

he fate of the world does not likely hinge on whether or not the dumping of electronic waste, depicted over the years by the Basel Action Network (BAN) and the many journalists that followed, is a real problem or a hoax. Not as many lives are likely to be lost due to toxic e-waste dumping as were lost to the prolonged denial of harm from tobacco smoke, perpetuated by the tobacco industry over several decades. Our planet will likely survive the dumping of waste electronics in Asia and Africa, while many experts believe that the disinformation campaign waged on climate change may have indeed tipped the scale against our planetary survival.

It is thus with some hesitation that I compare the phenomenon of climate change and cigarette death denial with what we are currently experiencing in the relatively arcane world of electronics recycling. But I do so because I care profoundly about environmental justice. I care about international law, and I care about how our economy has been able to operate on a false premise that externalities don't really exist and that they don't harm human beings and the environment. And I do so because denial campaigns, if left unchallenged, have proven to be successful. History has taught us that we ignore them at our own peril.

While perhaps there is less at stake in the field of electronic waste than in the climate and tobacco examples, fortunes can nevertheless be made or not, and manufacturers' bottom lines can be impacted dramatically, depending on whether international law and public opinion condones the export and dumping of hazard-

ous e-waste or not. To many, the narrative of the illegal export and dumping in Guiyu, Lagos and Accra – exposed with lenses and words – has been a very inconvenient and costly truth, revealing the "dirty little secret" of our electronic industry.

An untidy profit

I will never forget when we premiered our film "Exporting Harm" at the EPR2 Conference in March 2002. Immediately following the showing, Mark Dallura of Chase Electronics took the floor and proceeded to describe his e-scrap export business and how, in the last 15 years he had amassed a small fortune simply by packing and shipping more than 1,000 containers a year to China.

Later, when contacted by the Washington Post, he was unrepentant. "I could care less where they go," he told the Post. "My job is to make money. I sell it to [the Taiwanese] in Los Angeles and how they get it there is not my concern. They pay the customs officials off. Everybody knows it. They show up with Mercedes, rolls of hundred-dollar bills. This is not small time. This is big-time stuff. There's a lot of money going on in this."

Dallura declared that a container full of computer monitors brought him a nice payoff of \$2,600. If we do the math, it is safe to say he, and other such brokers, profited by more than a million dollars each, every year. And that is just at the front end. We're

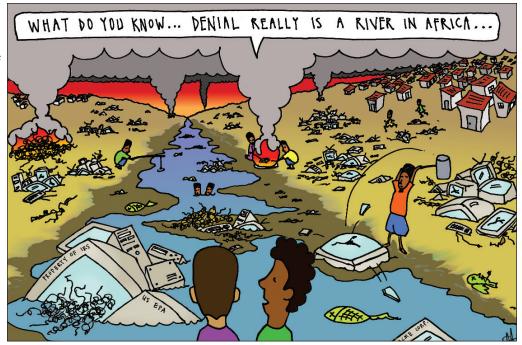
looking at far more dollars gleaned if we calculate the profits that manufacturers make by avoiding paying upfront by externalizing liabilities to those downstream – for example, not having to pay for the consequences of their design decisions to use toxic materials and provide for no takeback. If we do some more back-of-the-envelope math calculating cost avoidance via externalities, as well as strict commodity profit, we realize that in the course of the last decade, many billions of dollars have been made via the global dumping trade.

Industry of denial

Recent history has shown us that when substantial amounts of money are placed at risk by inconvenient truths, a new industry is born – the industry of denial. This is exactly what those that are paying attention are witnessing around the issue of the illegal and unsustainable global trade in hazardous electronic waste.

I never thought I would be hearing words like "myth" and "hoax," not after thousands of photographs have been shot, scores of video documentaries produced, and hundreds of articles written on an almost monthly basis, all depicting the global e-scrap dumping tragedy as it is displayed in various hot spots around the world. And we are not talking about tabloids or the blogosphere. The media messengers that are now presumably in the cross-hairs of a new chorus of deniers include the most prestigious journalistic outlets in the world, including CBS, NBC, ABC, PBS, AP, CNN, CBC, Der Spiegel, Le Monde, The Guardian, BBC, Al Jazeera, National Geographic, The Washington Post, Los Angeles Times and The New York Times.

I might not have been so surprised, however, had I read some of the meticulously researched books now available on the phenomenon of organized denial. The book "Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues From Tobacco Smoke to Global Warming," for example, describes in tragic detail how the strategy of employing journalists, scientists and academics has been harnessed by industries and governments to sow doubt by vigorously denying overwhelming scientific and eye-witness evidence.



