Policy brief
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Recyclers at risk?

Analysis of e-waste livelihoods and blood lead levels at Ghana's recycling hub, Agbogbloshie

In brief

- Ghana's e-waste sector has expanded significantly in recent years, due to high volumes of imported second-hand electronics and a wide range of employment opportunities within the sector.
- Whilst e-waste recycling provides livelihood opportunities for thousands of informal workers, it can incur considerable health risks for workers.
- This IGC Ghana study of workers in Agbogbloshie finds that while the e-waste sector is regarded as vital to livelihoods, workers still face inadequate housing, unreliable water and electricity supply, and poor health infrastructure.
- This policy brief advocates for the integration of Accra's e-waste sector into its formal waste management system, as the sector is already intricately linked to the wider urban economy. It also outlines several policy recommendations that may contribute to this goal.

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Project summary

Studies suggest significant expansion in the global e-waste business. In Ghana, the growth has been triggered by high volumes of imported second-hand electronics and a wide range of employment opportunities within the e-waste sector. This growth reverberates across scale - from local to the global. While the e-waste business has provided livelihood opportunities for thousands of informal workers, scholars and municipal authorities claim that recycling e-waste imposes considerable health risks. The problem of a vibrant informal waste market is that despite the risks of adverse health effects to workers and surrounding residents, the sector provides much-needed jobs for many. There have been a range of policy reactions to this phenomenon around the world (Amankwaa, 2013).

Current policy by the municipal leadership in Accra has tended towards neglect or hostility to the market. In contrast, city authorities in Egypt (Assaad, 1996), Macedonia, Montenegro, Serbia (Medina, 2008) and Brazil (Dias, 2011) have enacted policies to integrate informal and formal waste systems.

This paper argues for policies of integration in Accra because e-waste and its associated chain of business are intricately linked with the urban economy. A better understanding of market dynamics will empower city authorities to improve the livelihood conditions of recyclers, and ensure minimal health risks and environmental safety. With this objective in mind, the research addresses the following questions:

1. What are the key livelihood activities for workers within Agbogbloshie and what policies best capture the needs of e-waste recyclers?
2. To what extent does e-waste recycling impact workers' blood lead levels (BLLs)?
3. And if e-waste recycling is found to have adverse effects on BLL, what remedies are available for workers in Agbogbloshie's scrap yard?

Our work is framed by research on urban geography and the political ecology of waste. Political ecologists focus on the various forms of municipal waste and the types of politics which surround each form. Sarah Moore (2012), states that while people and places are connected by flows of commodities and goods, they are also united by flows of waste. Based on a positive-negative framework, Moore categorized the materiality of waste into two axes: good and bad. While this framework is useful it polarises the debate into two extremes, and subsequently limits the inherent possibilities present in recycling and e-waste working. Similarly, urban geographers take this argument a step further by connecting urban waste work to formal industrial establishments. If these connections can be made, Grant and Oteng-Ababio (2012) suggest that an e-waste recycling enterprise could be highly lucrative, estimated at more than seven billion dollars globally, with significant potential for growth.

These propositions lead us to rethink the issue of e-waste and its linkages to the urban economy. We agree with scholars urging for new research and empirical studies. New research should be directed at issues that unravel the livelihood patterns of e-waste workers, linkages with other sectors of the urban economy, the

regulatory environment, the work environment (social and physical), and the impact of e-waste livelihoods on workers.

Our research focuses on lead contamination in e-waste workers' blood because it is an understudied area of scholarship on e-waste in Ghana, and because it opens the conversation on the trade-offs between livelihoods and health risks.

Methodology

The research adopted a mixed method approach. We used participatory community asset mapping techniques, focus group discussions, in-depth interviews with policy makers and a selected NGO, as well as BLL analysis of human blood samples to construct the complex political economy of recycling in Agbogbloshie.

Key findings

The study revealed a complex web of interconnections both within the e-waste value chain and also with the formal urban economy. For instance, it was revealed that Agbogbloshie scrap yard is a key supplier to important metallurgical industries in Tema and Accra which use scrap as raw materials in their production.

The study shows that most e-waste workers regard their current livelihood as very important since it allows them to get by. However, variations between workers exist in terms of income and job stability. For instance, scrap dealers earn considerably higher incomes relative to other categories of e-waste workers.

The study identified serious infrastructural deficits, which invariably hamper both business and quality of life. These include poor and inadequate housing, unreliable supply of water and electricity, poor sanitation and inadequate health infrastructure.

The BLL analysis revealed variations between e-waste and non-e-waste workers on the one hand, and workers within the e-waste value chain on the other hand. Surprisingly non-workers had higher BLLs than e-waste workers and this may be caused by the concentration of lead in the environment. Within the e-waste recycling chain, burners had higher BLLs. Thus, we believe the connection between occupational type and BLLs is due to the burners' close daily proximity to plastic and heavy metals combustion

A broad-based pilot study is necessary to test our findings at the national level and to establish the actual concentration of lead in the environment and measure the health effects of lead exposure on workers and residents. But even with the findings of our limited study – and accounting for the knowledge and desires of e-waste workers' themselves– some policy recommendations are readily apparent.

