RACE AND WASTE:
THE POLITICS OF ELECTRONIC WASTE RECYCLING & SCRAP METAL RECOVERY IN AGBOGBLOSHIE, ACCRA, GHANA

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Abstract of the Dissertation

Agbogbloshie scrapyard in Accra, Ghana is featured in images and documentary films as a charred landscape of disassembled computers, worn-out appliances, mangled plastic, derelict vehicles (in various stages of disassembly), and smouldering bundles of cables skillfully manoeuvred by gangly youths. These incendiary images spurred global concern for the adverse environmental effects of informal e-waste recycling and scrap metal recovery at the Agbogbloshie scrapyard. My research shifts the analytical focus away from the materiality of e-waste - whether hazard, risk or conversely, resource or commodity - and centers the place and people who are racially marked and already co-produced as waste and, therefore, disposable. The livelihoods of these workers unfold within a global capitalist system that perpetuates racial inequality, socio-historical and cultural factors in Ghana that continue to marginalize northerners, and more recently, a transnational governance landscape that promotes the economic benefits of e-waste recycling while obscuring its racializing logic. My analysis is multi-scalar, connecting informal recycling activities in Agbogbloshie, the disproportionate representation of northern migrants in forms of precarious work, and their relegation to under-utilized and poorly serviced spaces in Accra, to global politics that have long racialized space and spatialized race. Informal e-waste recycling in Agbogbloshie emerges as part of the cumulative and continuing legacy of the economic exploitation and the political diminution of Africa and its people for the furtherance of capital accumulation by foreign interests and local elites. Fundamentally, my research demonstrates that hazardous forms of waste management respond to existing spatial imaginaries, i.e., the racialization of space and the spatialization of race and the colour coded international division of labour that ensures that racialized workers remain overrepresented in precarious, low-paying and hazardous work. As a contribution to scholarship, this dissertation offers an alternative reading of the global e-waste landscape. It asserts that the racial, uneven and hierarchical differentiation of Africa and its people, and their contingent disposability within various iterations of capitalism, are the conditions of possibility for the emergence of informal e-waste recycling and scrap metal recovery in Agbogbloshie - with implications for sustainable material flow cycles, extraction, and resource efficiency at the global scale.

Dedication

To my deceased grandparents
** Philomene Fevrier & Niles Joseph Berthier **
2019 & 2020

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List of Acronyms

AMA	Accra Metropolitan Assembly
BAN	Basel Action Network
BMZ	German Federal Ministry for Economic Cooperation and Development
CARI	Canadian Association of Recycling Industries
CBD	Central Business District
COHRE	Centre on Housing Rights and Evictions
ECOBPC	Eco Innovative One-Stop Business and Policy Centre
EEE	Electrical and Electronic Equipment
ELV	End-of-Life Vehicle
EOCO	Economic and Organized Crimes Office
EPR	Extended Producer Responsibility
EU	European Union
GAHP	Global Alliance for Health and Pollution
GAMA	Greater Accra Metropolitan Area
GASDA	Greater Accra Scrap Dealers Association
GCC	Global Commodity Chain
GDP	Gross Domestic Product
GEMOD	Ghana electronic Waste Model
Ghana EPA	Ghana Environmental Protection Agency
GHS	Ghana Cedi
GIZ (GmbH)	German Development Agency
GLSS	Ghana Living Standards Survey
GNCPC	Ghana National Cleaner Production Center
GPN	Global Production Networks
GreenAd	Green Advocacy Ghana
GVC	Global Value Chain
HMS	Heavy Melting Steel or Heavy Melting Scrap
HEMOD	Hanisa Electronic Waste Model
SHS	Senior High School
ICGC	International Central Gospel Church
ILO	International Labour Organization
IMF	International Monetary Fund
IRECOP	Integrated Recycling and Compost Plant
JHS	Junior High School
KfW	Kreditanstalt für Wiederaufbau (German development bank)
KLERP	Korle Lagoon Ecological Restoration Project
LME	London Metals Exchange
MESTI	Ministry of Environment, Science, Technology and Innovation
MSME	Micro, Small and Medium Enterprises
NADMO	National Disaster Management Organisation
NDC	National Democratic Congress
NGO	Non-governmental Organization
NYA	National Youth Authority

OECD	Organization of Economic Cooperation and Development
PPP	Progressive Peoples Party
PPP	Public Private Partnership
SAG	Switch Africa Green
SGS	Société Générale de Surveillance
SHS	Senior High School
SMAG	Steel Manufacturers Association of Ghana
SSNIT	Social Security and National Insurance Trust
StEP	Solving the E-waste Problem
SWA	Solid waste management
TCPD	Town and Country Planning Department
ULAB	Used Lead Acid Battery
UN DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNIDO	United Nations Industrial Development Organization
UNOPS	United Nations Office for Project Services
USTR	The Office of the U.S. Trade Representative
WAFOR	West African Forgings Ltd
WEEE	Waste Electrical and Electronic Equipment
WTO	World Trade Organization

1. CHAPTER ONE: A Not So New Problem

“Garbage is a global problem only for the ‘environmentally enlightened’, who do not suffer from economic stagnation, toxic pollution, climate change, soil erosion, population explosions, deadly epidemics, and mass poverty daily." Mills (2001) cited by Anne Berg (2015, p. 80).

The Introduction

"Waste is what is worthless or unused for human purpose. It is a lessening of something without useful results; it is loss and abandonment, decline, separation and death. It is the spent and valueless material left after some act of production or consumption but can also refer to any used thing: garbage, trash, litter, junk, impurity and dirt. There are waste things, wastelands, wasted time and wasted lives (Lynch, 1991, p. xi).

When I began my PhD, in September 2014, I was initially interested in investigating the disjuncture (i.e., political, economic, social and spatial) between where waste is mass produced and where it is stockpiled for management and final disposal. We learn from history and also waste research, that the populations that create the most waste are rarely involved and implicated in the management of that waste (see Robert Bullard, 2000). I also trace these observations to my involvement in the site selection process for the containment and isolation of Canada's used nuclear fuel in a deep geological repository in the Canadian Shield.[1] The disparities between those small indigenous and non-indigenous communities targeted as prospective sites for the burial of Canada's used nuclear fuel versus the urban and suburban communities in southern Ontario that rely on nuclear power, and thus generate substantial quantities of used nuclear fuel, is stark.[2] While the ethics of nuclear waste management is a fascinating research topic, I was more interested in the international dimensions of this localized phenomenon. This was the beginning of my interest in the West African country of Ghana, and the infamous Agbogbloshie scrapyard, the site of e-waste recycling and scrap metal recovery in Accra, the country's largest city.[3]

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[1] My knowledge of the project is the result of almost two years of employment with DPRA Canada Inc., a consulting firm retained by the Nuclear Waste Management Organization (NWMO) to aid in its community sensitization program, which is part of the much larger site selection process.

[2] Many of the towns selected to participate in the site selection process were dealing with the economic and social fallouts from the closure of mines and the decline in forestry resulting in steady out migration. As a result, some towns were keen on hosting the deep geological repository as this was seen as way out of their economic decline.

[3] The Agbogbloshie scrapyard is the largest e-waste recycling and scrap metal recovery site in Ghana. The site gained notoriety as a result of sensational media portrayals, international NGO activism and the steady flow of researchers

Documentaries produced by the Basel Action Network, PBS Frontline World and Aljazeera Witness[4] were thus my gateway into the complex phenomenon that Agbogbloshie has become. These documentaries and the media coverage that followed, placed Agbogbloshie at the center of global environmental and political debates about the growing e-waste problem, its potential threat to the environment, and the prevailing method used to manage it – waste distancing from rich to poor countries. (See Clapp 2001). Being very emotive, these documentaries elicited within the public a sense of moral outrage, puritanical judgements, and short-lived consumer guilt.

Beyond the featured images, that I would argue, further dehumanize the subjects of these various documentaries, Agbogbloshie is enmeshed in broader political, economic, environmental and more recently, race politics. Agbogbloshie is, therefore, partly the sum total of debates that pit the EU's more stringent environmental regulations[5] against those of the USA (and other non-signatories to the Basel Convention), environmental NGOs demanding accountability from tech giants and major e-waste exporters, reuse and recycling advocates, the scrap metal recycling industry more broadly, and also environmental justice activists and scholars of race who understand that the transnationalization of e-waste management (between rich and poor nations) is part of the long history of environmental racism but also speaks to the racial configuration of

eager to explain the phenomenon unfolding in Agbogbloshie from their various disciplinary fields. Agbogbloshie sits partly on land vested in the National Youth Authority, partly on land administered by the Korle and Gbese stools and the Ga chief who permitted temporary settlement in the area under the customary system of land administration (Grant, 2006) and possibly, on private land presumably owned by the Mettle and Ablorh Mills families (Lepawsky & Akese, 2015). The overlap of three different forms of land-ownership hints at the complexity of land administration in Ghana but also of the challenges of land tenure regularization in Agbogbloshie and its environs (if there is ever political will). More on this is captured in Chapter Three.

[4] Dannoritzer, C. (2014, December). *On the e-waste trail* [News]. Aljazeera News. Aljazeera Witness and University of British Columbia, & Klein, P. (2009, June). Ghana: Digital Dumping Ground [News - PBS]. Front Line World Stories from a Small Planet.

[5]Anecdotal information suggests that the greater proportion of discarded electronic devices entering Ghana originates in the EU.

the global political economy. Agbogbloshie can thus be described as an unintended casualty of global environmental debates that it would not have been privy to, had it not been catapulted into the limelight by organizations looking to name and shame, e.g., major e-waste exporters (for toxic waste dumping), tech giants like Apple and Samsung (for their design-for-the-landfill products), and consumers (for their insatiable appetite for better, faster, cheaper technologies). Deliberately or otherwise, the highly publicized e-waste problem in Ghana made visible places and people previously invisible in the global economy.

To this point, my dissertation focuses more on the places and people whose everyday existence is mediated by the presence of e-waste and less so on e-waste itself. The everyday entanglements between the material forms of waste, and the human and spatial is captured in the incendiary images that appeared in print and digital media about e-waste recycling and scrap metal recovery in Agbogbloshie. For instance, in one photograph we see the grubby shell of a discarded laptop or personal computer bearing the logo of Apple, Samsung or Hewlett-Packard, craftily positioned in the soiled hands of a gangly and dishevelled youngster while the backdrop is a garbage strewed and blackened landscape. Another photograph captures piles of tightly bound wires torn from the insides of long-forgotten home appliances, neatly set ablaze against a vast and menacing greyness. These images give the impression that life had abandoned the area, save for the gangly youth and young men bravely battling the raging fires. These images, whether innocuous or deliberately provocative, represent the juxtapositioning of the material, spatial and human.

The two photographs are, nevertheless, open to multiple interpretations and differing frames of analysis. One interpretation revolves around the 'thingness,' or materiality of e-waste, either as an environmental hazard or conversely, as a resource with economic/monetary value.

We see this in the initial reporting by environmental NGOs and those researchers and practitioners coming from an industrial ecology and green business background. For example, organizations like the Basel Action Network (BAN) adopted an environmental health and justice framework (Basel Action Network, 2015a) to highlight the scale, magnitude and depth of the e-waste problem.[6] Their advocacy brought attention to the issue of e-waste dumping in developing countries, called governments to account, shamed tech giants and imprudent consumers for trashing the planet, reminded the world of its moral obligation to sustainability, demanded global accountability through adherence to mechanisms like the Basel Convention, and laid the groundwork for localized activism. Nevertheless, their portrayal of the place and the people as victims of toxic poisoning was inadvertently used to politicize e-waste management and in so doing, influence global environmental governance outcomes. To this end, the environmental and moral fervour that fed dystopian images of e-waste recycling and scrap metal recovery in Agbogbloshie, capitalized on the vulnerabilities of e-waste workers.

The business case approach pivots away from the purely environmental, health and justice concerns of the Basel Action Network and highlights the economic potential and agency of recyclers. For example, the Institute for Scrap Recycling Industries (ISRI) in the USA, promotes safe, economically sustainable and environmentally responsible recycling of electronics and other recyclable commodities (ISRI, 2020b). The organization lobbies the U.S. Congress, the Environmental Protection Agency (EPA), the U.S. Department of Commerce, the Office of the U.S.

[6] The 2002 documentary, "Exporting Harm: The High-Tech Trashing of Asia" produced by the Basel Action Network (BAN), was one of the first to bring the issue of e-waste dumping to the global audience. Subsequent documentaries include the 2010 PBS Frontline documentary, Ghana: Digital Dumping Ground that focused on e-waste dumping and informal recycling at the Agbogbloshie scrapyard, in Accra, Ghana. Since then, other photography documentaries have continued to disseminate dystopian imagery of e-waste recycling into the public domain.

Trade Representative (USTR), state legislatures and regulatory agencies, as well as international bodies, to secure the interests of the scrap recycling industry (ISRI, 2020a). I would venture to say that the interest that ISRI lobbies to protect is not those of the scrap workers in Agbogbloshie. Needless to say, these divergent strategies are primarily concerned with the materiality of e-waste -- its polluting character and the economic value of recovered scrap metal. From the perspective of these two organizations, the place (the ruined landscape) and the people (the gangly youth) were acknowledged only in relation to e-waste, specifically, how e-waste had come to define them as victims or entrepreneurs and also within a particular space-time.

I propose an alternative interpretation of the subjects captured in the images, one that foregrounds race and racialization as organizing principles. To this end, I center the places and people who are racially marked and already co-produced as waste and therefore, disposable. The livelihoods of these people unfold within a capitalist system built on exploitation (facilitated by race politics), socio-historical and cultural factors in Ghana that continue to marginalize northern migrants in Accra, and more recently, a transnational governance landscape that promotes the economic benefits of e-waste recycling while obscuring its racializing logic. The label of waste applied to Agbogbloshie, and the treatment of its working and resident population as disposable, therefore, predates the arrival of e-waste. The place was laid waste and the people already configured as disposable within the socio-cultural history and the political and economic milieu of Ghana, and as a result of the racialization of Africa vis-à-vis the rest of the Western world. Consequently, I connect the dystopian images of e-waste recycling and scrap metal recovery to the long history of toxic waste dumping in and on Africa – toxic and/or waste colonialism as environmental activist call it (Atteh, 1993; Liboiron, 2018; Pratt, 2010; White, 2008).

The infamous memo by Lawrence Summers, then chief economist at the World Bank, which boasted of the economic logic behind dumping toxic waste in low wage countries (Special to The New York Times, 1992) is further evidence that Africa has long been viewed as a global wastebasket. I surmise that Africa's conceptualization as a wastebasket or waste sink has less to do with the vastness of the continent or its comparable lower levels of pollution vis-à-vis industrialized nations. If that were the case, Greenland, Siberia – or northern Canada could just as easily have taken Africa's place as a destination for toxic waste dumping. An alternative, yet by no means new or exceptional explanation is that Africa, its people and environment (with the exception of its enviable natural resource stocks) has been historically and socially produced as a zone of perpetual exploitation for the furtherance of Western political, economic and social development. Hazardous forms of waste management, therefore, respond to long-existing spatial imaginaries, (e.g., the racialization of space and the spatialization of race) and the colour coded international division of labour that ensures that racialized workers remain overrepresented in precarious, low-paying and hazardous work. The global e-waste landscape, but more specifically, the emergence of informal e-waste recycling and scrap metal recovery in Agbogbloshie, is thus predicated on the racial, uneven and hierarchical differentiation of Africa and its people, and their contingent disposability within various iterations of capitalism.

Use of Terms

In this dissertation, I use select terms that take on specific meanings within the context of my research. For this reason, and to avoid potential problems given the Marxist political economy orientation of some of the terms, I define them from the outset.

Capital, Capitalism and Capital Accumulation

Capital here is used loosely in relation to its Marxist political economy origins to refer to not material/physical factors of production but also, financial assets such as money and interest (Levy, 2017). These work together to create wealth or profit that grows out of the process of commodity production. This is the basis of the economic system of capitalism where capital produces surpluses (profit) - because labour produces above what is needed for its subsistence. I also use capital to refer to the capitalist or sometimes more broadly the capitalist class. This usage has been challenged by Kennedy (2017) who advocates for a distinguishing between the two concepts, however for the purposes of my research I use the terms interchangeably to denote wealth/money and also the capitalist class. *Capitalism* is an economic system and form of social life based on the private ownership (in the hands of the capitalist class) of the means of production, e.g., land, factories and machinery, and the concurrent exploitation of workers (the masses) in the pursuit of profit (Sewell Jr, 2008). Kennedy (2017, p.450) describes capitalism as a "logic of accumulation premised on forms of extracting surplus value from labour (e.g., slavery, serfdom, state-directed labour and forms of direct social administration within large corporations)." Brand (2016, p.108) states that the development of capitalism or "global capitalism has been highly uneven across geographical space and over time – the disparities in socio-economic gains between the global North and South is evidence of his observation. (See David Harvey for a more thorough discussion of the geographical dimension of capitalist expansion in relation to the concept of spatial fix). Kennedy (2017) alludes to the same, noting that social inequalities and oppressive relations arise from the various forms of surplus extraction. *Capital accumulation* as the term indicates is the expanding composition of capital or material wealth in the hands of the capitalist class. Nitzan and Bichler (2000) citing Wright states that capital

accumulation is the reproduction and expansion of capitalist social relations. It consequently requires the transformation of surplus value into new forms of constant and variable capital' (p. 74). Surplus-value extraction is, therefore, necessary for capital to accumulate. I sometimes use the phrase wealth accumulation or new rounds of wealth generation to infer the same.

Waste, Wasted & Wasting

Waste is a word with complex meanings, connotations, representations, and social implications. It is a verb, noun and adjective used to describe practices and states of being, in addition to physical things. This semantic flexibility is important as it reflects the intersection between cultural connotations of wasting and of being wasted, as well as the substances that constitute waste (Davies, 2012, p. 191). In this dissertation, I use the terms *wasting* and *wasted* to help illuminate the processual nature of 'becoming waste' in the same way that Gille (2007, p. 18), suggests that sociological engagements with waste should focus on the processes by which things become waste which requires "a shift in our analytical focus from waste to wasting." The emergent field of Discard Studies also acknowledges the heterogeneity of waste as a process (Discard Studies, 2018). The act of wasting, waste making, or being wasted is, therefore, transformative and transforming (Akesson, 2005). In the context of this dissertation, *wasting*, (much like its usage in the medical field) signifies a form of lessening, losing strength and vitality (becoming progressively weaker), disappearing, waning in significance, or being laid waste (destroying) (Akesson, 2005, p. 39). Each of the examples denote the continuity of the process of wasting, which is not a singular act, but a series of cumulative acts that lead to the eventual condition of being waste.

Conversely, when I use the term *wasted*, it describes the act of having been consumed, devoured or depleted. Hence, within the urban planning field, Agbogbloshie as a physical site can

be laid waste or defined as wasted real estate because some parties may see the activities of e-waste workers as improper and wasteful, leading to the harmful use of the land or space. Likewise, the labour of e-waste workers can be wasted during the process of recycling e-waste. As their labour is consumed, their bodies may slowly lose the ability to do the work as a result of work related injuries, sickness and even death. Whatever its formulation, wasted lives, wasted humans, disposable people/populations, the human-as-waste, wasted places, wastelands or sacrifice zones, their production (as a condition of colonialism and capitalism), denotes a deliberate politico-economic process that results in the coming into being of waste. Waste is then a moniker for all that is expelled or dis/articulated from circuits of capitalism and its commodity production.

Disposability

I use the word disposability as it is intimately connected to the process of wasting or waste-making. Disposability also infers some level or form of dis/articulation or moments of rupture. Disposability is used as a metaphor in the context of my research to infer that northerners and e-waste workers share commonalities with single use items and the e-waste that they recycle. These items are transient and ephemeral, but more importantly, expendable when they are no longer needed or have exceeded their usefulness. Giroux (2006) adds to the idea of human disposability, the significance of race and class and in the context of my research ethnicity, in classifying marginalized populations (those consigned by the state to fend for themselves) as redundant and therefore, disposable (p.174).

There is a paradox, however, to my use of disposability in this dissertation. Being rendered disposable or redundant does not negate the ability of these same workers (and also places and things) to produce value for capital. For instance, despite being slowly consumed or wasted as a

result of the conditions of their labour, historical and socio-cultural factors occurring locally, and the organizational structure of the global economy, e-waste workers by their labour still produce value (in the form of recovered scrap metal) for capital. Wright (2006), also attends to this internal contradiction. She explains that disposability is a myth of capitalism, and the internal contradiction is the fact that disposable workers are valuable and indispensable only because they generate widespread prosperity for global capitalism even at the expense of their own (slow) destruction (p. 2). Consequently, waste and disposability are mutually constitutive processes built into the very structure of the capitalist world economy. Disposability is then indispensable to modern capitalist economies which are premised on continual growth and, therefore, the continual wasting of places, people and things (Hawkins, 2019).

Value

In commodity chain analysis, value is always defined in economic terms, although commodities have use and exchange value. *Use value* refers to the relative utility that the owner derives from the use of a product. *Use value* is tied to the physical attributes of the product – its material uses and the needs and wants that it satisfies (Dougherty, 2008; Hadden, 1997). The use value of a product is independent of its exchange value. On the other hand, the *exchange value* (derived from the labour theory of value) of a product is the value attributed to the product when it is exchanged for another product on the market. Value is then the sum of money (or goods) equivalent in value to the product compared to other objects on the market (Hadden, 1997). Though money is the universal medium of exchange, the actual value (beyond the price) of the product is based on the amount of labour hours embedded in the production of that product (Dougherty, 2008, p. 30). I follow the latter trajectory, as it is the exchange value of scrap metal

that sustains the activities of e-waste workers in Agbogbloshie. It is also its exchange value that threatens their ability to secure their livelihoods in the face of encroaching efforts by corporate interests desirous of capturing the wealth generated from waste economies.

I also use the word value in relation to place. The commodification of land in contemporary capitalist economies means that like, other commodities, it has two forms of value – use and exchange. In Agbogbloshie, e-waste workers, slum settlers, and other petty traders prioritize the areas use value – as a workspace, residential community and marketplace. Alternatively, urban planners and other interest groups in Accra are more concerned with the area's potential exchange value, which is its capacity to produce economic returns, e.g., through the Korle Lagoon Ecological Restoration Project (KLERP). The KLERP is expected to increase the area's exchange value and also its use value, although the latter would entail a change that privileges the needs of one group (middle to high-income urbanites) over another (e-waste workers and slum settlers).

Surplus-value

When I use the term surplus value whether its extraction, accumulation, appropriation, circulation or distribution (these are the many ways that it is employed in my research), I refer to the value (in monetary terms) that accrues as a profit to capitalist. The production of surplus value (or profit) in the context of my research is predicated on the fact that

1. the transfer of e-waste to developing economies imposes an unfair environmental and public health burden on recipient countries while easing economic and environmental pressures on the main producers of that e-waste, resulting in cost savings;

2. natural ecosystems in e-waste recipient countries are devalued as they are used as waste sinks while the environmental integrity of e-waste source countries is preserved;
3. the e-waste workers in Agbogbloshie are paid less than the value of the scrap metal they recover -- which flows to international markets where it is exchanged at higher values and in foreign currencies; and lastly
4. hazardous forms of recycling in the global South produces low-cost *raw* commodities like scrap metal that enters new rounds of production to produce more expensive finished products (which are resold to consumers in the global South).

Together, these conditions ensure that value flows upwards through the hierarchy of the commodity chain and also outwards, from Agbogbloshie scrapyard to industrial enterprises in Western Europe, India, China and other Southeast Asian countries. Surplus value is thus created because a previously disregarded sector or invisible sphere of the economy has been commodified for new cycles of wealth accumulation (Picard & Beigi, 2020, p. 197).

Excess/ Surplus

The words *excess* and *surplus* are used interchangeably throughout this dissertation to refer to and describe the people and things that exist or are produced beyond the (immediate) needs of the capitalist economy. Their production is a sign of the wastefulness of capitalism – where growth is synonymous with overconsumption, pollution and unbridled waste generation. Gidwani and Reddy (2011, p. 1625) define *surplus* (the excesses of capitalist production), as the things, places and lives that are cast outside the pale of "value" at particular moments (within the sphere of capitalist production). Construed as surplus or excess, the places, people and things that are expelled from the system are also marked as disposable and even waste.