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This stratagem has been successful in preventing issues desperately calling for decisive government regulation from getting such action, sometimes for decades. It seems that the sprinkling of doubt dust works its sad magic on us, especially as the media devours controversy to create more salable stories, while such adversarial reporting is rationalized by the journalistic dictum of "getting both sides of the story." No matter how implausible the skeptic viewpoint might be (no, the sky is actually red), it is given equal time.

The tobacco industry denial machine spent many billions of dollars on scientists, lawyers, think tanks and public relations firms and was able to defer significant government action for 30 years after it was discovered that its cigarettes caused cancer. Millions of smokers died as a result, when their deaths could have been prevented far sooner, but for the "Merchants of Doubt."

Likewise, today, the climate change denial machine actively churns. It has been revealed, for example, that the Koch brothers have by themselves spent \$79 million on groups whose mission, as revealed in Ross Gelbspan's book, "The Heat is On," was to "reposition global warming as theory rather than fact," thereby forestalling legislation that might affect the bottom line of the oil and gas empire.

Today we are seeing the same type of

denial tactics employed against the laws and policies controlling international trade in scrap electronics. If we do not closely scrutinize and correct this new misinformation campaign at the outset, we can expect it will grow to become a fully funded, sophisticated orchestration with tragic effect – the delay or reversal of action to prevent the exploitation and damage caused by the global trade in hazardous electronic material.

As evidence of the e-scrap dumping denial campaign now underway, I will first present three dubious academic/scientific studies based on insupportable assumptions that appear to be designed to diminish the significance of the global trade in e-scrap. Then I will present efforts that claim the global dumping grounds so easily captured by cameras are not really what they seem to be, but rather a "hoax" perpetrated by environmental groups to make money.

A tale of three studies

In recent years, the U.S. and Canadian governments have funded three studies that were designed and now used to diminish the significance of the global flows of electronic waste. It is important to note that the U.S. and Canada, along with Japan, are the three governments most actively opposed to the Basel Convention and especially the overwhelming majority decision in 1995 (the

Basel Ban) to amend it to prohibit the export of hazardous waste from developed to developing countries.

As context for the three studies purporting to quantify global e-waste trade, it must first be understood that there is no dataset that provides a record of the amount of electronic waste exported to developing countries. This is due to the fact that the World Customs Organization has, for the most part, refused to add waste codes to the harmonized tariff schedule (HTS) - the global system

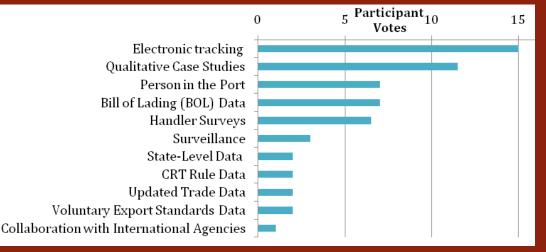
by which all "commodities" are classified and subsequently recorded by customs agents around the world. However, even if scrap IT equipment did have special tariff codes, it's unlikely that they would be used correctly due to a strong incentive among individuals to avoid being exposed as illegal traffickers in waste under Basel Convention rules.

Nevertheless, the lack of reliable data has not prevented several studies from being conducted, and as can be expected, each of these studies is fundamentally flawed.

Study 1: The first such study we saw, entitled "Mapping the International Trade and Traffic of Electronic Waste" (2010) was conducted by Josh Lepawsky of Memorial University in Newfoundland. Lepawsky, along with several other academics and some recyclers critical of the Basel Convention, has received major grants from the Social Science and Humanities Council (a Canadian government agency) including a five-year, \$470,000 grant entitled "The Geographies of Rubbish Electronics."

Lepawsky begins by praising the previous investigative work of scrap electronics researchers (including BAN and Greenpeace) and rightfully notes that there is a lack of concrete data in the field to do a comprehensive study of e-scrap flows. However, despite lacking this important data, Lepawsky nevertheless goes on to do

Figure 1 | Results of participant voting exercise for most favored participant-proposed characterization approach



From: Characterizing Transboundary Flows of Used Electronics: Summary Report (2012).



An Internal Revenue Service ID tag on a PC found in a Chinese electronics dump. Photo taken by the author, Jim Puckett. Copyright BAN, 2006.

just that – make something out of nothing. His study relies on using trade data based on a single harmonized tariff code – that for used lead acid batteries (car batteries, or ULABs) as a "proxy" for all of e-waste. For anyone who knows the unique trade patterns of ULABs, this is a stunning leap of faith and not science.

