

## REDUCING E-WASTE RECYCLING RISKS IN GHANA

How researchers are working to help mitigate the effects of toxic pollution at Agbogbloshie, a notorious dump for the world's e-waste



POSTED BY BRIAN OWENS ON SEPTEMBER 17, 2019

In the middle of Accra, the capital of Ghana, sits Agbogbloshie, one of the largest and oldest electronic waste recycling sites in Africa. The eight-hectare scrapyard takes in used electronics from Europe, the United States, India and China, which workers disassemble to recover reusable parts or valuable metals, such as the copper inside wires and cables, for recycling.

But the work is not done by employees in safe, controlled workshops in a formal recycling centre. Instead, informal workers get at the useful electronic parts by burning off the rubber and plastic insulation that surrounds them out in the open. It's the fastest, easiest and cheapest way for these people to do so, and can earn them US\$15-\$20 per day, which is considered a decent amount. But the pollution they create can exact a heavy toll.

Workers at the Agbogbloshie e-waste site in Accra burn the insulation on computer cables to get at the copper within. (Photo: West Africa GEOHealth Hub)

“They can make a good living, but at a cost to their health,” says Andrés Sánchez, a senior program specialist at IDRC. Burning the rubber and plastic can release fumes that contain heavy metals such as lead, mercury and chromium, and dangerous chemicals such as dioxin into the air. And it's not just the workers who suffer. About 40,000 people live close to Agbogbloshie, and the fumes affect them, too.

To understand the impact of the pollution created at Agbogbloshie, IDRC is collaborating with the [Fogarty International Center](#) of the United States' [National Institutes of Health](#) to establish a [West Africa Global Environmental and Occupational Health \(GEOHealth\) Hub](#) in Accra, one of [seven](#) such research

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and training centres around the world that the two organizations help support as part of the Global Environmental and Occupational Health initiative. The [West Africa GEOHealth Hub](#) will help inform policy and develop solutions to help reduce the impact of pollution but will also study the health risks of other parts of the informal economy in the region, including small-scale gold mining and transportation.

“We know the work is dangerous, but we don’t have evidence of what the effects of specific activities are,” says [Julius Fobil](#), a professor in the department of biological, environmental and occupational health at the University of Ghana who is leading the West Africa GEOHealth Hub project.

Fobil and his colleagues have been conducting medical checks, testing blood and urine to measure the e-waste workers’ chemical exposure, and studying how the pollutants can cause lung and kidney damage, or cause long-term chronic diseases such as cancer in the future. They also have plans to look at how the pollution affects the health of children and pregnant women who live and work near Agbogbloshie. “It’s a close examination of the risks and health impact on workers and the wider community,” says Sánchez.

The workers are not unaware of the health risks they face, says Fobil. For years, NGOs have been educating them about the dangers of unsafe recycling practices, and providing equipment that could make doing such a job safer. But those projects rarely consult with the workers enough to understand what they need or what kinds of equipment they’d actually use.

For example, they’ve been offered machines that can strip the insulation from copper wire, which is safer than burning it, but these devices generally take too long to do the job and require too much manpower to operate, so the yield is too low to be attractive. The unsafe working practices are driven not by igno-



Caption: Dr. Afua Amoabeng takes the blood pressure of a man participating in research about the effect pollution produced at the Agbogbloshie e-waste site has on people. (Photo: Emmanuel Acquah Baiden/West Africa GEOHealth Hub)

rance, but by necessity. “These are poor people, so it’s attractive to burn the cables because it doesn’t cost anything,” says Fobil. “So the workers don’t really use the interventions provided.”

Researchers with the West Africa GEOHealth Hub are focused on consulting with the workers to try and develop alternative solutions to reduce their exposure to harmful chemicals. “We want to go there with engineers and find out what kinds of machines would actually work for these people,” says Fobil.