Explaining the Place, People and Things Heurism

In this dissertation, Agbogbloshie is both the physical space where e-waste recycling and scrap metal recovery occurs in Accra, and also, a social relation – the amalgam of overlapping social and material processes. Agbogbloshie also transcends the limits of its physicality and is the product of the collective interactions between the place, people and things (which I use heuristically to reveal the ways these are co-produced as waste). Historical, socio-cultural, political, economic, environmental, and regulatory considerations unfolding locally and globally further complicate these relations. Hastily drawn conclusions suggest that the glue which connects the place to the people and vice versa is the 'thing', waste. The social relationships that evolve are thus understood as relational, whereby the contaminative essence of the waste creates the condition through which the place and the people are co-produced as waste – a transition from being non-waste to waste.[7] I challenge this cause and effect analysis which ties the wasting of place and people exclusively to their interaction with polluting waste. The crux of my argument is that the label of waste (wasteland and wasted lives), and the myth of disposability[8] that envelops the place (Agbogbloshie) and the people (northern migrants settled in Agbogbloshie) predates the arrival of e-waste. The configuration of the place and the people as waste and disposable occurred within the socio-cultural history and the political and economic milieu of Ghana, the racialization of Africa vis-à-vis the rest of the Western world and as a consequence of deliberate economic and socio-political forms of obsolescence linked to global capitalism. I understand and organize the heuristic of place, people and things (as it applies to Agbogbloshie) in the following ways.

[7] The observation about the relational aspects of wasting and waste-making resonates with other research by Gille (2010), Gregson and Crang (2010), Davies (2012), Moore (2012) and Pikner and Jauhiainen (2014). The relationality of waste is also a function of its transitional character, affective qualities and its embodied politics.

[8] I borrow this phrase from Melissa Wright (2006) who speaks about the myth of the disposable Third World woman.

Wasted Places, Wastelands

The category of waste applied to places refers variously as wasted places, wastelands, superfluous landscapes, sacrifice zones and shadow places (Lerner, 2010; Nielsen, 2002; Plumwood, 2008).[9] The ingredients necessary for creating such zones include some form of environmental pollution and/or degradation that negatively impacts the health and wellbeing of residents; economic inertia and ensuing political neglect; and social malaise associated with poverty, high unemployment and crime rates, lack of social services and other safety nets e.g., affordable housing. Other compounding factors include the race, ethnicity, and citizenship of the residents of that place (Lerner, 2010). Agbogbloshie is a place where many of these factors coalesce leading to its conceptualization as a wasted place. The portrayal of Agbogbloshie as a wasteland, or as an abandoned and neglected space rest in part, on the everyday activities (e.g., an informal dumpsite, scrapyard, and slum settlement) and the people (e.g., northern migrants) that have come to undermine the exchange value yet define the use-value of the place.[10] This single-story of Agbogbloshie as wasteland fails to account for the influence of the state and private interest eager to label as hazardous and criminal the activities of e-waste workers and their rights to the space as illegal.

Although I do not wish to discount the influence of the people, their activities and the lack of sustained capital investment in the area, I surmise that Agbogbloshie's status as wasteland vis-à-vis other middle to high-end real estate developments in Accra, is a microcosm of the broader

[9] The concept of 'sacrifice zones' represents geographical *places* conceived as waste or wasted. Initially, this term described areas decimated by industrial pollution, most notably decommissioned nuclear and mining sites. Today, the term has expanded to include areas of economic, environmental and social degradation or collapse. See Lerner (2010) Sacrifice Zones: The Front Lines of Toxic Chemical Exposure in the United State for more on sacrifice zones.

[10] For example, landfills used to contain solid waste, and the ghettos, slums, and prisons used to segregate, house, or confine superfluous populations are perceived by some within society and even by physical planning personnel in some jurisdictions as wasted places.

issue of uneven development in Ghana. Regional disparities in development in Ghana dates back to the colonial period and extends into the 21st century. What connects Agbogbloshie to Ghana's three northern regions is its Muslim majority population. While some may push back on what they see as a tenuous connection, I remain convinced that the places where Muslims of low economic stature reside in Accra are typically slum settlements and Zongo[11] communities which have all but been neglected by successive governments. Agbogbloshie, Nima[12] and Madina Zongo (low-income Muslim majority slum settlements) have much in common with Ghana's three underdeveloped northern regions. Given the similarities, it would be erroneous to accept these conditions as somehow coincidental or natural. It is more probable, that the sustained underdevelopment of Ghana's northern regions is connected to the urban atrophy of Zongo communities in Accra. (More of the regional disparities in development in Ghana is captured in Chapter Three).

A key point of departure here is the impermanence of Agbogbloshie's wasted, abandoned, or neglected status. For as long as Agbogbloshie is linked to informal e-waste recycling and scrap metal recovery, petty trading and expanding slum development, the area will continue to be deliberately produced and stigmatized as 'junked, abandoned, destroyed' and contaminated (Weber, 2002, p. 521). The prevalence of these activities stalls the reproduction of capital that

[11] Zongo is commonly used to refer to Muslim settlements or Muslim quarters. These settlements are found throughout Ghana and were historically settled by Muslim or Hausa traders. While in Ghana for fieldwork, I visited Nima and Madina Zongo, located in the Greater Accra Metropolitan Area as well as Aboabo Zongo in Kumasi. Because Zongo communities are synonymous with slum settlements, these urban enclaves are characterized by poor infrastructure (road networks), substandard housing conditions, polluted natural environments, inadequate water supply and lack of social amenities (e.g., schools, health and recreational facilities). The fact that the majority of the residents of Zongos are employed in the informal sector, coupled with their low-income status makes it extremely difficult for the community as a whole to escape these conditions without the help of the government.

[12] Nima is a fast growing slum settlement located in the Greater Accra Metropolitan Area. The community was founded by earlier northern Hausa speaking migrants to Accra. Though predominantly Muslim, other ethnic and religious groups are part of the fabric of Zongo communities in Accra. Nima, like other Zongo communities throughout Ghana, is home to the city's poorer residents who have less access to education, proper healthcare and basic social services including water and sanitation (Brady & Hooper, 2019).

would otherwise benefit urban elites, real estate developers, lending institutions and other investors. Conversely, as urban real estate is increasingly commodified in Accra, socio-spatial changes in the built environment that 'improve' the urban form by making it socially, economically and environmentally attractive to a different class of residents, would transform Agbogbloshie from a wasteland to an urban oasis or creative district. This would displace northern migrants from their urban enclave for the purpose of creating value for investors. The uncompleted Korle Lagoon Ecological Restoration project is the harbinger of the socio-spatial changes that can ensue as a result of the processes wrought by urban gentrification or redevelopment in Accra. (The Korle Lagoon Ecological Restoration Project is discussed in more detail in Chapter Three).

Wasted Lives, Human-as-waste, Living forms of Waste

Waste, as a particularly venomous pejorative (G. Kennedy, 2012, p. xvi), has for a long time been used as a metaphor to describe certain people, e.g., those who collect, sort, recycle and dispose of trash (Strasser, 1999) and other 'disposable people' such as refugees, and workers in the industrial factory complexes in Southeast Asia and Mexico (Babbitt, 2016; Bauman, 2004; Giroux, 2007; Magdoff & Magdoff, 2004; McFann, 2014; Wright, 2006; Yates, 2011). I employ the concept of the human-as-waste (after Bauman 2004) to theorize the social entanglement between rural-urban migration, precarious and informal waste work, ethnicity, and race which together renders certain labour disposable in Agbogbloshie. The human-as-waste symbolizes, 'superfluous humanity' or surplus populations[13] - the homeless, incarcerated, criminalized, racialized, and

[13] See McIntyre (2011). Race, Surplus Population and the Marxist Theory of Imperialism; Yates (2011). The Human-as-Waste, the Labor Theory of Value and Disposability in Contemporary Capitalism; Arnold & Pickles (2011). Global Work, Surplus Labor; and the Precarious Economies of the Border; and McIntyre & Nast (2011). Bio(necro) polis: Marx, Surplus Populations, the Spatial Dialectics of Reproduction and "Race"; and Gilmore (2007). Golden Gulag: Prisons, Surplus, Crisis and Opposition in Globalizing California.

precariously employed. They are excluded from participating and sharing in the benefits of economic globalization and so, remain marginalized in terms of political participation, representation and social belonging (Hayden, 2007, p. 286). The wasting of the human also connotes the gradual deterioration or emaciation of the labouring body as it undergoes consistent exploitation under capitalism (Bauman, 2004).[14] The labour of these populations is readily consumed until the worker becomes worthless to capital (having lost the faculties to perform the work) and is consequently, expelled from circuits of production. The capitalist system frames these disposable workers as waste much like the material by-products of industrial manufacture. The consumption of their labour and their contrived disposability is an iterative process essential for capital accumulation.[15] Defined by Tadiar (2013) as "monetized aggregates of disposable life," the human-as-waste (the surplus population, the reserve army, the vulnerably employed) is always already available and expendable, inhabiting a space of permanent transience or liminality (p.27).

Far from being entirely written off as wasted labour or 'permanently defined as structurally irrelevant to capitalist production', those groups, e.g., displaced economic migrants from Ghana's northern regions are 'tenuously, unevenly (and iteratively) integrated' into the global secondary metals market (Doherty & Brown, 2019, p. 6). The construction of northerners in Ghana as disposable labour is rooted in the country's colonial past and continues to be perpetuated by the

[14] See Yates (2011). The Human-as-Waste, the Labor Theory of Value and Disposability in Contemporary Capitalism.
[15] Black and/or racialized disposability is a pernicious effect of the racializing logic of global capitalism. Other examples of racialized disposability include events such as the emergency response to Hurricane Katrina in 2005; the 2014 water crisis in Flint Michigan; the refugee crisis plaguing Europe and the Western world; the Coronavirus pandemic and its impact on racialized communities who are more susceptible to contracting the virus because of systemic inequalities in education, healthcare and income, and racism; and in the US, mass incarceration. We see this also in the brutal and public slaying of African Americans at the hands of white police officers and the destruction of their spaces. All of this violence meted out against blackness occurs with the consent of the US state, its corporations and its privileged class.

post-independent state, as well as urban elites and the reigning political class in Ghana. In Chapter Four and Six, I make the case that the involvement of northerners in e-waste recycling and scrap metal recovery in Accra unfolded in four phases, commencing with their involuntary recruitment as cheap labour for the British colonial state (then the Gold Coast), where Northern articulation into the colonial capitalist economy was limited to their designation as a labour reserve for other more lucrative regions in Ghana. More recently, developments in the recycling landscape threaten their livelihood as capital finds new ways of expunging their labour from the e-waste commodity chain. Wright (2006) describes this group as living forms of waste whose labour is disposable yet indispensable to the global capitalist economy. They are disposable because as soon as their labour is spent, they are of no further and immediate use, and indispensable because they perform essential yet overlooked and marginalized low paying work that allows the capitalist regime to flourish. In Agbogbloshie, while most workers and residents face a higher risk of toxic exposure, it is still the young men who form the base of the work hierarchy (the burners, truck pushers, and dismantlers) whose labour is wasted at an alarming rate. Their wasting progresses along two lines, from toxic exposure and work-place bodily injuries (even death). Plans to modernize e-waste recycling could add another dimension to their wasting when their labour is expunged. Figure 5 and 6 (in Chapter Four) depict the organizational structure and work typologies and provide a sketch of the scrap sector in Agbogbloshie.

Waste & Discards

Typically, when we think of material waste, images of rotting, decomposing, festering and putrid mounds of trash, garbage, rubbish, refuse, detritus, industrial residue or other labels employed to

denote that which has no value or is no longer in use comes to mind.[16] Gille (2010, p. 1050) defines material waste as 'any material which we have failed to use' - objects which have had their usefulness, utility or value depleted or nullified by the owner or society. Hume (2016), defines material waste as surplus or excess, the unserviceable leftover from processes of manufacture or the useless by-products of industrial processes (p.88).

I focus, however, on the produced commodity, scrap metal – iron and steel, aluminum, and copper – which is recovered from e-waste. The material attributes of e-waste (the general term used to classify discarded electrical and electronic equipment (EEE)), influence how it is managed and whether it is valued or devalued as either a negative externality of production and consumption or a monetized recyclable commodity (Picard & Beigi, 2020). As a hazard, the relationship between e-waste and the place and people that come into contact with it, is shaped by its toxicity. The toxic narrative, labels e-waste as a danger to environmental and public health and its disproportionate relocation to the global South, a form of environmental injustice and racism. The majority of research on e-waste has been confined to its status as hazard.[17]

An alternative conceptualization of e-waste, one that is prevalent in urban mining and circular economy literature and which pushes back on the determinist thinking that sees waste only as a hazard, frames e-waste as a resource. As a resource, the produced commodity, scrap

[16] Waste is generally placed in opposition to usefulness yet it remains difficult to settle upon a definition that would find universal agreement (Dowd, 1989, p. 65). To further complicate matters, waste can invoke a plethora of meanings some of them steeped in religious/moral and philosophical/ethical traditions. It has nevertheless become quite common to equate concepts of material waste with ideas of dirt, disgust or contagion (V. A. Curtis, 2007; V. Curtis & Biran, 2001; Viney, 2010) particularly after Mary Douglas's influential book Purity and Danger which remains the bedrock of anthropological understandings of waste (Glucksberg, 2014). Douglas (1991) explains that dirt is the by-product of a systematic ordering and classification of matter, in so far as ordering involves rejecting inappropriate elements (p. 35). Reflection on dirt therefore involves contemplation of the relation of order to disorder, being to non-being, form to formless, life to death (p. 5). Waste is a threat to order as long as it is not put into its rightful place.

[17] See Moore (2012) for a detailed account of Moore's various conceptualizations of waste.

metal can re-enter circuits of production to produce new rounds of wealth accumulation. The transformation of e-waste (from hazard) to resource within informal recycling systems requires the application of brute force by recyclers and the availability of markets for recovered metals. In the absence of these conditions, e-waste will remain a hazard to be distanced, hidden or technologically managed. Beigi and Picard (2020) come to a similar conclusion stating that waste streams that can be commodified are made visible whereas other streams or elements within these streams that cannot be valorized become sights unseen or are rendered less visible (p. 197/8). Though much of Chapter Four deals with the notion of e-waste as a monetized resource, informal recycling and scrap metal recovery releases, visible and invisible toxins which are themselves environmental hazards. Similarly, materials which do not have lucrative or accessible markets are indiscriminately dumped in waterways and open spaces or burnt to reduce their cumulative volume, destabilizing the integrity of the natural environment. This duality makes it almost impossible to separate notions of e-waste as resource from those as hazard.

In choosing to foreground race, I conclude that notions of e-waste whether as hazard or resource perpetuate regimes of racialized accumulation. As a hazard, the cost of e-waste management (recycling and disposal) shifts to emerging and developing economies and their populations. This allows developed countries that consume and also produce the most e-waste to accrue cost savings but also, preserve their natural environments and protect their workers from toxic exposure. Conversely, the commodification of e-waste as a resource, and its extraction in marginalized communities in the global South is an example of the reproduction of asymmetrical trade relations between the global North and South. This asymmetry is based on racially differentiated hierarchies of places and people which Lipsitz (2007, p. 12) explains as the racialization of space and the spatialization of race and also, the colour coded international

division of labour that ensures that racialized workers remain overrepresented in precarious, low-paying and hazardous work.[18]

The transnationalization of e-waste flows from developed countries to Agbogbloshie takes advantage of persistent and pervasive poverty, a large pool of unemployed labour, lax environmental and labour regulations, expansive informal networks already involved in waste and recycling economies, and local demand for cheaper secondhand technological devices in Ghana. Agbogbloshie is then a space where the material entwines with the political, economic, social and environmental realities of places and people at both the local and global scale. It is also an example of how Africa(ns) are incorporated into the global capitalist regime. For example, the racializing logic of global capitalism puts previously excluded labour to work extracting value from a commodified (yet toxic) waste stream in a space historically subordinated in the global political economy. In Agbogbloshie, the anti-black racism of capitalism, finds new ways of wasting away places and people.[19] My theoretical argument linking e-waste recycling and scrap metal recovery in Agbogbloshie to the racializing logic of capitalism is developed in more detail in Chapter Two and Six.

[18]The 'racialization of space' and the 'spatialization of race' describes how the experience of race has a spatial dimension and similarly, how the experience of space has a racial dimension (Lipsitz, 2007, p. 12). The two concepts reveal how race determines how urban space is used, by whom and for what purposes and secondly, how space becomes a site of racial oppression, segregation and exclusion. Together, these processes also speak to the interconnectedness of race and place politics.

[19] An example of the wasting of places, people and things occurs within the prison industrial complex. Having been expelled (dis/articulated) from the capitalist economic system, inmates are regarded as living forms of waste, surplus population, outcasts (non-productive members of society). The prison facility, like other spaces that contain material discards, is conceived of as a wasteland, despite its physical upkeep that requires frequent disbursements of capital. I make the latter assertion as land values near prisons, detention centers and jails are comparatively lower than in other areas. Also, it goes against all logic that a facility that houses what society regards as living human waste could conceivably be considered as having appreciative value. If waste is a social construct, a relationship between entities, then the logical conclusion is that, the places where waste can be found are themselves laid waste. The introduction of waste recycling into prisons did nothing to assuage the conceptualization of the place and the treatment of the people (housed therein) as waste and disposable. As inmates and waste workers, the wasting process is accelerated.

Defining E-waste & E-scrap[20]

My earlier statement of interest in the disjuncture between major sites of global consumption and disposal is encapsulated in the structure of the e-waste trade. Cost-cutting strategies on the part of corporations and rising demand for metals (virgin ores and scrap) partly explain this disjuncture. The result is the internationalization of e-waste management through historical trade relations based on the hierarchical organization of geographical space -- the global north-south divide -- and also a plethora of international, regional and local/domestic level regulations. (See Map 1).[21] These regulatory frameworks (e.g., the Basel and Bamako conventions as well as the Ghana Hazardous and Electronic Waste Control and Management Act (917) enable countries to work collaboratively to tackle issues related to e-waste management globally and locally, specifically the dumping of hazardous e-waste in developing countries already burdened by poverty, high rates of unemployment and where poor governance structures rarely enforce already lax environmental and labour regulations. (More on these regulatory frameworks can be found in Appendix A).

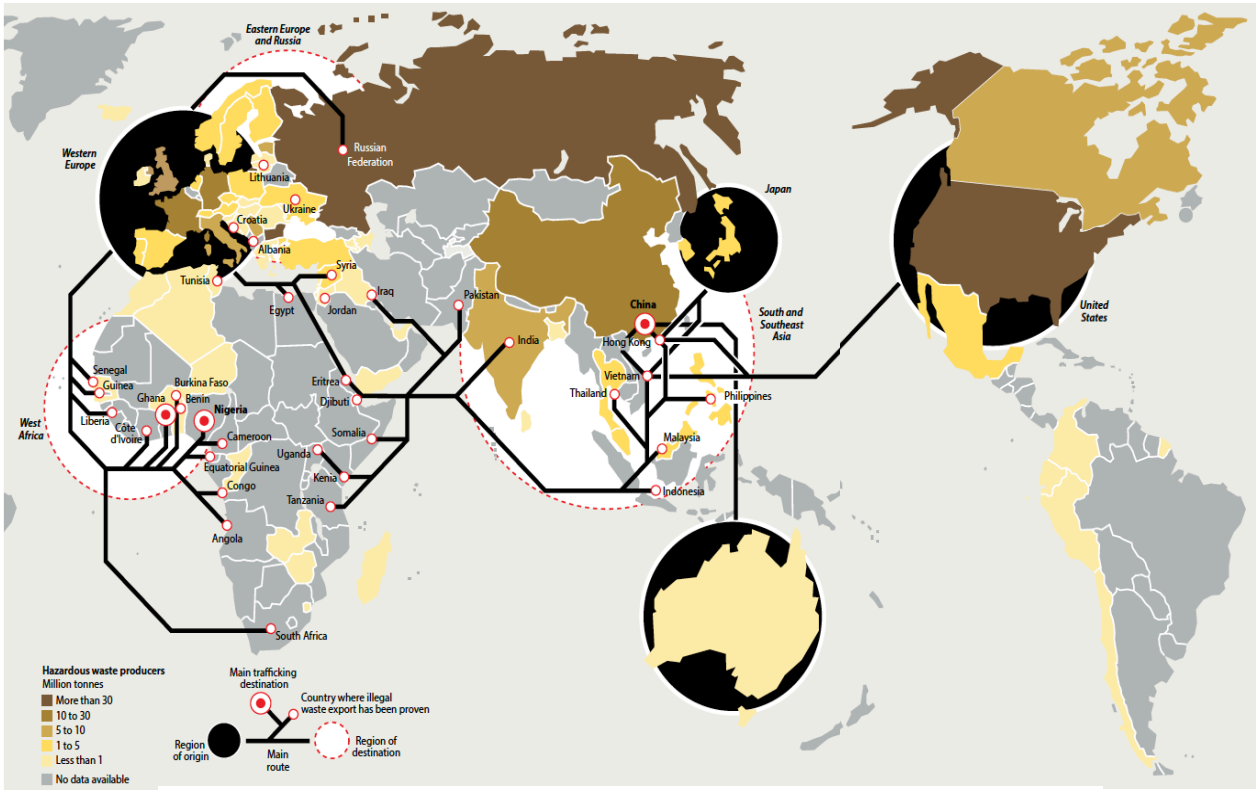
What then is e-waste? At their end-of-life (EOL), discarded electronic devices become e-waste, a fast-growing waste stream that has significant public health and environmental implications for both developed and developing countries (Pinto, 2008). E-waste is also referred to as 'Waste Electrical and Electronic Equipment or WEEE for short. The following definitions of e-waste tend to be institutionally specific and fall within the scope of existing local legislation and

[20] The scrap dealers I interviewed did not employ the term e-waste but instead used the word scrap to talk about the materials at the heart of their livelihood.

[21] Based on the mapped trajectory, China and Southeast Asia receive exports of e-waste from the USA, Japan and Western Europe, whereas e-waste into West Africa is mainly from Western Europe. It is important to mention that this map shows illegal shipments of hazardous waste including the export of tires, end-of-life vehicles and car parts, and e-waste. Europe, North America, Japan, and Australia are the main points of origin of illegal waste shipments, with China, Hong Kong, Indonesia, India, Malaysia, Pakistan, Vietnam, Côte d'Ivoire, Ghana, Guinea, Nigeria, Sierra Leone, Tanzania, Togo, Benin, and Senegal as the main destinations (Waste Crime–Waste Risks: Gaps in Meeting the Global Waste Challenge. A UNEP Rapid Response Assessment, 2015).

waste management policies. The StEP (Solving the E-waste Problem) Initiative[22] defines e-waste as "all types of electrical and electronic equipment (EEE) and its parts that have been discarded by the owner as waste (rejected as useless or excess) without the intention of re-use" (StEP Initiative, 2014, pp. 4–5).

Map 1. Global Flow Patterns of Illegal Waste



Source: UNEP & GRID-Arendal – A UNEP Rapid Response Assessment, 2015

The European Union's more robust inclusion/exclusion criteria for e-waste, is detailed in 'Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)'. Directive/2012/19/EU defines e-waste as electrical or electronic equipment which, is waste within the meaning of Article 3(1) of Directive 2008/98/EC,

[22] The StEP initiative is an independent and member-driven organization committed to dealing with the UN Sustainable Development Goals 12, "Responsible Consumption and Production" (StEP, 2019).

including all components, sub-assemblies and consumables which are part of the product at the time of discarding (European Union, 2012).[23]

The Basel Action Network (BAN), an NGO operating from the USA, has been at the forefront of discussions about e-waste, specifically its effects on the environment, the recycling conditions in the informal sector and the unfair and unequal political and economic relations that shape the trade between OECD and non-OECD countries (Basel Action Network, 2015c). Self-described as "the most steadfast supporter of the UN Basel Convention," BAN's definition of e-waste adheres to the 1989 multilateral environmental agreement (Basel Action Network, 2015b). E-waste is, first and foremost, a hazardous waste category. It encompasses a broad and growing range of electronic devices ranging from large household appliances such as refrigerators, air conditioners, to computers, cell phones, stereos, and other consumer electronics that have been discarded by their owners (Adeola, 2011; Basel Action Network, 2015b). According to BAN, once discarded, everything with a [electrical] cord or battery becomes electronic waste (Basel Action Network, 2015c).

The United States, which is not a party to the Basel Convention,[24] has a much more limited definition of e-waste, which means that states are free to develop their state-specific criteria. In the USA "e-waste," "electronic waste," "e-scrap" and "end-of-life electronics" refers to "used electronics that are nearing the end of their useful life, and are discarded, donated or given to a recycler" (US EPA & OITA, 2014). The products that fall into that category include "mobile phones,

[23] Article 3(1) of Directive 2008/98/EC defines 'waste' as any substance or object which the holder discards or intends or is required to discard (European Union, 2008).

[24] The USA EPA website explains that while the USA signed the Basel Convention in 1990 and though the Senate gave its advice and consent to ratify the agreement in 1992, the President cannot complete the ratification until implementing legislation is developed. In 2020, the USA has yet to draft those required legislative instruments to pave the way for ratification (US EPA, 2015).

IT equipment and televisions" (StEP Initiative, 2014, p. 4). Left out are other consumer devices and household appliances – items accounted for under more stringent EU policies. The Ghanaian government uses the definition of e-waste as defined by the Basel Convention and the other regulatory frameworks to which it is a signatory or party.

