ELECTRONIC WASTE

Harmful U.S. Exports Flow Virtually Unrestricted Because of Minimal EPA Enforcement and Narrow Regulation

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G A O

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Highlights of [-GAO-08-1166T](#), a testimony before the Subcommittee on Asia, the Pacific, and the Global Environment, Committee on Foreign Affairs, House of Representatives

Why GAO Did This Study

Increasingly, U.S. consumers are recycling their old electronics to prevent the environmental harm that can come from disposal. Concerns have grown, however, that some U.S. companies are exporting these items to developing countries, where unsafe recycling practices can damage health and the environment. Items with cathode-ray tubes (CRTs) are particularly harmful because they contain lead, a known toxin. As a result, in January 2007, EPA began regulating the export of CRTs under a rule requiring companies to notify EPA before exporting CRTs.

GAO's August 2008 report examined (1) the fate of exported used electronics, (2) the effectiveness of regulatory controls over the export of these devices, and (3) options to strengthen federal regulation of exported used electronics. Among other things, GAO reviewed waste management surveys in developing countries, monitored e-commerce Web sites, and posed as foreign Internet buyers of broken CRTs.

What GAO Recommends

In its August 2008 report, GAO recommended that EPA (1) develop a systematic plan to implement and enforce the CRT rule and (2) develop options to broaden its authority to address the export of other potentially harmful used electronic items. EPA expressed significant reservations with GAO's findings and recommendations. GAO maintains, however, that they are fair and well supported.

To view the full product, including the scope and methodology, click on [-GAO-08-1166T](#). For more information, contact John Stephenson at (202) 512-3841 or stephensonj@gao.gov.

ELECTRONIC WASTE

Harmful U.S. Exports Flow Virtually Unrestricted Because of Minimal EPA Enforcement and Narrow Regulation

What GAO Found

Some exported used electronics are handled responsibly in countries with effective regulatory controls and by companies with advanced technologies, but a substantial amount ends up in countries where disposal practices can harm workers and the environment. Recent surveys taken on behalf of the United Nations found that used electronics exported from the United States to many Asian countries are dismantled using methods like open-air incineration and acid baths to extract metals such as copper and gold. Over 3 months, GAO observed thousands of requests for these items on e-commerce Web sites—mostly from Asian countries such as China and India but also from Africa.

U.S. hazardous waste regulations have not deterred exports of potentially hazardous used electronics, primarily for the following reasons:

- *Existing EPA regulations focus only on CRTs.* Other exported used electronics flow virtually unrestricted, even to countries where they can be mismanaged, in large part because relevant U.S. hazardous waste regulations assess only how products will react in unlined U.S. landfills.
- *Companies easily circumvent EPA's CRT rule.* Posing as foreign buyers of broken CRTs in Hong Kong, India, Pakistan, and other countries, GAO found 43 U.S. companies that expressed willingness to export such CRTs. Some of the companies, including ones that publicly tout their exemplary environmental practices, were willing to export CRTs in apparent violation of the CRT rule. GAO provided EPA with the names of these companies at EPA's request.
- *EPA's enforcement is lacking.* Since the CRT rule took effect in January 2007, Hong Kong officials intercepted and returned to U.S. ports 26 containers of illegally exported CRTs. EPA has since penalized one violator, and then only long after the shipment was identified by GAO. EPA officials acknowledged CRT rule compliance problems but said that given the rule's relative newness, they were focusing on educating the regulated community. This explanation, however, is undermined by GAO's observation of the apparent willingness by many companies to violate the rule, even by those aware of it. Finally, EPA has done little to ascertain the extent of noncompliance, and EPA officials told us that they have neither plans nor a timetable to develop an enforcement program.

Beyond enforcing the CRT rule, EPA can take steps to ensure that the larger universe of potentially harmful electronic devices—such as computers, printers, and cell phones—are exported in a manner that does not harm health or the environment. Among the options GAO has raised are (1) expanding hazardous waste regulations to cover other exported used electronics; (2) submitting a legislative package to Congress for ratifying the Basel Convention, an international regime governing the import and export of hazardous wastes; and (3) working with Customs and Border Protection and other agencies to improve identification and tracking of exported used electronics. Options like these could help make U.S. export controls more consistent with those of other industrialized countries.

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss our recent findings regarding exports of electronic waste from the United States and the effectiveness of regulatory controls over export practices. According to the Environmental Protection Agency (EPA), Americans removed more than 300 million electronic devices from their households in 2006. Toxic substances, such as lead, in electronics are well known to harm people's health, and when electronics are disposed of improperly, these substances can leach from discarded devices into the surrounding environment. As a result, when U.S. consumers purchase new devices, such as computers, monitors, televisions, and cell phones, they are increasingly paying electronics recyclers to recycle their old ones.