Metal traders know that ULABs are part of a very different market than IT

equipment, with a very different set of market drivers. They know that today, as opposed to 15 years ago, very few ULABs from North America or Europe move to non-OECD countries. Yet this is not the case for IT equipment, as evidenced by surveys of actual waste end-points where asset tags, plug types and other indicators clearly show the origins.

Lepawsky actually states the funda-

mental problem with his ULAB-as-proxy assumption in his report: "It is also important to bear in mind that the trade category analyzed in this paper by definition excludes other important types of e-waste material (e.g. computer monitors or television sets)." Not to mention everything else that is not a ULAB.

Lepawsky's use of trade reports also fails to compensate for known trade data anomalies, such as falsely accounting for the large number of supposed shipments from Dubai. In reality, this tonnage can be traced to ULAB brokers operating out of Dubai, and not waste arising from that part of the world.

Lepawsky expends many words describing his data problems, but that does not stop him (or forgive him) from then forging ahead to make grand conclusions on the hopeless data, with little basis in reality. Lepawsky concludes that the dominant phenomenon of e-scrap trade is that e-scrap is mostly traded between developing countries — with the implication, raised later in numerous other Lepawsky studies that fail to discuss the data failures, that we need not worry so much about those wastes coming from developed countries.

Study 2: The U.S. government, as part of its national strategy on e-waste, rather than creating programs to prevent the welldocumented export of U.S. governmentgenerated material and other American scrap electronics to Africa and Asia, decided instead to show it was at least attentive to the export concern by proposing to quantify the trade. On June 21, 2011, the U.S. EPA held a workshop of stakeholders to, among other things, ask experts what they believed was the most reliable method to study waste flows. As evidenced in the accompanying chart from the report of that meeting (see Figure 1 on page 40), both studies finally conducted, one by International Trade Commission (ITC) and the other by MIT/ NERC and StEP, ignored the stakeholders' advice and chose other methodologies to arrive at the truth.

In the MIT study, much like Lepawsky's, the authors unfortunately based their research on the HTS codes that don't exist for e-waste, but did not even bother to find a proxy for used or waste equipment of any kind. They simply used the codes for new electronics and then presumed those would be the same codes used by importers



An ID tag on a monitor casing found in the Agbogbloshie dump in Ghana. Photo taken by the author, Jim Puckett. Copyright BAN, Accra, Ghana, 2009.



An U.S. Environmental Protection Agency identification tag on a PC casing. Photo taken by the author, Jim Puckett. Copyright BAN, Accra, Ghana, 2009.

for used and scrap electronics.

Yet this is very rarely the case because these codes, as opposed to "Scrap Plastic" or "Scrap Metal" or some other low-value HTS code, would require paying very high duties commensurate with the value of new computers and peripherals.

The authors of the study readily admit that they had/have no idea about the amount of code mischaracterization that might have taken place. But since there are no waste codes for IT equipment, we might expect that this mischaracterization is 100 percent. Rather than admitting that the dataset was insufficient to make any plausible estimates on the export of e-waste, they published a figure based on expectations of what a minimum percentage of exports would be. And this number was based on yet another assumption of what percentage of export was in fact used or scrap electronic equipment. The rationalization of this estimate would have to be a tortured one, but it is described in the report only as "analysis."

Their final published findings in bul-

leted form report that just 3.1 percent by weight of the total electronic waste/used equipment collected in the U.S. are exported. It is a bit shocking to read this figure, until one reads elsewhere in the report that the 3.1 percent figure represents a "lower bound" – a minimum figure of a possible range. When BAN asked the lead MIT author what the high end of the estimated range was, he admitted that there was no high end and, when pressed, admitted that the exports could be as high as 100 percent. Of course we know that is not true, just as we know that 3.1 percent is not true. But nowhere in the study is the truth plainly stated that the actual conclusion of the study was that 3.1 percent to 100 percent of collected e-waste was exported. Rather, the citation most often quoted and seized upon by waste trade regulation critics like the Institute for Scrap Recycling Industries (ISRI) is 3.1 percent.

Study 3: Finally, the U.S. Trade Representative's (USTR) office – known to be a very pro-free trade government agency, was given the job under the National E-Waste Strategy for Electronic Stewardship of conducting another study on global e-waste flows. The agency, in turn, asked the International Trade Commission to conduct it. Rather than letting this study be done as ITC saw fit, it was mandated by USTR that it be done via a survey of industry, despite many in the stakeholders meeting arguing that this method was not a very effective means of arriving at the truth.

Nevertheless, ITC was charged with conducting a survey to be sent to recyclers and collectors asking them if they exported and if so, how much. When the ITC was asked how it was going to be sure that the responses would be honest, ITC claimed that we should not worry because it would be illegal not to respond to the survey, and that penalties of perjury would apply to dishonest responses.