E-waste is nonetheless a generic term that covers all forms of EEE, e.g., computers, mobile phones, digital music recorders/players, refrigerators, washing machines, televisions (TVs) and many other household and consumer items discarded for a myriad of reasons (Pinto, 2008). Planned and perceived obsolescence and malfunction are the most common (Pinto, 2008). Annex I of Directive 2012/19/EU defines ten categories of EEE. These are large household appliances, small household appliances, IT and telecommunications equipment, consumer equipment, lighting equipment, electrical and electronic tools (except for large-scale stationary industrial tools), toys, leisure and sports equipment, medical devices (except for all implanted and infected products), monitoring and control instruments, and automatic dispensers (Eurostat, 2016). Of the above ten categories, large and small household appliances, IT and telecommunications equipment, and consumer equipment categories account for a larger share of the WEEE generated globally (Pinto, 2008).

A short note on Semantics – E-scrap

Words, their subtext, connotations and sensory and imaginative effects shape our attitudes, behaviours and social relations. The Canadian Association of Recycling Industries expresses this sentiment in the following statement.

"Scrap materials are not waste. Waste is a problem, but recyclable material, e.g., scrap, is a resource. Governments and policymakers around the world continue to make the fundamental error of classifying recyclable material, e.g., scrap as waste. Scrap is a tradable commodity that meets internationally recognized specifications. This material has value to scrap processors

[dealers] and consumers. Defining scrap as waste, therefore, creates unnecessary regulations in the transportation, trade, and processing of these materials" (CARI-ACIR, 2019).

The varied vocabulary which categorizes waste has a dramatic effect on how it is understood and society's relationship with it. At one end, the ecologically minded and business savvy entrepreneur or executive is committed to seeing all waste as 'resource' or 'commodity' that has inherent material value. At the other extreme, all discarded 'stuff' is rubbish, potentially toxic and destined for the landfill or incinerator. Electronic waste recycling and scrap metal recovery in Agbogbloshie represents the first view, i.e., that of the business entrepreneur who ekes out a livelihood by his ability to see waste as a resource. Semantics matter much at this point. In some circles (namely, in the electronics recycling industry), the waste nomenclature has been dropped in favour of 'scrap.' [25] The new term, electronic scrap or e-scrap responds to the shift in how we think about discarded electronics, i.e., no longer as waste, but as a ubiquitous resource with opportunities for further value extraction and capture. The word 'scrap' is also taken up by workers in the informal sector to encompass all discarded metal-bearing materials that are essential to their trade. In opting to use the word scrap instead of electronic waste or waste more broadly, these workers have redefined what has been seen as waste by certain sections of global society. In so doing, they challenge the longstanding binarism that separates waste from value and vice versa – not for ecological reasons but out of their desire to survive.

[25] The electronics recycling industry in 2019 held one of its first E-scrap conference and Trade Show. (see http://www.e-scrapconference.com/) Electronics Recycling Inc. publishes an online E-scrap news magazine. (see https://resource-recycling.com/e-scrap/). The Institute for Scrap Recycling Industries Inc. forgoes the use of the word waste and describes it core activities in relation to buying and selling scrap. (see https://www.scrap.org/).

Research Methodology & Design

Theoretical Grounding

The management of e-waste is a growing problem for countries on both sides of the north/south geographical divide. As interest in the global e-waste problem expands so, has research generated by disparate disciplinary fields. Four theoretical approaches; (1) environmental racism and (in)justice; (2) urban mining; (3) the circular economy model; and (4) global value chain (GVC) analysis form the earlier intellectual foundation for research on the transnationalization of e-waste. These approaches address variously, e-waste flow patterns between developed and developing countries, the environmental and public health impacts of e-waste recycling in developing countries, and the economic value of scrap metals recovered from e-waste. Notwithstanding the salience of these approaches, no single theoretical approach can adequately explain the complexity of the global e-waste problem. Together, however, the selected approaches complement each other and provide a more nuanced analysis of the global e-waste problem.

The environmental racism and justice movement has its history rooted in the USA, but its relevance is global. In the same way that the siting of polluting facilities in the USA alludes to its racial geography, so too does e-waste recycling activities in the global South ascribe to the hierarchical and racial ordering of global space. As a theoretical framework, environmental racism has since been used to explain the racial underpinnings of the transnational nature of e-waste flows from developed to developing countries. There, the risk of exposure to potentially hazardous chemicals is higher for those racialized populations working to recover scrap metal from e-waste. The externalization of toxic burden is then a function of race and place politics.

Given the breadth of research on the subject of environmental racism and (in)justice, my engagement with the topic in this dissertation is brief.

Conversely, the urban mining literature and the circular economy model focus primarily on the regenerative capacity of e-waste. Proponents of urban mining and the circular economy model reposition e-waste as a source of secondary materials, e.g., scrap copper, aluminium and iron and steel, that can be mined/recovered or recycled for entry into the commodity production process. These approaches tend to target peripheral locations where poverty and high unemployment abound, and where informal waste economies are already well developed. These conditions create the optimum environment where rudimentary e-waste recycling can take root and flourish. Though these discourses are positioned as green economy strategies - because they promote resource efficiency and sustainability - by commodifying the e-waste stream, they create new zones or avenues for capital to accumulate maintaining the growth model of the system.

GVC analysis traces the distribution of activities that capture value within a value chain. GVC analysis explains how commodity production within the existing capitalist system, depends on cheapened and racialized labour working under environmentally challenging conditions, to create surplus value that is unevenly distributed among chain participants. Though GVC analysis does not attend adequately to the afterlife of commodities, I use the framework because recovered scrap metal is a raw material input for new rounds of production. While the urban environment in the global South supplies stocks of scrap metal, these nodes accrue the least value within the chain, as scrap metal like primary commodities, are cheaper in relation to refined or (semi) finished products. These theoretical approaches are discussed in greater detail in Chapter Two.

While I recognize the significant contribution of the intellectual project that is the environmental justice movement and its stance against environmental racism, I build on its foundation to forward an analysis of e-waste recycling and scrap metal recovery in Agbogbloshie that goes beyond a discussion about the disproportionate environmental harms borne by racialized groups. I start from the position that global capitalism has always depended on processes that cheapen and exploit racialized places and people. Melamed (2015) likewise, tells us that processes of racialization cement the unequal differentiation of places and people which capitalism requires for its sustained expansion. The flow of hazardous waste within and between countries (by no coincidence) conforms to the geographical and spatial location of racialized places and people. Because capitalism is a system that functions on racial inequalities, some groups of people are never fully incorporated into global circuits of capitalist production. Their incorporation is always temporal and spatially situated. Given the above intricacies of the capitalism-racism nexus, I use the dis/articulation perspective proposed by Bair and Werner (2011b) to explain the exclusion of specific places and people from various rounds of commodity production and as such, participation in the global economy. I also critique the agenda of green capitalism and its green economy strategies (with its embrace of recycling in the global South) as the perpetuation of racial forms of accumulation within the global economy.

The dis/articulation perspective is an alternative framework that flips the value chain construct on its head. The authors call attention to the ongoing processes of inclusion and exclusion that iteratively forge and break links between circuits of commodity production, people, and places' (Bair & Werner, 2011a, p. 992). As indicated previously, the category of waste attached to places and people acts as a signifier of their disposability, which is also connected to the hierarchical organization of global space and the unequal valuation of people. This matrix of

subordination and subjugation (based on race, ethnicity and citizenship) makes it more likely that racialized places and people are perpetually caught up in the inclusion/exclusion mechanisms of global capitalism. In the context of my research, the dis/articulation perspective helps explain the ongoing processes that displace northerners from global circuits of production, and which maintains uneven regional disparities in Ghana.

Lastly, in critiquing green capitalism and green economy strategies as extensions of racial capitalism, I challenge the ahistorical and race neutral analyses of urban mining, the circular economy model and traditional conceptualizations of the GVC framework. These approaches have either given short shrift to, or wholly disregarded race as a deciding factor which determines where waste is 'mined', by who and for whose ultimate gain. Through this critique, I show how racially devalued places and racialized and surplused populations are recommissioned in the service of new regimes of capital accumulation.[26] The case of e-waste recycling and scrap metal recovery in Agbogbloshie points to the racializing logic of global capitalism which continues under the guise of free trade, international aid, philanthropy, and alternative development pathways, e.g., the transition to an inclusive green economy for Africa, promoted by an EU-funded project, Switch Africa Green. The transnationalization of e-waste flows in the 21st century, therefore, perpetuates historically determined racial hierarchies of places and people, such that toxic waste dumping and hazardous waste recycling is rationalized as a way out of poverty for e-waste workers in Ghana while generating new rounds of wealth disproportionately captured by industry in the West.

[26] Another example of the racializing logic of capitalism (not connected to e-waste but still pertinent) is similarly captured in the United States subprime mortgage crisis (2007 and 2010); and the Flint water crisis in the USA where the city Manager prioritized fiscal responsibility over the health and safety of the predominantly black community (Pulido, 2016).

The theoretical approaches introduced above but discussed in more detail in Chapter Two and Six, guided the development of my research questions and also informed the qualitative research methodologies chosen.

Research Questions

A guest author to the 'Discard Studies' platform wrote that the social, political, and economic orders that structure almost every aspect of modern life, value space, and life differentially and even hierarchically (Discard Studies, 2015 para. 1).[27] I make reference to this statement to help frame the conceptual boundaries of this research exercise. At its core, my research attends to the issue of e-waste recycling and scrap metal recovery in Agbogbloshie through engagement with academic work that places race at the center of its analysis. My research questions are informed by this standpoint, and so, use race as its unit of analysis to explicate how processes of racialization shaped the capitalist economy, and how capitalism has simultaneously shaped processes of racialization. Also, despite the use of Marxist political economy terminologies, this dissertation is not intended to be a Marxist critique of global capitalism. Specific to my research are the following questions.

1) How have global asymmetries in power (i.e., political, economic and social) resulted in the emergence of Agbogbloshie as a place and space which is both local and global in origin?
2) How do the material characteristics of technologies influence social processes at the margins?
3) How does the category of 'waste' inform the relationship between material objects, places and people (their bodies and labour) in the contemporary capitalist economy?

[27] The field of Discard Studies deals with the wider social, economic, political, cultural, and material systems that shape waste and wasting (Discard Studies, 2018).

4) How does the experience of those employed at the tail end of the consumer electronics value chain assist in understanding the simultaneous (de)valuation of black spaces and (de)valuation for exploitation of black bodies within the global economy?

Research Methodologies

The inspiration behind my research methodology came from an article I read by Gezon (2010), 'Khat commodity chains in Madagascar: multi-sited ethnography at multiple scales.' The author's use of multi-sited, multi-scale ethnography to analyze the local/global dynamics of the khat commodity chain in Madagascar seemed eerily familiar to my research. Gezon employs a multi-sited, multi-scale approach that links local deforestation on Mt. d' Ambre and changing landuse patterns to demand for khat outside the immediate growing region. I borrow from this methodology to connect the expansion of e-waste recycling and scrap metal recovery in Ghana, to international demand for cheaper scrap metal but also, to the international push to manage the sheer volume of e-waste generated which is recognized as a formidable global challenge. In both cases, we see how activities occurring locally connect to unfolding transnational processes (Gezon, 2010). Advancing a multi-sited, multi-scale approach to an examination of locally specific yet globally determined processes reveals the depth of global interdependence, the extent of cross-national flows, the shrinking of time-space and the permeability of national borders (Gezon, 2010). I also chose this method because it addresses critical questions of scale – national, regional, and international. While acknowledging the usefulness of the multi-site, multi-scale approach, I should mention that the principal site of my investigation was Accra, Ghana. However, other sites like Nigeria, the destination for some scrap copper, China and India for iron and steel scrap, Germany for aluminum scrap, and Sweden for lead, though not visited, are integral to the e-scrap trade. While I do not speak in-depth about these other sites, whether as exporters of e-waste or

importers of e-scrap, the research does address and indicate the transnational reach of the activities in Agbogbloshie, Accra, Ghana.

The interdisciplinarity of my research also calls for the adoption of a mixed or multiple methods approach that "attempts to consider multiple viewpoints, perspectives, positions and standpoints (R. B. Johnson et al., 2007, p. 113). The mixed methods approach requires that researchers integrate multiple research methodologies (e.g., experiments, ethnography), and methods of data collection (e.g., questionnaires, interviews) into the research design process. Within this mixed, multiple method approach, quantitative and qualitative methodologies are complementary, leading to greater methodological pluralism and rigour. My research draws on the strengths of storytelling, ethnographic life history and archival research methodologies. Below I elaborate on my research process and the methods I used. I visited Ghana in May 2017 and conducted fieldwork between July to November 2018.

Storytelling

I employ storytelling as a methodology for critically engaging with the daily experiences of my research participants while recognizing my positionality. It weaves together a series of stories from the main actors, i.e., e-waste workers, government bureaucrats, the general public and the international NGO and philanthropic community implicated in Ghana's complicated efforts to manage e-waste within its borders. These stories reveal how the various actors see themselves and others in the broader narrative, make sense of their experiences, understand the environmental context in which they operate, and apportion blame and responsibility for the good and bad of their experiences. These stories are not meant to be objective accounts but instead present the research from the perspective, experiences and knowledge of those involved. In so

doing, the stories reveal veiled prejudices, elitist attitudes, ignorance, political manipulation but also, determination, agency and grassroots power. Like Solórzano and Yosso (2002, pp. 23, 27), my choice of storytelling as a methodological tool counters deficit-informed or monovocal research that upholds racialized stereotypes, silences the voices and distorts the realities of those involved in the informal recycling activities in Ghana. Similarly, as a counter-narrative, it challenges prescriptive solutions to e-waste management in Ghana. These solutions are often imported and top-down, legitimize the colonial, political and economic subordinated position of Africa vis-à-vis the West, and hide the wellspring of disdain for the people (i.e., e-waste workers) and the places where they live and work. More importantly, storytelling confronts the power relations that determine where e-waste ends up, how it is managed, who benefits from the trade and recycling opportunities, and the form of those benefits.

Ethnographic Life History

How do you explore the experiences of northern migrants in Accra who have a long history of marginalization by other more economically and politically dominant ethnic groups? (More on this to follow in Chapter Four). Can their current experiences in Agbogbloshie as e-waste workers be investigated without due knowledge and regard for their historical subordination? These are some of the questions that guided my choice of research methodology. The data I sought was primarily qualitative and the method for accessing this data was through ethnography. This approach also proved successful in my Masters' research, where I employed ethnographic tools to document a life history rooted in macro events unfolding at a global scale, and so, I anticipated that this method would be similarly useful to my study of e-waste recycling and scrap metal recovery in Accra, Ghana. Ethnographic life history research explores the intersections between human

experiences and the social context within which they occur (Cole & Knowles, 2001). This methodological approach allows for an in-depth exploration of an individual's life (their day-to-day decision-making processes, and their consequences) and the complexities of these lives within community settings (Cole & Knowles, 2001, p. 11). Plummer (2001) underscores the fact that individual life stories do not occur in isolation, but connect to broader contexts, such as the wider community, society and its culture. As a result, individual life stories are inherently complex due to a confluence of historical, social, cultural, political and economic conditions. Methodologically, ethnographic life histories present the researcher with a few challenges, e.g., how to gain trust and later, access to those experiences/stories we want to explore. How will the stories be documented and shared and what are the implications of those decisions? This brings up the issue of ethical responsibility of the researcher to the researched.[28] Though challenging, life history as a methodology, provides the researcher with an opportunity to fully enmesh themselves in the research process to better understand the experiences of the research participants. This methodology assumes that knowledge comes from the researched and not the researcher. Researchers should, therefore, 'check their power' and not monopolize the process of knowledge production because the direct testimonies of the researched provide the best insight into their realities (Cole & Knowles, 2001).

[28] At my first meeting with the membership of the Greater Accra Scrap Dealers Association, none of the scrap dealers (elders in the community) engaged with me directly. Though the professor asked that I explain my research to them no one made eye contact with me and all their questions were addressed to the professor in their own language. This wall of silence and suspicion started to thaw after I had made a number of visits to the scrap yard smiling and greeting the elders notwithstanding the curious gazes and disregard. Though most of the elders of the Association eventually warmed to me, one particular member, refused to address me by my name and spoke to me only in his northern dialect. He knew my name he also knew I did not understand what he was saying, but he persisted. On my last trip to Agbogbloshie to say my goodbyes to my research participants, I overheard this particular elder communicating in English.

The ethnographic portion of my research consisted of a series of semi-structured yet in-depth interviews with e-waste workers, and scrap dealers at the Agbogbloshie scrapyard, and personnel from five steel fabrication plants in Tema.[29] Additional interviews were held with representatives from relevant government ministries and quasi government organizations, local NGOs, international development organizations, businesses in and around the scrapyard, retailers of food and mobile money, female water sellers and porters in Agbogbloshie, taxi and Uber drivers, academics from the University of Ghana and other PhD students doing research in Agbogbloshie. Data collected in this manner gave me the crucial clues needed to piece together the nature of e-waste recycling and scrap metal recovery in Agbogbloshie. I found the process to be particularly useful in that I could map the inflows (not quantities, but source countries) of e-waste and the corresponding outflows (not quantities but destinations) of recovered e-scrap (scrap metal) through networks in Ghana and beyond. I gathered the information needed to complete the mapping from over 40 semi-structured interviews with key actors. Also, important were my many site visits to Agbogbloshie where I observed and sometimes participated in community activities that went beyond their day to day work with e-waste, e.g., the celebration of Eid al-Fitr.

Ultimately, my series of in-depth interviews with the e-waste workers afforded me intimate and privileged access into their daily realities - of which their involvement in e-waste recycling is a small yet very important piece.

[29] I conducted five rounds of interviews (a combination of semi-structured and open ended) with six e-waste workers engaged in different activities in Agbogbloshie from collecting, sorting, dismantling, burning and buying and selling. These interviews were between 60 and 90 minutes in length. Outside our scheduled interviews, I also interacted with these e-waste workers during their lunch breaks, religious celebrations and through another research project run by my fieldwork supervisor (where I also provided assistance). These interviews, social interactions and observations formed the core of my life history research.

Archival Research

In my study of e-waste recycling and scrap metal recovery, the need to look at individual, societal and institutional norms and practices necessitated the use of archival research methods. The archival portion of my research consisted of analyzing the legal frameworks in which the e-waste network in Ghana is embedded. As mentioned previously, dominant narratives about e-waste recycling and scrap metal recovery in the global South have tended to focus on its adverse environmental, occupational and health effects. In so doing, they initially ignored or under-reported the economic potential and its use as a livelihood strategy for the urban poor in Accra, Lagos and other e-waste repositories in West Africa. I, however wanted to expand the frame to explore all aspects of e-waste recycling and scrap metal recovery in Ghana.

The data gleaned from my archival search facilitated an evaluation of the dominant discourses and existing findings as I drew on evidence from disparate sources to provide a more nuanced narrative. Sources of archival data included: government reports, e.g. planning and strategic development plans, legislative instruments, newspaper articles, reports from local, regional and international research institutions, think tanks, industry groups, and NGOs, academic papers and conference proceedings, journal articles, blogs and other contextual materials. The aim here was to address data disparities, especially pertaining to the economic viability of this informal sector enterprise.

An analysis of these archival sources exposed prevailing societal attitudes towards the informal sector, the urban poor engaged in informal activities, traditional tensions between ethnic groups, and class, gender and religious biases. More importantly, a thorough review of archival sources helped to deconstruct the single-story narratives about the legality of e-waste trading

internationally, its illicit entry into Ghana and other countries (despite prohibitive local regulations), and locally specific pollution problems tied to informal e-waste recycling.

It was also interesting to see how the international framing of the e-waste problem, and the solutions geared at reconciling rapid technological advancement, environmental sustainability, and economic growth shape national attitudes and policy responses. A cursory review of the Hazardous and Electronic Waste Control and Management Act, 917 (of 2016) as well as the corresponding regulations, Legal Instrument (LI) 2250 and its extended producer responsibility clause, indicates a streamlining of the local e-waste discourse to the global. Similarly, a cursory overview of projects reports (government and NGO alike) shows that many of the funders are external which can lead to questions about local autonomy in terms of the paths taken to manage e-waste.

Data Collection and Analysis

My research process was highly qualitative; however, it did rely on quantitative data, though to a much lesser extent. A combination of participant observations, site visits, field journaling, semi-structured interviews, and document analysis generated much of the qualitative data. Gray literature (government documents), business publications, academic journals, newspaper articles, NGO websites, and other independently commissioned research reports formed the basis of my quantitative data sources. Together, these documents and techniques helped me to analyze and explain but also document, describe, give voice to and tell a revealing and informative counter-narrative about the e-waste recycling and scrap metal recovery in Accra, Ghana.

I used *participant observation* because it allows for the collection of information about e-waste recycling and scrap metal recovery and existing attitudes of those directly engaged and

those opposed to this activity in Agbogbloshie and Accra more generally. As a participant-observer I became more intimately involved in the community, and was gradually given much more detailed information, allowing me to identify specific issues and draw appropriate conclusions that might not have been picked up by traditional questionnaire surveys. The access granted by the community allowed me to fully submerge myself in the research process increasing the likelihood that I could understand and authentically represent the experiences and everyday realities of my research participants.

As I indicated earlier, more than 40 formal interviews were held during the course of my fieldwork. I differentiate these interviews from the more casual conservations which were not planned but occurred organically. I recruited officials from government ministries and quasi-government agencies, NGOs, international development agencies, importers and retailers (of new, used and end-of-life EEE), as well as representatives of steel manufacturing plants, through emails, phone calls and office visits, to solicit their participation. The working population of Agbogbloshie, divided into various working groups, namely scavengers and collectors, repairers or refurbishers, recyclers (i.e., dismantling and burning), scrap dealers and ancillary services providers (e.g., food and beverage vendors), also formed part of those interviewed. The recruitment criterion for these participants was at least one-year of continuous work in the e-waste processing area (i.e., working directly with recycling and providing ancillary services) or local residence. I chose to interview more e-waste and scrap metal workers because they remained the central focus of my research. Their interviews occurred on multiple occasions - typically at one or two-week intervals. Each interview covered a different topic, e.g., socio-demographic characteristics of participants; description of the e-waste activities they are engaged in; income and expenditure as it relates to their employment; perceptions of sector and suggestions for improvement.

Sampling for proportionality (as would occur with proportional and random sampling) was not the primary focus of my research nor was it designed to foster representativeness in terms of the population of Agbogbloshie. I used the purposive (purposeful) sampling technique to target specific participants who were directly involved in the e-waste and scrap metal recovery sector in Accra. Participants fell into five categories: staff of government regulatory agencies (e.g., Customs Division of the Ghana Revenue Authority, Ghana Standards Authority, Ghana Ports and Harbors Authority; Ghana Environmental Agency, Accra Metropolitan Assembly, National Youth Authority), importers and retailers, e-waste and scrap metal recovery workers (further subdivided by their work activity), steel manufacturing plants, and those women, who prepare and sell food and drinks and clothing in Agbogbloshie. I used this sampling method to recruit participants who had an in-depth knowledge of the sector from various vantage points and those willing to share their experiences as workers and residents near the scrapyard.

Document analysis is another social science research method I employed. Document analysis requires that the researcher review, evaluate and interpret the text of the documents (broadly defined) to make certain deductions represent the essence of the topic under investigation (Bowen, 2009; Triad 3, 2016). I employed document analysis, particularly as it relates to the academic and political discourse on the transboundary movement of e-waste. I analyzed key themes, e.g., toxicity, residual value, and waste or toxic colonialism (per Discard Studies) that emerged in the literature and how these worked to cement the identities of the informal scrap dealer and recycler by academics, government bureaucracies and others in the news media. Also, important is how these influenced international efforts to combat, formalize, or make 'green' e-waste recycling and scrap metal recovery in Ghana.

Limitations of Research Methodology

One of the most important limitations of this research was my inability to speak the northern languages spoken by the vast majority of residents in Agbogbloshie, i.e., Dagbani, Dagomba and Konkomba. The bilingual residents of Agbogbloshie, however, spoke English or pidgin English and also Twi. The existing language barrier necessitated my use of a research assistant who accompanied me in the field and assisted in translation and interpretation as the need arose. There was also the issue of trust and time and how these could impact the quality of information collected. In response to the first, I hired an assistant who was trusted and welcomed by the community. Trust issues outside the community were more difficult to navigate.[30] Because of the illegality of ferrous scrap exports, some requests for interviews went unanswered; documentation was sometimes withheld and questions that required verifiable quantities, percentages, etc., were often brushed aside. To maximize the time allotted for fieldwork, I also worked in tandem with a wider project occurring in the same community. This allowed for the sharing of some resources, attendance at similar events and more interaction and access to the general community within a condensed timeline. Despite these challenges, I believe my methodological approach generated interesting results that will contribute to the emerging literature and serve as the basis for further work in the future. Below I will briefly elaborate on the structure of this dissertation.