Since one person's trash is often another person's treasure, a thriving international trade has emerged in used electronics, largely from industrialized to developing countries. As the export of these items has continued, however, concerns have mounted that not all recycling is conducted responsibly, particularly in developing countries, and that some U.S. recyclers and exporters may be at fault. Environmental groups have alleged that imported used electronics that cannot be repaired are often recycled in developing countries by crude and inefficient means and with virtually no human health or environmental protection. Products with cathode-ray tubes (CRTs), such as televisions and computer monitors, can be especially harmful to humans and the environment. Accordingly, in the United States, used CRTs are the only electronic devices regulated as hazardous waste and whose export is specifically controlled by EPA. Internationally, the Basel Convention, an outgrowth of the United Nations Environment Programme, in 1989 established an international legal regime governing the export and import of hazardous wastes for disposal.

Our testimony, which is based on our recent report on electronic waste exports,¹ addresses (1) the fate of exported used electronics, (2) the effectiveness of regulatory controls over the export of used electronics from the United States, and (3) opportunities for strengthening the federal role in regulating used electronics exports.

Summary

While some exported used electronics can be handled responsibly in countries with effective regulatory regimes and by companies with advanced technologies, a substantial amount ends up in countries such as China and India, where they are often handled and disposed of unsafely. Recent surveys conducted on behalf of the United Nations Environment Programme found that used electronics imported from the United States are dismantled in many developing countries under unsafe conditions. Other investigations have corroborated disassembly practices in some Asian countries involving the open-air burning of wire to recover copper and open acid baths for separating metals, exposing people to lead and other hazardous materials. In particular,

¹GAO, *Electronic Waste: EPA Needs to Better Control Harmful U.S. Exports through Stronger Enforcement and More Comprehensive Regulation*, GAO-08-1044 (Washington, D.C.: Aug. 28, 2008).

as China's growing economy has driven its demand for raw materials, the country appears to be relying on the inexpensive labor and lax environmental controls reported in other countries in the region (such as Indonesia and Cambodia) to help meet its demand. Whereas used electronics exported to Asian countries are often unsafely recycled, such items are exported to West African countries primarily for reuse. Many units are in fact exported broken, however, and some U.S. companies appear to mix broken units with shipments of working units. The nonworking units are often dumped and left for scavengers.

Current U.S. regulatory controls do little to stem the export of potentially hazardous used electronics, primarily for the following reasons:

- *Narrow scope of regulatory control.* U.S. hazardous waste regulations do not consider most used electronic products such as computers, printers, and cell phones as hazardous, even though they can be mismanaged overseas and can cause serious health and environmental problems. Under U.S. law, only exports of CRTs are regulated as hazardous waste.
- *Regulatory controls easily circumvented.* Despite adoption of a CRT rule in 2006, the export of CRTs from the United States in apparent violation of the rule seems widespread. Posing as fictitious buyers from Hong Kong, India, Pakistan, Singapore, and Vietnam, among other countries, we found 43 electronics recyclers in the United States who were willing to export to us broken, untested, or nonworking CRTs under conditions that would appear to violate the CRT rule.² EPA records show that none of the recyclers willing to sell to us had filed proper notifications of their intent to export CRTs for recycling as is required by the CRT rule for actual shipments.³ Some of these seemingly noncompliant companies actively cultivate an environmentally responsible public image; at least 3 of them held Earth Day 2008 electronics recycling events.
- *EPA has done little to enforce the CRT rule.* EPA has taken few steps to enforce the CRT rule. Since the rule took effect in January 2007, for example, Hong Kong has intercepted and returned to the United States 26 shipping containers of used CRT monitors because, Hong Kong officials said, these exports violated Hong Kong's hazardous waste import laws. Under the CRT rule, these shipments are considered illegal hazardous waste exports because the U.S. exporter did not notify EPA. Such exporters could be subject to administrative or criminal penalties. Nonetheless, EPA did not issue its first administrative penalty complaint against a company for potentially illegal CRT shipments until July 2008, and this penalty came as a result of a problem we identified. EPA acknowledges the existence of compliance problems

²Three others indicated that they do not export broken CRTs, and 7 others asked for more information about our fictitious identities, such as phone numbers, a Web site, or what we intended to do with the broken CRTs.

³As of June 2008, 25 companies have submitted 47 notices for export of CRTs for recycling to EPA. These companies informed EPA that they intended to responsibly recycle CRTs at facilities in Brazil, Canada, Korea, Malaysia, and Mexico.

with its CRT rule, but the agency has done little to ascertain the extent of noncompliance. Moreover, Enforcement and Compliance Assurance officials told us that they have no plans and no timetable for developing the basic components of an enforcement strategy, such as enforcement targets, monitoring, follow-up of suspected violations, and prosecution.

