EWASTE: A DIRTY LITTLE SECRET

By Ifny Lachance

SLEEPING DRAGONS

We're cozy with our electronics, We give them names and sit them on our laps. They wake us up in the morning, fix us coffee, bring the newspaper. They bear messages from lovers. Yet computer compenents play host to some of the most persistent pollutants found in the biosphere.

Ingredients read like a Borgian cocktail menu: Mercury in LCD screens can cause central nervous system and kidney damage. Monitors and circuit boards contain lead, which damages brains and kidneys, and poisons the blood. Lead, along with barium, protects users from radiation while sitting in front of the computer; encounter it in your air, water or food and it will damage your internal organs. Cadmium is part of the phosphor compund inside CRT monitors. Inhaled, it can cause severe respiratory distress, emphysema, death. It accumulates along the foodchain, particularly in wheat, rice and potatoes and the tissue of shellfish. When ingested, it disrupts the functioning of the liver, bones and kidneys. It's also a carcinogen, along with beryllium on motherboards and toner from printers.

Computers are manufactured cheaply in poor countries, due to less stringent environmental standards and loose occupational regulations. Consumers in weathier countries blissfully enjoy the benign phase of the IT life-cycle, as toxins squirrelled away inside hardware remain quiescent until disturbed.

FRIENDLY FIRE

Particularly problematic are polybrominated diphenyl ethers (PBDEs), flame retardants impregnated in the plastic of electronics. They're used in everthing from coffee makers to computers.

Brominated flame retardants are rising stars on the global pollutant charts. Close chemical cousins of PCBs, they're endocrine disruptors, confounding hormones and reproductive systems after they leach into the environment. When burned or buried, they can become dioxins, which cause DNA mutation.

Such substances biomagnify, meaning they progressively accumulate all the way along the food chain. They can be passed onto an organism's predators and young, leading to very high concentrations in creatures like marine mammals, and less intelligent species like homo sapiens.

We're lucky. We live in a country with legislation protecting us from direct contact with these substances. But of course, once toxic substances enter the biosphere, the sky's the limit.

According to Health Canada, Canadian women have PBDE levels of five to ten times higher than women in any other industrial country. In Europe, between 47,000 to 95,000 square kilometers are already known to be contaminated by hazardous wastes. Countries such as the Netherlands have spent over a billion dollars to minimize and collect dioxin from incinerators, but still have to contend with hazardous emissions and disposal of toxic ashes.

Modern, programmable computers were first created about 70 years ago. Regrettably, modern sustainability has lagged at a glacial pace. The ice caps are not amused.

TSUNAMI OF EWASTE

Ten years ago, the average life span of a computer was six years. Now it's two. Canadians generate 70,000 tons of computer garbage annually; that would equal about 2,800,000 computers. UN figures say 50 million tonnes of ewaste are generated yearly. Our passion for innovation and speed leaves us vulnerable to all manner of confidence games.

Welcome to the garden path. Your guides? Microsoft, Apple & Co.

Software companies like Microsoft pressure consumers to upgrade their computers. They purposely make their products incompatible with previous versions, so people feel the need to keep up or be left behind (why else is Windows 98 not compatible with XP or NT, other than greed?). Artificial bloat makes software slower and more demanding than necessary, increasing pressure to buy new computers. This in turn keeps hardware manufacturers sitting pretty.

Both software and hardware are often cynically designed to become obsolete in a fixed time frame, a profit-exploiting strategy called *planned obsolescence.*

A recent survey by Softchoice Corporation found that only half of all business computers in North America meet the minimum requirements for Microsoft's new operating system, Vista. Only 5% of current computers in England can run its full features. Thus the term “the Vista layer,” Greenpeace's vision of future archaeologists unearthing mounds of abruptly discarded systems.

Vista's demanding system requirements can be largely traced to features designed to monitor and control users' behaviour, all in the name of protecting Microsoft from software piracy. Despite its notorious bugs, security holes and incompatability, many consumers feel like they have no choice but to junk their computer and upgrade. The City of Vancouver plans to spend over $7 million to switch to Vista.

Think Apple is better? That's what their marketing department would have you believe. Apple fashionista hardware is heavily proprietary, making replacement parts expensive and non-interchangable. The iPod is a textbook example, where a replacement battery is not as cost-effective as buying a whole new iPod, and seductive new releases are constant.

Additionally, in the absence of legislative pressure, Apple and other hardware manufacturers continue to employ noxious ingredients that later become toxic waste. This dumps the environmental costs onto governments and ultimately citizens.

PLANNED OBSOLESCENCE VS. SUSTAINABLE SOFTWARE

Some citizens would rather dump proprietary software instead, and get more life out of their computers.

Consumer alternatives have been around for about 20 years, and have more recently bloomed user-friendly and accessible. Free and open source (aka collaborative) software is community-based and supported, and designed to promote individual liberty and collaboration in design. Examples include Linux operating systems like Ubuntu, browsers like Firefox, or office suites like Open Office. They are considered virus-free, more stable and can be freely updated online. Less bloated, they work on older hardware, and they play well with other formats like .docs. After all, free and open software is designed to facilitate community needs, not shareholders.

The market is starting to respond. Dell has released a computer that ships with the Ubuntu operating system. This is a brave move, considering Microsoft's clout and history of coercing hardware manufacturers. Governments, particularly at the municipal level, are starting to consider free and

open source software as a practical, cost-effective alternative. After all, why buy the cow when you can get the milk for free?