[30] Some of the more difficult interviews I had during my field work were with steel manufacturers. The manager of one company in particular, after a series of emails and telephone calls, eventually agreed to a telephone interview. The interview was difficult as the manager was not forthcoming with answers to most of my questions. After about 10 to 15 minutes into the interview, he abruptly ended the call. I reached out to him to thank him for his time and reiterated my interest in completing the interview but never heard from him thereafter.

Structure of the Dissertation

This dissertation has seven chapters. Chapter One (A Not So New Problem) lays the foundation of the research. It provides a very succinct exploration of the concept of waste and introduces the three forms of waste around which this dissertation is built, i.e., places, people and things. I also introduce in the relevant theoretical approaches that shape much of the work on e-waste to date. These examine how marginalized populations disproportionately bear the burden of hazardous waste disposal across the globe, but also, how these same persons with the right 'green business' and sustainability mindset, could perhaps secure their livelihoods by redefining and recycling some proportion of the world's e-waste. The chapter winds down with a discussion of my methodological research process.

Chapter Two (Understanding E-waste - the Environment, Economy & Race) provides a brief review of four theoretical approaches – environmental racism and (in)justice, urban mining, the circular economy model and global value chain analysis - that have gained a lot of traction in academic and policy circles regarding the global e-waste problem. Though each these theoretical approach attends to the problem of e-waste (within their disciplinary limits), in choosing to foreground race as my organizing principle, the theoretical arguments that I draw on are the dis/articulation perspective by Bair and Werner and a critique of green capitalism and green economy strategies as an extension of racial capitalism to examine the mutually constitutive structures of race and capitalism.

Chapter Three (Place: Agbogbloshie Scrapyard) finds its theoretical grounding in earlier research, which suggests that places can become wasted, abandoned, or neglected because of interactions with material waste and superfluous populations. What this means is that wasted places are produced through socio-spatial and material interactions but also because of dominant

economic forces of urbanization and capital accumulation which circulate capital into and out of certain places. Diverting capital away from a place creates spaces of decay, blight and contamination. The chapter applies this analytic to the emergence of Agbogbloshie as an example of wasted place – the result of capital disinvestment and dumping of both material and human forms of waste.

Chapter Four (People: Social Stigma & Labour Relations in Agbogbloshie) engages with the concept of the human-as-waste popularized by Bauman (2004). It examines the historical, socio-cultural and political factors that shape the identity of northerners in Ghana and how this identity is itself an indicator of their disposability within the historical and socio-cultural context of Ghana and the global economy. Their involvement with waste (as collectors and recyclers) and waste-making (as contributors to the pollution of the Korle Lagoon and devaluation of surrounding property) further draws them into the protracted process of becoming waste themselves.

Chapter Five (Things: Iron & Steel, Copper and Aluminum) takes on the idea of waste as discarded material objects paying particular attention to iron and steel, copper and aluminum and their currency within Agbogbloshie and also globally. This chapter describes the transformative processes enacted on former commodities (discards) and how the material properties of e-waste are the basis of social reproduction and survivalist practices by the informal sector in Accra, Ghana. Overall the chapter is devoted to a discussion of e-waste. What is it? Why is it important? How is it managed? Where? And by whom?

In Chapter Six (Discussion: The Racialization E-waste Recycling in Ghana), I bring the three previous chapters into conversation using Bair and Werner's (2011) dis/articulation perspective and a critique of green capitalism and its green economy strategies from a critical race lens. In this chapter, I argue that the touch-and-go relationship of racialized places and people to the global

economy produces and reproduces their construction as waste, 'monetized aggregates of disposable life' (see Tadiar, 2013), superfluous landscapes, or toxic sublime. The recurrent episodes of articulation and disarticulation maintain the marginality of these places and people vis-à-vis the neoliberal capitalist system and reproduce uneven geographies based on the historical institutionalization of race as difference, and as a metric of value.

Chapter Seven (Conclusion: Race, Waste and Capital Accumulation), provides a recap of the major arguments that were made throughout the dissertation. I reiterate my conclusion that the racial, uneven and hierarchical differentiation of places and people, and their contingent disposability within various iterations of capitalism are the conditions of possibility for the emergence of informal e-waste recycling and scrap metal recovery in Agbogbloshie.

Conclusion

Waste as discarded material objects results from the "transformation of objects in and out of uselessness" (Bloch, 2013, p. 453). It marks the point at which objects reach their end-of-life, i.e., the loss of technical functionality and psychological desirability (Équiterre, 2017). The same can be said of the human-as-waste and places characterized by urban decay, environmental contamination and economic blight. In Agbogbloshie, these three disparate forms of waste (places, people and things) converge. On the surface, the waste status applied to places and people, as history shows us, can be explained as the result of interactions with material waste. The relational argument or explanation posits that the contaminative and infective power of material waste is transferred to the places and people that come into contact with it. The relational character of the waste unfolds daily in our kitchens. For example, the kitchen bin functions not only as a short-term destination for food waste, but also acts as a symbolic boundary between

waste and non-waste. Any food item placed in the kitchen bin is, therefore, considered waste by this intimate association.

The economic explanation reframes the discourse, from e-waste to e-scrap, scrapyard to urban gold mine, and waste workers to miners and green entrepreneurs.[31] In some ways, the economic explanation shuns the wasted status of the place, the people and the discarded electronic devices that regularly enter Agbogbloshie. The economic explanation attends to the agenda of green growth, green economy, or green capitalism by promoting e-waste recycling in Agbogbloshie and other such sites as resource efficient and thus environmentally sustainable having a positive impact on metal resources thereby protecting the environment. Unlike the economic explanation, my dissertation maintains the wasted status of the place, the people and discarded technologies. It also departs from the relational explanation, which assumes that it is the contaminative essence of e-waste that infects the place and the people, and thus makes them waste also. Instead, I begin with a proposition, that the place and the people were already conceived of as waste within multiple spatial scales -- within the political, economic, and socio-cultural history of Ghana and the racial diminution of Africa vis-à-vis the rest of the world. The dumping of e-waste in Ghana for management by the informal sector can, therefore, be explained as part of the long history of surplus value extraction from the continent - racial capitalism.

[31]I use the word gold figuratively to mean economically lucrative.

2. CHAPTER TWO: Understanding E-waste - the Environment, Economy & Race

"…the informal recycling economy in Accra, Ghana is an employer, a backward space, (environmental) nuisance, and goldmine," Milliar and Obeng-Odoom (2011, p. 269)

Abstract

The political, economic, environmental, and social implications of the transnationalization of e-waste flows is complex, especially when race is the lens of analysis. Complexity aside, the global e-waste problem can be examined from several theoretical foundations. In the first section of the chapter, I provide a brief review of four theoretical approaches, environmental racism and (in)justice, urban mining, the circular economy model and global value chain (GVC) analysis that collapse issues of environmental discrimination, racism, resource efficiency and economic sustainability. I chose these four theoretical approaches because much of the research on e-waste recycling to date has relied on a combination of these analyses. They work to illuminate the environmental harms and public health risks inherent in most (if not all) forms of hazardous waste work and the disproportionate impacts carried by marginalized populations. They also attend to the economic opportunities that have arisen from the commodification of the e-waste stream. Nevertheless, as debates about the problems or opportunities posed by e-waste have expanded and become more ideologically entrenched, questions about the racial configuration of transnational e-waste flows are driving new strands of research. These focus attention on the political and economic relations that incorporate racialized places and people into cycles of production that also reproduce uneven geographies nationally, regionally and internationally. In the second section of the chapter, I enrich and complicate the above mentioned theoretical approaches with new research insights that provide a more nuanced answer to questions about the experiences of those employed at the post-consumption end of the electronics value chain, specifically, what their experiences reveal about the unequal valuation of racialized labour and space? And why certain ethnic and racialized groups are engaged more substantively at the terminal end of this value chain. To this end, the two theoretical approaches that inform my analysis of the racialized nature of electronics recycling and scrap metal recovery in Agbogbloshie, Accra, Ghana are the dis/articulation perspective by Bair and Werner and a critique of green capitalism and green economy strategies as an extension of racial capitalism. Together, these examine the mutually constitutive structures of race and capitalism and how they collide to maintain exploitative forms of accumulation and thus reproduce racial geographies that allows for the wasting of places, people (and less so things) - the casualties of the capitalism-racism nexus.

Introduction

Rapid development in information and communication technologies continues to drive the global production of electrical and electronic equipment (EEE), devices and appliances for government, industry and consumers alike. Today, the electrical and electronics manufacturing market is one of the world's fastest-growing economic sectors (ILO Sectoral Policies Department, 2014; Sturgeon & Kawakami, 2010). In 2012, global trade in electronic products, including information and communication technology (ICT) equipment and electronics-based consumer products, was estimated to be worth $1.4 trillion (Narain, 2016, p. 4). This growth trajectory will likely remain positive given the uptick in the use of emerging technologies such as artificial intelligence, home automation and wearable technologies. The growing role and usage of EEE will, however, result in an unprecedented strain on society's ability to effectively manage its waste stream. A combination of factors, e.g., the shortened life span of these commodities and the intricateness of their designs, complicate efforts at refurbishment and repair and make the recovery of valuable materials difficult. Together, these lead to an even faster pace of waste generation.

The following section discusses four theoretical approaches, environmental racism and (in)justice, urban mining, the circular economy model and global value chain (GVC) analysis that interrogate (within their disciplinary limits) the many ways that capitalism and racism mediate the encounters between places and people and also things, leading to their co-production as waste. These approaches collapse issues of environmental discrimination, racism, resource efficiency and economic sustainability to explain e-waste flows between rich and poorer countries, and the consequences on developing countries and their populations. These approaches divert along two main lines. (See Figure 1).

Figure 1. Broad themes in the literature on E-waste

Health & Environmental Impacts of E-waste

Those who foreground the adverse health and environmental effects point to the two extremes of the consumer electronics value chain - oppressive and precarious factory working conditions during assembly and arduous and dangerous conditions during rudimentary recycling. At both points, i.e., the factories and scrapyards, occupational health and safety standards are malleable. In the latter, exposure to toxic substances, e.g., polybrominated biphenyls (PBBs), polybrominated diphenyl ethers(PBDEs), polychlorinated biphenyl (PCBs), polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) and other heavy metals (Song & Li, 2014, p. 82) is particularly high. These higher levels of precarity and environmental health risks are a serious cause for concern for those countries that import e-waste for recycling purposes. The toxic substances released during informal recycling operations contaminate soil, water and air quality and also bio-accumulates in these natural systems. A study by Asamoah et al. (2018) identified seven indicator PCBs in the breast milk samples from mothers who work or reside in and around the in e-waste hotspots in Accra. Mothers with concentrations of PCB at or above the threshold limit could pose a potential health risk to their babies. The general population, based on ongoing studies, is also at a higher risk of suffering from acute respiratory effects due to reduced lung function (GeoHealth West Africa, 2017) and other health-related conditions, e.g., an increase in cancer diagnosis from exposure to carcinogens. Workers and those impacted by the contamination may also suffer higher incidences of congenital disabilities and infant mortality (PACE, 2019). Thus far, the legacy of informal e-waste recycling in many developing countries conforms to what Rob Nixon (2011) refers to as slow violence.

The Regenerative Capacity of E-waste

Reuse, recycling and recovery capture the essence of the regenerative capacity of used and discarded electronic devices. Those who promote this agenda describe it as an opportunity to reduce environmental harm by diverting waste away from landfills. Resource efficiency is therefore possible through the recovery of precious metals and other valuable materials, e.g., gold, silver, and copper that would otherwise remain buried in our landfills and other storage. The economic value of e-waste also creates employment and can potentially advance economic development in developing countries (PACE, 2019). PACE (the Platform for Accelerating the Circular Economy) estimates the annual material value of e-waste to be about $62.5 billion. With only about 20 percent of all e-waste properly recycled globally, the remaindered value is unaccounted and substantially loss (PACE, 2019). The International Telecommunication Union (ITU), in collaboration with the International Labour Organization (ILO), UNEP and the United Nations E-Waste Coalition are therefore at the forefront in promoting a circular economy solution to our current e-waste crisis. Like any campaign, the new circular economy vision, as a management strategy for e-waste, comes packed with taglines. These suggest that mining the global stockpiles of e-waste is, in fact, a goldmine, e.g., 'there is 100 times more gold in one tonne of discarded smartphones than in a tonne of gold ore.' Other statements suggest that recycled metals are more energy-efficient than metals smelted from virgin ore, and that mining discarded electronics produces 80% less carbon dioxide emissions compared to traditional mining (PACE, 2019). The aim here is not to dispute the validity of these statements but to point out that they function to push a particular agenda, a technocratic solution to the complex problem, which is the overconsumption of precious metals and other valuable materials to meet the global demand for EEE.

Theoretical Approaches to Understanding to E-Waste

Environmental Racism and (In)justice

Though I lump together the concept of environmental racism and environmental (in)justice, they are not meant to be synonymous or used interchangeably. Environmental racism is a form of systemic racism that deliberately disenfranchises populations of colour in the area of environmental policy and decision-making. It is part of the broader environmental justice movement that grew out of concern over the unequal environmental burdens and the associated racial and economic injustices that affect communities of colour in the global North and countries in the global South (Bullard, 1999, 2000, 2001; Nixon, 2011; Schlosberg, 2009).

The environmental racism and (in)justice literature is rife with examples of the disproportionate environmental burdens and costs foisted unto poor, racialized and marginalized communities globally (Bullard, 1999, 2000; Pellow, 2000, 2007) as a consequence of the globalization of the economy.[32] For example, dystopian images of emaciated young men, women and children amidst a garbage strewn and charred landscape enveloped by clouds of dark smoke emitted from ignited bundles of cables, capture the environmental and health costs borne by e-waste workers in Agbogbloshie. As an activist inspired movement, its traditional focus has been to expose patterns of socio-ecological disparities that highlight the unequal distribution and exposure to environmental externalities. These externalities manifest in a variety of forms, e.g., adverse health and occupational effects, environmental pollution, declining property values, and changing socio-spatial relations, determined by class position, poverty and race. The uneven

[32] The precursor to the environmental justice movement was landmark garbage dispute between African-American homeowners (Northeast Community Action Group or NECAG) and the owners of a sanitary landfill facility in Houston, Texas. Three years later, predominantly African American residents of Warren County, North Carolina, fought against the siting of a PCB landfill in their community. These were the seeds of the environmental justice and environmental racism movement (Bullard, 2001).

distribution of harm occurs because polluting industries, e.g., incinerators, landfills, power plants and toxic waste facilities, exploit the already weak political base and high levels of economic and social inequality that characterize vulnerable communities. For example, poor communities with high levels of unemployment are more likely to acquiescence to the demands of these types of industries because of the promise of jobs and the provision of other basic social services. We see this in Agbogbloshie where northern migrants accept the increased health risk associated with e-waste recycling and scrap metal recovery in exchange for wages so low that many cannot escape the grip of poverty. Public policies around landuse planning and zoning, also create conditions that facilitate the unequal distribution of environmental harms.

In the United States, for instance, deep-seated structural inequalities - based on race and class - continue to influence the spatial distribution of environmental harms, revealing the country's racial geography of pollution. For the above reasons, one of the first strands of research that addressed the north/south orientation of the transnationalization of e-waste flows came from the environmental racism and (in)justice literature. Early research focused on the asymmetrical trade relations that resulted in e-waste from more advanced economies being dumped in poorer countries with weaker environmental laws. Some of the architects of this position were Bullard (1999, 2000, 2001), Brigden et al. (2005), Clapp (1994, 2001, 2002), Greenpeace (2015), Pellow (2000, 2007, 2010) and Puckett and Smith (2002). A common thread in each of these early writings was the unequivocal assumption that the e-waste trade between unequal geopolitical and economic powers was unfair, exploitative, race-based, and detrimental to the environment and public health and wellbeing of the recipient countries.

The narrowly defined agenda of the environmental racism and (in)justice approach is, however, challenged on the basis that it neglects the economic imperative behind the trade and

the social issues in the recipient countries that make the trade possible, e.g., extreme poverty and inequality, high unemployment and the role of the Ghanaian diaspora in facilitating the flow of secondhand electronics into the country. The economic imperative argument pushes for the reconceptualization of waste and value and where and how it is captured along the value chain. This is addressed to varying degrees in the following three approaches that promote the 'waste as resource or commodity' agenda.

Urban Mining

As global consumption rates increase - the result of accelerated material development - one debatable approach to mitigate the rapacious effects of material consumption and the depletion of the earth's finite natural resource base is intensified recycling (Brunner, 2011; Grosse, 2010). This approach is particularly salient with regards to the future sustainability of some base metals – the backbone of many industrial activities. Within the field of industrial ecology, a new approach toward recycling referred to as 'urban mining' describes a range of activities that recover reusable materials from the urban and built environment – commonly referred to within academia as anthropogenic stock (Brunner, 2011). Urban mining falls within the ambit of ideas such as closed-loop systems and the circular economy that have the principle of sustainability at their core. The collective assumption behind these sustainability constructs is that the recovery of valuable materials from the urban environment leads to waste minimization and better management as well as resource efficiency and conservation. The activities related to urban mining form a large part of the informal waste economy (in developing countries) where materials from paper, plastic, metals, and glass are recovered for (re)injection into the production cycle. Beyond the revenue

generating benefits of urban mining, it also provides a source of steady employment within the informal sector – which accounts for a large proportion of the active labour force in Ghana.

Within the urban mining discourse, the urban built environment is analogous to the natural resource mines for copper, gold, silver and iron. Ghana's urban mines are concentrated within the urban sphere of large cities and towns, e.g., Accra, Tema and Sekondi-Takoradi, that produce sizeable amounts of scrap from secondary sources. In the same vein, migrants to the city, e.g., those displaced by poverty in the northern regions and other urban dwellers unable to meet the rising cost of living within the urban sphere, supply the labour for the urban mine. E-waste workers in Ghana, therefore, replace 'traditional' miners tasked with the extraction and transportation of the mined resource. E-waste workers employ several strategies to gain access to the resource, extract what is valuable and lastly, exchange the fruits of their labour (albeit often for less than its real market value) for low wages that can scarcely meet their basic needs. Working at the least value adding point along the commodity/value chain, other actors, e.g., middlemen, brokers and other international procurers of scrap metal realize greater profits from the labour of these informal e-waste workers.

The thriving scrap metal business in Agbogbloshie is evidence of the growing relevance of urban mining to both local and global economies reliant on the recovery of secondary metals and repurposing of electronic and other metal-bearing waste. In Ghana, this relatively informal sector activity contributes to GDP, employment and livelihood security. The economic benefits of the sector extend beyond the immediate urban economy of Accra. Rural communities in northern Ghana also benefit from the remittances sent by migrant workers in Accra. Remittances are sent through local mobile money platforms – a fast, efficient, low cost and accessible way to send money within Ghana. In 2005, 59 percent of migrants from Ghana's three northern regions

reported remitting money to their families (Adaawen & Owusu, 2013). In 2012, research by Awumbila et al. (2014) revealed that 92 percent of residents in Old Fadama reported remitting money to their families. As a result of the paucity of data, it is quite challenging to analyze the volume of internal remittance flows within Ghana. However, based on the steady flow of migrants from Ghana's three northern regions to Accra and the significant number who reported remitting money (including all my research participants), we can assume that the value of internal remittances is substantial.

Remittances aside, studies by Widmer et al., (2005); UNEP & DTIE (2007); Prakash et al., (2010); Amoyaw-Osei et al. (2011); Lepawsky and Billah (2011); Oteng-Ababio (2012); Grant and Oteng-Ababio (2012); Agyei-Mensah and Oteng-Ababio (2012); Amankwaa (2013); Lepawsky (2015b) and Baldé C. P. et al., (2015) have each addressed to varying degrees the economic benefits that accrue from informal e-waste recycling and scrap metal recovery (urban mining) in emerging and developing economies.[33] The studies conclude that e-waste recycling and scrap metal recovery is a livelihood strategy for the urban poor who live and work outside the boundaries of the formal economy. The estimated contribution of the informal scrap sector to Ghana's economy was around USD 350 million in 2017 (personal communication, representative of the Ghana EPA, August 2018). In that same year, Ghana's GDP (total value of goods and services produced in the country) was USD 47.27 billion, of which the informal sector contributed 28.6

[33] The economic impact and the future potential of the e-waste value chain in Ghana is significant given; (1) its direct impact on employment in Accra; (2) its contribution to gross domestic product (GDP); (3) its forward linkages with other formal sectors e.g., iron and steel manufacturing and aluminum smelting in Tema Heavy Industrial Area; (4) its informal subsidization of 'formal' waste management services; and (5) the country's incorporation into global circuits of exchange in secondary metals e.g., copper, aluminium and iron.

percent (about USD 13.4 billion) (Ghana Statistics Service, 2018a; Ibrahim, 2018).[34] Using the provisional GDP figure for 2017, the scrap metal recovery sector accounted for 0.74 percent of Ghana's GDP in 2017. Other economic benefits from the recovery of metals from scrap include the reduction in the importation of certain semi-processed and finished metal products (e.g., steel billets and rebars) used in local steel manufacturing.

In its efforts to recast cities as "above-ground" "urban mines of the future", where discarded materials can recirculate within the market economy, the concept of urban mining fails to challenge the capitalist system of production and consumption. Instead, it is a form of "extended extraction" in the urban space – "an outcome of capitalist urbanization," according to Reddy (2016, p. 72). Liboiron (2015), also critiques the concept of urban mining, stating that it is part of a consortium of ideas best described as economic imaginaries focused on the politics of possibility. Additionally, the ahistorical bent of urban mining discourse fails to address the political, and economic power relations that prescribes waste dependent development for Africa and ecological modernization for the West. Further, while policy-makers and the academic community portray urban mining as the new normal, a sustainability war room strategy against waste and wasting, for those men and women that labour within the informal waste economy, especially in developing countries like Ghana, urban mining is first and foremost a livelihood strategy. These workers engage in these hazardous forms of precarious employment because many have no alternative.

[34] Variations exist in estimates of the actual number of persons employed directly and indirectly in the electronic waste recycling sector, the amount of e-waste treated annually within the informal sector, and its overall contribution to the Ghanaian economy through metrics such as Gross Domestic Product (GDP). These variations are related to the informality of the sector, and its lack of integration into formal accounting systems and its operations outside the scope of the government regulations.

Circular Economy

Related to the concept of urban mining is the broader concept of the Circular Economy.[35] The circular economy is framed as an approach that can address the sustainability challenges of the 21st century while still conferring on society economic, environmental and social benefits. The concept relies on the ability of alternative economies, e.g., the informal waste economy, to reuse, recover, extract, transform and recirculate the material constituents of end-of-life commodities into raw material inputs for other industrial activities. Essentially, a circular economy approach to production and consumption would close the loop and minimize waste and wastage. The circular economy model is supposed to be more sustainable compared to the linearity of the present system of production. One of the central goals of the circular economy is getting to zero waste value chains (Valenzuela & Steffen, 2017). The idealized notions of the circular economy are a lifeline for those seeking to maintain the human-earth balance that is threatened by society's rapid pace of consumption. In that vein, the circular economy model is imagined as a possible solution for global and also localized environmental crises around resource use and the pernicious effects of social and economic inequality linked to the growth model of capitalism. It operates counter to the conventional linear model of capitalist production, which requires end-of-the-pipe facilities like landfills and incinerators to deal with the waste and the leftovers of the system. The switch from a linear to a circular economy is also a movement away from the inbuilt capitalist culture of disposability and its inherent wastefulness. In theory, the circular economy model

[35] Clube and Tennant's (2020), forthcoming paper revisits four of the seminal texts and works that led to the circular economy gaining momentum in policy and academic circles. The authors note the importance of the cradle to cradle concept, the performance economy, the blue economy and regenerative design for sustainable development. To this mix we can also add biomimicry and natural capitalism (Ellen Macarthur Foundation, 2017).

attempts to topple the economic logic of capitalism, of unfettered production and growth, and replace it with sufficiency (Stahel, 2016) and residue-less production (Valenzuela & Steffen, 2017).

In practice, however, some have come to see the marketing of the circular economy as a "fetishizing narrative within a capitalist order" (Valenzuela & Steffen, 2017, p. 26). In Ghana, for instance, e-waste workers in Agbogbloshie operate both inside and outside the market economy. They partially meet the ideals of the circular economy model by salvaging from the trash heaps of profligate production and consumption, yet, their livelihood and social reproductive capabilities remain firmly wedged within the framework of capitalist social relations. The somewhat cultish promotion of the principles and practices of a circular economy for e-waste management as the EU has done with its 2nd International E-waste Day and the research work on promoting the circular economy model by the Ellen McArthur Foundation, obscures the challenges of largescale electronics recycling.[36] The reality in places that lack the regulatory oversight, capital investment, technical innovation, human resource capacity and infrastructure needed to add a dimension of circularity to an otherwise linear value chain is evidence that the circular economy model (envisaged as a panacea to the current growth paradigm) is still a utopian ideal.