Beyond enforcing its own CRT rule, EPA can also take steps to ensure that the larger universe of potentially harmful electronics—possibly including computers, flat-panel monitors, and cell phones—are also exported in a manner that does not contribute to human health and environmental harm overseas. Among the available options—which could make U.S. export controls more consistent with international norms—is to propose amending RCRA regulations to include exports of a broader range of used electronics posing health or environmental risks when disassembled or reclaimed. Additionally, EPA could enhance U.S. control over the export of used electronics by submitting a legislative package to Congress to complete ratification of the Basel Convention and by working with Customs and Border Protection and the International Trade Commission to improve identification and tracking of exported used electronics.

Background

In issuing its final CRT rule in July 2006, EPA obtained information that prompted the agency to assert that “[CRTs] are sometimes managed so carelessly [overseas] that they pose possible human health and environmental risks from such practices as open burning, land disposal, and dumping into rivers.” As a result, for nearly 2 years, CRT exporters have been required to notify the appropriate EPA regional office when the items are destined for reuse.

When CRTs are exported for recycling, the exporter must first notify EPA’s Office of Enforcement and Compliance Assurance in Washington, D.C., which then obtains consent from the importing country. The written acknowledgment of the importing country’s consent, which EPA then sends to the exporter, must accompany the shipment. If these conditions are not met, the CRTs are considered hazardous waste subject to full RCRA regulation because they typically fail EPA’s tests for toxicity.⁴ Implementation of the CRT rule is a shared responsibility between EPA’s Office of Solid Waste and Emergency Response and the Office of Enforcement and Compliance Assurance. Used electronic devices other than CRTs do not generally qualify as hazardous waste under

⁴U.S. exporters of hazardous wastes must comply with all applicable domestic laws and regulations, which include regulations under RCRA. In general, a U.S. exporter must prepare and submit certain documents. Before a shipment proceeds, an exporter must submit to EPA headquarters a notification of intent to export, describing the type and amount of waste, its itinerary, the number of shipments expected, and the period during which shipments will occur. EPA forwards this notification to the government(s) of all concerned countries. The government of the importing country must consent to the shipment before it may proceed. While a shipment is in transit, an exporter must attach a hazardous waste manifest to the shipment, along with the acknowledgment of consent from the importing and transit countries. Finally, an exporter must file an annual report with EPA headquarters summarizing the exporter’s shipments for the previous calendar year.

the Resource Conservation and Recovery Act of 1976 as amended (RCRA), which is the statute governing hazardous waste handling and disposal.

The Basel Convention has been ratified by 170 countries, including virtually all industrialized countries except the United States. It stipulates that a country may ship hazardous waste only after receiving prior written consent from the receiving country. Additionally, exports of hazardous waste can occur only under the following circumstances: (1) if the exporting country does not have sufficient disposal capacity and (2) if the exporting country does not have disposal sites that can dispose of the waste in an environmentally sound manner.⁵

Used Electronics Are Exported Worldwide and Often Handled and Disposed of Unsafely

Some exported used electronics can be handled responsibly in countries with effective regulatory regimes and by companies with advanced technologies. A substantial quantity, however, ends up in countries where the items are handled and disposed of in a manner that threatens human health and the environment.

Some Exported Used Electronics Appear to Be Handled Responsibly

Certain developed countries have regulatory regimes that require safe handling and disposal of used electronics. Member states of the European Union, for example, must comply with the Waste Electrical and Electronic Equipment Directive of 2002, which established comprehensive take-back and recycling requirements involving retailers, manufacturers, and importers of electrical and electronic products. The directive requires member countries to ensure that producers and importers finance the separate collection, treatment, recovery, and environmentally sound disposal of “waste electronics,” either on their own or through collective systems financed by themselves and other members of the industry. European Union countries are also parties to the Basel Convention. The aim of the convention is to protect human health and the environment from the adverse effects caused by the export of hazardous wastes, especially to developing countries, where the risk of unsafe hazardous waste management is often higher. As part of European Union countries’ implementation of the Basel Convention, hazardous wastes intended for disposal generally cannot be shipped to developing countries.

Some companies located in developing countries also appear to safely recycle and dispose of used electronics using advanced technologies. Samsung Corning, for example, operates a plant in Malaysia that recycles CRT glass and manufactures new CRT televisions, which can contain as much as 50 percent recycled glass content. Samsung Corning’s contractor in the United States has coordinated with approximately 40 U.S.

