

**A Manufactured Global Health Crisis:  
Electronic Waste in Accra, Ghana**

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## **Abstract**

This study examines electronic waste dumping as a global health problem, using the Agbogbloshie slum in Accra, Ghana, one of e-waste's most well known destinations, as a case study. Electronic waste is considered any electronic device, appliance, or piece of equipment that has reached its end-of-life. Since it is expensive to recycle properly, many entities in developed countries illegally dump e-waste in the developing world. Once it arrives, economically vulnerable communities dismantle e-waste to extract its precious metals as a source of livelihood, exposing themselves to toxins that severely debilitate community health. This dissertation argues that both historical and contemporary factors contribute to the e-waste issue in Accra and provide a foundational understanding for potential policy solutions.

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## Introduction: Electronic Waste in Ghana

The use of electronic devices has expanded dramatically in recent years in both the developed and the developing world. According to a study done by the Pew Research Center in 2012, 88 percent of American adults owned a cell phone, 57 percent owned a laptop computer, 19 percent owned an e-book reader, and 19 percent owned a tablet computer.<sup>1</sup> With greater usage, however, comes more frequent disposal as rapid technological innovations, ease of replacement, and declining costs of newer models have increased the rate at which electronics become obsolete.<sup>2</sup> This has largely become the case throughout the developing world, as well. Another 2014 Pew study on electronic usage in emerging economies showed the ubiquitous use of cell phones to access the Internet, since many of these countries never built the necessary infrastructure for landline telephones.<sup>3</sup> As shown in Figure 1 below from a 2009 AudienceScapes study, Ghana is certainly no exception to these broader trends: 72 percent of total households owned mobile phones, 59 percent owned television sets, and 18 percent of urban households owned computers.<sup>4</sup> In Ghana, “people really have the taste for the consumption of electronic products” as a result of changing lifestyles associated with urbanization.<sup>5</sup>

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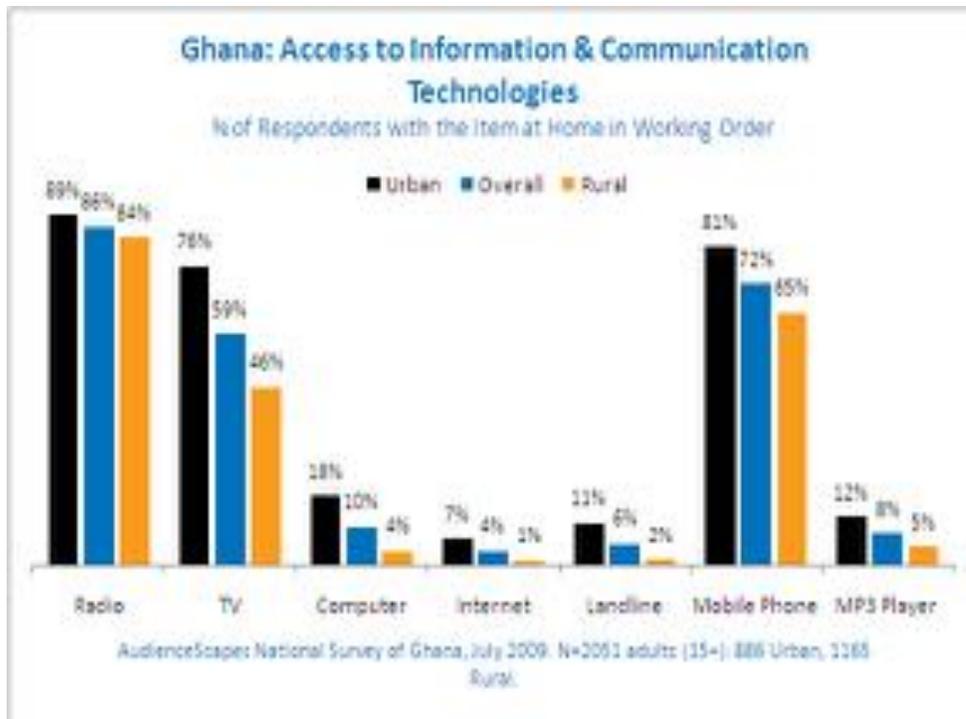
<sup>1</sup> Kathryn Zickuhr and Aaron Smith, “Digital Differences | Pew Research Center’s Internet & American Life

<sup>2</sup> *Ibid.*

<sup>3</sup> “Emerging Nations Embrace Internet, Mobile Technology | Pew Research Center’s Global Attitudes Project,” *PewGlobal*, February 13, 2014, <http://www.pewglobal.org/2014/02/13/emerging-nations-embrace-internet-mobile-technology/>.

<sup>4</sup> “Media and Communication Overview | Audiencescapes,” accessed October 7, 2014, <http://www.audiencescapes.org/country-profiles-ghana-media-communication-overview-television-radio-internet-mobile%20phones-newspapers-word-of-mouth-opinion>.

<sup>5</sup> Fritz Annan. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 14, 2014.



**Figure 1**, “Media and Communication Overview | Audiencescapes,” accessed October 7, 2014, <http://www.audiencescapes.org/country-profiles-ghana-media-communication-overview-television-radio-internet-mobile%20phones-newspapers-word-of-mouth-opinion>.

Electronic waste, or e-waste, is the term used to describe broken electronics and electrical appliances or equipment that are discarded due to obsolescence and partial or complete inoperability.<sup>6</sup> These can include anything from large household appliances, such as air conditioners and refrigerators, to consumer electronics, including televisions, radios, cell phones, MP3 players, and computers.<sup>7</sup> The United States is the single largest consumer economy, yet it does not have national electronic waste collection and recycling procedures in place. Legislation is left to individual state governments, and the recycling process itself is primarily the responsibility of private companies. In fact, in the United States, only 11 to 14 percent of

<sup>6</sup> Oswald, Irina, and Armin Reller. “E-Waste: A Story of Trashing, Trading, and Valuable Resources.” *Gaia* 20, no. 1 (2011): 42.

<sup>7</sup> M. Khurram S. Bhutta, Adnan Omar, and Xiaozhe Yang, “Electronic Waste: A Growing Concern in Today’s Environment,” *Economics Research International* 2011 (June 15, 2011): 2.

electronic waste is collected and sent to certified recyclers.<sup>8</sup> Environmentally responsible electronics recycling is currently an inconvenient, labor-intensive, and expensive process. Additionally, local communities in the U.S. have strongly voiced that they do not want electronics recycling plants to be located within their general vicinities.<sup>9</sup> As a result, there is strong incentive to ship electronic waste to developing countries that have cheap labor and little to no environmental regulations.<sup>10</sup> Some of the most well-known destinations of e-waste include Guiyu, China; New Delhi, India; Karachi, Pakistan; Lagos, Nigeria; and Accra, Ghana.<sup>11</sup> Accra has been dubbed “the e-waste capital of Africa” by experts such as the CEO of the Electronics TakeBack Coalition and serves as the focus of this in-depth study.<sup>12</sup>

Profits, expense avoidance, and governmental legislation and the lack thereof drive the cycle of black market e-waste distribution from the U.S., Canada, and Europe into Ghana. In the U.S., many of the largest companies and organizations that create and collect e-waste, like Verizon and Hewlett Packard, are members of recognized certification programs and consider the costs of recycling properly to be a normal business expense. However, the vast majority of smaller e-waste generators do not have the budget, resources, or knowledge to operate in this manner. Collecting and transporting large numbers of computers and other equipment to recycling centers and then on to smelters is expensive and primarily done for conscience rather than to satisfy legal obligations. Another responsible way to dispose of used, but functioning, electronics is to donate them to those in need. Along with legitimate charities and certified

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<sup>8</sup> “The E-Waste Crisis Introduction | E-Stewards,” accessed March 26, 2014, <http://www.e-stewards.org/the-e-waste-crisis/>.

<sup>9</sup> Elizabeth Grossman, *High Tech Trash: Digital Devices, Hidden Toxics, and Human Health* (Washington: Island Press : Shearwater Books, 2006): 184.

<sup>10</sup> *Ibid.* 185.

<sup>11</sup> “Where Does E-Waste End Up?,” *Greenpeace International*, accessed March 24, 2014, <http://www.greenpeace.org/international/en/campaigns/toxics/electronics/the-e-waste-problem/where-does-e-waste-end-up/>.

<sup>12</sup> Barbara Kyle. Interview by Gabriella Meltzer. Tape Recording. Chicago, IL. June 11, 2014.

recyclers, small, criminal enterprises, like Executive Recycling, Inc. of Englewood, Colorado, falsely claim their stated purpose of properly recycling or donating electronics to disadvantaged, third world citizens in countries like Ghana.<sup>13</sup> Working with dual-citizen Ghanaians, criminals establish fraudulent recycling firms and conspire to smuggle e-waste shipments into the market primarily through the port of Tema, located just east of Accra.<sup>14</sup> Many dual citizens' personal connections are declaring agents at the ports, who are paid for approving import documentation from the United States and Europe, even if it is fraudulent.<sup>15</sup> Private importers of electronic waste also pay international travelers to bring small devices into Ghana that are not declared at customs and therefore go undocumented.<sup>16</sup>

Containers holding the waste are intentionally mislabeled as charitable donations to bridge the global digital divide, hiding the 75 percent of shipped electronics that are “complete waste” and “don't even respond to power.”<sup>17</sup> In fact, “firms receive tax write-offs and do not have to pay for disposal of computers they donate to nations or various charitable causes.”<sup>18</sup> Mass shipment of e-waste occurs at ports in cities such as Rotterdam, Antwerp, Houston, Portland, and Vancouver.<sup>19</sup> This system primarily works due to collusion between sellers of containers, and again of individual electronic products, that does not allow buyers to sort through and test devices to determine whether or not they work at their time of purchase. Since the importers must purchase the containers of electronics as entire units, dealers from the developed

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<sup>13</sup> U. S. Attorney's Office (USAO), “U.S. Attorney's Office - U.S. Department of Justice,” accessed December 11, 2014, <http://www.justice.gov/usao/co/news/2013/july/7-23-13.html>.

<sup>14</sup> Lambert Faabeloun. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 13, 2014.

<sup>15</sup> *Ibid.*

<sup>16</sup> *Ibid.*

<sup>17</sup> Lambert Faabeloun; Oswald and Reller, “E-Waste,” 47.

<sup>18</sup> David N. Pellow, *Resisting Global Toxics: Transnational Movements for Environmental Justice*, Urban and Industrial Environments (Cambridge, Mass: MIT Press, 2007): 200.

<sup>19</sup> Oswald and Reller, “E-Waste,” 46.

countries of origin make significant profits from this transaction.<sup>20</sup> High prices for used electronics on the Ghanaian market are due to increasing demand from a burgeoning urban middle class, a modernizing bureaucracy, and government policies such as the requirement for every school child to own a laptop (only two percent of which are assembled domestically).<sup>21</sup> The streets of Accra are lined with makeshift stores and stands selling secondhand electronics ranging from audio speakers, to laptop computers, to cell phones and chargers. As is evident in the photograph below (Figure 2), these stores also sell the recovered metals from electronics in the form of wire, retrieved from the workers who have dismantled them.



**Figure 2**, a storefront in Accra selling used electronics and recovered metals

When consumers return to their homes or offices and realize their newly purchased electronics do not respond to power, these items are often left untouched.<sup>22</sup> Ghana does not have the waste removal infrastructure or technical capacities to ensure the proper and safe disposal of electronic waste. Therefore, while some e-waste remains idle in houses, offices, and

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<sup>20</sup> *Ibid.*

<sup>21</sup> Fritz Anan. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 15, 2014; Lambert Faabeloun.

<sup>22</sup> *Ibid.*

warehouses, the rest is sold to local scavengers or gets mixed in with household waste until discarded at dumpsites or auctioned off to scrap dealers.<sup>23</sup> This has led to the rise of a powerful informal industry based out of the Agbogbloshie slum of Accra. The decades-old Scrap Dealers Association of Greater Accra, based in the slum, has roughly 1,500 registered members and has capitalized on the influx of e-waste from the developed world.<sup>24</sup> Scrap dealers solicit residences and workplaces throughout the city, and buying people's electronic waste. According to one scrap dealer, he usually pays 10 cedi (3.10 USD) for a laptop computer.<sup>25</sup>



**Figure 3**, e-waste workers dismantling a photocopier machine

The scrap workers in Agbogbloshie, many of whom are boys as young as ten years old, dismantle e-waste by hand using low-tech, dangerous methods. In the photograph above (Figure 3), workers are using their bare hands to break apart the interior of a photocopier machine with simple tools such as hammers or screwdrivers. While some parts of value become exposed through deconstruction alone, other parts of electronics that are of greater value are often encased within the hardware. Open burning is a common method employed to break down and

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<sup>23</sup> Oswald and Reller, "E-Waste," 43.

<sup>24</sup> Abdulai Abdul Rahamani. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

<sup>25</sup> Oman Osman. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

dispose of exterior rubber, glass, and plastic to isolate the precious metals inside. Workers extract and resell materials from inside electronics include copper, silver, gold, and aluminum. This dangerous process releases hazardous toxins into the air, water, and soil.<sup>26</sup> Whether or not they are directly involved in e-waste dismantling, locals in Agbogbloshie who are exposed to the e-waste industry have high rates of morbidity and mortality resulting from a range of conditions such as acute and chronic upper respiratory illnesses, gastrointestinal and skin infections, cardiovascular disease, and cancers.<sup>27</sup>

Much biomedical scholarship has focused on the direct, physiological health consequences of exposure to the hazardous materials contained within a variety of types of electronic waste. These include heavy metals like mercury, cadmium, and lead, as well as flame-retardants containing chlorine, bromine and phosphorus.<sup>28</sup> They can primarily be found in old electronic equipment such as batteries, printed circuit boards, cathode ray tubes, and liquid crystal displays.<sup>29</sup> Those directly involved in the dismantling stage are at the greatest risk of health complications due to the possibility of accidental exposure to hazardous materials that are inhaled through the nose and mouth and come in contact with the skin.<sup>30</sup>

Recent studies conducted in Agbogbloshie verify scholars' worst fears concerning the biomedical hazards of electronic waste exposure. The Ghana Environmental Protection Agency took blood, hair, breast milk, and nail samples from locals and found that every single person had high levels of electronic waste components.<sup>31</sup> A University of Ghana study conducted in

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<sup>26</sup> Essel Ben Hagan. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 19, 2014.

<sup>27</sup> Lucy McAllister, "The Human and Environmental Effects of E-Waste," *Population Reference Bureau*, April 2013, <http://www.prb.org/Publications/Articles/2013/e-waste.aspx>.

<sup>28</sup> Tsydenova, Oyuna, and Magnus Bengtsson. "Chemical Hazards Associated with Treatment of Waste Electrical and Electronic Equipment." *Waste Management* 31, no. 1 (January 2011): 46; "Flame Retardants." Accessed March 25, 2014. <http://greensciencepolicy.org/topics/flame-retardants/>.

<sup>29</sup> *Ibid.*

<sup>30</sup> *Ibid.*

<sup>31</sup> Lambert Faabeloun.