Besides the toxic material content (which makes recycling hazardous and costly), today's faster, smarter and more condensed electronics are not designed with repair, refurbishment or remanufacture in mind. The design and physicality of discarded electronics, therefore, incentivizes its externalization and disposal in places like Agbogbloshie. Also, the idea that the material constituents of discarded products can almost seamlessly and infinitely be re-used is questionable. Herod et al., (2014) put forward a similar argument. The authors acknowledge that there is a limit

[36] The 2nd International E-waste Day was held on 14 October 2019.

to the reusability and recyclability of discarded commodities and while some material can be reused, this process does not preclude the production of waste -- though in lesser quantities, it can be more toxic (Herod et al., 2014). Another unintended consequence of the rhetoric around circular economy models, especially applied to the e-waste stream is the potential for the more valuable portions of the waste stream to be relocated from the informal to the formal sector (J. Davis & Garb, 2019) and possibly from developing to developed economies.

Global Commodity/Value Chain Analysis

Global Commodity (now value chain) research unpacks the processes by which commodities are produced, come to markets, are consumed and later disposed of. As the epitome of the process of globalization, these chains represent the functional integration of systems of production across internationally dispersed geopolitical regions (Azmeh & Nadvi, 2014; Bair, 2008; Gereffi, 1999; Gibbon et al., 2008). Initially coined by World Systems theorists, Terence K. Hopkins and Immanuel Wallerstein, the term “commodity chain” refers to the organized network of production, marketing and distribution processes that result in a finished product or service, its consumption and post-consumption disposal. It is a method for analyzing globalized and entwined networks, taking into consideration the institutionalization of the international division of labour (Bair, 2009; Brewer, 2015; Dougherty, 2008; Gereffi et al., 2005; Gibbon et al., 2008; Lee, 2010) based on race, ethnicity, gender and the geopolitics of space. Commodity chains, therefore, represent a process of economic and labour specialization with more labour intensive nodes along the chain almost always assigned to developing countries and their racialized labour-force (Cattaneo et al., 2010).

Tracing the movement of commodities from their material origins to their final destinations provides a unique opportunity to both visualize and problematize contemporary

globalization, as it highlights the historical, environmental, social and political contexts of commodity or material flows. This tracing exercise connects distinct and yet, tightly interconnected political geographies—diverse peoples in specific areas and environments (Gilmore, 2002, p. 261) —to shifts in the global economy. The chain construct is nevertheless a misnomer, as these production networks are not linear, but instead function more as a complex web of interactions that are held together by interlocking systems of extraction, production, distribution, consumption and disposal (Azmeh & Nadvi, 2014).

Commodity chain research does more than just illustrate the interconnectedness of material flows, it also draws attention to the role of political and economic power within the world economy, and how these seats of power define each value chain (Dougherty, 2008). Similarly, because of the power differentials between the various actors (e.g., firms, government, workers) and the geographic scope of production activities, commodity chains are shaped by systems of governance that determine the allocation of financial, material and human resources within each chain (Gereffi & Fernandez-Stark, 2011; Gibbon et al., 2008; Humphrey & Schmitz, 2000).

Since its inception in the late 1970s and 1980s, the concept has gone through different iterations from a world systems theorization to the global commodity chain (GCC) approach espoused by Gereffi and most recently, the global value chain (GVC), an updated version of GCC by Sturgeon (Bair, 2009). Initially captured as an offshoot of world systems theory (Bair, 2009; Dougherty, 2008; Lee, 2010), commodity chain research was based on the principles enshrined within Wallerstein's analysis of the world economy. He used the core-(semi)-periphery classification as the unit of analysis to explain the international division of labour and the unequal distribution of surplus value between actors within the chain (Bair, 2009; Dougherty, 2008; Selwyn, 2012). With its intellectual foundation in world systems theory, commodity chain research

progressed along three trajectories. These trajectories sought to explain the following: (a) the division and integration of labour into the capitalist world economy; (b) the unequal distribution of "profits," "surplus value" or "high rents" that favours advanced economies within the chain; and (c) the vulnerability of any chain to economic cycles of contraction and expansion, and technological innovations. This means that the geographic scope and social configuration of chains are not static but respond to the mobility of capital and its incentive to relocate to take advantage of cheaper labour cost (Bair, 2009; Lee, 2010). In relation to these themes, the initial world systems iteration of commodity chain research sought to provide a macro-historical perspective on the increasingly geopolitical fragmentation of global production (Bair, 2014; Bair & Werner, 2011a) and the spatial dynamics of uneven development that ensues as value is transferred to the core from the periphery.

Under the rubric of 'global commodity chain (GCC) analysis' the scope of chain research has expanded (Gereffi & Korzeniewicz, 1994). GCC attends to the issue of value creation, its distribution and control within transnational networks, from raw material exploitation, primary processing, through different stages of trade, services and manufacturing processes to final consumption and waste disposal post consumption" (E. Brown et al., 2010, p. 18). There is also stronger focus on contemporary development issues related to the global south and its export-oriented approach to economic development (Bair, 2009; Lee, 2010; Selwyn, 2012).[37] From the perspective of some development scholars, the GCC framework was better suited to respond to

[37]The GCC framework differentiates between producer-driven and buyer-driven commodity chains. Producer-driven commodity chains are capital and technology intensive, (e.g. automobiles and aerospace manufacturing) with high value-added activities concentrated in advanced or core economies. Conversely, the buyer-driven chains are characterized by more labour intensive industries such as consumer electronics manufacturing. In these chains, lead firms typically headquartered in core economies hold onto the high value nodes e.g., those involved in research and design, whereas the lower value activities, e.g. assembly and packaging, are consigned to the economies in the global south (Brown et al., 2010; Dougherty, 2008; Lee, 2010).

and address changes occurring within the post-World War II global economy (Lee, 2010), which is, the rapid incorporation of developing countries into the global economy. GCC scholars were also interested in developing a framework that would provide a more nuanced explanation for the uneven distribution of economic surplus which left many developing countries behind in the global hierarchy of economic development (Dougherty, 2008; Lee, 2010; Selwyn, 2012).

In the same way that Gereffi and Korzeniewicz sought to improve upon the world system theorization of commodity chain research, criticisms of the GCC framework and its exclusive focus on external conditions and organizational linkages led to new developments in chain research called global value chain (GVC) analysis (Bair, 2009; Frederick, 2014; Lee, 2010). The value chain construct "describes the full range of activities needed to bring a product or service to market, from its conception, production, consumption, and post-consumption disposal" (Kaplinsky & Morris, 2001, p. 4). An important consideration of the GVC approach is its attention to tangible and intangible value-added activities and how these are dispersed along the value chain (Gereffi & Fernandez-Stark, 2011, p. 2).[38] Because of the fragmented nature of global production processes, the GVC framework (more so than earlier iterations) provides a more systematic and comparative

[38] There are five dimensions of the GVC approach that differentiates it from the GCC framework. These are input-output structure, geographic scope, chain governance, institutional context and upgrading. The input-output structure describes the process of transforming raw materials into final products. The geographical dimension explores the dispersion of production activities between regions, countries and/or firms, based on competitive and comparative advantages (Gereffi & Fernandez-Stark, 2011). Chain governance takes into consideration the complicated patterns of power relations between firms within the chain. This led to the construction of an inclusive 5-pronged typology; (1) the market (characterized by arm's-length relationships); (2) hierarchical value chains (vertical integration). Between these two extremes are three network-style modes of governance: modular, relational, and captive. In network-style governance models, lead firms exercise power through coordination of production vis-à-vis suppliers (without any direct ownership of the firms" (Frederick, 2014, p. 8; Gereffi et al., 2005, p. 78). Institutionally, GVCs are shaped by a confluence of local, national and international conditions and policies, e.g. labour laws, tax regulations, availability of infrastructure, skill level of the workforce, access to resources and political stability to name a few. The fifth dimension of GVC is referred to as upgrading. Upgrading describes movement within the value chain by its key actors, e.g. countries, regions, firms etc. Through upgrading actors can either maintain or improve their positions in the global economy especially as competition increases and profit margins diminish (Gereffi & Fernandez-Stark, 2011).

cross national and regional analysis of the institutional context within which a value chain is embedded (Gereffi & Fernandez-Stark, 2011). More importantly, however, is its usefulness as a metric for assessing the extent to which globalization is delivering economic development to the regions and populations of the global south, who are active participants in the global political economy just like their northern partners (Selwyn, 2012, p. 205).

A critical reading of GCC/GVC literature, however, exposes its limitations. These include its narrow empirical focus, its firm-centered level of analysis, and its neglect of gendered and racialized forms of labour that undergird patterns of capitalist production that maintain and reproduce uneven geographies (Bair & Werner, 2011a). The conceptualization of value, where and how it is captured, is another noted shortcoming of chain constructs. Lepawsky and Billah (2011, p. 123) suggest that the way GCC/GVC and GPN[39] frameworks conceptualize value, i.e., "as the proportion of final price captured by a given actor or location along a value chain or in a production network" reduces the visibility of those activities which occur post-consumption. For example, the activities of e-waste workers which occur at the terminal end of the electronics value chain is not well represented in the literature on GCC or GVC.

These criticisms speak to the failure of the chain construct to adequately address the historical, social, political and environmental contexts of commodity production across geographic space and time. For example, value chain researchers often highlight the unequal distribution of surplus value between developed and developing countries that seems built into the commodity chain. Their understanding of the underlying issues related to the unequal distribution of surplus

[39] Global Production Networks (GPN) is a framework similar to GCC/GVC. GNP analysis combines the strength of GCC/GVC with actor network theory to highlight the multi-scalar and multi-actor characteristics of transnational production systems (Coe et al., 2008, p. 276).

value and at best their solutions to remedy this inequality is economistic.[40] Even with the expansion and fine-tuning of the chain construct, risks and costs still remain unevenly distributed. They tend to be transferred to upstream nodes within the chain and within these nodes, to the informal sector which remains highly racialized.[41] Also important is the framework's silence on the unequal valuation of places and people and the recurrent cycles of inclusion and exclusion that mark their interaction with global commodity production networks. The following theoretical approaches leave behind the shortcomings of the chain construct as well as urban mining and the circular economy model.

Re-worked Intersections & New Epistemologies[42]

As debates about the problems or opportunities posed by the transnationalization of e-waste flows have expanded and become more ideologically entrenched, questions about the racial configuration of these material flows are driving new strands of research. These seek to answer

[40] Gereffi et al. (2014) and Lee (2010) note that a common response to the hierarchical ordering of developed and developing countries within a commodity chain usually points to that country's involvement in value adding downstream activities. The activities needed to bring a product or service to the market are, however, not equally weighted along the value chain. The result is that firms and regions that have a competitive advantage in downstream activities fare much better and appropriate a disproportionate share of value (Gereffi et al., 1994; Lee, 2010).

[41] For example, during this COVID-19 pandemic, garment suppliers in India and Bangladesh had their contracts with large retailers in North America and Western Europe cancelled. Because of the structure of this commodity chain, these suppliers bear the brunt of the risks. They cannot recoup the material and labour cost congealed within those garments that have already been produced based on previous contracts. Workers are also expelled sometimes without notice, severance or other benefits. See, 'Coronavirus pandemic threatens Bangladesh garment industry' (Aljazeera, 2020).

[42] A quick google search using the keywords e-waste and value chain turns up articles to do with e-waste supply chain and reverse supply chain management. The reverse supply chain or reverse logistic considers the procedures needed to 'close the loop,' i.e., managing the reverse flow of recovered materials from end-of-life (EOL) products – from the consumer back to the supplier or other agents requiring the recovered materials (Fernando & Rupasinghe, 2016; Isernia et al., 2019). A reverse supply chain works to manage the activities necessary to recover the residual value of end-of-life products discarded by the consumer. It is composed of five activities, namely, collection, reverse logistics, sorting and inspection, reconditioning, distribution and sale (Isernia et al., 2019). Unlike the GVC and GPN approaches, the reverse supply chain framework concentrates almost exclusively on what happens or can happen at the terminal end of the value chain. This approach will not form part of the analysis in this paper because it does not adequately address the issues of e-waste recycling and scrap metal recovery in Agbogbloshie and specifically why these locations are gathered at certain points along the value chain.

questions about the experiences of those employed at the post-consumption end of the electronics value chain, what their experiences reveal about the unequal valuation of racialized labour and space, and why certain ethnic and racialized groups are engaged more substantively at the terminal end of this value chain. These questions focus attention on the political and economic relations that incorporate racialized places and people into cycles of production that also reproduce uneven geographies nationally, regionally and internationally. To this end, the theoretical approaches that shape my analysis going forward are the dis/articulation perspective by Bair and Werner and a critique of green capitalism and its green economy strategies as an extension of racial capitalism. Together, these examine the mutually constitutive structures of race and capitalism and explains how they collide to maintain exploitative forms of accumulation and reproduce racial geographies of places and people.

The Dis/Articulation Perspective

The production of places like Agbogbloshie scrapyard and Old Fadama, and the construction of displaced economic migrants from Ghana's three northern regions as human forms of waste and therefore disposable, has a long history that is tied to colonial occupation and its legacy of political and economic inequality. Bair and Werner's (2011a), dis/articulation perspective is employed to connect the production and construction of wasted places, people and things to circuits of global commodity production.[43] They contend that a dis/articulation perspective grounds the analysis of global commodities to the politics of disinvestment, devaluation, and place and subject-making

[43] Bair and Werner's concept of disarticulation differs from that employed in studies of economic development (specifically in relation to developing countries) and which is defined as a "distorted mode of economic growth found in many less developed countries" (Gallagher et al., 1996, p. 227).See also Wickrama & Mulford (1996); Stokes & Anderson (1990); and Breedlove & Armer (1997).

(Bair & Werner, 2011a, pp. 989–990).[44] In other words, this approach of visualizing commodity chains focuses on how for example, places and people are connected and disconnected from global production networks and how this leads to the reproduction of uneven geographies of development. Though the dis/articulation perspective is largely applied to actual or 'real' commodities, and less so to ex-commodities (waste), in surpassing the category of waste through transmutation, i.e., waste to resource, e-waste recycling and scrap metal recovery can be theorized using the dis/articulation perspective.

Articulation

Bair and Werner's use of the term articulation is founded in the earlier work of Althusser (1969) and later Hall (1980). Althusser's use of articulation was confined to his work on capitalism. He employed the term articulation to "address the complex character of social formations (as articulated unities) rather than simple, or expressive, totalities" (J. Clarke, 2015, p. 2). These articulated unities would therefore give rise to structured relations based on dominance and subordination (Clarke, 2015). Building on Althusser's foundation, Hall (1980) proposes a similar definition of articulation that is concerned with the issue of race. In Hall's theorization, "an articulation is the form of connection that can make a unity of two different elements, under certain conditions."[45] It is a coupling which is not necessary, determined, absolute and essential for all time. Specifically, Hall uses the concept of articulation to explore how capitalist and non-

[44] The dis/articulation perspective has been taken up by other scholars and applied to investigations of the garment industry (see Bair & Werner, 2011), agriculture and livestock production and place-making (see Berndt & Boeckler, 2011; Faier, 2011; Havice and Campling, 2013; Hough, 2011; and Ramamurthy, 2011). I should note that this usage of articulation is not solely focussed on its Marxist associations taken up by Althusser, Rey, Wolpe, and Stuart, but also its metaphorical suggestions.

[45] Articulation applied to an analysis of race showed that race could not be reduced to other sets of social relations and at the same time cannot be fully understood outside of these very same relations (Solomos, 2014).

capitalist modes of production are theoretically connected and mutually constituted (Goger, 2013, p. 2613) - on the basis that the latter is articulated in a subordinate position to the former (Hall & Morley, 2018, p. 193). A thorough explanation of the historical antecedence of the concept of articulation is outside the scope of this paper; I have narrowed the account to these prior uses of articulation because they were noted in Bair and Werner's introduction to the concept.

Articulation (as per Bair and Werner) describes the mechanisms by which places and people are integrated into place-bound and socially mediated systems of production that incorporate that node into a commodity chain (Davis & Garb, 2019). Bair and Werner (2011a) underscore the iterative nature of the process of articulation, suggesting that moments of articulation into new commodity chains often come on the heels of earlier moments of disarticulation or decoupling from previous production systems. As with other locations where e-waste recycling and scrap metal recovery thrive, Agbogbloshie's – the place and its inhabitants – articulation (or inclusion) into the global commodity markets was the result of both internal and external forces. For example, internal political and economic conditions in rapidly urbanizing cities created an unemployed labour pool in need of alternative forms of employment. The large pool of unskilled and cheap migrant labour would more easily ignore the short and long-term health effects associated with e-waste recycling activities. This labour pool was vulnerable to the tactics of waste brokers, local authorities and formal business enterprises, themselves engaged in illegal cross-border exports, tax evasion (by under reporting production figures), bribery of officials, metal price fixing and other methods of rent seeking at the expense of the e-waste workers. Available local infrastructure in the form of free zone areas and an enabling policy environment also helped to position actors in Agbogbloshie and their livelihood activities within global commodity markets. Within the formal sector, manufacturing firms located in the Tema Industrial

Zone increased demand for scrap metal to initially supplement their productive capacity and later, to replace their reliance on imported iron ore and semi-finished iron and steel products.

External factors such as higher rates of consumption of electronic and electrical equipment in the Western economies and also developing nations, planned and perceived obsolescence, poor rates of repair and refurbishment and the slow pace of institutional and regulatory oversight created one of the fastest growing waste streams globally. The exorbitant cost of recycling in developed economies vis-à-vis developing nations and the reluctance on the part of local authorities in the former to continue dumping toxic e-waste in their landfills was one of a number of catalysts for the transboundary trade/movement of e-waste from the global North to the South.

Heightened demand for scrap metals driven in part by China and other emerging economies in Asia created a lucrative market for scrap metals. Demand in these countries also increased international prices for specific base metals such as aluminum, copper and iron and steel scrap. Through a combination of internal dynamics and external market forces, Agbogbloshie developed as a place and space which is both local and global in origin. Agbogbloshie's multi-scalar orientation is in part through its articulation or coupling into existing international commodity markets that took on distinctively racial and ethnic forms. Articulation is then about links and connections across space and time. It is also about a sometimes corrupted form of inclusion that does not necessarily indicate equality and belongingness.

Dis/articulation

The word disarticulate is often used in medical parlance to describe the surgical process of separating bones at their joints (Collins English Dictionary, 2020). The phrase 'to become disjointed' bears equivalence. Semantics aside, Bair and Werner's (2011a) use of the word

'dis/articulation' retains much of its linguistic convention, i.e., to sever connections, to separate, delink, decouple or exclude from a common body or community – whether social group, process or place. The slash (/) that separate the prefix 'dis' from the root word 'articulate' points to "the paradoxical double movement of articulation, i.e., the conjunctural connections of commodities, people, and places, and the complex and [violent] processes of separation and exclusion [decoupling], that together constitute [global] circuits of commodity production" (Bair et al., 2013, p. 2545). Research studies that employ the dis/articulation perspective are rife with examples of the violence that seems to go hand in hand with periods of exclusion. This violence is often meted out against marginalized and racialized communities engaged in the less lucrative nodes of the commodity/value chain and also the 'disassembly and destruction networks focussed on the afterlife of commodities' (J. Davis & Garb, 2019; Herod et al., 2014).The abrupt and violent rupture or decoupling from commodity chains that the dis/articulation perspective addresses makes it a useful framework for theorizing how the hyper-exploitation of racialized surplus populations is built into global commodity chain networks.

When I speak of the violence inherent in some global commodity/value chains and the cyclical or just-in-time nature of inclusion and exclusion of racialized places and people, Ruth Gilmore Wilson's (2007) definition of racism is apropos. She defines racism as "the state sanctioned, or extra-legal production and exploitation of group differentiated vulnerability to pre-mature death" (p. 28). Wilson's definition of racism invariably leads to the broader concept of racial capitalism invoked by Robinson (1983), Melamed (2015) and Wang (2018). More on this (i.e., dis/articulation and racial capitalism) will follow in subsequent sections.

Going back to Bair and Werner (2011a), the dis/articulation perspective addresses a noticeable shortcoming of conventional global commodity chain and global value chain research.

The most salient feature of their critique is the inherent "inclusionary bias" of the GCC and GVC approaches that is used to examine the spatialization of commodity production (Bair & Werner, 2011a, p. 990). The authors suggest that this inclusionary bias is evidenced in the focus of GCC and GVC on those actors and regions that are incorporated into existing commodity and production networks. (See also Davis & Garb, 2019). Chain research, whether GCC/GVC, is concerned with productive efficiencies, industrial upgrading,[46] and the seamless connectivity between actors (e.g., countries, firms, workers, and consumers) for the furtherance of global capitalism. A recognized tangential benefit is the prospect for economic development (e.g., employment creation, and poverty alleviation) in developing countries that participate in global trade flows (Lee, 2010). The literature nevertheless pays scant attention to the afterlife of commodities and those places and people that are dis/articulated from the chain to facilitate the articulation of other places and people. (See David and Garb's 2019 Israeli-Palestinian e-waste case study). Failure to rigorously account for the uneven geographies (e.g., global inequalities, skewed wealth and power distribution) created as a result of these new trends in commodity production is also a failure to acknowledge that moments of (in)voluntary inclusion and violent exclusion are built into commodity production networks (Bair & Werner, 2011a; J. Davis & Garb, 2019; Lee, 2010).

Dis/articulation is centrally concerned with rendering visible the dynamics of the global economy, which is characterized by geographic unevenness, economic inequality, and racialized, politicized, and gendered structures of domination in commodity chain analysis (Havice &

[46] Industrial upgrading is the "process of improving the ability of a firm or an economy [or region] to move to a more profitable and/or technologically sophisticated capital- and skill-intensive economic niche". There are four types of upgrading: (1) process upgrading: making production processes more efficient by reorganizing the production system and using advanced technology; (2) product upgrading: moving into more sophisticated, or high-value, product lines; (3) functional upgrading: occupying more profitable nodes within a chain; and (4) intersectoral upgrading: moving into a more profitable value chain (Lee, 2010, p. 11-12).

Campling, 2013). For my purposes, a disarticulation perspective shows how the connections that link/include particular places and people to a commodity chain are most times violently severed, excluding (prior actors) from circuits of capital accumulation in ways that may be important for their later incorporation (re/articulation) into new chains and other circuits of accumulation (Davis & Garb, 2019). (See Hough (2011) for a thorough analysis of the violence associated with successive periods of articulation and dis/articulation to and from the cocoa and cattle/diary commodity chains in the Caguan area of Colombia). In Hough's case example, the dis/articulation perspective centers on the relations of force and domination that constitutes some commodity chains (Hough, 2011). Like Davis and Garb (2019), I extend the use of this approach from the production and circulation of 'real' commodities to their afterlife.

(Re)articulation

As the prefix 're' suggest, to (re)articulate simply means to articulate again (or again and again) indicating the iterative or repetitive nature of the process.[47] The term (re)articulation also implies a reconnection or inclusion after formerly being excluded. It is the latter meaning that most closely aligns to the essence of the dis/articulation perspective that was addressed earlier. It also resonates with Hall's theory of articulation – which he describes as simultaneously discursive and social. Hall sees articulation as "those historical moments and circumstances where particular ideologies, political subjects, cultural practices, and social movements and institutions cohere

[47] Other scholars whose work is not dealt within in this paper but who have also employed (re)articulation in a similar fashion to the authors highlighted above include Walsh, C. E. (2002). The (re) articulation of political subjectivities and colonial difference in Ecuador: Reflections on capitalism and the geopolitics of knowledge. Nepantla: Views from South, 3(1), 61-97; and Rogers, S., & Wang, M. (2006). Environmental resettlement and social dis/re-articulation in Inner Mongolia, China. Population and Environment, 28(1), 41-68.

together (Trimbur, 1993, p. 42). Articulation is, therefore, the form of the connection that can make a unity of two different elements, under certain conditions (Chen & Morley, 2006, p. 116).

Though Bair and Werner do not make explicit reference to the process of (re)articulation themselves, the concept is taken up by Ramamurthy (2010) in relation to the caste system in Southern India. He notes that the concept of (re)articulation explicitly addresses the histories of struggle, survival and political mobilization by marginal groups (e.g., Dalits) that must interact with the capitalist world around them. He also uses the concept of (re)articulation to emphasize the different forms of expression by which social subjects disrupt and invalidate normative coercion – material and social manifestations of cultural degradation (pp.1052-53). Goger (2013) in her feminist ethnography of the Sri Lankan apparel industry also employs the concept of (re)articulation. Specific attention is paid to the process of upgrading within the chain framework and how this results in waves of disarticulation and rearticulation of female workers and their subjectivities within the apparel industry in Sri Lanka. Goger's research findings show that gendered practices and subjects are constitutive of globalized production networks and that the process of (re)articulation is ongoing and never complete - adapting frequently to meet the demands of capital (Goger, 2013, p. 2632).