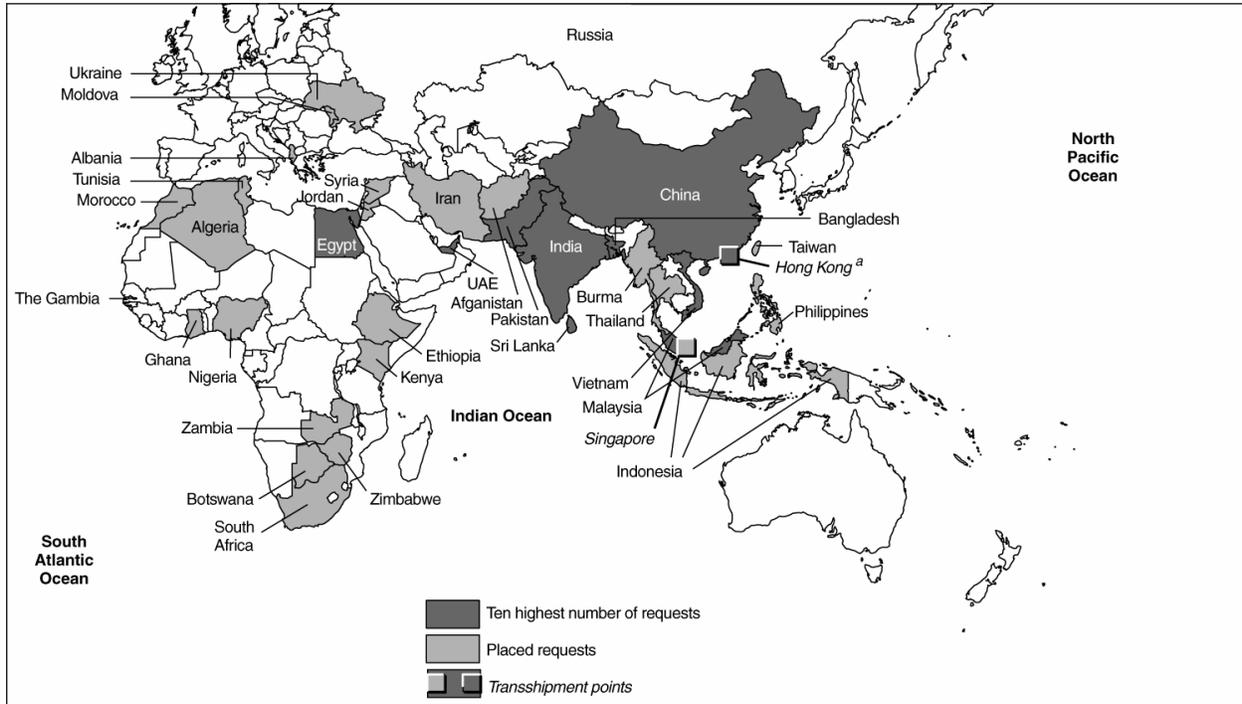
⁵The Basel Convention also prohibits movement of waste between parties and non-parties, except when these movements occur under an equivalent bilateral or multilateral agreement. The bilateral or multilateral agreements must provide an equally sound management structure for transboundary movements of waste.

recyclers for the export of CRT glass. According to the contractor, about 250 shipping containers, totaling about 4,000 tons of CRT glass, leave the United States for the Malaysian facility each month. Malaysia's regulatory regime helps ensure safe recycling and disposal practices for CRTs; these products may be exported to Malaysia only if they meet certain safety conditions, according to Malaysian environmental protection officials.

Significant Demand Exists for Exported Used Electronics, and Many Countries Receiving These Items Lack the Capacity to Safely Handle and Dispose of Them

Significant demand exists for used electronics from the United States, particularly in developing countries. In a search of one Internet e-commerce site, we observed brokers from around the world place 2,234 requests to purchase LCD monitors. On the same site, we found 430 requests for central processing units and 665 for used computers. In an extensive search of two Internet e-commerce sites over a 3-month period, we observed brokers in developing countries make 230 requests for CRTs—seeking about 7.5 million units. Brokers in developing countries represented over 60 percent of all requests we observed. Over 75 percent of the requests made by brokers were for \$10 or less per unit, and almost half offered \$5 or less. Low prices (under \$10 per unit) indicate a high likelihood that these items will ultimately be handled and disposed of unsafely. About 70 percent of the requests that came from developing countries were from Asia, with China and India posting by far the largest number; the remaining requests came largely from Africa (see fig. 1).

Figure 1: Developing Countries Requesting CRTs on Two Internet E-commerce Web Sites, February 2008 to May 2008



Source: GAO analysis of 2 Internet-e-commerce sites.

Note: The information presented in figure 1 assumes that buyers do not post fictitious country names. It also assumes no double-counting of requests. Hong Kong and Singapore are the two transshipment points. Hong Kong is a special administrative region of China. Requests were also placed in Aruba, Peru, and Venezuela.

Unlike the United States, many foreign countries, particularly those in the developing world, do not have the landfill capacity and regulatory controls to ensure safe handling and disposal of used electronics. According to surveys made on behalf of the United Nations Environment Programme, large quantities of used electronic items are imported by developing countries, particularly in Southeast Asia, where they are improperly handled and, in some cases, informally recycled in “backyard” operations involving open-air burning of copper wire and acid baths to recover valuable metals.