The increasing importance of electronics in everyday life around the globe means that finding safe and effective ways to recycle them is becoming more important. “The amount of e-waste is increasing at a rapid rate,” says Sánchez. “So the problem is not going away. We need solutions to better manage it.”

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### READING AS THINKING

1. Where do the electronics that are dumped at the Agbogbloshie scrap yard come from? Why do you think electronics from these regions end up in Africa, and how do you think they get there?

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2. How do the informal workers at Agbogbloshie obtain the useful electronic parts that can be recycled, and what risks does this method impose on their health and the environment?

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3. Whose health is at risk because of the work going on at Agbogbloshie?

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4. What are three objectives of the West Africa GEOHealth hub?

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5. What health risks are Julius Fobil and his colleagues interested in studying?

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6. Why do you think the workers choose to work in unsafe conditions despite being aware of the health risks?

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7. Why have the interventions provided by various other NGOs not been adopted by the workers?

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### Think-Pair-Share

#### Think

You can be part of the solution to the pollution created at dumping sites and landfills, by paying close attention to how you dispose of electronics and other potentially hazardous items at home, and also by moderating how many limited-lifetime products you acquire in the first place. Make a list of three items that you own that will eventually need to be disposed of or recycled. Next, research the proper steps involved in the disposal or recycling of these items so you can be prepared when the time comes to do so. Websites like [Recycle My Electronics](#) and [Habitat for Humanity](#) are great places to start.

#### Pair

The Agbogbloshie e-waste site is not the only highly-polluted site of its kind in the world, and many of these sites exist on both land and water. Pair up with a partner and research one of the following disposal sites:

- Agbogbloshie, Ghana (nicknamed world's largest e-waste disposal site)
- Citarum River Basin, Indonesia (nicknamed world's dirtiest river)
- Dzerzhinsk, Russia (nicknamed world's most polluted city)
- Matanza-Riachuelo, Argentina
- Niger River Delta, Nigeria
- Norilsk, Russia
- Kalimantan, Indonesia
- Great Pacific Garbage Patch, Pacific Ocean
- Bordo Poniente Landfill, Mexico
- Olusosun Landfill, Nigeria
- Apex Landfill, United States
- Sudokwon Landfill, South Korea
- Puente Hills Landfill, United States

Answer the following questions while conducting your research:

1. What is this location known for?
2. How long has this site been operational or used as a dumping location?
3. Is this site connected only to local inhabitants, or to people in different parts of the world as well?
4. What ongoing social and environmental issues are present at this site?
5. What are the primary pollutants identified at this site?
6. Is any action being taken to improve the conditions of this site or reduce its use?