(Re)articulation is then a process that entails (re)connecting places and people (that may have been expelled from other circuits of capitalist production) to alternative commodity chains or production networks. Their inclusion into new commodity/value chains and circuits of accumulation (especially within the developing country context), is almost always dependent on the ability of capital to access and exploit structurally devalued places and racialized people.

From the above explanations and case examples of the three forms of articulation, we note that they are not mutually exclusive but occur in concert and express dialectical processes of

inclusion and exclusion (Goger, 2013). Articulation, dis/articulation and (re)articulation, therefore, represent continuities within global commodity production networks. Though presented in a linear fashion, the processes do not necessarily progress in a like manner. For example, Ramamurthy (2010) addresses the recursive nature of the articulation continuum in his study of caste (re)articulation in India. Goger (2013), likewise suggests that the processes of articulation (in its various manifestations) is iterative and constitutive of the capitalist world economy. In both cases, the application of the broader dis/articulation perspective shows how the structure of commodity chains (whether GCC, GVC or GPN) sustain asymmetries in capitalist social relations and reproduce uneven geographies of development. By uneven geographies I mean the inequities that persist as a result of the hierarchical ordering of regions that are incorporated into global production networks. I address the phases by which northerners in Ghana were articulated and dis/articulated into the capitalist economy of Ghana and on the global scale, Africa's relationship with the developed world and its historical insertion and contemporary locus within the global political economy in Chapter Six. In the following section, I turn to a discussion of racial capitalism and its relevance to the green capitalism and green economy strategies into which recycling in Agbogbloshie has recently been configured.

Racial Capitalism

The globalizing power of capitalism continues to structure how much of the world thinks about, and experiences, race and racialization. Here, race is used as the sieve that differentiates and orders humanity and also places – important factors of production within the capitalist economy. To understand the deep-rooted racialized nature of capitalism in our present conjuncture, Pulido (2016) suggests a historical examination of capitalism's early formation and modes of

accumulation, particularly how wealth and power was amassed and distributed. As the preeminent world economic system capable of cannibalizing resources, people and places, the spread of capitalism has reached every corner of the globe and has incorporated most nations into an uneven global platform for trade and investment. The benefits of this all-encompassing system have not been equally distributed among the world's population; neither is the labour burden of accumulation equally shared nor carried. This is the result of deliberate forms of social stratification based on race, class, gender, religion and ethnicity (Mullings, 2004) that have historical antecedents and continue to inform the institutions, political, economic and social structures, ideologies, and cultural practices on which capital depends for its accumulation even today.

Cognizant of the deep-seated racial dimension of capital accumulation, Cedric Robinson (2000) employed the term racial capitalism to better describe its machinations and more accurately explain how wealth, power and poverty have historically been created (Pulido, 2016, p. 4) and reproduced through the deployment of racial hierarchies.[48] Robinson's analysis of capitalism as racial and as a global system through which all social relations were mediated was a radical shift from more popular critiques of capitalism (notably Marx and Engels). His analysis departs from these historical critiques, as he positions race and not class as the cornerstone of capitalist accumulation and as the essentializing logic of capitalism (Kelley, 2017; Pulido, 2016; Robinson, 2000; Wang, 2018).

Robinson traces the emergence of capitalism to the period of European feudalism. He asserts that racialism was already alive and well in European feudal society, and so, makes the

[48] See Cedric Robinson (2000), Black Marxism: The Making of the Black Radical Tradition. Chapel Hill, N.C.: University of North Carolina Press.

case that racialism predates colonialism. He therefore concludes that race, racism and the uneven or differential valuation of the body politic was part of the European feudal system. Robinson's idea on the early history of racism in Europe is captured below:

> "Capitalism and racism did not break from the old order (feudal system) but rather evolved from it to produce a modern world system of "racial capitalism" dependent on slavery, violence, imperialism, and genocide. Capitalism was "racial" …… because racialism had already permeated Western feudal society. The first European proletarians were racial subjects (Irish, Jews, Roma or Gypsies, Slavs, etc.) … victims of dispossession (enclosure), colonialism, and slavery within Europe…….. (Kelley, 2017; Wang, 2018, pp. 99–100).

The form of capitalism that emerged in Western European civilization was not at all homogenizing, but instead, premised on exploiting socially constructed subordinated difference. This differentiation exaggerated regional, subcultural, and dialectical differences into 'racial' ones (Kelley, 2017; Wang, 2018). Hence, in its current showing, capitalism has only deepened and extended its mechanisms of differentiation based on those social markers most likely to deliver the greatest returns on investment (by cheapening the value of labour).

Other scholars from the Marxists and radical traditions have also waded into the debate on the utility of the concept. Melamed for instance, using Robinson's work as a springboard, describes the relationship between capitalism and race as follows;

> "Capital can only be capital when it is accumulating, and it can only accumulate by producing and exploiting relations of severe inequality among human groups i.e., capitalists who control the means of production vis-á-vis workers without the means of subsistence, creditors/debtors, conquerors of land made property/the dispossessed and removed. These antinomies of accumulation require loss (dispossession), disposability (through violence) and the unequal differentiation of human value and racism enshrine the inequalities that capitalism requires" (Melamed, 2015, p. 77).

This description points to the dual function of race in the growth and expansion of capitalism. In the first instance, race as a signifier of value ensures a source of cheap surplus labour (historically

black, today it encompasses non-white populations globally and is maintained by the colour coded international division of labour). Secondly, the institutionalization of race is complicit in maintaining the status quo, i.e., the racial hierarchy that protects white supremacy and privilege vis-à-vis black and other non-white groups' inferiority and disposability. Also citing Gilmore, Melamed (2015, p. 78) describes racial capitalism as a technology of anti-relationality. Such a technology reduces the collective to the relations that sustain neoliberal democratic capitalism. We see a similar narrative emerge from Gilmore's definition of racism as "state-sanctioned and/or the extra-legal production and exploitation of group differentiated vulnerabilities to premature death, in distinct yet densely interconnected political geographies" (Gilmore, 2002, p. 261). Leong (2013) loosely defines racial capitalism as "the process of deriving social or economic value from the racial identity of another person" (p. 2153-4). She goes on to say that in societies preoccupied with multiculturalism - which signifies diversity and inclusion - non-whiteness is a valued commodity that has to be exploited for its market value (p. 2153-4).

A critical reading of capitalism as racial capitalism, therefore, places front and center the struggles of racialized people and the vulnerability of their spaces to the adverse environmental and social impacts of capitalism's growth. An example of this is currently being played out in the context of e-waste recycling and scrap metal recovery in Agbogbloshie. Defining capitalism as racial capitalism also questions the expansionist logic of the capitalist system and the idea that its internal asymmetries could ever advance calls for distributional justice and racial equality. Further, in seeking to center race as essential to the logic of capitalist accumulation, racial capitalism opens up a space to interrogate and dismantle the racial hierarchies on which the brutal regime of capitalism is built. It also pulls the rug from under emerging economic ideals, concepts, paradigms, models and/or strategies (e.g., green capitalism) that advance the idea that any form of capitalist

accumulation is devoid of racial biases and overtones or that nonracial regimes of accumulation are possible at this present conjuncture and within this current system of production.

Green Capitalism/Green Economy [49]

The greening of capitalism is an attempt to redefine and restructure the capitalist system from its traditional exploitative, degradative and destructive pursuits towards the attainment of a just, 'green and/or ecologically sustainable world (with growth). Green capitalism is supposed to be an alternative system of growth that is tech-driven, low on carbon, resource efficient and socially inclusive (Brand, 2016). It is a net generator of increased wealth, growth in economic output, decent employment, and poverty reduction (in the global South) (UNEP, 2011). Like UNEP, the Organization for Economic Cooperation and Development (OECD) has also marketed green growth strategies as part of its response to the crises of neoliberal capitalism. By that declaration the organization acknowledges their belief that green strategies and economic growth can go hand-in-hand (OECD, 2011).

The nomenclature of green capitalism (like the oxymoronic phrase, sustainable development)[50] as an ideology, political strategy, policy imperative or potentially, a different flavour of the old capitalism, seeks to bridge what some may have previously believed to be dialectically opposed, i.e., green or ecological values that prioritize planetary boundaries and health, and capitalism, a system predicated on growth and accumulation at the expense of the

[49] I use the terms 'greening the economy', 'green economy' and 'green capitalism' very loosely and interchangeably in my writing. The main reason for doing this is because I interpret greening of the economy to imply greening of our present capitalist economy. To say green economy also implies the same thing, as the economy that we are currently living within is neoliberal and capitalist. It therefore follows (at least in my theorization) that the first and second terms are synonymous with green capitalism – environmental restoration, conservation and efficiency aligned to profit seeking behaviour (Smith, 2016)

[50] See Brown (2015). The Oxymoron of Sustainable Development. *BioScience*, Volume 65, Issue 10, 01 October 2015, Pages 1027–1029, https://doi.org/10.1093/biosci/biv117

natural environment and labour.[51] Despite these inherent contradictions, various UN agencies, state governments, and corporations and their industry groups push forward the agenda of green capitalism through green growth or green economy strategies. The foreword of the UNEP report, 'Towards a Green Economy,' states that "*the greening of economies is not generally a drag on growth but rather a new engine of growth. It does not favour one political perspective over another. It is relevant to all economies; be they state or more market-led"* (UNEP, 2011). The statement simultaneously alludes to the contradictions but more importantly, implies that there are points of convergence between the two disparate agendas which could be fertile ground for 'green growth' and new avenues for accumulation.

Part of the green capitalist playbook is its focus on increased job creation in waste management and recycling industries. Whether green capitalism, green economy or circular economy (CE), the benefits of recycling include resource conservation through diversion and recovery of waste components, resource security, green jobs and substantial economic returns for investors. For example, the aforementioned UNEP report projects that recycling rates under a green economy model could triple by 2050 from the current global estimated level of 15 percent, and job growth could increase by 10 percent (UNEP, 2011, p. 13). The viability of these projections is based on the presumed circularity of material flows; the multiple mobilities of waste, i.e., how waste is deconstructed, reconstructed and transformed (Davies, 2012), and the ability of recycling and reuse industries to reduce wastes by closing both the economic and ecological loops of resource flows (Haas et al., 2015).

[51] Wolfgang Sachs insinuated that the concept of sustainable development was an oxymoron because the term and the policies associated with it tried to bridge environmentalism with developmentalism. Fundamentally Sachs questioned how any policy premised on growing economically could also protect nature (Sachs, 1999, pp. xi–xii).

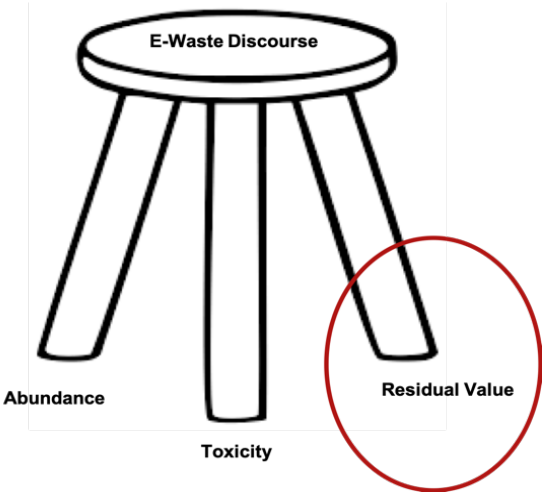
The promotion of recycling and reuse also gives green capitalists and other adherents a platform to advertise their green practices and at the same time assuage public disaffection with the financial, social and environmental crises associated with neoliberal capitalism. Of most importance to green capitalists, however, is the ability of recycling to free up spaces for surplus value appropriation where it can also absorb surplus labour. This is especially relevant in the area of e-waste recycling and scrap metal recovery as it is a source of high-demand secondary metals. It is within the realm of the residual value of e-waste (See Figure 2)[52] that some of the imperatives of the capitalist and green economy can be realized, e.g., resource conservation through effective resource recovery. Recycling economies, whether concerned with plastics, glass, paper, or metals are therefore an important facet of the green capitalist model moving forward.

Wallis (2010) details some of the push factors that drive the political agenda of 'green capitalism.' These include the rising cost of raw materials and energy; economic losses arising from the catastrophic effects of climate change; considerable population displacement linked to armed conflicts, environmental pressures and economic deprivation, and popular dissatisfaction amongst the 99 percent (vis-à-vis the 1 percent) resulting in political and social upheavals, e.g., the Occupy Movement and the Arab Spring. These events disrupt the growth imperative of capitalism, thus inviting some form of internal or external recalibration. Green capitalism or the greening of capitalism could be the result of such recalibrations. Green capitalism is thus another iteration or route through which neoliberal capitalism sheds its outer layers and adopts new strategies, e.g.,

[52] The literature of e-waste focus variously on; (1) its abundance, and the adverse occupational, environmental and health impacts associated with its management and disposal (Baldé et al., 2015; Schwarzer et al., 2005; Widmer et al., 2005); (2) its toxicity, i.e., the physical and chemical properties of e-waste that complicate its management and disposal (Akormedi et al., 2013; K. Grant et al., 2013; Puckett & Smith, 2002); (3) and lastly, the residual value of e-waste, i.e., the exchange value derived from recovered components and materials which recirculate within capitalist production networks (R. J. Grant & Oteng-Ababio, 2016; R. Grant & Oteng-Ababio, 2012; Lepawsky & Billah, 2011). Again, it is the residual value of e-waste that captures the interest of green economists.

recycling and reuse industries that are responsive to planetary, political and social limits to its expansion be they public discontent, resource scarcity, and barriers to the investment of over-accumulated surplus capital.

Figure 2. E-waste Research Agenda



Source: Author's own construction

As indicated previously, e-waste recycling and scrap metal recovery in Agbogbloshie conforms to the agenda of green capitalism. Part of the *success* of the greening strategy is the existence of a global market for recovered scrap metals and also funding from notable partners like the German Development Agency (GIZ), the European Union and affiliate agencies of the UN. Left to its own machinations and without a lucrative market for its products, e-waste recycling and scrap metal recovery in Agbogbloshie may have remained only ever a discussion about toxic dumping and global environmental racism.

Conclusion

Waste and its management continue to be a confounding issue in the 21st century. Despite advancements in technology and innovation, societies the world over have not been able to

satisfactorily minimize their various material waste streams, nor develop appropriate technologies that would eliminate waste from the production process.[53] Beyond material discards, my dissertation also incorporates within the sphere of waste abandoned places and disposable populations. Waste (places, people and things), therefore, emerges from a range of intersecting historical, political, economic, social and cultural contexts that devalue and configure racialized places and people as disposable and material discards of production and consumption as the valueless surplus of capitalist production. The theoretical approaches I employed had to similarly address not just material waste but also the places and people that become waste.

Bair and Werner's (2011a) dis/articulation perspective gives me the theoretical latitude needed to call attention to how members of the Dagomba ethnic group from Northern Ghana are more susceptible to violent forms of capitalist exploitation. Previously rendered disposable by colonial ideologies and practices, their articulation into hazardous forms of e-waste recycling facilitates the simultaneous extraction of surplus value and the gradual wasting of their labour and their inevitable expulsion from circuits of production when they can no longer work. The dis/articulation perspective connects the production of ethnicized hierarchies in Ghana and the hyper-exploitation of the Dagomba people in Agbogbloshie to the reproduction of uneven and fragmented regional disparities in the country. On the global scale, the dis/articulation perspective explains how African labour and Africa's territorial space are co-opted into the secondary metals market. At the least value accruing point of the value chain, the benefits received from their participation in global commodity markets are disproportionately lower than, e.g., the Benz factory in Germany who purchases scrap aluminium for the production of its luxury cars. The

[53] The field of industrial ecology tries to address the problem of waste by attempting to transform the waste from one process to the inputs for another.

system of global capitalism, therefore, allows some places and peoples to gain at the expense of others.

My interrogation of the racial orientation of green capitalism and its green economy strategies forwards a more nuanced analysis of e-waste recycling and scrap metal recovery in Agbogbloshie and its connection to global circuits of capital accumulation that are progressively greenwashed. Green capitalism and green economy strategies are particularly relevant to my research as it is used as a public relations campaign that promotes forms of racialized accumulation in sites like Agbogbloshie. Such campaigns work to reconstruct notions of waste and good and safe work and try to diminish the political and economic factors and the history of racism that makes the recycling of e-waste a viable livelihood activity in the global South while capital flows to the global North. In Chapter Six, I address the question, is green capitalism racial?

3. CHAPTER THREE - Place: Agbogbloshie Scrapyard

"Capital circulates through the built environment in a dynamic and erratic fashion. At various points in its circulation, the built environment is junked, abandoned, destroyed, and selectively reconstructed" Weber (2002, p.56).

Abstract

Welcome to HELL! Ghana's GRAVEYARD for Europe's e-waste! Agbogbloshie, the World's largest e-WASTELAND**!** These are a few of the descriptors widely circulated on the worldwide web by media outlets such as Fox News, The Guardian, the Irish Times, France 24, BBC, and Vice Media to describe Agbogbloshie and the activities of e-waste workers. The local pejorative epithet, 'Sodom and Gomorrah' is no less offensive. It configures not only the place, but also the people and their livelihood activities as somehow notoriously sinful and retrograde. As in the biblical story, their corruption and moral depravity would ultimately result in their permanent destruction. In Agbogbloshie, this takes the form of evictions, demolitions and destruction of property. These monikers - whether local or international in origin - accomplish one goal, that is, to define Agbogbloshie as waste, a wasted landscape where both the material and the human-as-waste can be interred. In this popular dystopian fiction, Agbogbloshie represents "an aesthetic of eroding or collapsing value but also, of mass corporeal disintegration which is centred around the themes of waste, wasting, degeneration, and decay." This prevailing narrative about Agbogbloshie is reminiscent of Chimamanda Adichie's cautionary tale about the dangers of perpetuating a single-story. The single story of Agbogbloshie fed the headings captioned above. It influenced academic research, NGO advocacy, fashioned regulatory instruments and led to economic cooperation agreements between countries. More telling, however, is the fact that this single story synonymizes Agbogbloshie with pollution and conflates existing stereotypes about Africa. It also focuses on the effects and less so on the underlying cause. As a result, the prescriptive solutions designed are often ineffective. The framing power of the single story has also been mobilized as a smoke screen for urban redevelopment in and around Agbogbloshie, e.g., the ecological restoration of the Korle Lagoon into a marine green space and tourist attraction. The ecological restoration project would fit into plans for new beach front high-rise and mixed-use real-estate developments that city officials envisage for Accra. In departing from the single-story narrative, this chapter provides an alternative reading of Agbogbloshie where state and private interest collude to dismiss the poor's place-making histories which added value to a once-derelict and neglected space and instead, replace it with projects that improve the overall 'aesthetic look' of Accra to meet the needs of middle and upper-class residents and private sector developers. In Agbogbloshie, the flow of capital is challenging the poor's right to the city.

Introduction

Societies today incorporate and exclude a wealth of places when cities and other urban centres expand and contract, decline, and rejuvenate in response to the free flow of capital. These places, i.e., the "backsides" of the city, become abandoned or neglected for several reasons (Nielsen, 2002). Chief among them is urban blight (a phenomenon that encapsulates structural decay, property devaluation, capital flight and disinvestment, and changing demographic patterns) and also their association with informal and illegal activities (Nielsen, 2002; Weber, 2002). Despite their seeming socio-spatial and aesthetic devaluation, these same places can later become (in)voluntary targets for property speculation and urban gentrification (Boarder, 2015). The shifting pendulum between contraction (crisis) and expansion (bubble) indicates that there is a temporal dimension to the superfluity of places and the way places fall into and out of economic and socially "acceptable" use. The cycling of properties in this fashion is not limited to the cosmopolitan cities of Toronto, New York and Paris. Property speculation is rife in the urban centres of commerce in developing countries. In collusion with local authorities, speculators can upend existing communities using the rhetoric of urban redevelopment.

Agbogbloshie scrapyard and the informal settlement of Old Fadama/Sodom and Gomorrah in Accra (Refer to Map. 2) are classic examples of the way urban spaces become wasted and then may be reclaimed through capital infusion which pushes the waste elsewhere. To date, Agbogbloshie bears the signs of urban decay – garbage laden streets, acrid air, employment in informal economic activities, and the confinement of Accra's surplus population[54] in overcrowded,

[54] Surplus population is defined as that segment of the population that is of a greater extent than is structurally necessary for a capital-intensive economy (Godfrey, 1977, p. 64). In addition to this Marxist understanding of surplus population, I define Accra's surplus population as those urban inhabitants whose presence within the city is beyond the capacity of state institutions to provide basic services, e.g., housing, sanitation, and formal employment. This situation creates a condition where some segments of society do not depend nor have any expectations of the state.

poorly serviced informal settlements, of which it is one of many.[55] Added to its local infamy, international headlines such as Welcome to HELL! Ghana's GRAVEYARD for Europe's e-waste! Inside the HELLSCAPE where our computers go to DIE! Agbogbloshie, the World's largest e-WASTELAND! are often used to describe Agbogbloshie and the activities of e-waste workers (Cox, 2014; Kaplan, 2015; Schiller, 2017). The local pejorative epithet, "Sodom and Gomorrah" is no less offensive. It configures not only the place, but, also the people (mostly migrants from Ghana's three northern regions) and their livelihood activities as somehow notoriously sinful and retrograde. These monikers -- whether local or international in origin - accomplish one goal, that is, to define Agbogbloshie as waste, a wasted landscape where both the material and the human-as-waste can be interred. In our popular dystopian fiction, Agbogbloshie represents "an aesthetic of eroding or collapsing value but also, of mass corporeal disintegration which is centred around the themes of waste, wasting, degeneration, and decay" (Nayar, 2017, p.36). In heightening the visibility of the community, the current story of poverty, pollution, death and decay has also resulted in its loss of the protection that prior invisibility afforded (Dovey & King, 2011).

Despite this heightened level of stigmatization, because of its location on the coast and near Accra's CBD, Agbogbloshie is earmarked for inclusive urban redevelopment. A crucial part of this plan depends on the success of the ecological restoration of the Korle Lagoon into a marine green space and possible tourist attraction, and more importantly, the eviction and relocation of

[55] Astonishingly, quite a few of the Ghanaians (other than my research participants) that I spoke to about my site visits to Agbogbloshie exhibited emotions ranging from shock and dismay to undeniable concern for my safety. Many could not fathom why a student from a Canadian university would be interested in the activities in Agbogbloshie or spend hours at a time walking through the trash-strewn landscape. Their collective abhorrence was quite fascinating, given that many had never been to Agbogbloshie or had not visited the area in many years. Although they had no contact with the place and the people, they held deep-seated negative attitudes and stereotypes. They were united in their belief that Agbogbloshie is a filthy, crime-ridden, and an unsafe place overrun with people of disrepute.

the illegal slum settlement of Old Fadama/Sodom and Gomorrah. The Korle Lagoon Ecological Restoration Project (KLERP) would fit into plans for new beach front high-rise and mixed-use real-estate developments, that city officials envisage for Accra - a world that would largely be inhabited by the middle and upper classes (Oteng-Ababio & Grant, 2019; Owusu & Oteng-Ababio, 2015).

In departing from the single-story narrative of Agbogbloshie as a polluted and scarred landscape with workers resigned to their sorry fate, this chapter goes beyond a discussion about the contamination of Agbogbloshie's physical environment by a plethora of invisible toxins and visible solid waste. It provides an alternative reading of Agbogbloshie where state and private interest collude to "dismiss the poor's place-making histories which added value to a once-derelict and neglected wasteland" and instead, replace it with projects that improve the overall 'aesthetic look' of Accra to meet the needs of middle and upper-class and private sector developers (Oteng-Ababio & Grant, 2019, p. 6). This interpretation focuses, instead, on how the flow of capital into and beyond Agbogbloshie shapes the community's positioning within Ghana's urban landscape. Heeding Chimamanda Ngozi Adichie's (2009) warning about the dangers of perpetuating a single story, the chapter charts the development of Agbogbloshie from a pristine wetland to the electronic waste 'dumpsite,' scrapyard, and slum settlement that it is today. It shows how negative publicity, coupled with potential private development interests, make Agbogbloshie a prime site for urban resilience strategies.[56] Weber (2002, p. 519) provides an apt description of this process as 'state-sanctioned' spatialized capital accumulation [author's emphasis]. In departing from the single-story narrative, a more nuanced story emerges that documents how wasted places like Agbogbloshie are co-produced by the socio-spatial interactions between

[56] See The 100 Resilient Cities initiative at http://www.100resilientcities.org/strategies/accra/

discarded material objects, superfluous human populations, the zones they inhabit, and state-sponsored neo-liberalization of devalued property in areas of blight.