China and Hong Kong. China’s fast-growing economy drives the nation’s demand for raw materials, and one way that this demand is met is by importing used electronic products, according to a 2005 report by the Basel Convention Regional Centre in China.⁶ Chinese and Japanese researchers told us that most of these devices are likely to be

⁶Asia-Pacific Regional Centre for Hazardous Waste Management Training and Technology Transfer, *Report on the Survey of the Import and the Environmentally Sound Management of Electronic Wastes in the Asia-Pacific Region*, December 2005. The Basel Convention has a network of 14 regional centers that assist party countries in controlling the transboundary movement of hazardous wastes.

shipped through Hong Kong. Once in China, most disassembly happens “by hand,” according to the 2005 report, where workers use primitive means in workshops of seven or eight employees. In one city, the report found that more than 300 groups were active in electronic waste recovery efforts. Open burning and acid baths to recover metals are commonplace, and the residual toxic waste from such operations is simply discarded, allowing pollutants to seep into the ground and water.⁷

Indonesia. In March 2007, Indonesian officials reported that used electronics are imported from the United States for re-export to China, Hong Kong, and Taiwan, and the lack of effective environmental controls make unsafe recycling commonplace.⁸ According to these officials, electronics recycling activities occur in east Java in an industrial estate and on Batam Island (near Singapore) in a “special bounded zone” exempt from government regulation. Recyclers at these facilities dismantle, crush, and melt used electronics. Most of the waste recycled on Batam Island is hazardous and would otherwise be more expensive to handle in “legal” facilities outside the special bounded zone, according to Indonesian officials.

Cambodia. According to Cambodian environmental officials, the primary electronic devices for sale consist mostly of secondhand material imported from the United States, the European Union, China, and other Southeast Asian countries. Unrepairable electronic products are often disposed of in municipal waste sites that are not designed to contain hazardous materials. Some scavengers in Cambodia—including children—often work directly for scrap yards, collecting material for as little as \$1 a day. At the scrap yards, material is sorted, and metals are exported abroad for recycling. Items that lack value are often dumped and sometimes burned (see fig. 2).

⁷Recent studies have highlighted the dangers of working and living near these facilities, particularly for children. For example, a study conducted by a Chinese medical school and published in 2007 in the journal *Environmental Health Perspectives* found that children in Guiyu had lead levels in their blood that were more than 50 percent higher than the limit for lead exposure set by the Centers for Disease Control and Prevention in the United States. Xia Huo et al., “Elevated Blood Lead Levels of Children in Guiyu, an Electronic Waste Recycling Town in China,” *Environmental Health Perspectives*, vol. 115, no. July 7, 2007.

⁸Regional Workshop on the Environmentally Sound Management of E-Wastes, Siem Reap, Cambodia, March 13-15, 2007.

Figure 2: Open Dump Site for Electronic Waste in Cambodia



Source: Basel Convention Regional Centre in China: Report on the Survey of the Import and the Environmentally Sound Management of Electronic Wastes in the Asia-Pacific Region, December 2005.*

India. In 2004, the environmental group Toxics Link documented containers of computer waste labeled as mixed electronics scrap imported from the United States through the port of Chennai. According to Toxics Link, more than 10,000 people—again, including children—work in the “informal” recycling industry in Delhi alone, breaking equipment; using acid baths; and openly burning wires and plastic casings to reclaim gold, copper, and other commodities.

Western Africa. In contrast to the situation in many Asian countries, used electronics exported to West African countries are intended for reuse. Businesses importing used computers, for example, can sell functional units for as little as \$100, well below the cost of a new computer, bringing technology within the reach of more people, according to one African computer importer. Some U.S. recyclers, however, mix broken units with working units in shipments to Africa, and the nonworking units are often dumped and left for scavengers. Accepting “junk” equipment is often part of the “arrangement” U.S. recyclers make with African importers, according to a used computer importer in Senegal. Negotiating the amount of working versus broken equipment is routinely part of the agreement, and this importer told us that even if he receives a shipment of up to 40

percent “junk,” he can still make a profit. Often, the “junk” computers are dumped in the countryside and burned, he explained.

U.S. Exports of Potentially Harmful Used Electronics Flow Virtually Unrestricted

Current EPA regulations for hazardous waste have not prevented the export of potentially hazardous used electronics. Most used electronics can be legally exported from the United States with no restrictions; EPA controls only the export of used CRTs under its CRT rule, yet we observed widespread willingness to engage in activities that would appear to violate the CRT rule. Further, EPA has done little to determine the extent of noncompliance with the rule and even less to deter such noncompliance.

