

Wanted: Silicon Valley

By Ted Smith

These days, whenever I talk to people, I usually ask them two questions: Do you have any old computers sitting around in your house, attic, basement or garage that you don't know what to do with? Did you know that computers contain a significant amount of toxic materials? Invariably, the answers are the same — Yes, I have old computer(s); and No, I didn't have any idea that they contain so many toxic materials.

For almost 20 years, I've been working to document the hazardous nature of the computer industry and trying to help clean up the production life cycle, which in the past has caused massive groundwater pollution as well as air pollution and significant clusters of occupational illness among production workers. It still surprises me that so many people are unaware of the toxics issues.

A Poster Industry of Unsustainable Production

Computer manufacturing today is driven by unsustainable industry practices that practically defy the imagina-

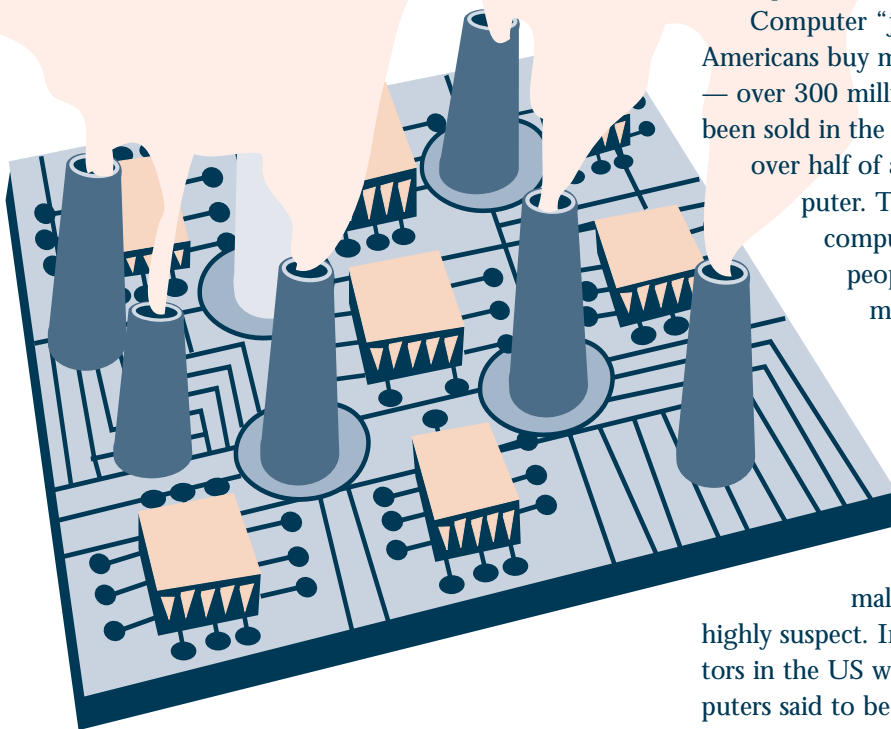
tion. For starters, the production of semiconductors and printed circuit boards is amazingly hazardous. There are few other products for which the sum of the environmental impacts of raw material extraction, industrial refining and production, use and disposal is so extensive. In general, electronic computer equipment is a complicated assembly of more than 1,000 materials, many of which are highly toxic.

The impacts of computer production on workers and local communities are well documented, continue to present risks, and remain problematic. Silicon Valley, the birthplace of the high-tech industry, now has more toxic Superfund sites than anywhere else in the U.S., and several high-tech-related epidemiological studies have identified clusters of miscarriages and birth defects.

The high tech industry wastes water and energy resources, ignores renewable resource opportunities and is highly inefficient. Vast water and energy resources are used in semiconductor manufacturing — a single new chip plant uses as much water and energy as a whole city of 80,000 people! Resource issues have been the focus of community campaigns in areas of inadequate electricity and water supply in places where the industry has expanded.

Computer "junk" is growing at an alarming rate. Americans buy more computers than any other nation — over 300 million computer monitors alone have been sold in the United States since 1980. Currently over half of all American households own a computer. Three-quarters (150 million) of all computers bought are currently stored in people's homes. A recent U.S. study estimates that over 315 million computers will become obsolete by the year 2004. This represents more than 1 billion pounds of lead, 4 billion pounds of plastic and hundreds of millions of pounds of other toxic materials.

Recycling rates are dismal and current recycling practices are highly suspect. In 1997, only about 1.7 million monitors in the US were "recycled." The majority of computers said to be recycled — about 1 million monitors — were shipped abroad to countries such as China, where their prospects for safe disposal are dubious, at



Toxic Avengers

best. Of the small amount recycled, more than three-quarters come from large-scale users of the equipment. EPA-sponsored pilot projects indicate that the cost of managing one discarded computer range between \$20-\$25, and average about 50 cents per pound. The studies also show that an effective infrastructure does not exist for recycling obsolete household computers and that even business sector recycling rates (6%) were extremely low.

Disposing of or recycling computers is extremely hazardous. The environmental risks posed by landfilling, incinerating and recycling of computer discards is significant. When computers are landfilled or incinerated, environmental contamination can result from hazardous chemicals draining from landfill leachate into water sources or from toxic air emissions resulting from waste combustion.

The Clean Computer Campaign

Given the myriad problems associated with computers, my colleagues and I at the Silicon Valley Toxics Coalition have expanded our focus from environmental and health issues related to the computer production process into a broader examination of the product's entire life cycle. We are especially eager to solve the growing problem of what to do with the millions of obsolete computers that are coming into the waste stream. With this new focus in mind, we recently started the Clean Computer Campaign.

The challenge for the Campaign is to convince the electronics industry to embrace its environmental responsibilities and to develop sustainable manufacturing processes that can meet the needs of the 21st century. As the industry develops new products, now is the time to incorporate design for the environment, design for safety, design for health, and manufacturer product take-back programs into those plans.