2009 revealed blood levels of lead exceeding acceptable EPA levels by 200 percent in nine different soil-sampling sites in the area where children often play, increasing the likelihood of lead exposure.<sup>32</sup>

Lead poisoning is of particular concern to the medical and public health communities since it has been clinically proven to cause adverse effects in young children. These effects manifest themselves through neurological damage to the central nervous system, displayed by the onset of conditions including delayed mental development, epilepsy, fine motor skill and sensory deficits, and behavioral issues.<sup>33</sup> In fact, every ten micrograms per deciliter of lead found in a child's blood is equivalent to the loss of 2.5 IQ points, leading to lower lifelong earning potential.<sup>34</sup> According to the World Health Organization, "acute symptoms of lead poisoning include kidney dysfunction, anemia, and brain damage" and that a child with blood lead level concentrations greater than 150 micrograms per deciliter is at high risk for death if not provided proper medical treatment.<sup>35</sup>

Prenatal lead toxicity occurs in the developing fetus through exposed pregnant mothers' transmission of lead via shared plasma in the blood.<sup>36</sup> Another study by environmental researchers from Ghana and Japan in 2011 estimated a high hazard quotient in mothers in Agbogbloshie for polychlorinated biphenyls (PCBs) and brominated flame-retardants (BFRs), both of which are toxic materials found in e-waste, using breast milk samples, which indicated

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<sup>32</sup> Innocent Joy Kwame Aboh et al., "Assessing Levels of Lead Contamination in Soil and Predicting Pediatric Blood Lead Levels in Tema, Ghana," research-article, *Journal of Health Pollution Online*, (November 15, 2013), <http://www.journalhealthpollution.org/doi/abs/10.5696/2156-9614-3.5.7>: 11.

<sup>33</sup> P. Mushak et al., "Prenatal and Postnatal Effects of Low-Level Lead Exposure: Integrated Summary of a Report to the U.S. Congress on Childhood Lead Poisoning," *Environmental Research* 50, no. 1 (October 1989): 36.

<sup>34</sup> Elise Gould, "Childhood Lead Poisoning: Conservative Estimates of the Social and Economic Benefits of Lead Hazard Control," *Environmental Health Perspectives* 117, no. 7 (July 2009): 1164.

<sup>35</sup> Aboh, et al. "Assessing Levels of Lead Contamination in Soil and Predicting Pediatric Blood Lead Levels in Tema, Ghana," 7.

<sup>36</sup> Herbert Needleman, "Lead Poisoning," *Annual Review of Medicine* 55, no. 1 (2004): 217.

potential health risks for their unborn children.<sup>37</sup> In 2011, Jack Caravanos of City University of New York and colleagues from Ghana's Ministry of Health found high levels of lead contamination in both ambient air and topsoil in Agbogbloshie.<sup>38</sup> A year later, Kwadwo Asante and colleagues from the Council for Scientific and Industrial Research (CSIR) analyzed multiple trace elements and arsenic speciation in the urine of electronic waste workers from Agbogbloshie.<sup>39</sup> They found concentrations of iron, antimony, and lead in the urine to be significantly higher in this population relative to reference sites. They also traced arsenic sources to fish and shellfish native to the area that are consumed by the local population.<sup>40</sup>

The subsequent chapters of this study analyze electronic waste in Agbogbloshie and Ghana more generally from both historical and contemporary perspectives. The first chapter begins by discussing the historical legacies of colonialism in Ghana, as these have greatly influenced Ghana's current state of governance, resource allocation, and healthcare system. It continues to give a historical overview of international regulation of hazardous waste transport through the Basel Convention, and then studies Ghanaian newspaper articles from the *Daily Graphic* to give insight into the local history and government inaction surrounding the e-waste crisis. The second chapter examines the driving forces that are currently fueling urbanization from Ghana's rural north to urban south and the proliferation of economically vibrant slums in Accra, such as Agbogbloshie. The third chapter explores the epidemiological anomaly embodied in the Agbogbloshie community's debilitating health conditions, the community's inaccessibility

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<sup>37</sup> Kwadwo Ansong Asante et al., "Human Exposure to PCBs, PBDEs and HBCDs in Ghana: Temporal Variation, Sources of Exposure and Estimation of Daily Intakes by Infants," *Environment International* 37, no. 5 (July 2011): 921.

<sup>38</sup> Jack Caravanos et al., "Assessing Worker and Environmental Chemical Exposure Risks at an E-Waste Recycling and Disposal Site in Accra, Ghana," research-article, *Journal of Health Pollution Online*, (November 15, 2013), <http://www.journalhealthpollution.org/doi/abs/10.5696/jhp.v1i1.22>.

<sup>39</sup> Kwadwo Ansong Asante et al., "Multi-Trace Element Levels and Arsenic Speciation in Urine of E-Waste Recycling Workers from Agbogbloshie, Accra in Ghana," *Science of The Total Environment* 424 (May 1, 2012): 63.

<sup>40</sup> *Ibid.*

to adequate care in Ghana's current healthcare system, and the conflict between traditional and Western medicine that is a constant negotiation. The fourth chapter addresses current efforts being made in Ghana, the United States, and internationally to combat the e-waste epidemic, and the conclusion provides my own policy recommendations for Ghanaian administrators to undertake in the coming years.

## Methodology

I chose Accra, Ghana as the research site for this study for both logistical and conceptual reasons. Accra is one of the most prominent destinations of electronic waste, and a number of local stakeholders are already aware of and involved in the issue. Since it is a former British colony, English is Ghana's national language, and is spoken by most people in Accra, its capital city. Therefore, I did not require a translator to conduct interviews, hold casual conversations, or read documents. I am also familiar with and interested in African politics after having taken coursework in the subject, and felt that studying a global issue like electronic waste would be compelling in this geopolitical context.

I conducted fieldwork in Accra from May 5 through May 18, 2014, during which time I interviewed a diverse array of stakeholders involved in addressing the e-waste crisis. Penn's Center for Undergraduate Research and Fellowships' Penn Undergraduate Climate Action Grant provided financial support for my travel. My accommodations, orientation to Accra, and introductions to relevant local parties were arranged with the support of Ivy League Consult (ILC) Africa, a locally-based sustainable development consulting firm that serves West African communities. I stayed in ILC Africa's intern housing in Accra, located in a quiet, residential neighborhood in the suburbs. While in Accra, I interviewed individuals employed by the following parties:

- Ghana Coalition of NGOs in Health
  - Umbrella body that coordinates NGO efforts in healthcare delivery<sup>41</sup>
- Center for Scientific and Industrial Research
  - Scientific research body for economic development and improved livelihoods<sup>42</sup>

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<sup>41</sup> "Ghana Coalition of NGOs in Health," accessed September 30, 2014, <http://www.ghanahealthngos.net/>.

- Accra Metropolitan Assembly Department of Waste Management
  - Responsible for collection, transportation, and final disposal of waste in Accra<sup>43</sup>
- Accra Metropolitan Assembly Department of Public Health (Environmental Health)
  - Assesses, connects, and prevents factors impacting environment health<sup>44</sup>
- Princess Marie Louise Children’s Hospital
  - Attends to children ages 0 through 18 with medical or surgical conditions<sup>45</sup>
- Ghana Environmental Protection Agency (Standards, Compliance, and Enforcement)
  - Ensures electronic equipment does not pose hazard to health and environment<sup>46</sup>
- Ghana Population Council
  - International nonprofit that researches issues such as health and poverty<sup>47</sup>
- Greater Accra Scrap Dealers Association
  - Union of scrap collectors and dealers in Agbogbloshie

The goal of my research was to collect narratives from my study participants and identify thematic continuities. Interviews were thus informal, with open-ended questions so that interviewees were given flexibility in their responses. Though each stakeholder took a unique approach to the issue, broad themes covered included the individual’s work in relation to Ghana’s health and/or electronic waste, reasons for, and challenges to solving the problem.

In addition to people in positions of local authority, I interviewed multiple community members who dismantle e-waste in Agbogbloshie, the slum that houses the e-waste trade. To acquire study participants and gain their trust, I accompanied the Deputy Chief of Environmental

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<sup>42</sup> Essel Ben Hagan. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 18, 2014.

<sup>43</sup> Samuel Kpodo. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 12, 2014.

<sup>44</sup> “Environmental Health Unit | City of Accra,” *City of Accra - AMA*, accessed October 1, 2014, <http://www.ama.gov.gh/ama/page/5117/environmental-health-unit>.

<sup>45</sup> Charity Acheampong. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 15, 2014.

<sup>46</sup> Lambert Faabeloun. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 13, 2014.

<sup>47</sup> Placide Tapsoba. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 13, 2014.

Health at the AMA's Department of Public Health on a field study during which we took photographs and conducted interviews. We used a guide in Agbogbloshie who escorted us around the area, introduced us to community members, and informed us of culturally appropriate and safe behavior while in the slum.

While in Ghana, I also had the opportunity to do historical research using both primary and secondary sources. I investigated the environmental records in the archives of the *Daily Graphic*, Ghana's highly regarded national newspaper. I also accessed online African databases at the Balme Library at the University of Ghana in East Legon. Both of these resources were employed to gain a greater understanding of how Ghanaians have historically perceived electronic waste importation and dumping.

Upon return to the United States for the remainder of the summer months, I conducted interviews via telephone and Skype with a number of stakeholders located in the U.S. and abroad. These included:

- United States Environmental Protection Agency
  - Ensures electronic equipment does not pose hazard to health and environment
- Basel Action Network
  - Nonprofit focusing on environmental injustice of hazardous waste trade<sup>48</sup>
- Blacksmith Institute
  - Nonprofit that tackles pollution in low and middle-income countries<sup>49</sup>
- Electronics Takeback Coalition

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<sup>48</sup> "Basel Action Network (BAN)," accessed April 27, 2014, [http://ban.org/about\\_basel\\_ban/what\\_is\\_basel\\_ban.html](http://ban.org/about_basel_ban/what_is_basel_ban.html).

<sup>49</sup> "Blacksmith's Strategy | Hazards of Pollution | Focus on Highly Polluted Places," accessed October 7, 2014, <http://www.blacksmithinstitute.org/our-strategy.html>.

- “Promotes responsible recycling in the electronics industry”<sup>50</sup>
- Belmont Technology Remarketing
  - IT Asset Management company that provides electronic recycling services<sup>51</sup>
- Datec Technologies
  - Leading European electronics recycler and IT Asset Management company<sup>52</sup>
- ecoATM
  - “World’s first automated e-waste recycling system”<sup>53</sup>
- CalRecycle
  - Pays California recycling companies to process covered e-waste<sup>54</sup>

I also had the chance to receive a tour of Sipi Metals, a large metal refining facility in Chicago. Through this experience, I documented environmentally responsible electronics recycling practices and juxtaposed them with what I saw while in Agbogbloshie.

Since my research involved human subjects, I completed all necessary paperwork and underwent Citi training through Penn’s Institutional Review Board to obtain formal exemption from the University to complete my research. In order to receive permission from some institutions in Ghana to conduct interviews, I also provided a letter of support from the University through my primary advisor, Dr. Adam Mohr. Prior to each interview, the interviewee was given a copy of a consent form to sign that articulated the purpose of the study, any potential risks associated with participation, and that the interview would be recorded on a personal recording device for my use only. The interviewee also had the ability to opt out of the

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<sup>50</sup> “About Us – Electronics TakeBack Coalition,” accessed October 7, 2014, <http://www.electronicstakeback.com/about-us/>.

<sup>51</sup> Eric Dorn. Interview by Gabriella Meltzer. Tape Recording. Philadelphia, PA. September 8, 2014.

<sup>52</sup> “E-Waste Management | Electronics Recycling Services | Asset Recovery – Datec Technologies,” accessed October 7, 2014, <http://www.belmont-trading.com/Datec-Technologies/History/About-Us.aspx>.

<sup>53</sup> “ecoATM - Sell Your Old Cell Phones & Tablets for Cash,” accessed October 7, 2014, <http://www.ecoatm.com/>.

<sup>54</sup> CalRecycle. Interview by Gabriella Meltzer. Tape Recording. Philadelphia, PA September 9, 2014.

study at any time or request anonymity in the final report. All information was kept private and confidential on a password-secure laptop and flash drive only accessible to me. In order to adhere to participants' privacy and confidentiality, interviews were conducted in locations of their choosing, such as a private home or office.

After each interview was recorded on both a device and notebook, the audio file was transferred to my password-secure laptop for transcription. I am the only person who has listened to these recordings, and all transcriptions were conducted manually using the audio playback software, VLC. The following analysis is based on common themes gleaned from these interviews, complemented by secondary literature and additional primary sources including newspaper articles, documents, and my own photographs.

## Chapter One: Historical Legacies

### The Impact of British Colonialism on Present-Day Ghana

As depicted in the map below (Figure 4), Ghana is a small country in West Africa that borders the Gulf of Guinea, Togo, Burkina Faso, and Cote D'Ivoire.<sup>55</sup> Ghana's total land area is 29,000 square miles, or slightly smaller than the state of Oregon.<sup>56</sup> Due to its latitude close to the equator, Ghana's average temperatures range from 68 to 86 degrees Fahrenheit, and it only has rainy and dry seasons.<sup>57</sup> Ghana borders the Gulf of Guinea along its southern coast, which contains many natural resources, including diamonds and gold. Its tropical climate alongside the ocean supports abundant cocoa, fish, and timber industries, while its northern savanna's climate is hot and dry, and often experiences drought from January through March.<sup>58</sup>



**Figure 4,** “Ghana,” accessed December 12, 2014, [http://www.fao.org/ag/agP/AGPC/doc/Counprof/frenchtrad/Ghana\\_fr/Ghana\\_fr.htm](http://www.fao.org/ag/agP/AGPC/doc/Counprof/frenchtrad/Ghana_fr/Ghana_fr.htm).

<sup>55</sup> “The World Factbook,” accessed April 27, 2014, <https://www.cia.gov/library/publications/the-world-factbook/geos/gh.html>.

<sup>56</sup> Roger Gocking, *The History of Ghana*, The Greenwood Histories of the Modern Nations (Westport, Conn: Greenwood Press, 2005): 1.

<sup>57</sup> D. E. K. Amenumey, *Ghana: A Concise History from Pre-Colonial Times to the 20th Century* (Accra: Woeli Pub. Services, 2008): 3.

<sup>58</sup> “The World Factbook”

Ghana's current borders, along with those of its neighbors, Ivory Coast and Togo, are a result of the unification by European colonialists of disparate territories settled by five main language groups – Guan, Mole-Dagbani/Gonja, Akan, Ga-Dangme, and Ewe. Though there has been minor movement of these groups over time, each one occupies a relatively distinct part of the country. Prior to and during the arrival of Europeans, Ghanaian society transitioned from villages comprised of related families to larger kingdoms due to the pressures of population increase, economic opportunity, and political ambition.<sup>59</sup> All the kingdoms were monarchies led by chiefs with the assistance of priests, state councils, and a judiciary of elders.<sup>60</sup> As a result of increased trade with North Africans from the 1500s through the 1700s, newly centralized states in the north of present-day Ghana adopted Islam as their official religion and it was heavily integrated into social and legal practices and institutions.<sup>61</sup> The Akan state of the Asante people steadily gained strength throughout the eighteenth century, conquering other states and incorporating them into the Asante Confederacy, which covered most of present-day Ghana.<sup>62</sup> The empire was extremely wealthy due its control of the continental gold trade and a thriving slave trade.<sup>63</sup>

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<sup>59</sup> D.E.K. Amenumay, *Ghana*, 23.

<sup>60</sup> *Ibid.*

<sup>61</sup> *Ibid.*

<sup>62</sup> Roger Gocking, *The History of Ghana*, 12.

<sup>63</sup> Rachel Naylor, *Ghana, An Oxfam Country Profile* (Oxford: Oxfam, 2000): 13.