When the final report was published in 2013, once again, a stunningly low figure of 7 percent export was presented. But what is not well understood was that this represented 7 percent of sales amounts, not weight. Low-value material is much of what is exported in the e-waste trade and value does not correspond at all to weight. Nor does value correspond to environmental harm. We learned also that the survey did not even get sent to companies of less than



Young men and boys burning electronics at the Agbogbloshie dump. Accra, Ghana. Photo taken by the author, Jim Puckett. Copyright BAN, 2009.



A pile of electronic waste in the Agbogbloshie dump in Ghana. Photo taken by the author, Jim Puckett. Copyright BAN, Accra, Ghana, 2009.

10 persons. As much of the waste trade is conducted by small brokers and collectors, the data becomes even more hopelessly skewed due to this buried fact. BAN and the Electronics TakeBack Coalition published a critique highlighting these shortcomings soon after the study was published (available at tinyurl.com/ITC-Statement).

BAN decided to file a Freedom of Information Act query regarding the survey responses. What we learned was that 43 percent of the valid addresses failed to respond to the survey. Further, we learned that ITC found that there were more than 900 substantive internal errors (for example, internal figures contradicting sums in the same response) identified in the 2,760

responses that were received.

The fundamental problem with using surveys or other forms of self-reporting in the field of e-waste trade is that much of the international trade in hazardous e-waste is a crime as it moves in contravention of the rules of the Basel Convention. It may not be a crime in the U.S., as that is the only developed country that has failed to ratify the Convention. But once the shipment gets offshore, it is seen by the rest of the global community as criminal traffic. Interpol is taking names and importers are being prosecuted in places like China and Nigeria. Even in the U.S., there have been prosecutions based on exports involving fraud, such as we saw with Executive Recycling in Denver, Colo.

So a fundamental question is begged regarding the ITC study: Who is going to be inclined to voluntarily stand up and admit to exporting e-waste to developing countries? It is small wonder that there was a 43 percent no-response rate. It is small wonder that so many internal errors were found and how many responses did not add up. Such a noresponse and error rate can, when there is a clear motivation for not responding truthfully, dramatically skew the data. But did the ITC report the no-response rate? Did it report that it failed to prosecute those that did not respond? Did

it note that despite the substantive errors found, not one prosecution took place for perjury? I think readers know the answer.



These two photos were taken of imported e-waste found in Hong Kong with Chinese researcher Mr. Lai Yun during the filming of the "E-Waste Tragedy." Copyright, Basel Action Network, 2013.

Ghana e-waste dump a racist hoax?

In recent days, we have seen an even more aggressive and surprising misinformation campaign attempt to refute the very existence or significance of the world's e-waste dumping grounds. The deniers being heard now with greater frequency have found traction in the trade press and blogosphere and even on panels of industry conferences. Reportedly they are at work making a film. These voices of denial have gone so far as to say that the infamous Ghanaian waste dump known as Agbogbloshie is a "hoax."

A recent article in ISRI's Scrap Magazine by Adam Minter calls the story of Agbogbloshie a "myth" and describes the site (contrary to all previous reporting and studies) primarily as an automobile scrap yard and not a place where overseas e-waste is dumped and burned. Several of the articles and blog pieces contain ad hominem attacks accusing groups like BAN and Greenpeace of being racist, fascist and perpetuating the hoax simply to enrich themselves ((See Reuse advocate calls Agbogbloshie 'a hoax' http://tinyurl.com/E-Hoax1 and E-Waste Recycling Hoax? Basel NGO Profits from Racial Pics http://tinyurl.com/E-Hoax2).



CRT housings observed by the author and environmental journalist Mike Anane (right) and Ghanian EPA staff John Pwamang (left), after CRT glass had been smashed and wires burned from CRTs not able to be sold in Accra's used electronics shops. Photo taken by the author, Jim Puckett. Copyright BAN, Accra, Ghana, 2009.

The Agbogbloshie e-waste dump site in Ghana was first documented by Danish journalists in a 2006 story that was independent and comprehensive (tinyurl.com/Danish-Agbo). It included 27 photos of asset tags found glued to imported equipment in the dump coming from the U.K., Netherlands, Germany and the U.S.

Following that story, the site was later visited by many renowned photographers and journalistic outlets, as well as by government and industry experts. The dump has been featured in the films "Terra Blight" and "The E-Waste Tragedy" and the photography book "Permanent Error," to name a few outlets.