The following section provides a brief recounting of the history of urban planning policy and land management in Accra, and how such policies shape the policy response to slum settlements in general and in Agbogbloshie more specifically. Contextualizing, the city's approach to dealing with slum settlements provides a more cogent basis for understanding the development of Agbogbloshie.

Spatial Planning in Accra

To the casual observer, Accra is a mixed bag when it comes to land-use planning. Light industrial, commercial, residential, and public land-uses are often juxtaposed sometimes onto adjacent parcels of land or what may seem like one planning zone. Whether navigating the crowded area around Kwame Nkrumah Circle, locally referred to as 'Circle,' Abossey-Okai, Kaneshie, and Osu, different land-uses are often in contention for available serviced land in Accra[57]. Research by Albert (1976), Asabere (1981), Awuah et al., (2014), Crentsil & Owusu (2018), Frimpong (2017), Larbi (1996) and Thurman (2010) into the origins of Ghana's urban form and land-use patterns reveals the influence of the British colonial period, especially the transatlantic adoption of British town and country planning frameworks. The period of British occupation through direct and indirect rule did not result in uniform development across the country's urban centers. The areas which were occupied by European settlers had the benefit of better land-use planning, e.g., Ridge Residential Area, formerly European Residential Area, whereas native African settlements in some

[57] Serviced land typically has the following features; paved access roads, proximity to water and electricity lines for ease of connection, proximity to main thoroughfares and the nature of the land title, to name a few.

parts of central Accra and Adabraka were left to develop in an ad hoc manner and at the benevolence of the local stool or chief (Larbi, 1996). Post-independence, and despite the removal of segregative barriers between European and African settlements, planning policies still favoured the British colonial model in terms of layout, building standards, densities, and the visual appearance of the urban structure (Peter & Yang, 2019; Watson, 2009). Physical development in Accra progressed along two trajectories. Lands vested in the state (public lands) developed (as much as possible) in line with available planning frameworks and regulations, whereas stool/shrine or customary lands[58] remained relatively neglected, resulting in indiscriminate and unplanned development (Larbi, 1996) which had implications for assessing land value in Accra. For example, residential estates like Airport and Roman Ridge, have higher assessed real estate values because these were initially European settlements, and today are the enclave communities for foreign workers, expatriates and well to do Ghanaians. Communities like Nima or any of the Zongo communities in Accra have much lower assessed real estate values (Asabere, 1981; Larbi, 1996) as their lands are likely administered under customary law with little to no adherence to planning codes.

Colonial legacies are not the sole source of the country's urban planning and development woes. In Larbi's (1996) account, this situation has a lot to do with socio-economic mismanagement in the aftermath of independence, which had a tremendous impact on urban development in Accra. He describes the situation in the following way:

"The absence of effective government control created a situation where buildings sprang up on nearly every vacant parcel of land in the urban areas, but especially in Accra in concert with public officials who took advantage of the weak planning and development controls. Open spaces

[58] Stool/shrine or customary lands are administered by traditional rulers or chiefs or occupants of stools and skins. These community leaders hold those lands in trust for their subjects. Customary lands can be leased but not sold outright (Yiri, 2006, p. 2).

and road reserves were encroached on by the urban elite and those with connections in the public service. Building construction without planning and the requisite land title was the norm. These developments partly explain the absence of parks and open spaces in Accra. Development occurred in areas prone to flooding and along drainage corridors. The provision of roads, water and electricity, lagged behind the construction of buildings. In short, land-use planning, and development control was, in essence, non-existent" (p. 195).

The above indicates that political and administrative regimes post-independence, created additional difficulties from a planning perspective. Successive governments, whether democratically elected or military led, were not successful in implementing a cohesive set of land development policies. The unclear development path for Agbogbloshie/Old Fadama is indicative of how political interference in land administration continues to hamper effective physical planning and development in Accra.

Another reason offered for the poor performance of the country's physical planning and development policies was the separation between economic development planning and land-use planning (Larbi, 1996). In cases where land-use planning appeared in the City's economic development plans, little was accomplished. One possible reason for this is Ghana's complex land tenure system. Research by Adams et al. (1999) on South Africa has shown that insecurity of land tenure has significant implications for economic development. In cases where tenure is insecure, it can forestall investment in the land, e.g., infrastructure and service provision, and result in its unsustainable use. Another may be more administrative in nature, i.e., the wrangling between agencies that have responsibility for economic and spatial planning policies in Ghana (Larbi, 1996, p. 201).

Planning Authorities & Regulations in Ghana

Accra has at its disposal regulatory instruments that are intended to shape land use planning and development within the City. One of the first was the 1945 Town and Country Planning Ordinance (Cap 84). Cap 84 made provision for orderly and progressive physical development locally and nationally (Larbi, 1996; Yiri, 2006). The Town and Country Planning Act of 1958 (Act 30) replaced Cap 84 in 1993 (TCPD, Ghana, 2019). Since then, the Local Government Act (Act 462) of 1993, National Development Planning Commission Act, 1994 (Act 479); the National Development Planning (Systems) Act, 1994 (Act 480); the National Building Regulations, and Legislative Instrument (Li 1630), 1996 and Land Use and Spatial Planning Act, 2016 (Act 925) came into force (Larbi, 1996; LUSPA, n.d.; TCPD, Ghana, 2019). Notwithstanding these regulations, the tenets of Cap 84 remain the primary driver of the country's land-use planning regime (Awuah et al., 2014).

The government also created departments to assist with its spatial planning and development goals, which included the Land Use and Spatial Planning Authority, which replaced the Town and Country Planning Department (TCPD) in 2016 (LUSPA, n.d.). Collectively these instruments and the departments responsible for their implementation encouraged the use of the 'master plan'[59] as a future-based (sometimes inflexible) document to guide the economic and spatial development in the country. Accra unveiled its first physical development plan in 1944. Fourteen years later, a more comprehensive plan divided Accra into what Awuah et al., (2014) describes as uni-functional land-use zones, e.g., commercial, light industrial, heavy industrial, educational, civic and cultural, high-class residential, middle-class residential, low-class residential, and recreational (p.38). The expectation was that each zone would develop homogeneously

[59] A master plan is a dynamic long-term land use planning document that provides a conceptual layout to guide future growth and development. Most master plans rely on a system of land use zoning to ensure that the urban form develops with due regard for "aesthetics, efficiency, modernist ideals" of the good city (Peter & Yang, 2019, p. 2261).

following the regulations specified for that type of land-use (Asabere, 1981). This expectation remains somewhat unmet. Unauthorized land-use conversions, especially the emergence of slum settlements in areas allocated for alternative developments, nevertheless remain one of the indicators of the weakness of Ghana's urban planning regime (Awuah et al., 2014). The authors suggest that severely under-resourced planning institutions lack the internal capacity to monitor and do not have the legal authority to adequately enforce planning regulations with respect to pre-existing traditional/customary land rights alongside private ownership. Sustained political interference in the execution of planning functions is another weakness in Ghana's planning regime.

Efforts to improve the overall planning function led to the decentralization of physical planning and development authority to the Metropolitan, Municipal and District Assemblies (MMDAs). For example, the Accra Municipal Council, instituted in 1898, later became the Accra Metropolitan Assembly under the Local Government Law of 1988. It has a physical planning department and a separate urban roads department (AMA, 2019). Still, a shortage of skilled professionals, e.g., physical planners, surveyors and valuers, and civil engineers, and insufficient resources to handle the infrastructure, housing, sanitation and other social services of a rapidly expanding primate city, continue to hamper the work of most Assemblies. Also, in choosing to ignore the failures of internal governance, including institutional and legal, the city has instead adopted a combative approach to dealing with illegal slum settlements – a visible sign of poor planning and land administration.

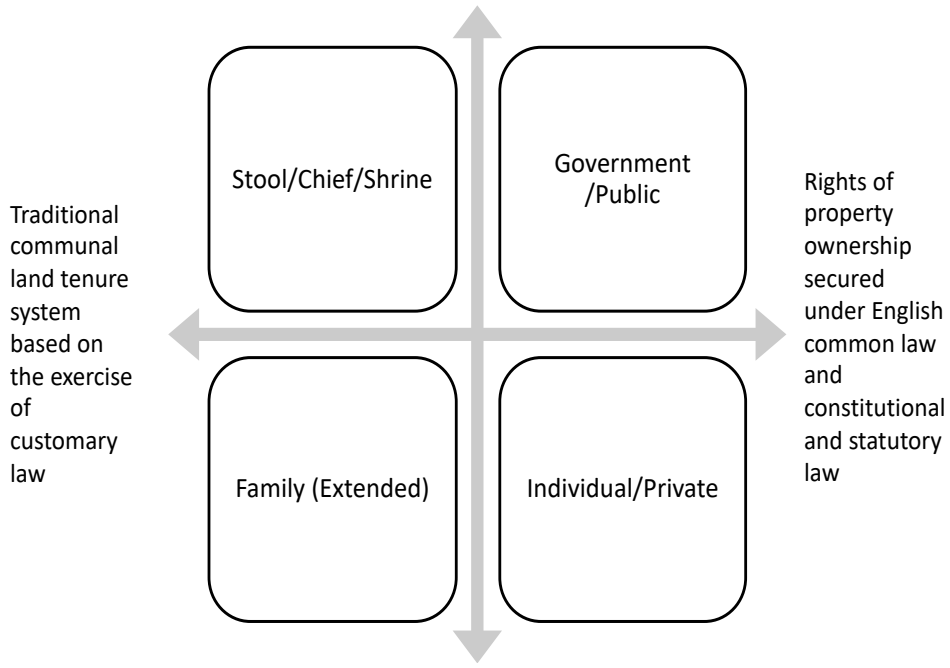
Land Values & Land Tenure Patterns in Ghana

Land is sacred in Ghana. Land ties Ghanaians to their ancestors, ethnic groups, and villages, whether they are physically present in the country or make up the diasporic community. Land has historical, cultural, religious/spiritual/ritual, political, and economic significance. It is not surprising then that access to land or lack thereof elicits strong emotions within the society, since land lies at the heart of social, political, and economic life for most Ghanaians (Crook, 2004). Socio-economic status or class position in society does not diminish the keen sense of connection to the land.

Asabere's (1981) research on the determinants of land values in Accra, points to the importance of three variables. These are ownership or seller type, the forms of legal ownership (exchange title) in addition to the system of administration or laws available to adjudicate land transactions. There are four main classes of land ownership or tenure in Accra: stool/shrine lands, government/public lands, family lands, and individual/private lands which requires registration with the appropriate authorities, e.g., the National Lands Commission (Asabere, 1981; Awuah et al., 2014; Larbi, 1996; Thurman, 2010) (See Figure 3). Legal pluralism, i.e., the dual system of laws that exist to manage land transactions and the conferral of title and settlement of land rights claims, complicates land politics in Accra (Crook, 2004). Lands owned or managed by a stool/shrine/chief (as the representative of the community) operate under traditional customary laws. Customary law is founded on the belief that land is a community asset and owned collectively. Family land also falls under the jurisdiction of customary law. State lands and those held privately fall under the purview of existing English common-law, the constitution and

statutory law (Thurman, 2010). The plurality of laws governing land administration creates additional burdens when land disputes emerge.[60]

Figure 3. Types of Land Ownership and the Laws that govern them



Source: Author's Construction

Two different forms of legal ownership are possible when changing land title in Ghana: freehold (both customary and common-law) and leasehold. Freehold interest allows the purchaser of that interest the right to use the land in perpetuity (Asabere, 1981; Botchway, 2019; Kasanga & Kotey, 2001; Larbi, 1996). The purchaser thus has sole or absolute title to that parcel of land and may dispense with it as he/she desires. The purchaser of a leasehold interest enters into a contractual agreement with the owner of the land. The agreement is for a specified number of

[60] Poor record-keeping on the part of Chiefs and other traditional leaders, for example, results in more than one person claiming ownership of the same piece of land. Disputes of this nature clog up the local court system, which is "overwhelmed by the large volume of land case few of which can be heard or settled within a reasonable time" (Crook, 2004, pp. 3–4). Chiefs and other traditional leaders can also settle land disputes within their communities.

years, usually ranging from 50 years for non-citizens to 99 years for Ghanaians (Asabere, 1981; Botchway, 2019; Kasanga & Kotey, 2001; Larbi, 1996).[61]

As stated earlier, the type of ownership can affect land values. For example, lands held communally, and which are subject to customary law, may have lower assessed property values. The author posits the following explanation. Traditional and cultural norms in Ghana dictate that stools or chiefs subsidize or discount land prices, at least to buyers who are the subjects of their stools (Asabere, 1981, pp. 388–389). The same may apply to lands occupied by Zongos and slum settlements. Awuah et al. (2014) and Larbi (1996) add context to the relationship between the type of ownership and land values. The authors contend that land is not assessed equally or fairly in Ghana. For example, the 20 percent of land vested in the state is better managed/serviced in terms of access to water, electricity, roads, sewage and other infrastructural amenities and are connected to ancillary services and other developments including proximity to playgrounds, health centres, security posts, and shopping centres – Airport Residential Area is a prime example. Private individuals can purchase land vested in the state; however, the requirements can be prohibitive for most Ghanaians. For example, Kasanga and Kotey (2001), note that only a privileged minority of Ghanaians, e.g., senior civil servants, politicians, top army and police officers, contractors, and business executives, have the means, contacts and power to acquire land on the open market (p.23).

While the majority of Ghanaians gain access to the land market, through the customary land administration system, these lands (which represents about 80 percent of all lands in Ghana)

[61] A leasehold interest is a creation of the common law, not customary law, and is the most common form of ownership in Ghana. Leaseholds may be held individually or communally and by both natural and legal persons (Botchway, 2019).

are managed very differently from other ownership categories, e.g., state-owned lands.[62] Customary lands are administered within a mostly grey planning zone that successive governments have avoided regularizing because of potential political consequences. For example, the preservation of customary rights or reticence to engage in effective land reform policies in Ghana, could be in the interest of maintaining political stability given that traditional leaders and Chiefs wield much power in Ghana. Nevertheless, the customary system of land administration has been criticized as lacking in transparency and accountability, with frequent accusations of corruption on the part of chiefs and other traditional land administrators.

Urbanization and its effects on Land-use Planning

The planning challenges affecting Accra and other urban areas in Ghana must acknowledge the impact that urbanization is having on the actual design and management of urban lands. In 2018, the Population Division of the United Nations Department of Economic and Social Affairs (UN DESA) published its Revision of the World Urbanization Prospects. The report provides estimates and projections about the rate of urbanization, i.e., the gradual shift in population from rural to urban areas. The UN estimates that in 2018, 55 percent of the world's population lived in urban areas. The rate of urbanization was highest in the economically advanced countries of North America and Europe whereas Africa remains mostly rural, with only 43 percent of its population living in urban areas. By 2050, however, the UN estimates that roughly two thirds or 68 percent of the world's population will be living in urban areas, with about 90 percent of the increase concentrated in Asia and Africa (UN Department of Economic and Social Affairs, Population

[62] In Ghana, roughly 80 percent of land in Ghana is under the ownership and control of customary authorities with the remaining 20 percent vested in the state as public lands (Kakraba-Ampeh, n.d.; Kasanga & Kotey, 2001)

Division, 2019, p. 1). In the context of Ghana, the population grew from 5 million in 1950 to 29 million in 2018, while the proportion of urban dwellers increased from 15 percent to 56 percent (UN Department of Economic and Social Affairs, Population Division, 2019, p. 53). According to the Ghana Statistical Service (GSS) (2012), Ghana's urban population increased from 43.8 percent in 2000 to 50.9 percent in 2010. By 2030, the urban population is expected to account for two thirds of the population (Owusu & Oteng-Ababio, 2015, p. 4). The rate of urbanization in Ghana is uneven across the country's ten regions, with the Greater Accra Metropolitan Area (GAMA) urbanizing at a much faster rate than for instance, the urban areas of the three northern regions. This has much to do with the socio-economic conditions in both the places of origin (e.g., the northern regions) and the destination (e.g., Accra).

The same UN report describes urbanization as a complex spatial and socio-economic process that transforms the built environment while also shifting the spatial distribution of a population, and 'the agglomeration of infrastructure and capital' (Schwanen & van Kempen, 2019, p. 4). For example, major urban agglomerations typically consume peri-urban and rural areas to meet the demand for land, which results in the shrinking of the physical and psychological distance between urban and rural. Other changes wrought by the process of urbanization include changes in the performance of various economic sectors, e.g., in urban areas, the manufacturing and service sectors tend to dominate. In contrast, agriculture remains the key economic engine in many rural communities in Africa. Urbanization can also alter the demographic and social structure of both urban and rural areas, e.g., young adults tend to migrate more frequently, and thus increase the older population in rural areas (Kreager, 2006). Their seemingly inevitable migration is the result of the shrinking and disappearance of their livelihood prospects in the turbulence of neoliberal globalization (Massey, 2007).

Urbanization is not without its drawbacks, especially in Africa, where urban centres have traditionally not been able to keep pace with natural population increase, far less the additional burden of rural migrants. In sub-Saharan Africa, specifically, rapid urbanization has created housing shortages in urban centres leading to the development of slum/squatter settlements. These settlements are prone to environmental pollution, elevated health risks from water and airborne diseases, and higher rates of crime and violence.

The current state of urbanization in sub-Saharan Africa is evidence that rapid urban growth was not accompanied by appropriate regulations and institutional enforcement to ensure efficient urban land use (Awuah et al., 2014). The rate of urbanization affecting Ghana's fastest-growing metropolis and its primacy vis-à-vis other regions is further compounding the problems brought on by the legacy of poor urban planning. Similar land-use patterns and their attendant challenges exist in most developing countries, planned around the idea of the primate city. These cities bear the brunt of new growth in terms of their geographical extent and population size. They are, in some ways, relics of former colonial occupation and are simultaneously at a point of infancy in terms of modernizing landuse planning and physical development through land reforms. The influx of new residents in search of better opportunities can, therefore, incapacitate existing infrastructure, and facilities, and fledgling institutions.

The Greater Accra Metropolitan Area

The Greater Accra Metropolitan Area (GAMA) has long been a dominant urban agglomeration because it is the official seat of the government, the country's major economic activities are concentrated within its borders and its serves as a cultural hub and the entertainment capital of the country. As a result, the GAMA has become one of the fastest-growing and stabilized

metropolitan areas in West Africa (World Bank, 2017). The GAMA is located in the southernmost part of Ghana along the Atlantic coast of West Africa. It occupies a total area between 3-4 thousand square kilometers and includes the capital city, Accra (GIBB Engineering and Science, 2017). Its coastline extends from Kokrobite in the west to Ada in the east. The GAMA is home to about 4.6 million people; more than 16 percent of Ghana's 2016 total population (GIBB Engineering and Science, 2017; World Bank, 2017) and the regional economy accounts for 25 percent of the country's Gross Domestic Product. It is also the epicenter for both formal and informal employment (GIBB Engineering and Science, 2017; World Bank, 2017). As the administrative and commercial capital of the nation, the GAMA acts as a magnet for international trade and foreign investment, and it houses the busiest port in the country – the Tema harbour (World Bank, 2017). (See Map 2).

As a result of its political and economic dominance, the GAMA is the least impoverished region in the country. For example, in the 7th round of the Ghana Living Standards Survey (GLSS) for the period 2016/2017, the region's poverty incidence was 2.5 percent, the lowest among all other geographical regions.[63] The trend was the same for the previous two periods (2005/06) and 2012/13 (Ghana Statistics Service, 2018b, p. 11). Because of the level of economic growth vis-à-vis other regions, the GAMA is also a hub for economic migrants in search of employment opportunities and the means to escape the poverty and destitution that afflicts much of rural Ghana. Not surprisingly, Accra and to a lesser extent, Tema, is the recipient of unprecedented population growth and unplanned spatial expansion into peri-urban and rural areas.

[63] Poverty Incidence or the incidence of poverty (P_o) measures the proportion of the population that is poor (living below the poverty line). It does not indicate how poor the poor are. In 2016/2017, Ghana poverty line was GHc1,314. The extreme poverty line of GH¢792.2 (Ghana Statistics Service, 2018b).

Map 2. Location of the Greater Accra Metropolitan Area (GAMA)

Source: (GIBB Engineering and Science, 2017)

As the urban core expands outwards, the distance between the CDB and low-income and slum communities, e.g., Agbogbloshie and Old Fadama disappears, heightening existing socio-economic, class and ethnic tensions. Like many rapidly growing urban centres in the global South, the GAMA faces persistent challenges, e.g., the wear and tear of main and arterial roads and motorways and other infrastructure, affordable housing shortages, urban sprawl into ecologically fragile environments (e.g., along the Korle Lagoon), traffic congestion and gridlock that brings the city to a halt and expanding slum settlements that lack access to essential services (Cobbinah & Erdiaw-Kwasie, 2018; Crentsil & Owusu, 2018; Oteng-Ababio & Grant, 2019; Owusu & Oteng-

Ababio, 2015; World Bank, 2017).[64] These challenges increase the vulnerability of the city to natural and man-made disasters, including flooding and disease outbreaks, e.g., malaria and cholera, fires within unplanned slum settlements and industrial areas, and structural collapses due to haphazard residential and commercial construction. Low-income residents who cannot afford exorbitant urban rents, in particular, find themselves living in informal and overcrowded settlements with limited or no access to public services, e.g., reliable electricity and clean water. This haphazard urban development pattern presents a challenge for the city, its officials and its residents (Crentsil & Owusu, 2018; Owusu & Oteng-Ababio, 2015; World Bank, 2017). The above is a clear picture of the state of urban development in Ghana's most significant and economically vibrant metropolitan area, the Greater Accra Metropolitan Area (GAMA).

Urban Slum Settlements in Accra

One of the most visible signs of a city under siege by rapid urbanization is the growth of overcrowded settlements. In Accra places like Ga Mashie, Chokor and Nima (legal indigenous slum settlements), and Old Fadama/Sodom and Gomorrah (an illegal migrant slum)[65]are manifestations of a city unprepared for the challenges associated with urbanization (Frimpong, 2017). The dual and unfunded system of land administration and management in Accra exacerbates this. It creates a hierarchical ranking of communities within the urban sphere – a continuation of colonial segregative policies. Though these segregative policies ended on paper (by a series of regulations),

[64]There are ecologically important lagoons and wetlands within the city that have been adversely altered or affected by indiscriminate housing construction along floodplains and in buffer zones; the use of waterways as garbage dumps for commercial and domestic waste. The effects of climate change, e.g., more severe storm surges, exacerbate ecological vulnerabilities increasing the frequency and intensity of flooding events along the coastline

[65] The government can choose to recognize the rights of slum settlements, in which case the community is considered a legal settlement and its inhabitants have some form of land tenure security. Alternatively, the government can adopt a position of non-recognition, at which point the community is considered illegal.

in actuality, they continue to perpetuate poor land-use and physical planning policies. The result is a series of fragmented communities that cordons off the rich from the poor, and middle income from lower-income. In Accra, high income residential areas attract more government services and spending. Conversely, low income residential areas are often neglected and receive inadequate public services, perpetuating a downward cycle.

The results of the Participatory Slum Upgrading Programme (PSUP) financed by the European Commission, estimated that in 2011, 1.6 million people lived in 78 slum settlements across Accra of which Old Fadama was one of the largest (UN-Habitat, 2011). Because Old Fadama is classified as an illegal slum settlement, its residents live under constant threat of eviction from the Accra Metropolitan Assembly (AMA) and the delivery of public services like garbage collection is almost non-existent. The illegality of the settlement continues to be the rationale behind the 'decongestion' narrative of the AMA (Crentsil & Owusu, 2018), which may hide the actual agenda of the government, i.e., the removal of certain groups and their relocation beyond the city limits.[66] Under Ghanaian law, illegal settlers can claim land rights and compensation after twelve (12) years of continuous occupation (known as adverse possession).[67] This may also help explain the adversarial approach taken by the government and other land owners in Ghana with regards to illegal slum settlements (Ghana Legal, n.d.; Lepawsky & Akese, 2015; UN-Habitat, 2011). To this end, force and intimidation coalesce with decongestion, demolition, and disruption to push out illegal slum settlers.

[66] Crentsil and Owusu (2018) citing Onuoha, (2014) define decongestion as the removal of what city authorities perceive to be 'unwanted' activities and areas within cities in Ghana, or simply, the removal of informal settlers and street traders from public spaces in Ghanaian cities (p.2).

[67] Existing research indicates that the J. E. Mettle and Ablorh Mills families are contesting ownership of some of the land in Agbogbloshie through the court system. The head of the Ablorh Mills family is taking the AMA to court to reclaim 142.21 hectares of land allegedly expropriated by the AMA (Baneseh, 2016; Grant, 2006; Lepawsky & Akese, 2015).