**Figure 5**, the Cape Coast fort that housed the British slave trade

Lured by the potential for wealth and enabled by advances made in transportation, Europeans have been attracted to Ghana's coast since as early as the 1400s. The Portuguese arrived to Elmina in 1482 to find a sea route to Asia around Africa and divert the gold trade into European control.<sup>64</sup> Once they built trading posts along the coast and established a trading monopoly with the local states, this stretch of land came to be called the 'Gold Coast' because of the lucrative gold trade that took place.<sup>65</sup> The other European powers of Castile, Sweden, France, the Netherlands, and England followed suit and challenged the Portuguese throughout the sixteenth and seventeenth centuries.<sup>66</sup> Trading posts along the coast, the most famous of which was Cape Coast (pictured in the Figure 5 above), were turned into forts to defend against land and sea attacks by Africans and Europeans, respectively.<sup>67</sup> European Christian missionaries converted local Ghanaians in the south from their indigenous religions, built schools, and

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<sup>64</sup> D.E.K. Amenumay, *Ghana*, 99.

<sup>65</sup> Rachel Naylor, *Ghana*, 13.

<sup>66</sup> *Ibid.*

<sup>67</sup> *Ibid.*

encouraged new agricultural techniques. In order for locals to understand and participate in the new system of commerce, they received a Western education.<sup>68</sup> Since these activities were largely concentrated in Ghana's southern region near the coast, they explain many of the developmental, educational, and religious differences that exist today between the country's north and southern regions.<sup>69</sup>

The slave trade soon surpassed gold in its importance to the Europeans, as they required labor for their growing plantations in the Americas. The once mutually beneficial trading posts became dungeons with intolerable conditions for millions of West Africans prior to their forced journey on the Middle Passage.<sup>70</sup> Slavery had already existed among the Ghanaian states from debt and capture in war, after which slaves were fully integrated into the communities of their captors. Europeans successfully encouraged states to sell them their captured slaves by exporting increased numbers of firearms to tribes.<sup>71</sup> The slave trade had devastating effects on the local population: young, able-bodied people were shipped overseas, villages were decimated, those too weak for slavery were killed, and societal disorganization fostered attitudes of resignation that halted any economic or social development for future generations.<sup>72</sup>

When the British gained the upper hand in trade along the Gold Coast in the 1800s, most coastal states came under the "protection" of the empire's trading companies, the most significant being the African Company of Merchants. Two points of contention soon arose between the British and local population. First, the Asante Confederacy tried to expand its territorial rule towards the coast in order to secure a more steady supply of European firearms to maintain control over outlying provinces. This caused the British to worry that the Asante would

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<sup>68</sup> Richard Gocking, *The History of Ghana*, 30.

<sup>69</sup> Rachel Naylor, *Ghana*, 14.

<sup>70</sup> *Ibid.*

<sup>71</sup> D.E.K. Amenumey, *Ghana*, 103.

<sup>72</sup> *Ibid.*

monopolize trade and control prices, and numerous attempts at treaty making were unsuccessful.<sup>73</sup> Even after the Asante defeated the Fante, the British refused to recognize Asante sovereignty or pay rents on forts in Asante territory.<sup>74</sup> Secondly, Asante leaders resisted the British abolition of the transnational slave trade in 1807, further exacerbating tensions between the two parties.<sup>75</sup> These adverse developments spurred the British to take over direct administration of the forts and castles along the coast in 1821, and its Council of Merchants managed all affairs.<sup>76</sup> Certain aspects of British governance completely foreign to the preexisting local states were incorporated over the next few decades. These included trials for crimes before British officers, the declaration of traditional practices as unlawful, the establishment of a Legislative Council to create legislation, and the implementation of poll taxes and customs duties.<sup>77</sup> Despite repeated conflict with the Asante, the British parliament created the Gold Coast Colony in 1876, the Ashanti Protectorate in 1886, and the Northern Territories' Protectorate in 1902.<sup>78</sup>

Britain's indirect rule was highly authoritative and exploitative, as it extracted internal revenue through the taxation of gold and cocoa exports. Local chiefs were assigned to carry out British policies, and tribes without chiefs were given artificial ones. This system gave power to both traditional and unpopular new chiefs, leading to strong opposition from the native populace.<sup>79</sup> Nevertheless, this period also gave rise to the Western democratic and administrative systems that exist in Ghana today. Africans had limited, but growing, involvement in the Legislative and Executive Councils, which were appointed by the British

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<sup>73</sup> Gocking, *The History of Ghana*, 30.

<sup>74</sup> D.E.K. Amenumay, *Ghana*, 111.

<sup>75</sup> *Ibid.*

<sup>76</sup> *Ibid.*

<sup>77</sup> *Ibid.*, 115-118.

<sup>78</sup> Gocking, *The History of Ghana*, 34; Rachel Naylor, *Ghana*, 15.

<sup>79</sup> *Ibid.*

government to serve merchants' interests and advisory roles in terms of laws and taxation.<sup>80</sup> The British created divisions among various sectors of African societies, as only chiefs (rather than educated people) were eligible to serve on the Legislative Council. British development schemes in agriculture, housing, and infrastructure were also largely concentrated in the south near the coast and its profitable natural resources.<sup>81</sup>

Since becoming the first African nation to achieve independence, Ghana experienced a number of political and economic triumphs and struggles as a long-term consequence of foreign exploitation. From 1921 to 1960, the population tripled, life expectancy increased from 39.5 to 45.5 years, and there was high net population growth due to increased fertility and immigration rates from other parts of West Africa.<sup>82</sup> However, after independence in 1957, there still remained great disparities between the north and south as a result of colonial policies that restricted income and educational opportunities and access to social services and public works for people in the north.<sup>83</sup> Rapid urbanization took place, whereby 23.7 percent of the total population lived in towns with over 5,000 people in 1960, compared to only nine percent in 1948.<sup>84</sup>

The Convention People's Party (CPP) with Kwame Nkrumah at its helm adopted socialist policies in the 1960s to modernize Ghana's economy through "state-sponsored industrialization and government-led mechanization of agriculture" to withstand fluctuations in the global market and become less reliant on foreign economies.<sup>85</sup> The regime concurrently invested heavily in programs that expanded health, education, and infrastructure that addressed disparities between

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<sup>80</sup> *Ibid.*

<sup>81</sup> *Ibid.*

<sup>82</sup> Roger Gocking, *The History of Ghana*, 116.

<sup>83</sup> *Ibid.*

<sup>84</sup> *Ibid.*

<sup>85</sup> Rachel Naylor, *Ghana*, 19.

the north and south. However, the CPP's economic efforts soon backfired miserably due to poor management, a shortage of trained personnel, and low productivity on collective farms compared to small-scale, family owned enterprises that should have received greater government support. When the administration's national savings dwindled, its excessive borrowing led to widespread inflation, debt, and corruption at all levels of the socialist scheme, a problem that was exacerbated by a fall in global cocoa prices that threatened one of Ghana's primary exports and sources of livelihood.<sup>86</sup> By 1964, Nkrumah's regime was not only failing economically, but had also become an authoritarian, single party state that harshly repressed any political opposition.<sup>87</sup>

Two successive coup d'états in 1972 led by Colonel Ignatius Kutu Acheampong resulted in the installation of a military regime that was also plagued by poor economic circumstances. These included a period of high oil prices (during which Ghana had no foreign exchange or credit to obtain fuel), declining food production alongside the demands of a growing population, and cross-border smuggling that deflated agricultural prices. Even after Acheampong was forced to resign and General Fred Akuffo took his place in 1978, the economic crisis continued rampantly with large shortages of basic commodities and decreased cocoa production.<sup>88</sup> In an attempt to combat corruption and overall government inefficiency, Lieutenant J.J. Rawlings launched his violent 'Second Coming' with the Armed Forces Revolutionary Council (AFRC) at the end of 1981, demanding "nothing less than a revolution" and the wage of "holy war" against corruption.<sup>89</sup> This became the eighth regime in power since Ghana's independence in 1957. Rawlings established a civilian-based cabinet and implemented radically socialist policies, including local defense and development committees, price control enforcement, and the

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<sup>86</sup> *Ibid*, 20.

<sup>87</sup> *Ibid*.

<sup>88</sup> *Ibid*.

<sup>89</sup> Richard Gocking, *The History of Ghana*, 189.

confiscation of money from wealthy citizens' bank accounts to benefit society at large. The AFRC was also merciless in its treatment of political opponents. Throughout this period of civil turmoil, Ghana's economic situation was in dire straits, impacting all aspects of daily life. Commodities such as agricultural inputs and spare parts for industry were scant because the regime-imposed halt on foreign trade reduced imports. Inflation was so high that workers' wages could not keep up with prices for basic necessities, and social services were completely halted. The country's food self-sufficiency was down to 23 percent by 1983, worsened by a season of severe drought and bush fires. In desperate need of assistance after denial by the socialist bloc, the Ghanaian government turned to negotiate with the World Bank and IMF.<sup>90</sup>

According to neoclassical economic theory embraced by the World Bank and IMF,

Socioeconomic and spatial inequalities are merely short-term aberrations that arise from structural factors, in otherwise well functioning system. Consequently, it is assumed that the inequalities created between the rich and the poor and between prosperous and depressed areas melt away as countries undertake development programs, especially those that are driven by market forces.<sup>91</sup>

Ghana received \$254.5 million in aid from the World Bank between 1983 and 1986. The government used this money to invest in transportation repairs, restore the cocoa, mining, and timber industries, extend electricity and water supplies to rural areas, and reform its education system.<sup>92</sup> To decrease inflation and encourage foreign exchange, the Ghana cedi was devalued from 2.75/USD to 30/USD. Price controls were also gradually removed to assist manufacturers and farmers.<sup>93</sup> Other positive developments included economic liberalization through the decentralization of state-owned enterprises to allow private competition, and the opening of the

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<sup>90</sup> *Ibid*, 23.

<sup>91</sup> Kwadwo Konadu-Agyemang, "The Best of Times and the Worst of Times: Structural Adjustment Programs and Uneven Development," *Professional Geographer* 52, no. 3 (August 2000): 469.

<sup>92</sup> D.E.K. Amenumey, *Ghana*, 270.

<sup>93</sup> *Ibid*.

financial sector and markets to stimulate investment in Ghana's manufacturing sector.<sup>94</sup>

However, austerity measures taken during this period have had long-term ramifications for the Ghanaian people. Already poor rural mothers had to pay hospital fees for their families' healthcare and parents had to pay in full for their children's secondary education, decreasing usage in these services. Additionally, farmers and fisherman had to pay higher costs for fuel and other inputs, and banks' lending policies were greatly restricted.<sup>95</sup>

Ghana is often seen as the model Sub-Saharan African nation for the economic success of structural adjustment, but the program primarily benefitted foreign, rather than local, interests since it was so export-oriented and prioritized foreign direct investment during the second half the twentieth century. In addition, the resurgence of severe inflation in the 1990s eroded poor wagers' salaries and their savings remain virtually worthless due to decreased bank interest rates.<sup>96</sup> The government has invested far more resources into industry than agriculture despite the large, primarily poorer, segment of the population that relies on the latter for livelihood.<sup>97</sup> In fact, the current most important source of revenue comes from remittances that Ghanaians in Europe, North America, and Asia send back to their families.<sup>98</sup> Though the intention of structural adjustment is to reduce rural poverty and increase incomes, "rising poverty levels, high rates of unemployment, reduced access to basic services, and increasing levels of spatial inequalities have, almost invariably, been the aftermath of SAPs."<sup>99</sup>

Although Ghana has largely overcome the typical plight of underdevelopment faced by most post-colonial African nations, the legacies of British rule fostered an unstable political

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<sup>94</sup> Rachel Naylor, *Ghana*, 24.

<sup>95</sup> *Ibid.*

<sup>96</sup> *Ibid.*, 27.

<sup>97</sup> *Ibid.*, 24.

<sup>98</sup> Richard Gocking, *The History of Ghana*, 282.

<sup>99</sup> Kwadwo Konadu-Agyemang, "The Best of Times and the Worst of Times," 481.

system that often finds itself in economic policy deadlock. The government has yet to compensate for the stark internal socioeconomic divides between the country's north and south. These consequences are evident with regard to the Ghanaian government's handling of electronic waste, which will require strong political will and coordination to solve this complex, transnational issue that strongly echoes centuries of foreign economic exploitation.

### **Domestic Policy Limitations to Addressing E-Waste**

The Council for Scientific and Industrial Research is the “main scientific body set up by the government to conduct research to support economic development and improve livelihoods for the citizens.”<sup>100</sup> Based on its research, the Council has recommended to the government that there be a well-structured disposal mechanism for e-waste through the removal of valuable parts in a factory setting.<sup>101</sup> Essel Ben Hagan, the Council's former Director, specifically cited the current problems posed by mercury, which is highly toxic and must be shielded from soil contamination or direct skin contact. Ben Hagan emphasized, “These are standard practices, standard steps for handling different kinds of electronic waste, which is not something that is new. But we as a research institute, we are trying to put together a strategy, which included public education and also suggested the small and medium enterprises of these already known practices.”<sup>102</sup>

When asked about the impact of CSIR's research and recommendations, Ben-Hagan felt that the results had not been as satisfactory as expected mostly because of a “lack of policy to regulate the practices in disposal of these kinds of industrial waste” and that “there's a need to have a legislative instrument to be able to back [our] policy research to serve as a guideline of

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<sup>100</sup> Essel Ben Hagan. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana, May 19, 2014

<sup>101</sup> *Ibid.*

<sup>102</sup> *Ibid.*

what should be done.”<sup>103</sup> Explaining the large absence of policy to address the issue, Ben Hagan noted that most legislative topics of importance in Ghana have risen out of advocacy efforts, and that the lobbying movement for electronic waste management has not been particularly strong.

Articles appearing in the *Daily Graphic*, Ghana’s premier national newspaper, document the very recent attention environmental health issues such as e-waste have received from the general public and the lack of responsive governmental policy. Articles in the publication’s environmental archives acknowledging pollution in Agbogbloshie and the Korle Lagoon, the slum and surrounding body of water where most e-waste is dumped, only date back roughly 15 years. A 2002 article cites that Nii Kumah II, the head of the Agbogbloshie community, “urged the residents to keep their surroundings clean to ensure a healthy life for the people” and “called on the people not to site (inhabit) unauthorized structures in the area since they go to compound the unsanitary situation.”<sup>104</sup>

An article from 2006 reveals that the lagoon did, in fact, need to be dredged as part of the Korle-Lagoon Ecological Restoration Project (KLERP) since there was still “the need for people to desist from throwing rubbish into drains, [saying] such rubbish was usually washed into the lagoon.”<sup>105</sup> KLERP, which cost the Accra government \$89.52 million, began in 1995 with an expected completion date of 2005.<sup>106</sup> The project’s objective was and remains the mitigation of “perennial flooding in most parts of the capital and [to] address the pollution in the lagoon, which has led to the poor catch of fish by the fishermen who lived in surrounding communities.”<sup>107</sup> Since the lagoon is choked by pollution, water that should be flowing back

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<sup>103</sup> *Ibid.*

<sup>104</sup> Daily Graphic Reporters, “Residents Clean Alogboshie,” *Daily Graphic*, July 1, 2002.

<sup>105</sup> Rebecca Qualcoe, “Dredging of Korle-Lagoon Begins,” *Daily Graphic*, February 14, 2006.