On-site recommendations

1. **Involve e-waste collectors in mapping collection routes:** Relevant municipal authorities – such as the Accra Metropolitan Assembly (AMA) and the Mayor's office, the police and others – should negotiate with representatives of Agbogbloshie Scrap Dealer Associations (ASDA) to craft appropriate go/no-go routes for collectors. These routes should be clearly identified and agreed upon by all parties. Deviation from these routes by collectors should be the only grounds for fines or other punishment from the authorities.
2. **Fund permanent investments in on-site infrastructure:** E-waste workers have collectively identified key infrastructure deficiencies (see Quality of Life Assessments). These investments will pay off through declines in basic service costs, and increases in productivity and income, which will have multiplier effects throughout the city and increases in government revenues. But commitment by all the listed key stakeholders - Agbogbloshie Scrap Dealer Associations (ASDA), Green Advocacy Ghana (GreenAd, NGO), National Youth Authority (NYA), Ministries of Health (MoH); and Environment, Science, Technology and Innovation (MESTI), and the Environmental Protection Agency (EPA) is paramount to ensure success.
3. **Invest in recycling technologies:** The government and its development partners should provide recyclers with affordable, easily accessible, and sustainable investments in technology and working capital. Investing and adopting appropriate technologies, possibly through community based action-oriented research with the welfare of the e-waste workers in mind, will help improve productivity and create a healthy, liveable city for all. UKAID and the International Growth Centre are currently funding similar pilot programs (Szakonyi & Urpelainen, 2015).
4. **Formalise rental or site-usage agreements within designated areas:** E-waste workers are willing to pay reasonable rents for formalised authority to use the Agbogbloshie site for dismantling, recycling and marketing of their goods. Stability in land access and usage will foster private investments in the area as well as personal investments in dependents, or spending in the wider market. Additionally reasonable rents, procured by the city, will help to offset costs of on-site municipal investments.

Planning and organisational recommendations

1. **Formalise a cooperative council between e-waste workers, environmental advocates and government authorities:** The cooperative council should coordinate investments in infrastructure and government health services and advise on changes to e-waste-working policy. This council must include representatives of the Agbogbloshie Scrap Dealer Associations (ASDA) (with broader membership to effectively negotiate with and wield influence), Green Advocacy Ghana (GreenAd, NGO), the National Youth Authority (NYA) and the Ministries of Health (MoH); and Environment, Science, Technology and Innovation (MESTI), and the Environmental Protection Agency (EPA).
2. **Coordinate health services through the cooperative council:** The admirable work already performed by the Ministry of Health can be expanded through coordination with the cooperative council; expanding the reach of the health programmes to all the sections of the e-waste market; and possibly enrolling

workers on the national health insurance scheme. Organised and cooperative health services will legitimise the cooperative council in the eyes of the e-waste workers and lay a foundation of trust between the council's various members

3. **Increasing awareness of self-protection:** Health education about the means of preventing lead contamination must be provided through booklets, seminars, and posters by the local association executives, parents/relatives and children every year. Also, through partnerships, the local government's interest in public health and safety can be better served through the provision of basic protective equipment such as masks, gloves, protecting clothing and footwear, etc
4. **Integrating e-waste workers into scale up programmes:** Attempts to scale up the e-waste recycling sector must acknowledge existing local knowledge and leverage it inform, educate, and incorporate the e-waste workers. They need to be given a chance to build individual and collective capabilities (social organisation) in order to gain access to economic opportunities and develop links with external partners.

Off-site recommendations

1. **Affordable schooling should be made available to both migrants and permanent residents:** Most of the e-waste workers in the study were married and with children. Access to affordable and convenient schooling for their children remains a consistent concern. Most e-waste workers see their occupation as a temporary necessity, needed to provide their children with a better life; but if this ladder out of poverty is to be successful, education must be made available and affordable.
2. **Affordable housing should be made available to both migrants and permanent residents:** Many migrants choose to live on-site for affordability reasons. However, on-site living exposes elderly, children and live-stock to the hazards of waste processing and contamination.

Market recommendations

The municipal or national government should implement a buying/exporting program to stabilise local prices: The extreme boom/bust cycle of raw materials has produced severe shocks to many of the study's participants. Although they are able to re-enter the market through familial loans, shocks and episodes of acute hardship prevents future planning and investment. Even achieving weekly price stability would be an improvement over the current daily price fluctuations and would facilitate better planning and saving. All scrap purchased through this buying program could then be sold on the global market with proceeds going to the government to off-set costs.

Regulatory recommendations

Passage of laws to control e-waste and regulate recycling activities: MESTI and EPA should ensure that the e-waste bill at the cabinet level is fast-tracked and passed into a law. The Occupational and Environmental Health Department of MoH should also prescribe and promulgate safety guidelines for e-waste recycling. Any policy that downplays the role of the informal sector risks facing/joining the many ill-fated municipal waste management policies. Stakeholders ought to realise that involving the community in the policy-planning process enables them to shape the future, solve and avoid problems, meet future needs and realise new potentials.

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