

## Project Completion Report: Making Electronic Waste Recycling in Ghana Safer Through Alternative Technology, Accra Ghana



### Project Details:

Location	Agbogbloshie Scrap Yard, Accra, Ghana
Population Affected	50,000 people
Contaminant	Lead, Chromium, PM10
Project Duration	November 2013 – September 2014
Project Cost	USD 75,000
Implementing Partners	GreenAdvocacy Ghana, Blacksmith Institute, Greater Accra Scrap Dealers Association, Ghana Environmental Protection Agency, Ghana Health Services

### Background and Scope:

The Agbogbloshie scrap metal site in Accra is Ghana's largest centre for electronic waste (e-waste) recycling and disposal. Workers manually disassemble parts and burn off the plastic encasements on computer wires and refrigerator coils to recover profitable metals. It is an informal sector with the work often being done by young adults using handmade tools and without protective equipment, leaving them susceptible to respiratory diseases and overexposure to lead. Air pollution from the burning affects workers as well as those living and working nearby.

It is estimated that 20-50 million tons of e-waste is generated per year. E-waste refers to electronic and electrical goods that are past their useable lifespan. The rate at which new technology is released and older items become obsolete is increasing, and

therefore, so is the amount of e-waste produced. In Ghana, recycling of e-waste is performed on a large scale and without the resources for proper and safe disposal. Adults and a significant number of children and young people, with no protective gear, attempt to recover power supply housings, circuit boards, wires and small capacitors by crudely breaking, smashing or burning discarded circuit boards and cathode ray tubes. After anything of value has been stripped away, the bulk is then dumped untreated into unlined pits and waterways. An additional health hazard is the black smoke that continuously hovers over the site, resulting from piles of copper cables that are lit to burn off the plastic coatings. In order to keep the fires burning, old car tires are also added to the flames, creating a toxic environment far and wide.

Given that the importation of second-hand computers and electronics continues to expand, both short-term and long-term strategies are required to ameliorate workers' health risks as well as the risks to the general environment. One of the immediate strategies is to stop the burning of wires and thereby improve the quality of air.

### **Solutions Implemented:**

In November 2013, Blacksmith Institute and GreenAd Ghana began a pilot project by setting up a basic e-waste recycling facility that would enable recyclers to stop burning wire and instead strip it in a way that was efficient and profitable. Funding for the pilot project came from the United Nations Industrial Development Organization (UNIDO), through the Global Alliance for Health and Pollution (GAHP).

The project began with a series of open community forums that brought together important stakeholders including government officials, market workers outside of the scrap metal recycling, local businesses, GASDA, and the recyclers. Through these forums, project plans were discussed and community members were able to voice their opinions, questions and concerns. Additionally, the forums vastly improved relations between the recyclers and the government of Ghana. Since the recyclers are participating in an informal sector activity, the government of Ghana had previously been wary of GASDA. However, GreenAd Ghana and Blacksmith Institute worked to improve relationships and show government officials the economic value of the emerging e-waste recycling sector in Ghana.

The National Youth Authority, the government department that owns the land on which the recyclers operate, agreed to the pilot project and dedicated a piece of land specifically for the recycling facility. The facility has been created using three 40-foot ISO Intermodal Containers, and houses four mechanized wire-strippers, two small and two large. The containers provide security and office/storage space, and fencing on the fourth side closes off the facility. The containers also serve the purpose of being transportable. While the National Youth Authority has given permission to build the facility and is in full support of the project, the recycling market is part of a larger food and goods market. As the e-waste sector expands, recyclers may want to establish a location away from the food market. Additionally, Ghana lacks land tenure rights. Ideally, the recyclers would expand into a more permanent industrial area outside of the

immediate city boundaries. If that happens, then the containers can be transported easily to a new site to prevent capital investment loss.

Most importantly, the pilot project has demonstrated the economic viability of switching from burning to stripping of copper wires for the individual recyclers.

The pilot project was completed in September of 2014 with the official opening of the e-waste recycling facility. The pilot project has allowed for the introduction of mechanized tools into GASDA's operations in a manageable way. Behaviour change is an on-going process: by first piloting a small number of machines, the recyclers and GASDA are beginning to understand the benefits of using these tools instead of burning. Additionally, since a facility like this has never been built in Ghana prior to this project, it is important to use the pilot project to understand the workloads and needs of the recyclers.



### **Outcomes and Follow Ups**

The Agbogbloshie Scrap Dealers Cooperative, jointly owned by GASDA, GreenAd and the National Youth Authority (NYA), is currently managing the new recycling facility and its staff. A management committee has been created and is composed of representatives from the three entities mentioned above as well as an operations manager, an environmental health and safety officer and an accountant, with oversight by the Ghana Environmental Protection Agency.

Six recyclers have been trained on the use, maintenance, and repair of the machines. Wire collectors sell wires directly to GASDA and the facility. The wires are then stripped by the on-staff recyclers, and GASDA exports the copper. An estimated 450 pounds of

copper are recycled at the facility every month, with the recent addition of approximately 40 pounds per month of aluminium also now being recycled.

This pilot project is just the beginning of building a safe and healthy e-waste sector. One lesson learned during the pilot is the need for more comprehensive machines, particularly for extremely small wires and other metals that are burned during the recycling process. Additionally, a local non-governmental organization has been identified that can manufacture several necessary machines locally instead of importing future machines.

### **Future Plans**

GASDA has a vision to promote Agbogboshie as a recycling knowledge centre by setting up a model e-scrap facility that protects livelihoods while minimizing the adverse health and environment risks of scavenging and exposure to toxic substances. As a result of the pilot project, Blacksmith Institute has been able to leverage the success and growth of the e-waste recycling facility into a larger expansion project. With funding from the Addax & Oryx Foundation, several new machines will be manufactured for the recycling facility, including a granulator and separator, which will allow for small wires to be properly recycled. Additionally, formal accounting and business training will take place for GASDA. These trainings will continue to build GASDA's capacity to run a recycling facility. The Ghana Health Services has pledged health and safety trainings for workers both within the new facility and throughout the market.