<sup>106</sup> “Courage Needed to Deal with Pollution of Korle Lagoon - Accra Mayor | Regional News 2012-03-22,” accessed December 13, 2014, <http://www.ghanaweb.com/GhanaHomePage/economy/artikel.php?ID=233575>.

<sup>107</sup> *Ibid.*

into the sea is instead flooding communities, creating breeding grounds for disease-carrying vectors like mosquitos.<sup>108</sup> KLERP has yet to be completed due to the obstacles posed by the Agbogbloshie inhabitants' activities, and should the lagoon be dredged entirely, massive amounts of toxins would be released from the water and the entire community would have to be forcefully evicted from the area. The negative health impacts of hazardous substances also began to get noticed publicly, as an article written in 2004 highlights an EPA report showing the high blood lead levels in Accra residents due to excessive vehicular emissions, as the arrival and dismantling of discarded vehicle parts preceded that of electronics in the Agbogbloshie slum.<sup>109</sup>

The Ghanaian government's general lack of investment in environmental policy is evidenced in the *Daily Graphic's* coverage of electronic waste. In 2006, the newspaper reported that the "Chairman of the Environmental Service Providers Association expressed concern about the increase in the importation of second-hand goods, especially electronics, into the country."<sup>110</sup> The Ghanaian EPA did not include e-waste on its list of hazardous products until 2008, and its public relations officer remarked, "When humans were exposed to them [ozone-depleting chemicals], it could have very serious health consequences, including cancer."<sup>111</sup> Another article written the following year points to the Ghanaian EPA's "helplessness" in that "it [has] been working on a strategy for the control and management of electronic waste in the country for more than a year [now], but no concrete steps [have] yet been taken to fix the problem."<sup>112</sup> Despite numerous conversations and planning, the Ghanaian legislature has yet to devise or implement any formal policy pertaining to the issue. A 2009 article reporting on a floor debate

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<sup>108</sup> *Ibid.*

<sup>109</sup> Lucy Adoma Yeboah, "Accra Dwellers Have High Lead in Blood," *Daily Graphic*, November 11, 2004.

<sup>110</sup> Naa Lamiley Bentil, "Increased Importation of Second-Hand Goods," *Daily Graphic*, November 13, 2006.

<sup>111</sup> Abdul Aziz, "EPA to Include E-Waste on List of Hazardous Products," *Daily Graphic*, October 1, 2008.

<sup>112</sup> Lindsay Robinson, "...EPA Appears Helpless," *Daily Graphic*, July 21, 2009.

in the legislature indicates that e-waste was raised as an issue, but that the conversation digressed to a discussion of climate change in general rather than e-waste and human health.<sup>113</sup>

Articles continue to be published discussing the harms of e-waste, but do not indicate any progress in policy to address it. One article from 2012 emphasizes that “regardless of the health risk posed by the burning of the toxic materials within the enclave, city authorities seem to have adopted a lax attitude towards the challenges the operations pose to the generality of people” and that “although it is the duty of the Accra Metropolitan Assembly (AMA) to rid the city of unauthorized structures and filth, little attention has been paid to the area.”<sup>114</sup> Another 2013 article highlights not only the health, but also the security threats of the situation, saying, “In some instances, credit card numbers, private financial data, bank account information and records of online transactions can be retrieved from the e-waste.”<sup>115</sup>

### **International Regulation of Hazardous Waste: The Basel Convention**

In addition to domestic policy inefficiencies in Ghana, stalled progress on the management of transnational electronic waste movement is a direct product of shortcomings in international law. The Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, as well as the Basel Ban on North-South waste flows, each have legislative flaws and have yet to be ratified by the United States.

The Basel Convention was negotiated from 1987-1989 in the context of greater awareness in developed countries surrounding environmental issues and hazardous waste. This was an outgrowth of the increased momentum gained by the environmental justice movement in the 1970s, which focused on the “distributive impacts of environmental pollution on different

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<sup>113</sup> Musah Yahaya Jafaru, “Govt to Regulate Import of Used Electronic Gadgets,” *Daily Graphic*, March 30, 2009.

<sup>114</sup> Della Russel Ocloo, Seth J. Bokpe, and Zainabu Issah, “Scrap Menace,” *Daily Graphic*, May 28, 2012.

<sup>115</sup> Kofi Yeboah, “Discourage Importation of Used Computers,” *Daily Graphic*, July 18, 2013.

social classes and racial and ethnic groups.”<sup>116</sup> The United Nations Environment Program (UNEP) responded to these concerns in 1981 with the implementation of the Montevideo Program on Environmental Law, whose major subject areas include “marine pollution from land-based sources”; “protection of the stratospheric ozone layer”; and “transport, handling and disposal of toxic and dangerous wastes.”<sup>117</sup> Concurrently, the OECD (Organization for Economic Cooperation and Development) and the EC (European Community) developed stricter guidelines on hazardous waste disposal through the Clean Air and Clean Water Acts.<sup>118</sup> These harsher pieces of legislation, along with the NIMBY (not in my backyard) syndrome on the part of the public, led traders to search for less expensive ways to get rid of their hazardous waste by shipping it to developing countries where “environmental awareness was much less developed and regulations and enforcement mechanisms were lacking.”<sup>119</sup>

Particular incidences regarding the irresponsible disposal of hazardous waste in developing countries, such as the *Khian Sea*, directly incited the Basel Convention negotiations in 1987-1989. In 1986, Philadelphia had an overabundance of incinerator ash and no landfill in which to place it. The city therefore contracted with Joseph Paolino & Sons, a local paving company, to dispose of the 15,000 tons of waste. They, in turn, turned the waste over to Amalgamated Shipping, a company based out of the Bahamas, which owned a ship called the *Khian Sea* onto which the ash was loaded. The ship left port in September and traveled to the Bahamas, Dominican Republic, Guinea-Bissau, Puerto Rico, Bermuda, and Netherlands Antilles,

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<sup>116</sup> David N. Pellow, *Resisting Global Toxics: Transnational Movements for Environmental Justice*, Urban and Industrial Environments (Cambridge, Mass: MIT Press, 2007): 15.

<sup>117</sup> Katarina Kummer Peiry, “Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal,” *United Nations Office of Legal Affairs*, 2010: 1. [http://legal.un.org/avl/pdf/ha/bcctmhwd/bcctmhwd\\_e.pdf](http://legal.un.org/avl/pdf/ha/bcctmhwd/bcctmhwd_e.pdf); *Montevideo Programme for the Development and Periodic Review of Environmental Law* (Montevideo: United Nations Environment Programme, November 6, 1981), [http://www.unep.org/delc/Portals/119/publications/Montevideo\\_ProgrammeI.pdf](http://www.unep.org/delc/Portals/119/publications/Montevideo_ProgrammeI.pdf).

<sup>118</sup> Jonathan Krueger et al., *International Trade and the Basel Convention* (London: Earthscan, 1999): 22.

<sup>119</sup> Katarina Kummer Peiry, “Basel Convention,” 1.

all of whom refused to accept the waste. When it finally landed at Gonaives, Haiti in December 1987, the crew left 5,000 tons of ash on the beach against the wishes of the local government. The remaining 10,000 tons of waste later disappeared somewhere in the Indian Ocean.<sup>120</sup>

The UNEP Ad Hoc Working Group of Legal and Technical Experts began negotiations in October 1987 with six full meetings leading up to the establishment of the Basel Convention in March 1989. Representatives from 96 countries and over 50 international organizations attended the negotiation meetings and the Convention's enforcement began on May 5, 1992 when it received 20 ratifications, excluding the United States.<sup>121</sup> The Basel Convention outlines a number of provisions to “protect human health and the environment by minimizing hazardous waste production whenever possible.”<sup>122</sup> It calls for environmentally sound management (ESM), meaning hazardous waste disposal must be approached through an “integrated life cycle approach” involving “strong controls from the generation of a hazardous waste to its storage, transport, treatment, reuse, recycling, recovery and final disposal.”<sup>123</sup>

The Basel Convention contains many prohibitions to prevent the international transport of hazardous waste. These include restrictions on exporting these materials to Antarctica, a country that is not party to the Convention, or any party to the Convention that has banned the imports of toxic waste (Article 4).<sup>124</sup> However, countries can enter into a multilateral or bilateral consensus on hazardous waste management with parties or non-parties that are “no less environmentally sound” than the Convention itself, where the agreements are non-discriminatory and are carried out within the bounds of the Convention's regulatory system (Article 11).<sup>125</sup>

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<sup>120</sup> David N. Pellow, *Resisting Global Toxics*, 107-108.

<sup>121</sup> Jonathan Krueger et al., *International Trade and the Basel Convention*, 27.

<sup>122</sup> “Origins of The Basel Convention,” *Basel Convention*, accessed October 19, 2014, <http://archive.basel.int/convention/basics.html>.

<sup>123</sup> *Ibid.*

<sup>124</sup> Katarina Kummer Peiry, “Basel Convention,” 4.

<sup>125</sup> *Ibid.*

Under these relatively loose guidelines, merely “an exchange of paperwork” was required for the continuation of transnational toxic movement to continue and for developed countries to legitimize their criminal activities, as defined by the Basel Convention.<sup>126</sup> In response, 12 countries in the Organization of African Unity, including Ghana, joined together in 1991 to form the Bamako Convention. It came into force in 1998, calling for greater prohibitions on the import of hazardous waste and does not make exceptions for radioactive substances that are included in the Basel Convention.<sup>127</sup>

The Second Conference of Parties to the Basel Convention took place in 1994, and despite the objections of the United States, Canada, and Australia, the G-77 representing developing countries joined with the European Union to adopt a “full, no-exceptions ban on the export of hazardous wastes from countries of the Organization for Economic Cooperation and Development (OECD) to non-OECD countries.”<sup>128</sup> However, the ban still needs to be ratified by another 14 to 17 countries before it can officially become part of the Basel Convention.<sup>129</sup>

Though some progress has been made by advocacy groups like the Basel Action Network and Greenpeace International to mitigate the transnational flow of e-waste, it is also important to bear in mind two things: first, that the Basel Convention and the Ban Amendment are “ineffectual at completely regulating end-of-life ships as hazardous waste exports” and second, that there are greater pressures to export electronic waste in recent years.<sup>130</sup> These include rigid controls in OECD countries leading to higher domestic disposal costs; greater volumes of hazardous waste

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<sup>126</sup> Jim Puckett, “The Basel’s Treaty Ban on Hazardous Waste Exports: An Unfinished Success Story,” *Basel Action Network*, December 6, 2000, <http://ban.org/library/ierarticle.html>.

<sup>127</sup> “Bamako Convention COP 1,” *United Nations Environment Programme*, accessed October 20, 2014, <http://www.unep.org/delc/BamakoConvention/tabid/106390/Default.aspx>.

<sup>128</sup> Jim Puckett, “The Basel’s Treaty Ban on Hazardous Waste Exports”

<sup>129</sup> *Ibid.*

<sup>130</sup> *Ibid.*

produced and consumed in OECD countries; and increasing global disparities in relative wealth that lower developing countries' relative wages and ability to control toxic waste flow.<sup>131</sup>

The Basel Action Network (BAN) is currently the leading global nonprofit that advocates for the enforcement of the Basel Convention and the ratification of the Ban Amendment.<sup>132</sup>

Sarah Westervelt, the organization's Policy Director, explained in an in-depth interview the complex political and economic environment in the United States that encourages the continuation of e-waste exportation. She said that in the Research Conservation and Recovery Act (RCRA), one would expect to find restrictions on how American businesses must handle this waste stream. Instead, it contains lists of materials, such as CRT glass, that are exempt from regulation due to their high value. While some states have passed laws on e-waste disposal, none have any jurisdiction over export because that is a federal authority.<sup>133</sup> Since the United States has not ratified the Basel Convention, "U.S. businesses can legally load up whatever hazardous waste they want and there are no restrictions on them."<sup>134</sup> Should a container filled with electronic waste leave U.S. territory, it immediately falls under the jurisdiction of international law. It is therefore illegal for any of the 143 countries that have ratified the Basel Convention to import these materials. However, Westervelt noted that the laws in the Convention are currently not well-enforced.<sup>135</sup>

Westervelt also cited the problem with manufacturers such as Sony, HP, Dell, and Panasonic:

They have been in the habit for years of taking back their U.S. customers' broken products that are still under warranty or products they've been asked to repair, then shipping those broken devices over borders to regional centers...But of course the

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<sup>131</sup> *Ibid.*

<sup>132</sup> Sarah Westervelt. Interview by Gabriella Meltzer. Tape Recording. Chicago, Illinois. July 9, 2014

<sup>133</sup> *Ibid.*

<sup>134</sup> *Ibid.*

<sup>135</sup> *Ibid.*

country where the regional center is located has ended up with all bad hazardous parts...so hazardous waste is literally being transferred to developing countries where cheap repairs happen because labor is cheap.<sup>136</sup>

There is thus a great deal of ambiguity as to whether a device that is no longer functional, but originally intended for repair, is considered electronic waste. This further convolutes the definition and potential future legislative actions surrounding the transnational flow of e-waste.

## **Conclusion**

European exploitation and uneven development schemes created systematic inequalities between Ghana's north and south and fostered a series of post-independence regimes that were unable to effectively implement economic policies to respond to the needs of its citizens. The legacies of weak statehood are reflected in articles from the *Daily Graphic* that exemplify government inaction surrounding electronic waste and environmental health in Agbogbloshie. In addition, the inability for the Basel Convention and Ban Amendment to gain traction and influence over current illegal practices reflects the lasting economic hegemony of non-ratifying developed countries over developing countries that receive e-waste. The following chapter explores the modern consequences of global exploitation and its effects on north-south disparities that have led to mass migration to Accra and its growing slum community.

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<sup>136</sup> *Ibid.*

## Chapter Two: Urbanization in Ghana

Migration from Ghana's rural, agrarian north to the Agbogbloshie slum in the urban south was occurring long before the arrival of electronic waste to the country's shores. Even prior to colonial presence, cattle herdsman in the northern savannah preferred to send their livestock to the southern coastal regions during the dry season to seek better pastures.<sup>137</sup> Another economic element that created northern-southern disparities was the introduction of cocoa to Ghana's coast in 1878. Small-scale farmers in the tropical south began to plant cocoa and traded it with Europeans, and as the sector grew along with demands for labor, seasonal and long-term migration from the north increased and continues to this day.<sup>138</sup> British economic and political rule in the 1900s contributed to these migration patterns, as colonists capitalized on Ghana's natural resources in the south to establish lucrative industries like gold mining that required high volumes of manual labor, such as gold mines.<sup>139</sup> Ghana's northern male population served as the British labor supply, further impoverishing the already disadvantaged north due to loss of manual labor on family farms, leaving behind an aging, unproductive population. Male migrants were uneducated and only skilled in farming since they had not reaped the benefits of European missionaries or administration that had set up Western schooling in the south to train natives to work in the bureaucracy and had introduced advanced agricultural systems. Southern men, on the other hand, were involved in lucrative trade industries along the coast, demonstrated by the fact that in 1891, over 20 percent of Accra's working population was estimated to be involved in

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<sup>137</sup> Peter Quartey, *Migration in Ghana: a country profile 2009* (Geneva: International Organization for Migration, 2009): 53.

