Where Your Electronics Go to Die

Many people are unaware of the electronic waste (e-waste) industry. Because e-waste in the global health setting has not been considered much—and yet has so many health hazards associated with it—I sought to understand it. I visited Seelampur, India, home of the largest e-waste site in India, to learn about the industry. I used an autoethnographic approach to experience the underbelly of e-waste, comprehend the depth of the issue, and see how it could be changed.

Processing e-waste appeared to be the main economic activity of Seelampur. E-waste shops lined many of its streets, and many people were either gathering, disassembling, upgrading, refining, or selling parts. I saw one group of men separating copper wires from batteries. A couple of shops down, past a tower of cathode ray tube monitors, were computers, printers, photocopyers, televisions, cell phones, and other electronics composed of an intricate blend of plastics, metals, and other materials.

I sat down and began working with some recyclers. We chipped at transformers to confirm that the internal workings contained the valuable copper they were hoping for. Copper-laden transformers would travel to the next shop, where they would be incinerated to remove the copper from the plastic. I smelled and tasted the mixture of smoke and metal. Everywhere I turned I saw pieces of electronics in organized chaos, being crudely deconstructed and then separated into neat piles. It felt like a “disassembly line,” where everyone had a specific role to play in recycling e-waste.

Amid the environment of production, I forgot about the environmental hazards that were silently integrated into each breath of this society. Primitive recycling techniques expose workers and their families to environmental contaminants. Exposure to e-waste occurs through three pathways: dermal contact occurs when people directly handle substances (e.g., lead), particulate matter can be inhaled during incineration of plastics and other waste products, and settled particles can contaminate food and water. The most common exposures occur during incineration, which can result in the release of airborne heavy metals (e.g., lead, cadmium, chromium, and mercury), polyhalogenated dioxins, or furans (http://www.who.int/ceh/risks/ewaste/en). Other hazards are present in the materials used to process the e-waste, such as cleaning solvents, reagents (e.g., cyanide), and leaching acids. Waste recyclers as well as nearby populations—including women and children—can be exposed to these chemicals that are released into the environment.

The adverse health effects vary depending on chemical, dose, person, and length of exposure and can include any of the following: respiratory illnesses, neurodevelopment abnormalities, abnormal reproductive development, cancer, endocrine disruption, thyroid and hormone changes, low birth weight and abnormal infant and child development, and impaired cognitive development as well as effects related to cytotoxicity and genotoxicity.

I saw the e-waste, I found the hazards, and I even experienced a level of toxic exposure. But what I discovered was that e-waste was essential to Seelampur’s economy. People were given money to recover valuable materials, and that money was needed to support their families. I also learned that every single piece of an electronic device was used and sold. I knew the hazards were there, but as a humanitarian, I was focused on the fact that this was a lifelong job for thousands of people, who were able to recycle and sell every single piece of the product. Thus, instead of focusing on hazard removal in this context, safe recycling could be implemented, which is a key part of improving waste management and is vital to human health.

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