Existing Regulation Focuses Only on CRTs

Current EPA hazardous waste regulations control only the export of a narrow segment of used electronics (CRTs), therefore allowing unrestricted export of nearly all others.⁹ Besides CRTs, most other types of exported used electronics can be mismanaged and cause serious health and environmental problems overseas. These products, however, are generally not considered “hazardous” under EPA’s regulatory definition. Consequently, exporters can ship most types of used electronic products, such as computers, printers, and cell phones, without restriction. Under RCRA regulations, waste products are designated as “hazardous” according to the extent to which they will leach toxins if disposed of in unlined landfills. The tests used to make such a designation do not account for the potential for toxic exposure when items are disassembled or handled differently, such as by burning, as they often are outside the United States, particularly in developing countries.

Companies Exporting Nonworking CRTs Can Easily Circumvent EPA’s Regulatory Controls

The limited regulation that exists over used electronics exports from the United States—namely, the CRT rule—is largely ineffectual because EPA’s implementation of it has frequently failed to deter companies from illegally exporting these items from the United States. When we posed as foreign buyers looking for nonworking CRT monitors, 43 U.S. companies that responded to our fictitious requests were willing to export nonworking CRTs to us, in apparent violation of the CRT rule.¹⁰ Many of these companies also actively promote an environmentally responsible public image, with 3 holding Earth Day 2008 electronics-recycling events. For example:

⁹As of June 2008, 25 companies have submitted to EPA 47 notices for export of CRTs for recycling. These companies informed EPA that they intended to responsibly recycle CRTs at facilities in Brazil, Canada, Korea, Malaysia, and Mexico.

¹⁰Six others requested more information about our purchase offer; 2 indicated they would sell us only working CRTs; and 3 others said they would not do business with us because they did not export nonworking CRTs.

- A sales representative for a large electronics recycler in New Jersey said that he was not aware of the CRT rule and was not the right person to speak to about this issue. This same individual, however, told our fictitious buyer from Hong Kong not to worry about U.S. laws' holding up export of untested CRT monitors. He explained that "it's the laws at [the port of Hong Kong] that you have to find out about."
- A recycler from Missouri states on its Web site that it is an organization "dedicated to keeping old discarded computer equipment from entering America's landfills." This company, however, offered to sell a container-load of CRT monitors to our fictitious broker in Hong Kong, offering us a 10 percent discount because we were new buyers.
- A representative of an electronics-recycling company in Colorado told us that the company does not export CRTs, instead asserting that all CRTs are recycled in-house and that the CRT rule therefore does not apply. This same person offered to sell 1,500 CRT monitors and 1,200 CRT televisions-- which were ready for immediate shipment-to our fictitious broker in Hong Kong.
- A representative of an electronics-recycling company in Washington State told us that all of its CRT monitors are sent to its shredding facility in Oregon. A sales associate at the company, however, offered to sell 4 containers of CRT monitors (approximately 3,200 units) in April 2008 and another 20 containers (approximately 16,000 units) in June 2008 to our fictitious broker in Hong Kong.
- A Maryland electronics recycler charges \$10 to \$30 for CRT monitors to cover its "responsible, domestic recycling costs," stating that its mission is to be globally responsible. Yet when we posed as a buyer in Singapore, the Chief Operating Officer asked what price we were paying for untested, as-is CRT monitors, suggesting that he was interested in selling the items to us.

Of note, at least two electronics recyclers that responded to our fictitious foreign brokers have purchased used state-government surplus CRT monitors from two auction Web sites, indicating that government CRTs may be among those offered for sale to overseas brokers.

EPA Has Done Little to Enforce the CRT Rule

Our investigation revealed little inclination on EPA's part to enforce the CRT rule. Since the rule took effect in January 2007, for example, Hong Kong's Environmental Protection Department and its Customs Department have worked together to intercept and return 26 containers of "waste" CRT monitors to the United States. In each instance, the U.S. exporters neither notified EPA nor received consent from Hong Kong. An official from Hong Kong's Environmental Protection Department stated that his agency would not grant consent for importing such items because under Hong Kong regulations it is illegal to import CRTs from the United States. From January to July 2008, we provided EPA's

Office of Enforcement and Compliance Assurance with current information we received from Hong Kong's Environmental Protection Department, which included information on six shipments (10 40-foot containers) of waste CRTs intercepted and returned to the United States during this period, one of which was returned from Hong Kong multiple times.