<sup>138</sup> *Ibid.*

<sup>139</sup> Fleur Wouterse, *Internal Migration and Rural Service Provision in Northern Ghana* (International Food Policy Research Institute (IFPRI), 2010), <http://www.ifpri.cgiar.org/sites/default/files/publications/ifpridp00952.pdf>: 9.

trade.<sup>140</sup> Trade also increased the importance of other related occupations, such as lawyers, auctioneers, photographers, doctors and pharmacists, newspaper editors and publishers, and engineers.<sup>141</sup>

Disparities between the north and south cultivated by Great Britain lasted long after the empire's rule over Ghana concluded, as the Ghanaian post-1957 government chose to invest greater resources into the more economically productive south rather than the agrarian north. As of 1998 and 1999, 42.2 percent of households in the lowest income quintile were located in the northern savannah despite the fact that they only comprised 20.6 percent of Ghana's total population.<sup>142</sup> Although the Ghanaian government alongside non-profit organizations has prioritized the first United Nations Millennium Development Goal of poverty reduction, and the country's overall poverty rate has declined, 28.5 percent of Ghana's total population remains below the national poverty line.<sup>143</sup> Average poverty rates in the northern savannah are two to three times greater than the national average and these households do not have equal access to basic necessities like education, water, nutritious food, healthcare, or sanitation.<sup>144</sup> Endemic poverty is largely due to chronic food insecurity, as small-scale subsistence farmers do not have access to resources that would help them modernize into commercial agricultural enterprises. Inputs such as fertilizers and mechanized equipment are too expensive for family farmers to purchase without government aid, and there is little to no infrastructure in place to store, process, or market their products.<sup>145</sup>

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<sup>140</sup> Roger Gocking, *The History of Ghana*, The Greenwood Histories of the Modern Nations (Westport, Conn: Greenwood Press, 2005): 42.

<sup>141</sup> *Ibid.*

<sup>142</sup> Peter Quartey, *Migration in Ghana*, 28.

<sup>143</sup> "The World Factbook," accessed April 27, 2014, <https://www.cia.gov/library/publications/the-world-factbook/geos/gh.html>.

<sup>144</sup> "Rural Poverty in Ghana," *Rural Poverty Portal*, accessed November 1, 2014, <http://www.ruralpovertyportal.org/country/home/tags/ghana>.

<sup>145</sup> *Ibid.*

## The Impact of Food Insecurity on Northern Migrants

While food insecurity due to drought and unpredictable climate has always been an issue for northern Ghanaian farmers, prohibitive access to inputs and low market prices are largely due to unjust agricultural policies on a global scale. In the United States and other developed countries, governments provide subsidies to large-scale farmers, a policy that has been in place since the Great Depression. Even though farming has been mechanized and commercialized through vertical integration, the political influence of agribusiness has pressured the continuation of government subsidies to commercial farms.<sup>146</sup> These farms produce massive quantities of food, and their surpluses are “dumped” into the global market at below cost prices or as food aid, driving down prices on local markets in Ghana and many other low to middle income countries whose domestic economies are largely dependent on farming.<sup>147</sup> Thus, the IMF and World Bank pressured highly indebted poor countries, such as Ghana during the 1980s, to devalue their currency and open their markets to food imports that could be paid for with wages earned from cheap labor. However, Ghana and other similar countries that had once been net producers now rely on imports and have faced huge financial losses due to insurmountable competition.<sup>148</sup>

The \$20.1 billion of financial aid given by the United States annually to less developed countries can only go towards health and education.<sup>149</sup> This is due to the 1986 Bumpers Amendment, which states that the United States government is prohibited by law to provide financial assistance to foreign countries in supplying products that could compete with the United States on the global market.<sup>150</sup> American agribusinesses, shippers, and humanitarian aid

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<sup>146</sup> *Ibid*, 180.

<sup>147</sup> E. M. Young, *Food and Development*, Routledge Perspectives on Development (New York: Routledge, 2012): 113.

<sup>148</sup> Thurow and Kilman, *Enough*, 33.

<sup>149</sup> “FY 2015 Budget Request | U.S. Agency for International Development,” accessed December 13, 2014, <http://www.usaid.gov/results-and-data/budget-spending>.

<sup>150</sup> *Ibid*, 61.

groups have exerted pressure on the government to enforce this amendment, as it is far more beneficial to them to simply send food aid, rather than cash, to support local agriculture in struggling economies.<sup>151</sup> This situation is devastating for family farmers in Ghana's northern region, since local markets are highly volatile in response to episodic inputs of food aid. The devaluation of local currency has rendered inputs such as seeds, fertilizers, and fuel completely unaffordable for already economically vulnerable communities.<sup>152</sup>

Desperately trying to provide for their families and no longer able to rely on subsistence farming as a sole source of livelihood, thousands of primarily young, able-bodied men from the north have flocked to Ghana's southern coastal cities in search of employment. The stresses to migrate are reflected in the stories I heard from e-waste workers in Agbogbloshie:

You see, in Ghana here a lot of people don't have work. So when you are in the northern part, you know our main occupation is farming. And there are some people who don't know how to farm. So they used to come here to make some business to get money, you see that's why so many of them are here. Yes, that is why we are here. We are all coming here to do that. The farmer. Before you are going to farm, you have to have the farm products. Something like seeds, fertilizer, and there are so many things that you may need before you farm. So that is the main thing that you can't get, so you have to come here and do something small small. So at the end of the day you get something small.<sup>153</sup>

My life is here, it is by force for me to be here. If only I get the money, then I will leave here. I will leave here and go to my hometown. My hometown I was farming. So far there is a lot of financial problem, how to farm would be easy. That's why we come to Accra.<sup>154</sup>

In addition to food insecurity, civil strife in the northern region of Tamale between the Konkomba, Dagomba, and Nanumba ethnic groups is triggered by even petty misunderstandings that are rooted in historical rivalries, forcing thousands of migrants to flee to Accra for safety.<sup>155</sup> Repeated conflict between these three tribes is a result of land ownership and internal chieftaincy

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<sup>151</sup> *Ibid*, 95.

<sup>152</sup> *Ibid*, 122.

<sup>153</sup> Yacob. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

<sup>154</sup> Imoro Aminu. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

<sup>155</sup> Francis Yaala. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 14, 2014.

disputes.<sup>156</sup> People affected by the unrest are reluctant to return to their homes and war-ravaged communities even after these disputes have been settled, creating an even greater semi-permanent migrant population in Accra.<sup>157</sup>

### **The Migrant Population in Accra**

Ghana's southern region is the destination for 88 percent of Ghana's migrants, who comprise more than 18 percent of Accra's total population, and 26 percent of the city's population that is 15 years or younger.<sup>158</sup> An average household that has sent migrants has two of its members away, but the more migrants a household has, the more likely they are to stay away longer and go to urban areas. This points to the strong existence of urban migrant networks in cities. These primarily young men are more likely to discontinue their education following primary school to seek employment in both formal and informal sectors based in cities, including e-waste.<sup>159</sup> However, only 36 percent of migrants send remittances back to their homes, and poorer households actually receive fewer remittances than their more well-off counterparts.<sup>160</sup>

As of 2000, 43.9 percent of Ghanaians lived in a town or city with greater than 5,000 people, and if current trends continue, more than half of Ghana's population will live in urban areas by 2020.<sup>161</sup> The majority of rural to urban migrants throughout Sub-Saharan Africa settle in slums, and 72 percent of the region's urban population resides in slums. Accra is certainly no

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<sup>156</sup> Hiskias Assefa, *Coexistence and Reconciliation in the Northern Region of Ghana* (Lexington Books, 2001): 1.

<sup>157</sup> Francis Yaala.

<sup>158</sup> Charles Ackah and Denis Medvedev, "Internal Migration in Ghana: Determinants and Welfare Impacts," *International Journal of Social Economics* 39, no. 10 (2012): 4.

<sup>159</sup> *Ibid.*, 5.

<sup>160</sup> *Ibid.*, 6.

<sup>161</sup> Jacob Songsore, "The Urban Transition in Ghana: Urbanization, National Development and Poverty Reduction," *University of Ghana, Legon-Accra*, 2009, <http://pubs.iied.org/pubs/pdfs/G02540.pdf>: 8.

exception to these demographic trends, as 61 percent of the city's population lives in informal settlements.<sup>162</sup>

The recent influx of people into Accra has presented nearly insurmountable challenges to the weak metropolitan government. These include an inability to satisfy growing demands for land, provide public services, and create employment opportunities for uneducated migrants. There is no systemized land management system, and the government characterizes land as either public, private, state-owned, or customary (meaning it is managed by tribal chiefs or family heads). This makes it almost impossible for new, low-income arrivals to Accra to formally acquire land for settlement due to prohibitively high prices.<sup>163</sup> This is why such a large portion of Accra's population currently resides in deteriorating squatter settlements that are in violation of government laws regulating city planning, building code guidelines, and land ownership.<sup>164</sup> In addition, Accra has a weak waste management system, evidenced by the fact that the city does not actually have its own landfill; it uses one in Tema, located 37 kilometers away from Accra's city center.<sup>165</sup> According to Samuel Kpodo, the Director of Waste Management for the Accra Metropolitan Assembly (AMA), this creates a "lot of backlog in the market," as not all waste can be disposed of on a continuous basis. He explained that the AMA has ten zones, or sub-metros, and contracts with nine companies in the private sector to provide all waste services, meaning the government simply monitors their activities and does not actually take ownership of waste collection.<sup>166</sup>

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<sup>162</sup> *A Precarious Future: The Informal Settlement of Agbogbloshie Accra, Ghana* (The Centre on Housing Rights and Evictions, February 2004): 13.

<sup>163</sup> *Ibid.* 14.

<sup>164</sup> *Ibid.* 15.

<sup>165</sup> Samuel Kpodo. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 12, 2014.

<sup>166</sup> *Ibid.*

## Agbogbloshie

These issues come to a head in Agbogbloshie, or Old Fadama, the slum settled primarily by northerners and the primary site of e-waste dumping.<sup>167</sup> The land itself is only .12 square miles and was originally inhabited in the 1960s by the Ga ethnic group that had communal land rights.<sup>168</sup> The area eventually became uninhabitable due to excessive flooding, and the government resettled the people. Following this resettlement, the AMA dredged the surrounding Odaw River to reclaim the land and raised the level of some of the flooded areas.<sup>169</sup>

The government initially formed the Agbogbloshie settlement as part of the Non-Aligned Movement Conference of 1991 to decongest Accra and deal with the problem of hawkers. In 1993, the AMA relocated Accra's yam market to Agbogbloshie, which gradually grew into a larger wholesale food market.<sup>170</sup> Most of the produce sold is trucked down from the north, and in order to promote efficient off-loading, a reliable labor population was brought in from food producing regions in the north. The expanding food market in Agbogbloshie hosted a floating population that has grown to "one to two million people" who come to the market annually to sell their wares and leave at the end of the workday.<sup>171</sup> As more workers arrived and began to sleep near the market, the need for accommodations grew, along with a demand for mechanics and welders to maintain the trucks.<sup>172</sup> Broader structural adjustment programs (SAPs) imposed by the IMF and World Bank simultaneously drove urban wages down and prices up, forcing additional people to move out of their homes in more affluent parts of Accra to seek less

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<sup>167</sup> *A Precarious Future*, 6.

<sup>168</sup> *Ibid.*, 22.

<sup>169</sup> *Ibid.*

<sup>170</sup> *Ibid.*, 19.

<sup>171</sup> Samuel Kpodo.

<sup>172</sup> *A Precarious Future*, 19.

expensive, informal housing in the Agbogbloshie area, contributing to an already rapidly booming population.<sup>173</sup>

The Agbogbloshie food market stimulated a diverse array of wage-earning activities, making the slum a unique area of economic productivity. Housing construction is a major source of income, with materials such as timber and scrap metal coming in from the outside that are sorted and cleaned for internal resale (see Figure 6).<sup>174</sup> Other goods including leather shoes, metal vessels, and ovens are processed in small workshops and manufacturing facilities located just outside the food market (See Figure 7). Personal services include hairdressing, food production, dressmaking, and shoemaking, and many resell basic utilities such as water and sanitation, along with electricity and telecommunications.<sup>175</sup>



**Figure 6**, a woodworker sorting and cleaning timber



**Figure 7**, a metalworker creating a cooking vessel

The scrap metal business is most significant economic activity that has characterized Agbogbloshie. The Chairman of the Greater Accra Scrap Association, Abdulai Abdul

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<sup>173</sup> *Ibid.* 20

<sup>174</sup> *Ibid.* 42.

<sup>175</sup> *Ibid.* 43.

Rahamani, was originally a businessman in Tema after he migrated from the north. When he arrived in Accra, a friend told him about the burgeoning scrap metal business, and soon after, Rahamani began “repairing this and selling to those to build their homes.”<sup>176</sup> Over time, the scrap reservoir started receiving larger, more complicated materials such as refrigerators and car parts, and eventually, electronics. Rahamani reflected:

Before, we don’t know e-waste. We are dealing with scraps. Later we got to know e-waste computer when you come buy it...printers, computers. Some of the repairers in town who repaired the computers, they used to come here and ask “you have old computer?” and we ask, “what are you going to use it for?” “We need some parts” That’s why. So when we go to market scraps or anything at all, we used to buy it [the electronics] and come here and so one day you will dismantle it and use the gold and copper and others and the rest and burn it.<sup>177</sup>

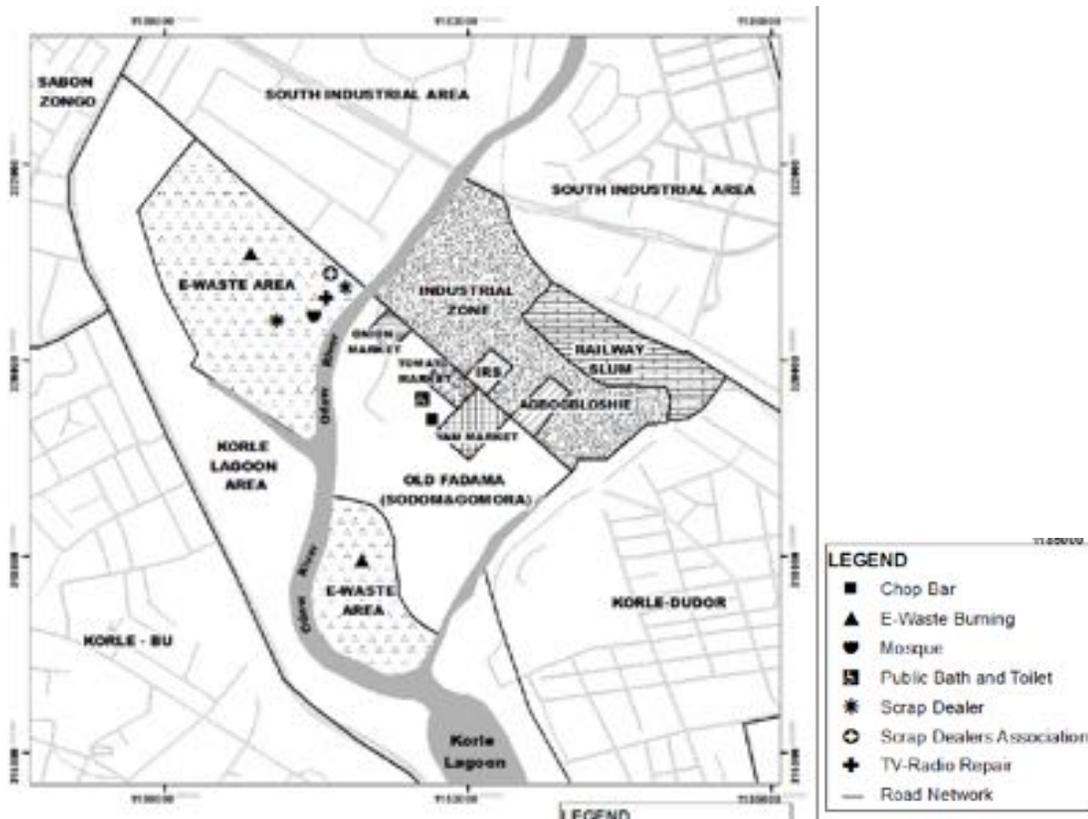
Figure 8 below is a map highlighting the layout of Agbogbloshie. Despite the fact that it is a slum, Agbogbloshie has complex social and economic networks, evidenced by many businesses and associations, the most lucrative being electronic waste. The community has refused to move despite the government’s wishes and has responded by forming civil organizations such as unions, churches, and mosques, including the Slum Union of Ghana to “fight against forced evictions, advocate the economic, social and cultural rights of slum dwellers, and form a united voice of slum dwellers across the country”.<sup>178</sup>

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<sup>176</sup> Abdulai Abdul Rahamani. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

<sup>177</sup> *Ibid.*

<sup>178</sup> Natalia Ojewska, “Ghana’s Old Fadama Slum: ‘We Want to Live in Dignity,’” *Think Africa Press*, accessed April 27, 2014, <http://thinkafricapress.com/ghana/old-fadama-slum>.