Further there have been at least two scientific studies (by Greenpeace and Blacksmith Institute) that documented very dangerous levels of worker exposure and pollutants in the soil. Many of these pollutants are immortal heavy metals and persistent bio-accumulative chemicals that now contaminate the Agbogbloshie area from the burning of electronic waste.

It is a fact that Agbogbloshie has not always been described with complete scientific accuracy in some of the reporting. For example, Agbogbloshie is not the "world's biggest e-waste dump," as has been reported. That "honor," in my experience, still goes to the Guiyu township region in China. Dramatic scenes do lend themselves to hyperbole and, like anything dramatic, a visit to Agbogbloshie is a Rorschach test with visitors coming away with very different impressions. Different people can say different things about what is going on there, but what nobody in good conscience can say is that it is a "hoax" - something to be laughed away or its significance and harm made light of. I am certain that until the advent of the denial campaign, none of the journalists, scientists or officials that saw Agbogbloshie would ever describe what they had seen with their own eyes as a "myth."

Agbogbloshie is a real-life diorama of what happens when the worst aspects of the IT revolution, the worst aspects of consumerism, and the worst aspects of globalization combine in harsh disharmony. It is a lesson to be taken very seriously - a challenge worthy of our collective human attention. And, yes, illegal, uncontrolled exportation of electronic wastes coming from developed countries is a primary cause of the mass dysfunction witnessed there. Based on observations and documentation from multiple reporters and Ghanaian government officials, the following facts are clear about Agbogbloshie:

- Much of the used electronic equipment intended for reuse and exported to Ghana comes into the country illegally. This is particularly true of the equipment coming from Europe where proof of functionality must precede and accompany exports of electronic equipment to be exempt from waste movement rules.
- Most of the used electronic equipment exported to West Africa and to Ghana is

exported with the professed intent to repair or directly reuse it.

- Observers note that most of the equipment does not therefore go directly from the port of Tema to Agbogbloshie's dump and burn operations. It goes first to the small shops and roadside stands in the city that attempts to sell and sometimes repair the equipment.
- When the equipment does not sell, it is hauled to Agbogbloshie where it is most often smashed and burned.

As reported in the UNEP study "Ghana e-Waste Country Assessment" (2011), it was estimated that around 70 percent of all electronics imported were second-hand. Importers surveyed believed that around 60 to 70 percent of the second-hand equipment was thought to be "in working condition ... but may not respond to power" (a seeming contradiction), 20 to 30 percent was thought to be repairable, and about 10 to 20 percent was broken and useless and sent directly to informal recycling.

The study also makes note of the fact that as most of the equipment serving the country comes from used sources and as second-hand products have a shorter lifespans (less than two years), this creates high volumes of wastes being generated in the country due to the import trade.

The study is incomplete in that it does not attempt to quantify how much waste is generated when parts are discarded or cannibalized as part of the repair/reuse process, nor does it quantify the amount of equipment that may enter the country as working (non-waste), but nevertheless gets smashed and burned anyway due to failure to sell. BAN and many others have witnessed perfectly functional equipment such as imported CRTs being destroyed due to a lack of demand.

What to believe, what to do?

Agbogbloshie and the other waste trade dumping grounds that BAN and others have revealed in the last 13 years are real. They were not produced on a soundstage in Hollywood for your entertainment. They are a snapshot of exploitation but at the same time a glimpse of much greater

problems. We, as a society, should view these scenes much as a doctor would view a patient with a gaping wound. Such a doctor, while knowing that this type of injury is symptomatic of deeper systemic or external impacts, would never characterize it as a "hoax" despite the context and complexity of the entire ill health of the patient. A good doctor would not hesitate to first treat the obvious injury as an emergency and then seek to address the systemic dysfunction that created it.

Agbogbloshie is, in this way, symptomatic of the greater problems that stem from how we as humans decide to extract and refine our resources, and then design, build and consume products we believe are necessary to improve our lives. It is symptomatic of an economic system that lies to itself by failing to account for externalized costs - handed off too easily to the global commons or those least empowered to resist being disproportionately burdened by them. Ultimately the fallout affects all of us, our progeny, and the one planet that sustains us.

Denial of the truth helps nobody and can harm humanity irreparably by forestalling necessary action. History has already seen highly organized and funded efforts to manufacture deception at the expense of our planet and our health. We have seen already how humanity has been profoundly harmed by those that would sow doubt, and reap inaction and apathy in return.

While we can surely disagree on what we as a society should do about the global hazardous waste trade problem, let us not, for the sake of all of us, wherever we live, engage in the intellectually dishonest and Earth-damaging game of pretending the problem does not exist. **ESN**

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