Sidebar: A Tale of Three Containers

Three containers were shipped across the Pacific Ocean four times before EPA initiated enforcement action. Hong Kong's Environmental Protection Department notified GAO of three 40-foot containers of CRT monitors that had been inspected in Hong Kong and returned to the Port of Los Angeles because they contained "waste" CRT monitors, which are illegal for import into Hong Kong. EPA records indicate that the U.S. exporter had not notified EPA. GAO notified EPA's Office of Enforcement and Compliance Assurance that the containers were still at the Port of Los Angeles. After sitting at the port for 11 more days, the three 40-foot containers were loaded onto another cargo ship and re-exported to Hong Kong. An EPA Office of Enforcement and Compliance Assurance official explained to GAO that the original shipper had placed the CRT monitors in the containers "by mistake" and that the company had voluntarily removed the CRT monitors before re-exporting the containers to Hong Kong. About 3 weeks later, Hong Kong's Environmental Protection Department intercepted the containers a second time and verified that the three containers still contained the same "waste" CRT monitors. They were returned again to the Port of Los Angeles, at which time EPA detained the containers and arranged for their inspection. The result of EPA's investigation is pending. According to an EPA inspector, the shipper had simply changed the name of his business to a fictitious company and re-exported the containers after they had originally been returned from Hong Kong.

Source: GAO.

In one instance, we asked U.S. Customs and Border Protection to detain a container that was intercepted in Hong Kong and returned to the United States in February 2008. We viewed the contents of this container at the Port of Long Beach, California. We observed hundreds of CRT computer monitors stacked haphazardly, some with cracked plastic cases and broken glass tubes. We received photographic evidence showing that this illegal shipment of CRT monitors originated from the Denver metropolitan area. According to a third-party source, these monitors came from an electronics recycler in Colorado, which claims to hold 20 to 30 community recycling events each year for homeowners' associations, city governments, and property managers. The company's Web site also states that "many domestic recycling companies ship e-waste to China, where it ends up harming the environment and the population. With [this company], your e-waste is recycled properly, right here in the United States, not simply dumped on somebody else."

In at least one case, EPA chose not to physically inspect and detain a container that was intercepted and returned to the United States by Hong Kong, even though EPA acknowledged that the container likely contained broken CRTs. In this case, referring to a container returning to the Port of Tacoma in April 2008, EPA asked a Customs and Border Patrol officer not to detain the container on its behalf. Although EPA acknowledged that the container included used CRTs that may be in broken or unstable condition, the agency concluded that an inspection of the container was not necessary to address the apparent noncompliance. Upon consultation with EPA, Customs and Border Protection released the container, which was re-exported to Hong Kong. We do not know if Hong Kong's Environmental Protection Department again intercepted the container.

EPA's deputy director for Civil Enforcement stated that EPA intended to initiate contact with the responsible party for this shipment. The outcome of EPA's investigation was pending at the time of our report in August.

The Director of EPA's Hazardous Waste Identification Division acknowledged in an e-mail to EPA's RCRA regional directors, "[I] expect there has been considerable noncompliance with the [CRT] rule's notification provision." Nonetheless, the Deputy Director of the agency's Office of Civil Enforcement told us that EPA's initial efforts to address noncompliance have been aimed at education and outreach. He explained that given the rule's relative newness, the regulated community must first be made aware of the rule's requirements.

We believe that EPA's contention, that a focus on enforcement should await the effects of an education program, has not been substantiated by the facts. This view implies that violations to date have resulted largely from unawareness of the rule and not from willful disregard for it. This implication, however, has clearly not been borne out. With very little effort, we were able to observe substantial willingness to engage in activities that would appear to violate the CRT rule—including instances where the exporters were aware of the CRT rule—by simply monitoring e-commerce Web sites and conducting limited follow-up. EPA, on the other hand, has done little to ascertain the extent of noncompliance with the CRT rule. In the absence of such an effort, it has set no enforcement targets, conducted no monitoring, and taken only one action against a violator of the rule. Moreover, the agency has not taken the initial steps necessary to develop a program for identifying and prosecuting exporters who do not notify the agency when shipping CRTs overseas for recycling or reuse, nor does it have plans to develop such a program.

EPA Has Several Options That Would Strengthen the Federal Role in Reducing Harmful Exports of Used Electronics

Even if there were total compliance with the CRT rule, the effect would reach only a small percentage of all potentially harmful used electronics exported from the United States. Enforcement and Compliance Assurance guidance states that if an environmental problem would not be solved if 100 percent compliance were achieved within the regulated community, then modification of regulations or other initiatives may be necessary.¹¹ As we have shown, such a gap exists with respect to used electronics that do not meet the current U.S. regulatory definition of hazardous waste. More comprehensive regulation of used electronics exports could narrow this gap. Options in this regard include, but are not limited to, (1) amending RCRA regulations to include exports of used electronics posing health or environmental risks when disassembled or reclaimed, to expand the scope of the CRT rule, and/or to revise the regulatory definition of hazardous waste, (2) submitting a legislative package to Congress for ratifying the Basel Convention, and (3) working with Customs and Border Protection and with the

¹¹EPA Office of Enforcement and Compliance Assurance, *Guide for Addressing Environmental Problems: Using a Strategic Approach* (Washington, D.C., March 2007).