**Figure 8**, map of Agbogbloshie, where a Chop Bar (see legend) is equivalent to a restaurant; Martin Oteng-Ababio, “Electronic Waste Management in Ghana - Issues and Practices,” in *Sustainable Development - Authoritative and Leading Edge Content for Environmental Management*, ed. Sime Curkovic (InTech, 2012), <http://www.intechopen.com/books/sustainable-development-authoritative-and-leading-edge-content-for-environmental-management/electronic-waste-management-in-ghana-issues-and-practices>.

## Conclusion

A number of complex factors, including food insecurity and civil unrest, have contributed to mass migration of poor, uneducated men from the north of Ghana to Accra in search of income opportunities. However, the weak government infrastructure in place is unable to provide adequate housing and employment, leading to a thriving, illegal slum community in Agbogbloshie that relies on the informal sector to survive. However, the economic activities occurring in Agbogbloshie, the most prominent of which is e-waste, have created appalling conditions that have given this slum the title of “one of the top ten most polluted places on the

planet” in Discovery News’ most recent rankings.<sup>179</sup> The resulting public health catastrophe on the Accra government’s hands and its failed attempts to solve it will be explored in greater depth in the following chapter.

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<sup>179</sup> “Top 10 Most Polluted Places on the Planet : Discovery News,” accessed November 2, 2014, <http://news.discovery.com/earth/top-10-most-polluted-places-on-the-planet-131105.htm>.

## Chapter Three: Health Challenges Facing Agbogbloshie

### Health Conditions in Agbogbloshie

For most of human history, communicable, or infectious, diseases were the primary causes of mortality since populations existed in environments with poor sanitation, overcrowding, and malnutrition that fostered the spread of bacteria from person to person. With rising standards of living and longer lifespans due to greater access to basic resources, noncommunicable, or chronic, diseases have become more prevalent and are the main causes of morbidity in older age. The epidemiological transition, therefore, is the “shift in the main causes of death – from infectious diseases to degenerative cardiovascular diseases and cancers. It marks a fundamental change in the main determinants of health and seems to indicate the point in economic development at which the vast majority of the population gained reliable access to the basic material necessities of life.”<sup>180</sup> The traditional model of epidemiological transition that occurs over an extended period of time is most reminiscent of the experiences of European and North American countries with centuries of development from medieval times through the industrial revolution. Externally imposed pressures such as colonialism and structural adjustment programs (SAPs) have forced less-developed countries in the Global South undergo fast-paced development in a matter of decades throughout the twentieth century. As discussed in Chapter One, economic and political instability in Ghana resulting from these pressures has not allowed the majority of the country’s population to “gain reliable access to the basic material necessities of life.”<sup>181</sup> Agbogbloshie and the many slums like it throughout the developing world represents an anomaly to the progress of the epidemiological transition in that young people are suffering from both infectious and chronic diseases due to dangerous human activity.

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<sup>180</sup> Richard G. Wilkinson, “The Epidemiological Transition: From Material Scarcity to Social Disadvantage?,” *Daedalus* 123, no. 4 (October 1, 1994): 65.

<sup>181</sup> *Ibid.*



**Figure 9**, the polluted Korle Lagoon surrounding Agbogbloshie

Since Agbogbloshie is technically an illegal settlement with excessive influxes of new arrivals, there is immense overcrowding and inadequate access to clean water and sanitation. People live in wooden structures that are an average of three to four square meters and house twenty people each.<sup>182</sup> While there are also a number of public shower blocks and toilets, they are only accessible by payment, leading to widespread open defecation.<sup>183</sup> Overcrowding in Agbogbloshie allows for easy transmission of communicable diseases such as tuberculosis, acute respiratory infections, and meningitis.<sup>184</sup> Contaminated water due to excessive pollution of the Korle Lagoon and Odaw River, along with exposed water mains, leads to the contraction of water-borne illnesses including cholera, diarrheal diseases, and worm infections (see Figure 9 above).<sup>185</sup> Poor drainage following heavy rains and flooding permits mosquitos and other insect

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<sup>182</sup> Natalia Ojewska, “Ghana’s Old Fadama Slum: ‘We Want to Live in Dignity,’” *Think Africa Press*, accessed April 27, 2014, <http://thinkafricapress.com/ghana/old-fadama-slum>.

<sup>183</sup> *A Precarious Future: The Informal Settlement of Agbogbloshie Accra, Ghana* (The Centre on Housing Rights and Evictions, February 2004), 29.

<sup>184</sup> Elliott D Sclar, Pietro Garau, and Gabriella Carolini, “The 21st Century Health Challenge of Slums and Cities,” *The Lancet* 365, no. 9462 (March 2005): 902.

<sup>185</sup> *Ibid.*

vectors to breed in ditches filled with standing water, spreading diseases such as malaria, dengue, and yellow fever.<sup>186</sup> In addition, low vaccination rates enable easily preventable diseases like measles, diphtheria, and whooping cough to spread throughout the community.<sup>187</sup> The prevalence of these diseases is aggravated by malnutrition, which is widespread among the Agbogbloshie community, particularly in children whose parents neither have adequate time nor resources provide them with healthy food due to the demands of market trading and other informal occupations.<sup>188</sup>

The Ghana Coalition of NGOs in Health, the umbrella body that coordinates NGO efforts in healthcare delivery throughout Ghana, has worked extensively with the Agbogbloshie community. They described the consequences of the poor sanitary conditions they observe on a frequent basis:

Some don't, for a start, even have clothes. So they can't afford, so they can go on with one clothes for a long time. But that's the issue. Some don't even have regular bath because where they are, they have to pay for where they wash themselves and they may not have money. And then, also, they eat just anything, they don't care about the nutrition aspect, just to fill the stomach. They end up having rashes, diarrhea, malaria, sores around their bodies.<sup>189</sup>

HIV/AIDS and other sexually transmitted diseases are another problem inherent to life in Agbogbloshie. There is widespread prostitution as a source of income, and everyone, including young women, must sleep in insecure, open housing where they are at risk of sexual assault.<sup>190</sup>

Like other slums in the developing world, Agbogbloshie not only has an enormous burden of infectious disease, but is also plagued by the noncommunicable diseases that are associated with the hazards of urban life. Unsafe driving practices on cars and motorcycles that

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<sup>186</sup> *Ibid.*

<sup>187</sup> *Ibid.*

<sup>188</sup> Charity Acheampong. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

<sup>189</sup> Millicent Akoto. Interview by Gabriella Meltzer. Tape Recording. Kaneshie, Ghana. May 9, 2014.

<sup>190</sup> *Ibid.*

are commonplace in Accra, along with the operation of heavy machinery that is required in the local scrap metal and timber industries, leads to many incidences of unintentional injuries.<sup>191</sup> Poor diet resulting from inadequate access to nutritious foods causes people to develop chronic conditions including diabetes and cardiovascular disease for which they cannot access treatment. The perpetual financial, physical, and psychological stress of extreme poverty also drives people to turn to domestic violence and organized crime. All of the above are epidemiologically considered chronic diseases that compromise community health and wellbeing.<sup>192</sup>

The greatest source of chronic and acute health issues in Agbogbloshie, however, comes from the practices surrounding the local electronic waste industry and its effects on the immediate environment. In order to earn petty cash for their families to survive in Agbogbloshie's harsh conditions, many young men and boys in need of work take apart electronics to collect their wires and recover and sell the small amounts of precious metals inside, including gold, silver, and copper, as shown in Figure 10 below.



**Figure 10**, an e-waste worker threading extracted copper wire

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<sup>191</sup> Elliott D Sclar, et al., "The 21st Century Health Challenge of Slums and Cities," 903.

<sup>192</sup> *Ibid.*

The Ghana Environmental Protection Agency's Department of Compliance and Enforcement is charged with combatting this issue, and its Director, Lambert Faabeloun, explained these hazardous processes. To effectively isolate valuable metals, e-waste workers have found it easiest to burn unwanted materials, such as rubber, to oxidize wires and incinerate plastics and scrap metals.<sup>193</sup> These components, particularly plastic, contain carcinogenic compounds, lead, and flame-retardants that are released into the air in the form of smoke. They are not only inhaled by e-waste workers, but also by uninvolved community members, including women and girls who sell water in plastic bags for male workers to drink and use to extinguish the fires (See Figure 11).<sup>194</sup> Small children who come in contact with and ingest organic and electronic waste not only contract not only diarrheal diseases and acute gastroenteritis, but also experience long-term poisoning from materials such as lead and other heavy metals.<sup>195</sup>

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<sup>193</sup> Lambert Faabeloun. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 13, 2014.

<sup>194</sup> *Ibid.*

<sup>195</sup> Charity Acheampong.



**Figure 11**, women and girls near burning e-waste



**Figure 12**, cattle grazing in the waste

Childhood asthma is a major problem in Agbogbloshe since children inhale the thick smoke that is released from the burning materials. Pregnant women without adequate prenatal medical attention who are exposed to the toxic chemicals released by the e-waste dismantling process frequently give birth to infants with jaundice and other neonatal health problems that inhibit long-term development.<sup>196</sup> In addition, animals such as sheep and cattle, which traditionally are relied upon for nutrition and manual labor, are forced to graze among the waste since there is no uncontaminated land (see Figure 12 above). The animals are thus poisoned, making them unable to provide meat, milk, or raw materials to the local population.

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<sup>196</sup> *Ibid.*

## Government Efforts to Address E-Waste

The Accra Metropolitan Assembly (AMA) has acknowledged the devastating effects of e-waste and other polluting activities on the Agbogbloshie community and has proposed drastic measures to address the issue. The most controversial proposal is to relocate the Agbogbloshie food market and anyone associated with it to Adzen Kotoku in the Ga West District, moving people away from the polluted area.<sup>197</sup> Once the people are ejected from Agbogbloshie and its temporary structures are destroyed, then the government would then be able to dredge the lagoon through the Korle Lagoon Ecological Restoration Project (KLERP) to allow water to flow through the river once again. However, the government has faced intense opposition from human rights activists, politicians trying to receive voter support, and international organizations like UN Habitat, the United Nations program for human settlement.<sup>198</sup> These bodies feel that rather than evict people, governments should upgrade preexisting slums and install necessary public works systems and livelihood opportunities. UN Habitat has stated:

As a result of land and housing distortions...the urban poor and large segments of low and low-to- medium income groups have no choice but to rely on informal land and housing markets for access to land and shelter. This situation has led to the rapid spatial expansion of irregular settlements. Informal land and housing delivery systems remain the only realistic alternative for meeting the needs of low-income households.<sup>199</sup>

In light of these powerful challenges to eviction and dredging efforts, the AMA has aimed to find less disruptive solutions to engage the Agbogbloshie population in improving the detrimental impact of its involvement in electronic waste. According to Samuel Kpodo, the Director of Waste Management at the AMA, the government would ideally like to recruit e-waste workers to register with the government's association and act as microenterprises under

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<sup>197</sup> Francis Yaala. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 14, 2014.

<sup>198</sup> "UN-Habitat at a Glance – UN-Habitat," accessed November 8, 2014, <http://unhabitat.org/about-us/un-habitat-at-a-glance/>.

<sup>199</sup> *A Precarious Future*, 18.

the private companies that are contracted by the municipality to manage solid waste collection and disposal in Accra.<sup>200</sup> Mr. Kpodo believes that the main obstacle to reaching this solution has been that the people in Agbogbloshie are unable and unwilling to come together to form an association. Though he did note the government's bureaucratic delays, Mr. Kpodo did not mention any efforts to cooperate with the preexisting Greater Accra Scrap Dealers Association based in Agbogbloshie that has roughly 1,500 members, all of whom are engaged in e-waste.<sup>201</sup> The more accurate reason for the lack of substantive progress on this front may be that if an official association were to be established between Agbogbloshie workers and the government, this would formalize their stay in the area and make it increasingly difficult for a potential future eviction.<sup>202</sup>

As negotiations continue regarding possible long-term options, many branches of the local government, particularly the Environmental Health Division of the AMA Department of Public Health, have undertaken numerous initiatives to educate the people in Agbogbloshie on the environmental health dangers of their current practices. Government officials meet with local leaders, who relay information to their constituents regarding the consequences of burning e-waste.<sup>203</sup> Officials advise e-waste workers on safer recycling practices, including the need to wear protective body gear, ensure their surroundings are clean, and avoid open burning and the dumping of leftover materials into the lagoon.<sup>204</sup> The AMA administers health screenings with the support of the EPA, local hospitals, and NGOs to test for blood levels of toxic materials like lead, cadmium, and mercury.

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<sup>200</sup> Samuel Kpodo.

<sup>201</sup> *Ibid.*

<sup>202</sup> *Ibid.*

<sup>203</sup> Francis Yaala.

<sup>204</sup> Fritz Anan. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 14, 2014.

However, these programs' setbacks seem to outweigh their accomplishments due to managerial inefficiencies and barriers to mutual understanding. Francis Yaala, the Chief Environmental Health Officer at the AMA Department of Public Health, explained the reasons for the stalemate in greater depth, reflecting deep-seated cultural rifts and social biases held by southern Christian urbanites surrounding northern Muslim migrants:

When you go to the northern region of Tamale's capital, the predominant religion there is Islam. And [I] will say that for their religion, the secular education is something that they frown upon. Western education is forbidden. Education has never been a part of their life. So their understanding of issues is minimal... They're always thinking of today, not tomorrow. Education is a long time investment. But they have not gone to school, they do not see education as anything... we are all Catholics. So we know the value of education. They don't see anytime there is an outbreak of anything, let's say cholera and so forth, it is traced to their daughters because of their way of living. It's just a joke, government is tired of explaining.<sup>205</sup>

The educational and socioeconomic disparities between northern and southern Ghanaians that impact the interactions between the Accra bureaucracy and Agbogbloshie migrants is a direct consequence of the historical lack of investment of colonial, followed by native, ruling parties in Ghana's northern region.

It comes as no surprise that all stakeholders interviewed for this study touched on the theme of livelihood, arguing that as long as there are no other opportunities for low-income migrants to earn a living either in Agbogbloshie or their villages of origin, they will continue to rely on electronic waste to feed their families. The Ghana Coalition of NGOs in Health emphasized that since many people suffer from acute diseases like malaria or cholera that pose an immediate threat to survival, workers and their families are not going to seriously consider the long-term debilitating conditions caused by exposure to e-waste with which they are less familiar and whose symptoms do not immediately present themselves as life-threatening.<sup>206</sup> Essel Ben

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<sup>205</sup> Francis Yaala.