Health and Environment Shortchanged

First and foremost, industry resources should be redirected toward health and environmental issues. The producer has the ultimate choice over materials and product design and should be held responsible for making production choices and providing disposal options that can be achieved largely through existing technology and at the same or lower price to consumers.

New consumer and procurement strategies need to be developed to hold the high tech industry responsible for a variety of environmental concerns, including hazardous chemical reductions, reducing waste through process efficiency, reuse, substitution and additive technologies. This includes total phase-outs of persistent bio-accumulative toxics, global warming agents, and other problem substances.

The computer industry needs to start using renewable materials and energy. One promising option is the use of plastics made with plant-based chemicals or plant-produced polymers rather than from petrochemicals. Designers should redesign products for reuse, repair and/or upgradability, or for leasing-out of products (thereby ensuring they get them back to further upgrade and lease out again).

The industry needs to establish specific emission reduction goals and a reduction in natural resources required to produce wafers and devices, with specific emphasis on increased water and energy conservation. And then it needs to achieve those goals!

Product Take-Back is Vital

Secondly, the computer industry should take responsibility for taking back its products and supporting re-use and recycling infrastructure. The benefits of holding producers responsible for product take-back are breathtaking. It would provide market feedback to the designer, unlike the current system in which health, environment and economic costs are externalized. It would encourage more efficient design and the use of less toxic materials. We'd see much more reuse of materials and components, much higher levels of product leasing, and drastically better design for disassembly and reuse. State and local governments would save precious tax

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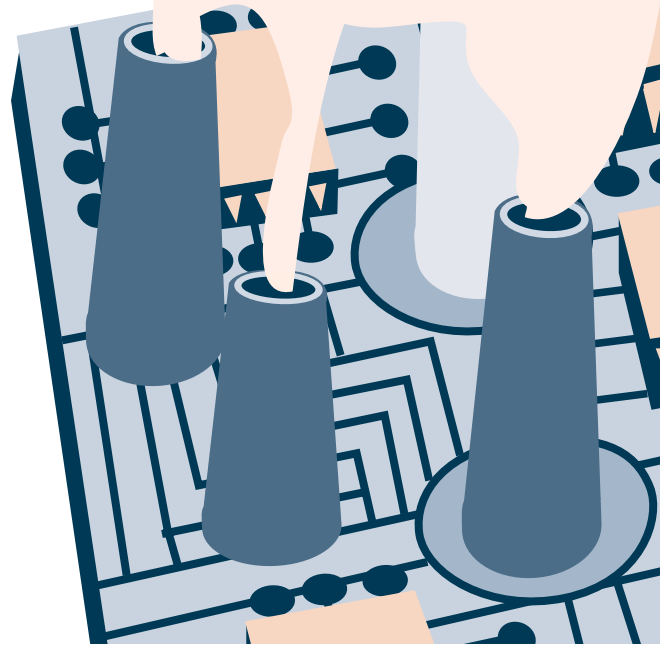
dollars by placing the primary waste management burden on the producer. The result? We'd see products that are more efficiently produced, easier to upgrade, and much more environmentally friendly.

Instead, most industry efforts to date have been geared to unworkable approaches that rely on local community-supported initiatives for computer recycling that are very expensive, since the cost of recycling is greater than the value of the materials. Some people within the computer industry support taxpayer-funded programs that require local authorities to pay for management of electronic wastes. But this approach dilutes the feedback mechanism so crucial to hastening the phase-out of hazardous materials in the design stage. It also results in insufficient recycling programs, since local governments clearly can not afford to manage them properly and have no control over product design. We believe that producers must step up to the plate.

Dirty Lobbying Must Stop

Finally, the U.S. Government and the computer industry must stop opposing international efforts to require the sustainable manufacture and disposal of computers. The U.S. Trade Representative has represented the U.S. government (at the request of the American Electronics Association and the Electronics Industry Alliance), in opposing the European WEEE (Waste from Electronic and Electrical Equipment) Directive, which will establish new environmental rules in Europe and set global standards. The WEEE Directive's premise is that the producer of all electronic wastes must be held financially responsible for managing their products throughout their lifecycle, including at the end of life. The public should not have to pay extra taxes to dispose of hazardous materials that producers choose to use in electrical and electronic equipment. This new way of thinking is called "Extended Producer Responsibility," and it is starting to change the way we will be thinking about products in the 21st century.

It's vital to support the WEEE Directive provisions for encouraging the recycling of plastics and phasing-out of toxic chemicals that are persistent in the environment and are known health hazards. We must "harmonize" environmental standards up, not down. This will help clean up the entire product chain, alleviate worker health problems, and reduce hazardous emissions not



only in Europe, but in America as well.

Given the direct health and environmental impacts of the WEEE Directive on both sides of the Atlantic, the Clean Computer Campaign has been urging the U.S. government to refrain from any further official comment on this initiative until it has consulted all interested parties through public notice and comment rule-making procedures. We are urging people to join this effort by sending a letter to Vice President Gore (call 408-287-6707 or click on www.svtc.org/cleancc/may15gore.htm for a sample letter). You can check out www.svtc.org for more background.

If we are successful in reaching these major goals — making industry responsible for health and environment, creating successful product take-back programs, and convincing computer manufacturers to allow "green" environmental frameworks, I suspect that the answers to my two favorite questions might turn out differently. The answer to the first question, "Do you have an old computer in your house?" would be a quizzical, "Of course not." The second question, "Did you know that computers contain toxic materials?" would produce an equally befuddled, "Not any more they don't."

— *Ted Smith is Executive Director of the Silicon Valley Toxics Coalition*