FUN FOR THE WHOLE FAMILY

In North America, unwanted hardware is often thrown in municipal landfills, or stored by folks who are unsure just where it should go. More conscientious consumers deliver their materials to recyclers. “Recycler” sounds green and friendly. Unfortunately, about 80% of this hardware heads directly offshore to poorer countries, usually China. There, “recycling” generally consists of haphazard dumping, burning, and picking through by unprotected workers.

Entire villages devote themselves to this industry, from seniors to kids. With hands or crude tools, wearing little or no safety equipment, they contaminate themselves and their communities.

Circuit boards are held one-by-one over coal fires to melt off the lead sodder. Hydrochloric acid solutions in open vats are sloshed over chips and cards to remove the gold, and poured into the nearest water supply or onto the ground. Piles of wires are burned. Monitors tubes are smashed with hammers to recover the copper yoke, exposing workers to phosphor compounds. Leftover leaded glass and plastic junk is dumped in irrigation canals or fields.

The ecosystem has become well acquainted with this mess. One would be hard pressed to find potable water in rural China these days.

In the notorious Chinese city of Guiyu alone, the ewaste industry is estimated to be worth CDN$140 million. It's about the size of North Vancouver, population 130,000. One million tonnes of ewaste are treated here yearly by 5500 family-based operations, supporting 100,000 migrant workers.

Guiyu bloodstreams are laden with lead, according to a 2006 study by Shantou University Medical College. Local creeks have the Ph level of strong acids.

The photographer Edward Burtynsky seduced the public's eye with beautiful, terrible images of industrial wastelands around the world. Many of these are ewaste sites; certainly they are not the usual images evoked by the term 'recycling.'

THE DIRTY LITTLE SECRET

Electronic trash is now considered the most heavily traded toxic waste in the world.

In 1992, Canada ratified the Basel Convention, agreeing not to ship hazardous waste to poorer countries. In 1996, China prohibited the import of ewaste. Yet business continues to boom.

Watchdog organisations like the Basel Action Network (B.A.N.) point to a lack of enforcement. Their investigations of ewaste dumping abuses sent a wake-up call to the international community; they also advocate for the use of non-toxic materials in computer manufacturing and a crack-down on rampant smuggling.

Unscrupulous exporters physically hide or euphemize the contents of shipments, referring to toxic waste as "recyclables" or "plastic waste." More cynically, they pretend that shipments are bound for repair or charitable re-use abroad. About 75% computers sent to cities like Lagos, Nigeria for this purpose are irredemable junk on arrival.

Founder and environmental justice activist Jim Puckett was instrumental in ensuring the Basel

Convention had teeth. He speaks plainly about the disappointing lack of scrutiny, particularly in North America:

"Until recently, nobody bothered to enforce the rules even though Canada is a Party to the Basel Convention...The dirty little secret is that the electronics manufacturers and governments and a cadre of unscrupulous recyclers are all benefitting immensely via an illicit traffic in hazardous waste electronics that moves largely from Canada and the United States to countries like Nigeria, India, Pakistan and especially to China...Toxic waste, if left to a 'free market,' will follow the path of least resistance."

While Environment Canada has begun to investigate outgoing containers in the Port of Vancouver, he says that smugglers know their chances of getting caught are "slim."

The toxic heritage of the Industrial Revolution is becoming too generous for one planet to bear. From the bubbling soil of False Creek to the pea soup over Hamilton to the black water of Guiyu Province, we are faced with convergence of crises. We need more than science, law and enforcement. We need every last one of us.

THE MORE THINGS CHANGE

There is good news. As of this August, old electronics will be turned away from BC landfills. Consumers will pay a fee when buying new goods, financing new end-of-life depots handling ewaste.

The program is being conducted by Electronics Stewardship Association of British Columbia (ESABC) and will be managed and administered by Encorp, of bottle-depot fame. A commitment has been made to not export to poorer nations; most probably all materials will be incinerated on Canadian soil.

For many sustainability advocates, it is bittersweet news. Producers who continue to use hazardous materials are still not held accountable for environmental costs. Local recyclers will be left out of the loop. While superficially attractive as a form of Zero Waste, incineration is controversial and hardly considered innovative.

Worse, no provision has been made for re-use, perhaps the most direct form of sustainability. British Columbians who cannot afford a computer will continue to be left behind. Re-use reduces consumption and prevents waste, while conserving resources required to manufacture new goods. The ESABC plan is starting to come under fire by non-profits and community organisations for ignoring both recycling and re-use alternatives to incineration. Our grandmothers knew that an ounce of waste prevention is worth a pound of cure.

WHAT YOU CAN DO:

RE-USE
-However good your intentions, you should NEVER leave your old computer equipment in an alley, exposing it to the neighbourhood kids and the elements. Give it to a friend, or a reputable re-use organisation like Computers for Schools http://www.cfsbc.ca/ or Free Geek Community Technology Centre http://freegeekvancouver.org
-Repair or replace parts rather than entire systems whevenever possible.
-Consider buying refurbished systems from reputable organisations instead of new.

REDUCE

-Resist the pressures of planned obsolescence and the tempation to prematurely upgrade
-Consider sustainable software like Ubuntu or Open Office that extend the capacity of hardware.
-Try to use a multi-use product, instead of many items that have one function.

RECYCLE
Before you give up your hardware to a recycler, do your research. What is a company's environmental/business record like? Where do they send their materials? Beware that materials can pass through many hands, and they may be unaware, or mislead you intentionally. Use Google and watchdog organisations like the Basel Action Network as informative resources. http://www.ban.org

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