<sup>206</sup> Millicent Akoto.

Hagan of the Council for Scientific and Industrial Research argued, “if you’re advising them to stop the way they’re doing things right now, what is the alternative? We need to then train them on a better way of doing it without injuring themselves, including the atmosphere and the soil where they are operating.” However, Yaala was skeptical as to whether e-waste workers even save the money they make from e-waste to put towards their education or if they simply spend it on personal services like a “seamstress or hairdresser” or paying a dowry to marry.<sup>207</sup>

Speaking to e-waste workers provides a vastly different perspective on the issue; their reflections point to their feelings of neglect by the Ghanaian government and do not comport with stereotypes held by natives of Accra that migrants are lazy and lack motivation to improve their lot and achieve social mobility. As one e-waste worker said:

Government should come out and do something about it. In addition, those who are living there you have to create jobs for people, for men and women. If government can find people to come inside the market advising people or input so that their job can become better, that would have been better for us. Something like, because of the poverty, that’s why they are coming there. They don’t know how they will do in when you look at some of them, after they write junior high school exams they used to come here for business so they can get something small to continue their education. All these things are the problem, that’s why they are coming here. I am married and have two children. E-waste is good for me because through that work I am getting money to feed them, to pay their school fees, to solve my problems for my family.<sup>208</sup>

In addition to these prevailing cultural misunderstandings, Ghanaian institutions that should be providing public services do not operate independently of “outside interferences” and are thus unable to implement policies that are already in place.<sup>209</sup> These bylaws, according to Samuel Kpodo of AMA Waste Management, state that it is an offense to dump waste elsewhere because it must be given to the Assembly and Municipality to manage. However, these laws are not well enforced because people are dumping waste “at the blind side” of the Assembly, reflecting the

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<sup>207</sup> Francis Yaala.

<sup>208</sup> Yacob. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

<sup>209</sup> Francis Yaala.

weak, inefficient governing systems that have been in place for the decades since Ghana's independence from the British.<sup>210</sup>

### **Access to Healthcare**

Once people in Agbogbloshie contract the various infectious and chronic illnesses associated with e-waste and the slum's general environment, it is difficult for them to access quality healthcare due to the nature of Ghana's healthcare system. The Population Council is an international nonprofit that conducts population-oriented research in areas including reproductive health, HIV/AIDS, poverty, and gender and youth.<sup>211</sup> Dr. Placide Tapsoba is the Country Director for the Population Council's branch in Ghana, which has been in operation since 1957. Dr. Tapsoba is highly knowledgeable on Ghana's healthcare system, its recent reforms, and how this structure impacts access to care and health behavior in Ghanaian society. In 2004, Ghana established a National Health Insurance Scheme (NHIS) to replace out-of-pocket fees at time of service.<sup>212</sup> NHIS is carried out through a "hub-satellite model of a national fund and authority (the hub) that regulates and subsidizes a national network of community-based health insurance schemes (the satellites)."<sup>213</sup> Ghanaians may choose between three different types of insurance plans, District Mutual Health Insurance Schemes (DMHIS), private mutual insurance schemes, and private commercial insurance schemes. DMHIS is the most popular of the three. Each DMHIS is responsible for accepting and processing memberships, collecting premiums, and processing claims filed by those insured.<sup>214</sup> Due to the government's difficulties in outreach and

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<sup>210</sup> Samuel Kpodo

<sup>211</sup> *Ibid.*

<sup>212</sup> "Ghana | Joint Learning Network for Universal Health Coverage," accessed November 10, 2014, <http://programs.jointlearningnetwork.org/content/ghana>.

<sup>213</sup> *Ibid.*

<sup>214</sup> Gissele Gajate-Garrido and Rebecca Owusua, *The National Health Insurance Scheme in Ghana: Implementation Challenges and Proposed Solutions* (International Food Policy Research Institute (IFPRI), December 2013).

poor implementation, only 33 percent of the entire population was covered by an insurance scheme by the end of 2011.<sup>215</sup>

Unfortunately, less than two percent of Ghana's indigent population is enrolled in an insurance plan, whereas 28 percent of the entire population lives below the poverty line.<sup>216</sup> The indigent sector of the population is characterized by "a lack of employment, a visible source of income, a fixed place of residence, and an identifiable consistent support from another person."<sup>217</sup> Reasons for uninsurance among the poor include lack of public awareness and education around health insurance, long distances to registration centers, and negative perceptions of the National Health Insurance Scheme.<sup>218</sup> The means of identifying those who are considered indigent in collaboration with local communities is vague, and there is widespread corruption in the registration system.<sup>219</sup> The main issue with health insurance that affects families in Agbogbloshie is that informal sector workers, such as those involved in e-waste, are not technically considered indigent. While they cannot afford to pay premiums, they do not qualify for premium subsidies.<sup>220</sup> Premium subsidies are only available to those three percent of the urban poor who work in the formal sector, whereas beneficiaries in the informal sector must pay an annual flat rate of 8 to 12 Ghanaian cedis (3.7 to 5.5 USD) per person, an unaffordable expense for the majority of this population.<sup>221</sup>

Most of the barriers that poor people in the north encounter in terms of accessing quality healthcare have translated to their experiences as migrants in the urban south. Dr. Tapsoba explained that for rural people, impediments are primarily geographical, financial, and cultural.

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<sup>215</sup> *Ibid.*

<sup>216</sup> *Ibid.*

<sup>217</sup> *Ibid.*

<sup>218</sup> *Ibid.*

<sup>219</sup> *Ibid.*

<sup>220</sup> *Ibid.*

<sup>221</sup> *Ibid.*

Poor people must travel long distances from their villages to find healthcare services and that “in the north of Ghana, sometimes they have to sell goods, sell the chicken, in order to have the minimum penny to be able to access [care] financially.”<sup>222</sup> Due to cultural predilections, people wait until they become seriously ill before even considering treatment. Dr. Tapsoba elaborated:

When a child has diarrhea, they go and get some herbs. And they go to a healer and they say you have done something wrong to the ancestor. And in the morning you go and give eggs to the ancestor. But diarrhea doesn't live long. By the second day the child is getting really bad, on the third day he is even dying. So even when they start rushing the child to do whatever they can do, the last resource is the clinic. And then to do that, they have to say they don't have money. They have to wait for the market day to sell goods to have a little bit of money to travel to the clinic. By the time they go, it is too late. The child dies. And you get yelled at by the providers because you didn't bring, and they don't understand. The clinic becomes a place where you get yelled at, and second of all they don't help you because the child is dying anyway and you were thinking they were the last saviors.<sup>223</sup>

Staff members at Princess Marie Louise Children's Hospital, the sole public children's hospital in Accra that sees patients from all parts of the city, including Agbogbloshie, have observed cultural and financial barriers to care among the urban poor.<sup>224</sup> The majority of the hospital's patients are of low socioeconomic status since those who can afford higher quality care prefer to attend private hospitals for shorter wait times and greater resources. Most of Princess Marie Louise's patients are “unemployed, petty traders, and fishermen,” so they are not covered by health insurance.<sup>225</sup> Charity Acheampong, the Chief Emergency Unit Nurse at the hospital, explained the many challenges that arise when the staff tries to serve the Agbogbloshie community. She said that if patients do not have health insurance, they are unable to pay for necessary treatments, including medications. While the hospital does have a “needy fund” to provide some of the services within the facility, it is unable to help patients pay for drugs that are

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<sup>222</sup> Placide Tapsoba.

<sup>223</sup> *Ibid.*

<sup>224</sup> Charity Acheampong.

<sup>225</sup> *Ibid.*

not stocked or treatments that are not performed within the hospital itself.<sup>226</sup> There has also been a history of noncompliance among parents, who immediately want their children to be discharged once they are stabilized because they are afraid of accruing the costs associated with not being enrolled in the National Health Insurance Scheme. They feel that a traditional healer in the local community or in the north, rather than a physician in the hospital system, can adequately give long-term treatment.<sup>227</sup> One can observe the reliance on traditional herbal medicine among community members based on the strong presence of herbalists in Agbogbloshie (see Figure 14).



**Figure 14**, an herbalist's stand just outside Agbogbloshie

Families who insist on making the journey back to the north against doctors' orders often lose their children along the way. Acheampong recalled the story of one particular family:

I think like three year ago there is this asthmatic patient, a known asthmatic patient who used to come here. She always come here for review. Like you ask them to come for review in two weeks time....They were living in the slum close to where they dump this electronic waste. You know they are always dumping the things, so the area has a really

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<sup>226</sup> *Ibid.*

<sup>227</sup> *Ibid.*

thick feeling, like smoke around the place. The boy was getting attack every now and then, the place was no good for them. And we tried to explain to the mother to relocate, but she had like five children and she was a single mother. Nobody knew where the father was. We tried to explain to this woman to relocate, but then she didn't. One morning they rushed the boy with severe form of asthmatic attack. We did all we could, we resuscitate, we gave oxygen, but it was too late. Eventually he passed away and it was so hard. It's something always fresh on my mind because I believe if the woman had money or if they had a father or somebody or support from someone or if they had relocated from the area because the boy is asthmatic.<sup>228</sup>

These cultural conflicts between native populations who believe in nonclinical causes of illness and traditional healing methods versus modern medical professionals with Western training is reflective of much larger conversations in medical anthropology. This discipline explores the constant negotiation between competing perceptions of and responses to illness, which is echoed in clinical and public health stakeholders' stories that describe the Agbogbloshie migrants' superstitious beliefs surrounding the causes of their illnesses and their mistrust of local clinics and refusal to seek urgent clinical care. Prominent medical anthropologist Arthur Kleinman's explanatory model of illness explains:

In the same sense in which we speak of religion or language or kinship as cultural systems, we can view medicine as a cultural system, a system of symbolic meanings anchored in particular arrangements of social institutions and patterns of interpersonal interactions. In every culture, illness, the responses to it, individuals experiencing it and treating it, and the social institutions relating to it are all systematically interconnected. The totality of these interrelationships is the health care system. Put somewhat differently, the health care system, like other cultural systems, integrates the health-related components of society. These include patterns of belief about the causes of illness; norms governing choice and evaluation of treatment; socially-legitimated statuses, roles, power relationships, interaction settings, and institutions.<sup>229</sup>

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<sup>228</sup> *Ibid.*

<sup>229</sup> Arthur Kleinman, *Patients and Healers in the Context of Culture: An Exploration of the Borderland between Anthropology, Medicine, and Psychiatry*, Comparative Studies of Health Systems and Medical Care, no. 3 (Berkeley: University of California Press, 1980): 24.

## **Conclusion**

The illegally settled Agbogbloshie slum community suffers from both acute and chronic illnesses as a result of the disease-inducing environment that is characterized by inadequate access to basic resources such as sanitation, healthcare, and employment, as well as the constant menace of the e-waste industry. When it comes to addressing the environmental health e-waste crisis, despite numerous efforts, the government and local community have yet to reach a mutually beneficial solution. This lack of progress stems from government's misunderstanding of urban migrants' livelihood needs that is further influenced by prevailing negative biases towards Muslims from the north held by Christians in the south. These cultural divides also play a prominent role in terms of alleviating the health problems caused by e-waste, since there are conflicting notions of proper care based on competing cultural practices of medicine. Bearing in mind the array of factors that complicate the e-waste problem both within and outside of Ghana, the following chapter presents a number of organizations whose actions are contributing to a potential solution in the not so distant future.

## Chapter Four: Current Efforts

An immediate and comprehensive solution to the problem of e-waste in Agbogbloshie is impossible given the historical and contemporary complexities of the issue. However, this has not prevented an array of international nonprofit organizations, state bodies, and private companies from implementing progressive activities to bring about an end to the crisis. These bodies work at all levels of the electronic waste chain, from consumers to policymakers.

The Basel Action Network (BAN) is the most prominent nonprofit that works to influence international cooperation and political action against the global trade of toxic waste. The organization undertakes a number of activities to influence policymaking on e-waste in high-level bodies, and also promotes awareness among consumers and activists worldwide. In order to disseminate information to journalists and to expose the general public to the atrocities of illegally exported electronic waste, BAN publishes newsletters, manages a database, and produces documentaries based on extensive ongoing field research that is featured on nationally viewed programs like “60 Minutes.”<sup>230</sup> The United Nations Environment Program (UNEP) recognizes BAN as the leading organization dedicated to e-waste, and it is the only NGO invited to international meetings and policy deliberations; its founder and CEO, Jim Puckett, is given the opportunity to candidly address diplomats as an expert on the topic to push for stronger legislative enforcement.<sup>231</sup> The Basel Action Network is also engaged in a number of worldwide campaigns, including promoting the ratification of the Basel Ban Amendment, Green Shipbreaking to ensure the removal of hazardous waste from US export ships, and the E-Waste Stewardship Project.<sup>232</sup> The E-Steward certification program is designed for responsible recyclers who are willing to manage their e-waste according to the Basel Convention guidelines

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<sup>230</sup> “Basel Action Network (BAN) : About,” accessed February 25, 2014, <http://www.ban.org/about/>.

<sup>231</sup> Sarah Westervelt. Interview by Gabriella Meltzer. Tape Recording. Chicago, Illinois. July 9, 2014

<sup>232</sup> *Ibid.*

and keep hazardous waste out of developing countries.<sup>233</sup> The program facilitates an “independently audited certification program” that has been granted to over forty responsible electronics recyclers across the country who pledge to only use environmentally and socially responsible means to process e-waste.<sup>234</sup> Once recyclers have this certification, major corporations, environmental groups, and city governments endorse them to process their e-waste.<sup>235</sup>

One such recycler is Belmont Technology Remarketing (BTR), an IT asset management company that provides reuse and recycling services to corporate end-user clients.<sup>236</sup> Belmont has a number of certifications, including ISO 9001, ISO 14001, OHSAS 18001, R2 (from the US Environmental Protection Agency), and E-Stewardship.<sup>237</sup> The company has “full environmental compliance staff who audit [their] downstream supplies to make sure they are managing all aspects of electronic recycling services to a level that meets and exceeds these standards.”<sup>238</sup> However, E-Stewardship, along with all other necessary certifications, is very expensive. Certified parties are required to pay the costs to set up and implement an effective management system in compliance with the highest standards, hire consultants to oversee the process, pay a licensing and marketing fee that is determined on a sliding scale based on revenues, and pay an initiation fee that is 50 percent of the marketing and licensing fee.<sup>239</sup> These costs can be upward of \$500,000 and for this reason, many recycling companies have come to resent BAN and are

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<sup>233</sup> *Ibid.*

<sup>234</sup> “The E-Stewards Story - E-Stewards,” accessed November 16, 2014, <http://e-stewards.org/about-us/the-e-stewards-story/>.

<sup>235</sup> “Benefits of Certification - E-Stewards,” accessed November 16, 2014, <http://e-stewards.org/learn-more/for-recyclers/overview/benefits-of-certification/>.

<sup>236</sup> Eric Dorn. Interview by Gabriella Meltzer. Tape Recording. Chicago, IL. September 8, 2014.