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### Share

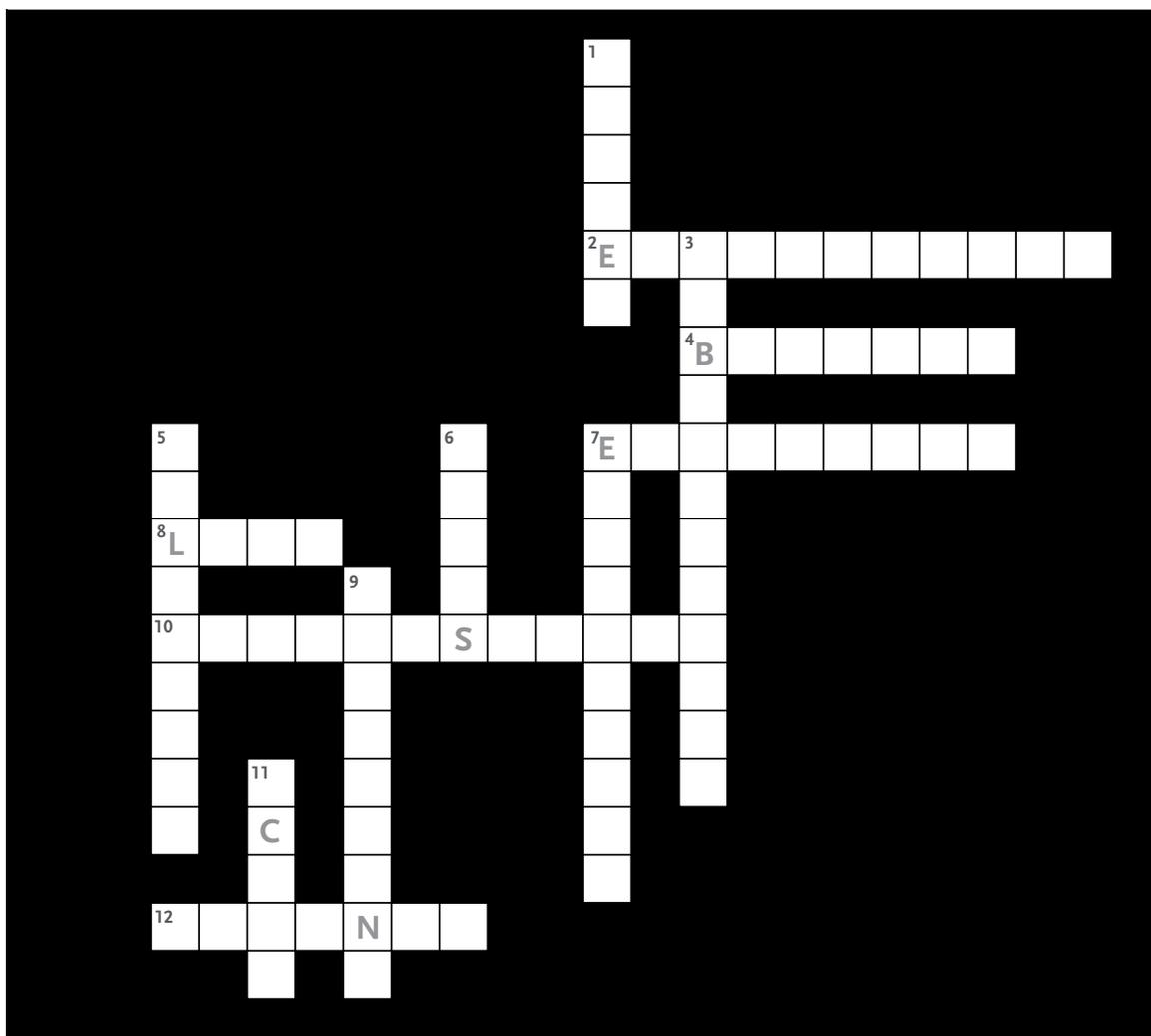
Share what you learned about your site with the rest of the class. Once everyone has presented, discuss the following as a group: What similarities/differences do these sites have? Why are these sites necessary, and could we potentially live without these sites? What impacts do these sites have on people, animals and the environment at different scales (i.e., local, regional, and global)? What actions can we take as a global community to help correct the issues that plague these sites? Remember, awareness is not action: to see a change we need to collectively be the change that helps sustain our planet and its organisms.

### ONLINE

- [Electronics take back coalition](#)
- [Waste reduction week in Canada](#)
- [Waste management in Canada](#)
- [Landfills: Managing and reducing waste](#)
- [Canada's dirty secret](#)

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### CROSSWORD:

#### Across

2. A detailed inspection or investigation
4. The method described in the article to remove rubber and plastic from electronic parts
7. Who Julius Fobil thinks the workers at the dump site would benefit from talking to
8. Exposure to this chemical may cause anemia, weakness, and kidney and brain damage in humans
10. The dump site takes in electronics from this country, among others
12. A term for a disease that persists for a long time or constantly re-occurs

#### Down

1. A soft, bendable metal that can be collected at the dump site
3. The e-waste dump site in Ghana
5. A substance that can damage ecosystems, waterways, and the atmosphere
6. These affect 40,000 people who live close to the e-waste dump site in Ghana
7. What the “e” stands for in e-waste
9. the re-use or re-purposing of materials
11. The capital of Ghana