International Trade Commission to improve identification and tracking of exported used electronics.

- **Amend RCRA Regulations.** EPA could amend RCRA regulations to cover exports of used electronics where risks exist to human health or the environment when reclaimed for reuse or recycling, an action that—if implemented—could bring U.S. export controls more in line with those of other industrialized countries. For example, EPA could revise the definition of “hazardous” in its RCRA regulations to encompass certain used products that can pose risks upon disassembly or reclamation, including desktop computers, laptop computers, printers, and cell phones. Currently, many electronics contain toxic constituents in small quantities yet do not come within the regulatory definition of “hazardous” because these substances do not leach from the electronic products at unsafe amounts under tests simulating disposal in a landfill. As long as the regulatory definition of “hazardous” does not include such used products, they will not be subject to any of RCRA’s export provisions, such as notice and consent, and the burden for identifying and controlling the flow of such products will remain solely with the receiving country.
- **U.S. Ratification of the Basel Convention.** U.S. regulations contain no provisions for addressing situations when a waste is not classified as hazardous under U.S. law but is so classified—with its trade restricted or prohibited—under an importing country’s law. The effect is that the importing country bears the full burden of identifying and intercepting such materials, without the benefit of U.S. cooperation as the export country. By contrast, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal—effectively the international standard for hazardous wastes shipped for disposal or recycling—provides for cooperation between exporting and importing countries. For example, the convention requires that exporting countries stop shipments of waste if they have reason to believe that the waste will not be handled in an environmentally sound manner, as well prohibit exports to countries that have prohibited import of that type of waste. The Basel Convention also established a prior notice-and-consent system for such wastes. While the U.S. has an existing notice-and-consent system, the Basel Convention and the U.S. system have significant distinctions.

For the United States to become a party to the Basel Convention, Congress would need to enact implementing legislation giving a U.S. agency, such as EPA, the authority to enforce the Convention’s provisions domestically.¹² Passage of such legislation would complete the prerequisites to ratification and, in effect, would make the United States party to the Basel Convention. Although the EPA had developed a legislative package that, if signed into law, would give EPA the statutory authorities it needs to fulfill the requirements of the Basel Convention, the legislative package has

¹²The United States Ambassador to the United Nations signed the Basel Convention on March 21, 1990. The United States Senate gave consent to ratification in 1992 (138 Congressional Record 12291-92). The State Department has advised the Senate that it will not ratify the convention prior to the enactment of implementing legislation. (Ratification occurs when a country submits its documents of ratification to the Secretariat). Thus, the next step in ratification would be Congressional passage of implementing legislation, followed by presentation to the President.

to date not been submitted to Congress. According to EPA Solid Waste officials, the agency has not submitted the legislative package to Congress because, at present, it has other priorities for Congressional attention..

- **Improve Tracking of Exported Used Electronics.** The U.S. government has adopted the Harmonized Tariff Schedule as the basic system for tracking exports for duty, quota, and statistical purposes. At present, the schedule's codes do not enable identification of used electronics, nor do they distinguish between whether such electronics are being exported for recycling or reuse. Through identification of potentially illegal shipments of CRTs, we observed that shippers described used electronic exports as "mixed plastics" and "scrap metals." Customs regulations require that U.S. exporters use the 7-digit international standard code that most closely describes the contents of a container, but no such code exists for used electronics. U.S. exporters can use 8- or 10-digit codes, which helps Customs and Border Patrol officials track more specific product types. Adding more detailed codes to the schedule could assist other countries in controlling used electronics exported from the United States. For example, a country such as China, which reports it has tried to ban all imports of used electronics, could use the codes as listed on the shipper's export declaration accompanying the shipment to select shipments for inspection and potential rejection at the border. Further, such codes could facilitate basic statistical tracking of such exports, including by type, price, and receiving country, among others.

Because of EPA's enforcement and regulatory shortcomings, we recommended in our August 2008 report that EPA (1) develop a systematic plan to enforce the CRT rule and (2) develop options to broaden its regulatory authority to address the export of other potentially harmful used electronics. In its comments, EPA expressed significant reservations with GAO's findings and recommendations. We maintain, however, that the recommendations are fair and well supported, and that a commitment on EPA's part to address these issues is appropriate.

Mr. Chairman, this concludes my prepared statement. I would be happy to respond to any questions that you or Members of the Subcommittee may have.

GAO Contact and Staff Acknowledgments

For further information about this testimony, please contact me at (202) 512-3841. Steve Elstein, Assistant Director; Nathan Anderson; Elizabeth Beardsley; Mark Braza; Ellen Chu; Paul Kazemersky; and Arvin Wu also made key contributions to this statement.