<sup>237</sup> *Ibid.*

<sup>238</sup> *Ibid.*

<sup>239</sup> “Estimate Costs,” *E-Stewards*, accessed November 16, 2014, <http://e-stewards.org/learn-more/for-recyclers/becoming-certified/estimate-costs/>.

wary as to whether these fees go primarily towards the organization's research and advocacy initiatives or its administration, publicity, and employees' salaries.<sup>240</sup>

Belmont Technology Remarketing is owned by a joint venture between Belmont Trading Company and Sipi Metals, a Chicago-based copper, brass, and bronze manufacturer and precious metals refiner that has been refining electronic scrap since the 1960s.<sup>241</sup> Unlike e-waste workers in Agbogbloshie who expose themselves to toxic materials and release noxious chemicals into the environment through burning, Sipi Metals' employees wear highly protective gear, including goggles, gloves, masks, and ear protection.<sup>242</sup> Rather than burning cables, employees operate advanced machinery such as cable stripping and cable ventilation machines that separate the materials within the electronics and contain hazardous materials in a highly confined and controlled area. These safe practices are shown in Figures 15 and 16 below.



**Figure 15**, Sipi employees operating refining machinery



**Figure 16**, slag produced from recycled materials

<sup>240</sup> George Phillips. Interview by Gabriella Meltzer. Tape Recording. Chicago, IL. July 31, 2014.

<sup>241</sup> *Ibid.*

<sup>242</sup> Daniel Kramer. Interview by Gabriella Meltzer. Tape Recording. Chicago, IL. June 19, 2014.

Belmont Trading Company is part of a worldwide network of electronics management firms, and its counterpart in Europe and Africa is known as Datec Technologies. Due to its closer geographic proximity to e-waste destinations in the developing world, one of Datec's major responsibilities is to buy electronic scrap these countries and bring it back to roughly 16 different facilities across Europe to be properly treated.<sup>243</sup> Daniel Kramer is Datec's Global Account Manager in Sweden, and has traveled to Ghana many times to analyze the e-waste situation there. Though it would improve the health of the Agbogbloshie community to simply export the waste and ensure its proper disposal, Kramer has acknowledged:

Every port has a right to deny taking material but obviously then what happens is that in the same day you would do that you would have 3.5 thousand employees and their families that they're providing for that wouldn't get any money. And I think that's a big issue because how then would the government support those. I mean, you saw the area around Agbogbloshie. There are families living there, they have everything they own there. And if they all of a sudden say that if they go to the port and there are no materials there, they wouldn't be able to support themselves, they wouldn't be able to support their families. So you would have a humanitarian crisis and the e-waste catastrophe to deal with.<sup>244</sup>

In addition, Kramer explained that while Datec could establish a large state-of-the-art recycling facility in Agbogbloshie or at the port in Tema, it would only be able to hire roughly 100 people to manage it and leave 3,000 people unemployed.<sup>245</sup> If the government were to enforce stricter controls on the handling of e-waste, it would be too expensive for those processing the materials in Agbogbloshie to afford advanced protective gear and machinery.<sup>246</sup> Therefore, Datec, along with other parties including the Ghana Environmental Protection Agency, multinational corporations, and other nonprofits, have conducted trainings for e-waste workers in

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<sup>243</sup> *Ibid.*

<sup>244</sup> *Ibid.*

<sup>245</sup> *Ibid.*

<sup>246</sup> *Ibid.*

Agbogbloshie on safer practices such as wearing basic protective gloves and containing toxic materials rather than openly burning them.<sup>247</sup>

The Blacksmith Institute is a well-established nonprofit working alongside companies like Datec to alleviate the pollution caused by electronic waste in Agbogbloshie. Blacksmith's main project has been the construction of a "comprehensive e-waste facility that will also serve as a learning institute regionally, since e-waste recycling is a growing issue in many West African countries and in other cities across Ghana."<sup>248</sup> According to Kira Traore, the organization's Africa Program Director, this facility will initially contain four different wire-stripping machines to avoid the burning of plastic-coated wires, along with four shipping containers for security, office, and storage space.<sup>249</sup> Blacksmith is also hosting financial trainings for the group of people managing the facility to ensure the enterprise's sustainability.<sup>250</sup> The nonprofit has many partners in this project's execution, including the Ghana EPA (which will provide electricity to the facility), GreenAd Ghana, the Greater Accra Scrap Dealers Association (whose members will run the facility), and National Youth Authority (which owns the land).<sup>251</sup> Traore shares Kramer's view of the e-waste industry's economic benefits for the local community, but their views differ with regards to the facility's impact on employment:

This is a huge opportunity for developing countries. So we in no way want to stop activities, we want to help bring the infrastructure and education needed to cleanly recycle and for people to be able to protect their families and environments. I think that shutting down or maintaining the illegal status of informal recycling would only worsen the problem by bringing it more underground. People would recycle in their homes, for instance, instead of a centralized place, which would be even worse. Taking advantage of a new industry and building sustainable recycling practices can have huge economic benefits.<sup>252</sup>

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<sup>247</sup> *Ibid.*

<sup>248</sup> Kira Traore. Interview by Gabriella Meltzer. Tape Recording. Chicago, IL. August 5, 2014.

<sup>249</sup> *Ibid.*

<sup>250</sup> *Ibid.*

<sup>251</sup> *Ibid.*

<sup>252</sup> *Ibid.*

Traore argued that although only between 10 and 20 people will initially be hired, the people who currently burn wires and sell the remaining copper will continue to collect them, but sell them directly to GASPA at an increased rate.<sup>253</sup> She said that while some “middlemen” will be unemployed, the average e-waste worker will see increased incomes, and only about 200 of the 5000 people working in the market are actually burning wires.<sup>254</sup> Though Blacksmith’s model is ideal in theory, Kramer’s skepticism seems highly valid. Based on extensive historical and contemporary analysis, it appears that the Accra municipality does not have a strong track record of employment opportunity provision for the potential “middlemen” in Agbogbloshie who would lose their source of livelihood. Secondly, according to its Chairman, GAPSA has roughly 1,500 members, so it seems unlikely that only 200 are involved in the burning of wires.<sup>255</sup> It is more plausible that the Association does not report its true numbers to the government and nonprofits in order to garner financial and political support, as there is still extensive wire burning occurring in Agbogbloshie that GAPSA’s leadership denies.

Along with organizations that work on the international stage to combat the transportation and hazardous breakdown of e-waste, there are a number of innovative enterprises that target the producer and consumer populations in the United States to ensure that electronics are sent to responsible recyclers. The Electronics TakeBack Coalition, a partner of the Basel Action Network, is a nonprofit that promotes “Individual Producer Responsibility,” meaning that producers must take financial and physical responsibility for their products and resulting waste throughout the entire product’s life cycle.<sup>256</sup> Therefore, manufacturers are incentivized to design their products to be less toxic and less expensive to recycle, giving them a competitive

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<sup>253</sup> *Ibid.*

<sup>254</sup> *Ibid.*

<sup>255</sup> Abdulai Abdul Rahamani. Interview by Gabriella Meltzer. Tape Recording. Accra, Ghana. May 16, 2014.

<sup>256</sup> “About Us – Electronics TakeBack Coalition,” accessed October 7, 2014, <http://www.electronicstakeback.com/about-us/>.

advantage.<sup>257</sup> The Electronics TakeBack Coalition has also encouraged manufacturers to establish and promote voluntary take back programs, whereby customers are able to return their products to the manufacturer to guarantee they are recycled properly.<sup>258</sup>

Since trade and exports is a federal domain while waste management is administered on the local level, states are playing an increasingly large role in encouraging responsible electronics recycling. For instance, the California Department of Resources Recycling and Recovery's (CalRecycle) Covered Electronic Waste Payment System pays recycling companies to process covered electronic waste generated by California sources.<sup>259</sup> The State Board of Equalization administers the e-waste recycling and the California Department of Toxic Substance Control "enforces the requirements of California statute and regulations relating to the management of universal or hazardous waste."<sup>260</sup> The California e-waste fee is imposed on the retail sale or lease of "covered electronic devices," meaning those with a video display device containing a screen greater than four inches, measured diagonally.<sup>261</sup> These include computer monitors, laptop computers, televisions, portable DVD players, and tablets.<sup>262</sup>

A small startup called ecoATM has taken a uniquely innovative approach to addressing the export of e-waste from the United States to developing countries such as Ghana. ecoATM has built automatic kiosks with the ability to determine the value of a user's old phone, tablet, or MP3 player and pay the consumer in cash immediately upon deposit.<sup>263</sup> The entire process takes roughly four to five minutes, beginning with identity verification using a government-issued ID and unique thumbprint. This is followed by a scan and a series of tests to evaluate the

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<sup>257</sup> *Ibid.*

<sup>258</sup> *Ibid.*

<sup>259</sup> CalRecycle. Interview by Gabriella Meltzer. Tape Recording. Philadelphia, PA. September 9, 2014.

<sup>260</sup> *Ibid.*

<sup>261</sup> *Ibid.*

<sup>262</sup> *Ibid.*

<sup>263</sup> Amy Rice. Interview by Gabriella Meltzer. Tape Recording. Philadelphia, PA. November 5, 2014.

functionality of the electronic device. Lastly, the machine gives the consumer an offer that he or she is able to accept or decline, after which cash is dispensed or the electronic is returned to the user.<sup>264</sup> Amy Rice, ecoATM's Director of Public Relations and Communications, described the benefits of this business model:

There are three major benefits to ecoATM. First, the convenience for consumers for having an ecoATM near them. Second, the immediacy of the transaction. There is no shipping and waiting for a check, and a person is not stuck with store credit. Lastly, because ecoATM holds Responsible Recycling (R2) and ISO14001 certifications, consumers can be rest assured their device will be recycled responsibly or re-used.<sup>265</sup>

As of October 30, 2014, ecoATM has placed 1,510 kiosks in shopping malls and large retailers across the country.<sup>266</sup> These machines have recovered 879,000 pounds of devices that otherwise would have been exported to communities such as Agbogbloshie.<sup>267</sup> Since 2008, cell phone recycling rates have increased from three percent to 20 percent.<sup>268</sup> Not only is ecoATM providing a financial incentive for consumers to recycle their used electronic devices, but the company is also educating laypeople and potential future activists on the harmful destinations of their e-waste should they choose to simply throw it away. If ecoATM's model expands globally, it could successfully connect its efforts and partner with the other worldwide advocacy, legislative, research, and programmatic stakeholders interviewed in this study.

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<sup>264</sup> *Ibid.*

<sup>265</sup> *Ibid.*

<sup>266</sup> *Ibid.*

<sup>267</sup> *Ibid.*

<sup>268</sup> *Ibid.*

## **Conclusion: Potential Solutions**

The aforementioned international public and private organizations are making substantial headway to address the pandemic of electronic waste in slums across the developing world. However, it is my understanding based on this analysis that sustainable solutions must come from within Ghana and respond to the unique historical and contemporary circumstances that fuel the e-waste problem in Agbogbloshie. The following are my own recommendations to Ghanaian leaders.

Ghana's newly established Consumer Protection Agency should enforce consumer protection laws that pertain specifically to electronics. These protections would not only allow buyers to test the functionality of electronics at their time of purchase, but would also decrease the overall demand among Ghanaian consumers for used, and likely broken, electronics, which is currently fueling the profitability of the e-waste industry in Ghana. This process would also ensure that electronic waste is collected by a central authority and reaches a destination where its closely monitored recycling and dismantling does not harm the environment or human health.

The driving force behind migration from the rural north to urban south is a lack of income opportunities in Ghana's agricultural sector. Therefore, the Ghana Agricultural Insurance Pool should add financial insurance as a result of global market fluctuations to its current insurance product offerings. While unpredictable climate and drought are important causes of crop failure, farmers' inability to afford essential agricultural inputs due to insurmountable competition on the global food market is the main reason they are impoverished. The government should also invest in improved, appropriate technologies and encourage widespread, grassroots financial literacy programs to ensure that local markets remain competitive and that farmers are getting the greatest return possible on their investments.

It is impossible for the government to restrict migrants from flooding Accra, but it should nonetheless provide opportunities for these uneducated young men to either find employment outside of the informal electronic waste sector, or formalize the electronics recycling business itself to become more integrated with the formal sector by imposing stricter safety measures. The government should partner with local vocational schools to give men proper training in transferrable skills while arranging part-time, contractual work opportunities in infrastructure development that can become full-time employment upon completing their education.

The Accra authorities should reform current land ownership restrictions to guarantee affordable, legal, and appropriate living conditions for migrants in Agbogbloshie. This would not only avoid eviction and its resulting political and social unrest, but also formalize necessary communal services (i.e. sanitation) and economic enterprises, both of which would contribute to a more financially vibrant and physically healthier community. The government could accrue the proper funds to invest in Agbogbloshie by imposing a small, progressive property tax on Agbogbloshie residents that would enable greater communal accountability for providing more adequate housing, along with health and environmental safety measures.

Many of the negative health outcomes from exposure to electronic waste have been unnecessary fatal due to cultural misunderstandings throughout the treatment process, delaying crucial medical attention. While there are genuine benefits to relying on traditional herbs and shamans to address ailments, it is important that patients' care is properly coordinated between local healers and clinicians to ensure that those with potentially life-threatening conditions are given proper care to which they will remain compliant. Hospitals like Princess Marie Louise should employ traditional healers from the community to engage in culturally sensitive dialogue,

ease patients' concerns surrounding the medical system, and inform doctors of patients' specific social and psychological needs.

In the current Ghanaian health insurance system, only those classified as 'indigent' are able to receive government subsidies for care. However, with an increasingly urban poor population, the characterizations of indigent are changing and many members of the Agbogbloshie community do not fit the criteria to receive government subsidies since they are employed in the informal sector, making health insurance unaffordable. Therefore, the definition of 'indigent' should be expanded to include this subset of the population so that they can afford sufficient health insurance to pay for medicines to treat their chronic and acute conditions that currently cannot be covered by local hospitals' needy funds.

The Accra Metropolitan Assembly Department of Public Health has made significant efforts to teach local community members involved in the e-waste industry about the dangers of their current methods to both their health and the environment. However, there are deep, historical social rifts between Muslim migrants and Christian administrators that create tension, resentment, and misunderstanding between the two parties. While these education and outreach efforts should continue, the AMA Department of Public Health should hire social workers who would integrate culturally and socially sensitive aspects to the current methods that are being carried out in Agbogbloshie.

The current system of waste management in Accra is highly fragmented and is not well regulated because the city currently contracts with nine different waste collection firms to oversee ten sub-districts in the entire metropolitan area. Therefore, it is impossible for the government to efficiently monitor how waste is collected by each of these companies and how they are handling the different types of waste they encounter, especially if it is hazardous. The

Accra Metropolitan Assembly should centralize its waste collection system and encourage city dwellers to hand over their broken electronics to designated collectors who can dispose of them properly.

When one goes to Accra, it is difficult to ignore the general prevalence of waste, demonstrated by the fact that people simply leave their garbage outside of their homes or on the streets either to be burned, supposedly collected by government contracted firms, or gathered by the less fortunate wandering the city's roads. Just as people's waste is forgotten when they leave it out on the streets for others to handle, so too, are the people of Agbogbloshie forgotten by the Ghanaian government and the people of Accra. This prevailing culture of waste extends far beyond the borders of Accra or Ghana. There is a global culture of waste, where countries like the United States and its citizens and companies who do not want the burden of handling those items that are no longer valuable to them simply ship them off to those people and countries they see as less valuable – deserving of the waste. In order to combat electronic waste on a global scale, the international community must address this global culture of waste before we allow it to decimate the Agbogbloshie community and countless others like it.

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