Questions related to the existing landholding system and the 80:20 land ownership divide are generally not attended to in discussions about Agbogbloshie by researchers, policymakers, and international media houses. Instead, the focus is on the historical roots of the community, its ethnic composition, and the informal activities that define the community at large. Planners and prospective developers use the concept of blight and urban decline to frame the community. There is a dual purpose for this narrative of blight. In the first instance, it stigmatizes the community, and in the second and most important, it opens the door for revenue seeking investments by real estate developers which is supported by national-level policies that strongly promote urban renewal/revitalization or gentrification. These narratives fail to adequately address the historical, cultural, socio-economic, political, and environmental factors that converge to create slum settlements like Agbogbloshie.

A Place Called Agbogbloshie

Through my eyes, the following vignette attempts to recreate for the reader a typical scene in Agbogbloshie, including the assault on all five senses, the energy and life force of place and the people:

> Intensity is a word that inhabitants of Agbogbloshie well understand. The typical scene is a virtual assault on the senses. Congestion! Aggressive taxis, abrasive tro-tro drivers, risk-taking okadas (motorcycle taxi), flatbed trucks laden with yams or onions, anxious pedestrians, overworked truck pushers, quarrelsome roadside vendors; and a silent army of young girls, with deeply etched frown lines, the telltale signs of the heavy loads gracefully balanced on their heads. Pedestrian and vehicles sludging, wobbling, bumping along and across the uneven, potholed expanse of unpaved mud-packed road. So much noise! People talking, people laughing, people haggling, children playing, hammers pounding, car horns blaring and in the distance a siren. And amid the cacophony, the piercing sound of mosque speakers announcing the call to prayers. Although the inhabitants seem oblivious to it, an insanely odorous mixture fills the air; clogged drains overflowing, unsold food rotting, the stench of rubbish heaps filled with garbage putrefying

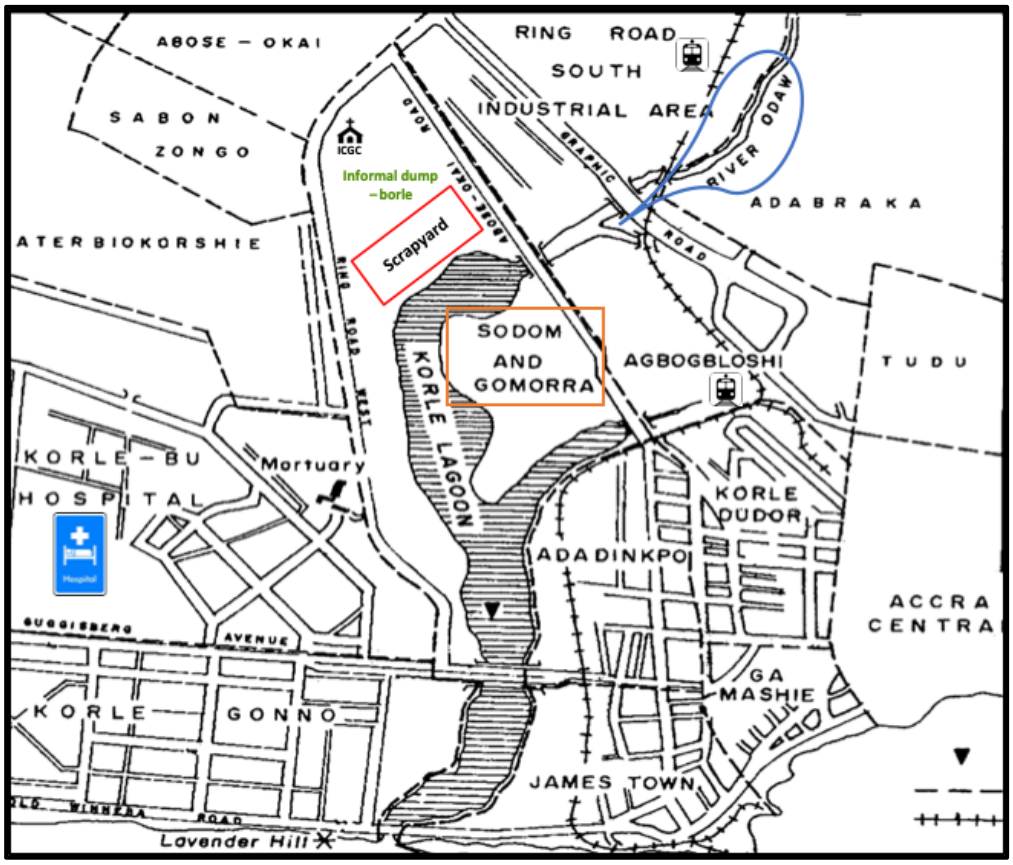
> under the scorching heat of the noonday sun. The acrid smell of burning plastic, rubber, and the noxious smog of exhaust fumes produce a burning sensation that assails the senses. Cloudless sky! Dust on your face, dust in the air, dust in your hair. Thick black smoke curls up to the horizon. The lagoon slowly winds through the community, its greyish black gelatinous surface impenetrable, undisturbed by creatures above and below, if any. Isolated grass patches amid swaths of soggy black earth tainted by car oil hastily emptied in the process of dismantling. Emaciated cows in search of food, roaming through a garbage-strewn wasteland. Broken electric fans, refrigerators, air-conditioning units, cooking stoves, commercial printers, naked car engines, unhinged excavator buckets and trackpads, derelict school buses, torn wire fencing, rusted zinc roofing sheets, old computer monitors, CRT TV sets, rusted LNG gas tanks, unwanted car rims. Organized chaos, they say! People crouched in corners, people everywhere, water sellers, hawkers, truck pushers, money lenders, beggars. An approaching human tidal wave, colourful and loud, mildly reminiscent of an ant colony, industrious, purpose-led, resourceful.

Agbogbloshie is a densely populated informal residential and commercial enclave which sits adjacent to the South Industrial Area and an informal landfill - locally referred to as bɔɔla.[68] The area covers about 31.3. hectares (i.e., the scrapyard) and is located less than a kilometre from Accra's CBD, or Accra-Accra, as it is commonly referred to by tro-tro drivers. Agbogbloshie has an estimated population of 79,684 (Oteng-Ababio, 2012, p. 4).[69] The Korle Lagoon, which is fed by the Odaw River, slowly winds its way past the scrapyard and the slum settlement of Old Fadama as it makes its way to the Gulf of Guinea.

The Korle Lagoon is the city's most extensive drainage system extending northwards via one of its main tributaries. The Odaw River flows from the hills of Abokobi and Adjankote through Ashongman, Atomic Energy area, West Legon, Achimota, Alajo, Avenor, and Agbogbloshie before entering the Gulf of Guinea (Kwame Asare-Boadu, 2018; Onuoha, 2016). (See Map 3).

[68] A Twi word for garbage, rubbish, trash.
[69] In the first 3 quarters of 2019, the Greater Accra Metropolitan Area had a population of 4,943,075. The population for the city of Accra was 2,087,688 (Ghana Statistics Service, 2019).

Map 3. Ghana Survey Map of Old Fadama (Sodom and Gomorra) and Agbogbloshie



Source: Adapted from (Owusu Boadi & Kuitunen, 2002)

The drainage area of the Odaw river and Korle Lagoon is home to different land uses, for example industrial (e.g., South Industrial Estate), commercial (e.g., business enclaves along Graphic road and Abossey-Okai roundabout), transport (e.g., Odaw and Accra railway stations and an unofficial bus terminal for carriage to Tamale and other Northern towns), residential (e.g., Sabon Zongo), and institutional (e.g., Korle-Bu hospital and the International Central Gospel Church). Hodge-podge development within the drainage basin of the lagoon has impacted negatively on its water quality and the aesthetic of the lagoon. The scrapyard and adjacent slum settlement, (home to many of the scrapyard workers and vendors in the market), is blamed for the deterioration of the Lagoon; formerly a pristine wetland. Later sections of the chapter will address the centrality of the

Korle Lagoon to urban redevelopment in Accra and the city's failed attempts to evict residents of old Fadama and formalize the profitable yet polluting and unsightly scrap metal recycling sector.

Historizing Agbogbloshie

Agbogbloshie is a social as well as a political phenomenon with its survival grounded in the economic viability of recovered scrap metal and other valuable and reusable materials as well as the high traffic fresh food market – Agbogbloshie market. The political astuteness of the residents and their willingness to exercise their political power - (sometimes threatening electoral defeat to any government that supports their relocation or eviction), brings some measure of security and permanence to the settlement. Consequently, many in Accra believe that the persistence of Agbogbloshie despite forceful and coercive attempts by the AMA is the result of political cowardice, as the alternative would be political suicide. Setting aside the political and economic drivers, the actual physical growth of Agbogbloshie can be traced to the early 1990s. The consensus within the GAMA but more specifically in Accra is that the residents of Agbogbloshie are predominantly from Ghana's three northern regions – Upper West, Upper East, and the Northern Region. While correct, the soaring cost of living in Accra is funneling many other ethnic groups who make up the city's urban poor into Agbogbloshie, where housing is more affordable than in the formal housing market and where there are fewer barriers to the construction of private shelter.

A report by the Centre on Housing Rights and Evictions (COHRE) in 2004 shows that Agbogbloshie emerged in about three to four phases. In Phase one (around the early 1990s), Agbogbloshie began as a temporary site for the relocation of numerous hawkers who crammed city streets, sidewalks, and available open spaces in Accra, hampering free-flowing motorized and

pedestrian traffic. The ethnicity of these initial residents is not known. However, we can assume that they were not predominantly northerners but instead people from the southern regions working informally in the city. The AMA and other agencies used the debilitating scale of congestion in the downtown core to relocate from the city 'some' of its urban inhabitants. Interestingly, the COHRE report alleges that the temporary relocation of the hawkers away from the city centre or city 'proper' coincided with the 1991 Non-aligned Movement Conference which was expected to attract a large delegation of foreign ministers and dignitaries to Ghana – hence the urban clean-up (COHRE, 2004). The AMA relocated many of these hawkers to the edge of Agbogbloshie, adjacent to the Abossey Okai roundabout, in what was expected to be a temporary spatial fix (COHRE, 2004; Grant, 2006; Lepawsky & Akese, 2015). During that period, a handful of those relocated approached the then chief and sought his permission to settle temporarily on the land (COHRE, 2004). Because of the complex nature of Ghana's land tenure system, and the traditional role of chiefs[70] in land allocation and acquisition, the chief permitted temporary settlement on land part of which is currently vested in the National Youth Authority (NYA).

Phase two occurred around 1993 when the wholesale yam market was again temporarily relocated to Agbogbloshie by the Accra Metropolitan Assembly (AMA). The relocation of the yam market led to the development of a more comprehensive market, selling a range of wholesale food crops, such as tomatoes and onions in addition to yam. According to the COHRE report, the labour intensiveness of the food market created the conditions for the further expansion of

[70] The role of traditional chiefs in land acquisition and disputes arising in Ghana is very complex. Here we have persons seeking permission from a Chief, despite the AMA's disavowal of the legality of the settlement. This is possible because of the customary land-owning system in practice in Ghana.

Agbogbloshie in terms of a semi-permanent resident settlement. The excerpt below explains this logic.

"Yam is trucked down from the north and must be protected until sold. Due to inadequate and secure storage, the produce can only be kept safe if it is guarded continuously. It is also important that the trucks have a rapid turnaround time if they are to be cost-effective, so additional personnel are required for off-loading. These criteria created the initial demand for trustworthy labour, which was achieved by bringing people in from the food producing areas, the Northern Region, to serve the needs of the various enclaves which were developing (COHRE, 2004, p. 19).

The third phase of development was linked to violent ethnic conflicts and chieftaincy wars in the Northern Region between the Kokomba, Nanumba, and Dagomba peoples, which erupted somewhat unexpectedly in 1994/1995[71] with smaller sporadic clashes in the intervening years (Bogner, 2000; COHRE, 2004). Though conflated in the media to be a dispute over a guinea fowl, pre and post-colonial issues around land tenure and ownership were at the heart of the conflict (Bogner, 2000; Kaye & Béland, 2009). Further, underdevelopment in the northern regions may have fueled already simmering discontent between ethnic groups fighting to control the limited resources available to them. Many fled to Accra, gradually making their way to Agbogbloshie, where earlier northern migrants associated with the yam trade had settled in informal makeshift structures.

In the fourth phase (2000 and beyond), economic migrants settled in Agbogbloshie because of the expanded economic opportunities and social spin-offs available as a result of the community's growing population. Agbogbloshie boasts of a discordant blend of formal and informal commercial enterprises, e.g., used car part sales, money lenders, mechanics, electronic

[71] See Artur Bogner (2000). "The 1994 civil war in northern Ghana: the genesis and escalation of a 'tribal' conflict" In Ethnicity in Ghana, Palgrave Macmillan. See also Kaye & Béland (2009) The politics of ethnicity and post-conflict reconstruction: The case of Northern Ghana, *Journal of Contemporary African Studies*, (27)2, p. 177-200.

appliance refurbishers, small foundries for smelting aluminum and copper, scrap trading, and food vending. These businesses operate from shabbily constructed shacks on sidewalks and over waterways from which hawkers and vendors ply their trade. Agbogbloshie is also home to one of the largest open-air food markets in Accra. Residents across the city patronize the Agbogbloshie market so also, do street food vendors and restaurateurs, although e-waste recycling activities and indiscriminate garbage disposal in the open and informal dump that abuts the grounds of the ICGC has severely contaminated the area. Attendees at Sunday service at the ICGC complain of the busloads of prospective new residents and workers from the Northern Region that descend on Agbogbloshie weekly. Described as hoards, every new busload of Northerners deposited in Agbogbloshie, threatens the calm of churchgoers and reaffirms the need to control and stem the flow of migrants into a city that cannot deal with its existing urban population.

The combined effects of rising housing costs, increasing landlessness, stagnant and diminishing wages,[72] and the overall higher cost of living in Accra vis-à-vis other regions, work together to make Agbogbloshie a refuge for the urban poor of the city - pushed out of the housing and employment market because of their inability to meet their rental obligations and lack of the requisite skill set (COHRE, 2004). Agbogbloshie from the early 1990s housed those inhabitants who did not belong within the city limits. From hawkers, yam traders to displaced migrants from the north, Agbogbloshie and Old Fadama became the receptacle for housing all that was out of place, an eyesore and a source of pollution (Grant, 2006) in the metropolitan city that Accra is intent on becoming.

[72] As a result of depreciation in the local currency.

Despite the deprecating attitudes towards Agbogbloshie, the existence of a thriving informal economy around the recycling of electronic and other waste is evidence that not all waste is unpleasant or valueless. We can, therefore, assume that places like Agbogbloshie are spaces of social and economic capital for some segments of society. These sites can become transformative spaces where new users have the right to access, occupy and use urban space in alternative ways. While such areas may appear to be wasted, upon closer inspection, they have uses, albeit marginal ones, e.g., for dumping, for shelter, or for developing waste economies (Southworth, 2001) when compared to the formal sector. Though Southworth describes the uses as marginal, Agbogbloshie's usefulness is far greater. The community, especially workers in the scrapyard and those who collect other waste such as pure water sachets, add a dimension of circularity to the movement of waste within Accra. They achieve this by incorporating some categories of waste into systems of production as new inputs for local industry and international markets (Girardet 2010, cited by Onuoha, 2016). The activity of community members, therefore, acts as a *conduit* that circulates uncollected garbage in the city. However, and more importantly, it is a space that challenges how we understand our relationship to waste. Through their daily activities, they show that what is discarded can indeed become a ubiquitous resource. While some in the ecological economics discipline may tentatively agree that these workers are helping to push the idea of closed-loop systems, and the circular economy model, the valorization of waste and its management in these spaces also means that northern migrants in Agbogbloshie risk greater levels of toxic exposure while involved in a system of production that perpetuates racialized forms of accumulation.

Moreover, Agbogbloshie is a *gateway* through which the urban poor and other disenfranchised members of society find employment which is not available in the formal sector.

Osei-Boateng and Ampratwum (2011) and Mintah and Darwah (2018), estimate that the informal sector employs roughly 80 percent of the active Ghanaian workforce. Work in the sector is precarious with a correspondingly high level of income insecurity. However, it remains the only means for the poor, uneducated and unskilled to secure some form of livelihood, independent from the government and the formal sector that has not been able to create sufficient jobs to engage the country's workforce. Agbogbloshie also acts as a preliminary *springboard* for new migrants until they 'find their feet' in terms of better employment and housing (Onuoha, 2016). The community helps to integrate new migrants into the fabric of the city which on the first arrival can be intimidating and unwelcoming.

Agbogbloshie's Global and Local Footprint

Agbogbloshie is a vibrant formal and informal commercial hub and mainly informal residential settlement. At the time of my fieldwork (July to November 2018), two well-known banks, Eco-bank and UMB, had branches along Abossey-Okai road. Letap pharmaceuticals had its laboratory along the western border of the Korle Lagoon. Agbogbloshie also boasted some casual roadside restaurants or chop bars, religious centres, and other small to medium-size enterprises. Global media attention on the hazards of informal electronic waste recycling has also resulted in a few inter-governmental and bi-lateral projects that attempt to reduce the environmental and occupational harms associated with e-waste recycling, especially burning.

German Development Agency – GIZ

With financial assistance and cooperation from the German Federal State of Northrhine-Westphalia, a new health unit was constructed with a grant of 20 Million Euros through the KfW Development Bank. The unit serves community members and their families in Agbogbloshie

(German Embassy Accra, n.d.), alleviating to some extent the burdens placed on the Korle-Bu Teaching Hospital. (See Photo. 1).[73] In addition to the community health facility, the German Development Agency, GIZ, will facilitate training workshops for the community members (GIZ, 2017).

Photo 1. Completed Community Health Facility and Technical Training Centre in Agbogbloshie
Source: Field assistant

The workshops are part of the five-year (between 2016 and 2020) project, 'Environmentally Sound Disposal and Recycling of E-Waste.' It was commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ) in collaboration with the Ghanaian Ministry of Environment, Science, Technology and Innovation (MESTI) and aims to improve the management of e- waste in Ghana (GIZ, 2017). The training focuses on safety practices and measures, environmental and health-related issues associated with e-waste recycling and disposal, and financial literacy.[74] GIZ has also proposed a buyback or handover scheme where interested persons can receive monetary compensation for dropping off unwanted EEE.

[73] Chasant (2019b). A small glimmer of hope comes to Agbogbloshie, Ghana. https://www.atcmask.com/blogs/blog/agbogbloshie-scrapyard
[74] The revised Edition of the E-Waste Training Manual can be found using this link: https://www.giz.de/en/worldwide/63039.html

GIZ has had a prolonged presence in Agbogbloshie partly through intergovernmental cooperation (as in the above mentioned projects), as well as through institutional collaborations between German and Ghanaian researchers. I speculate that the interest of the German government in the e-waste activities in Agbogbloshie is also about e-waste from the European Union possibly entering Ghana illegally. Also, Germany's reputation as an "exemplar in the area waste management, environmentalism, plus its status as Europe's largest electronic waste producer and exporter" (Salehabadi, 2014, p. i) may continue to drive the agency's commitment to sponsoring research and development in the area of sustainable electronic waste management systems in the global South.

Switch Africa Green (SAG) Programme

Another international consortium with a significant interest in the electronic waste recycling activities in Agbogbloshie is the SWITCH-Africa Green (SAG) Programme spearheaded by the United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), United Nations Office for Project Services (UNOPS), Ghana Environmental Protection Agency (EPA) and the University of Cape Coast with financial support from the European Union (SWITCH-Africa Green, 2019). Similar to GIZ commissioned projects, the objective of SAG-Ghana is "to develop a sustainable electronic waste management system" that extends the useful life of recovered components such as metals, plastic, rubber coating and glass (SWITCH-Africa Green, 2019, p. 1). Under its integrated waste management priority area, SAG supports two initiatives in Ghana. The first is the Ghana electronic waste model – GEMOD, an adaptation of the Hanisa electronic-waste model (HEMOD). Targeting Agbogbloshie, Oyibi and other suburbs of Accra, the project intends to improve the various steps in the mostly informal recycling process i.e.,

collection, dismantling and sorting, the safe disposal of hazardous and unusable components (e.g., mercury, lead, cadmium) and the sale of recovered metals and other components (SWITCH-Africa Green, 2019). Trained personnel are expected to incorporate newer and more efficient mechanisms to increase the recovery rate of all useful components, including plastics, glass, and printed circuit boards (See Photo. 2).[75] According to the project factsheet, the HEMOD/GEMOD framework should provide an improved avenue for various institutions, businesses, and individuals to dispose of their growing stock of electronic waste in an environmentally sustainable manner through better education and awareness (SWITCH-Africa Green, 2019).

Photo 2. SAG sponsored training in sustainable e-waste dismantling
Source: Switch Africa Green Project, 2019

The second initiative is the 'Eco-innovative one-stop business and policy centre (ECOBPC) for the establishment of eco-innovative micro, small, and medium enterprises (MSMEs). The center would also develop policies for the electronic waste and end-of-life vehicle (ELV) sector

[75] Source: The International Training Centre of the International Labour. https://www.itcilo.org/en/areas-of-expertise/green-jobs/africa-forum-private-sector-inclusive-green-growth-and-job-creation/learning-materials-1/GhanaGNCPCSAG.pdf

(UNEP, 2017). Much like the first, it promotes a green economy outlook for end-of-life electronics by creating and expanding income-generating opportunities while reducing environmental degradation through improved resource recovery, and management techniques (SWITCH-Africa Green, 2019, p. 4). Here we see the development of the business case for sustainable electronic waste recycling. A similar idea was floated around in 2015 at a presentation entitled 'Sustainable Recycling Industries Project – A Business Case for Secondary Resources' delivered by the then Director of the Ghana National Cleaner Production Center (GNCPC), and current Director for Standards Compliance and Enforcement at EPA in Accra.

Proponents of the business case namely representatives from the Ghana EPA -- argue that unless sufficient economic incentives are available, e-waste workers will engage in cherry-picking, i.e., where only economically lucrative e-waste is collected and recycled while the rest is not collected or is disposed of without proper treatment (personal communication, EPA, August 2018). In the EPA's rendering, a sustainable e-waste recycling system requires the development of buyback or collection centres, which would feed into a larger, more comprehensive recycling facility. The system would further decentralize and privatize waste management services and result in the complete formalization of the electronics recycling sector in Ghana. How do informal e-waste workers fit into this plan? The EPA and the University of Cape Coast conducted a series of training workshops in the various regions with e-waste workers and others involved in different aspects of waste recycling. None of my research participants had, however, heard of the workshops.

Pure Earth and Green Advocacy Ghana

International NGOs have made their mark on Agbogbloshie through local organizations like Green Advocacy Ghana (GreenAd). Pure Earth, formerly the Blacksmith Institute, worked closely with GreenAd Ghana, a local environmental NGO, and other partners to tackle the environmental pollution and the potential public health crisis posed by rudimentary e-waste recycling activities in Agbogbloshie. One of the first projects embarked on by GreenAd in collaboration with Pure Earth with funding from the United Nations Industrial Development Organization (UNIDO), through the Global Alliance for Health and Pollution (GAHP) and with the support of the executive membership of the GASDA was the opening of an e-waste recycling facility within the scrapyard in 2014 (Pure Earth, 2015). (See Photo. 3).[76]In essence, the facility house's automated wire strippers and granulators that allow recyclers, specifically the burners, to efficiently recover copper and other valuable scrap metals.

The recovery rate for copper using this automated method was higher (according to GreenAd and Pure Earth), workplace injuries were fewer and environmental air pollution linked to burning all but eliminated if the technology is adopted and fully utilized. There were some obstacles with the wholesale adoption of this practice by the burners in Agbogbloshie. While the automated wire strippers work well for large cables, they were not able to strip the thinner cables found in small household appliances, consumer electronics, and other devices (Chasant, 2019a; Pure Earth, 2015). Internal disputes between the leadership of the GASDA and various groups within the scrapyard also derailed the success of the project. For example, none of the young men interviewed for this research project participated in the training workshops on how to use the

[76] PureEarth (2015). Ghana (Agbogbloshie) E-Waste Recycling Project. https://www.pureearth.org/project/agbobloshie-e-waste/

automated strippers provided by GreenAd. Some hinted that the actual burners were not selected, and this was intentional on the part of the executive of the GASDA.[77] In addition to the above, some of the scrap workers did not want to pay the user fees (small monetary token) instituted by GreenAd for the use and upkeep of the machinery (Chasant, 2019a). So, the burning of cables to retrieve copper and other metals continue unabated because it is less time consuming and more profitable from the burner's perspective.

Photo 3. E-waste recycling facility funded by Pure Earth
Source: Author

[77] Ethnic politics could be at play here. Also, the burners occupy to lowest position within the work hierarchy in the scrapyard. They are also regarded as confrontational and are further isolated because of their blatant use of illegal drugs specifically marijuana which is frowned upon by the wider community.

Zoomlion Ghana

Not to be outdone, local businesses are also carving out a niche for themselves in and around the waste economy of Agbogbloshie. Zoomlion Ghana is one of the largest waste management firms in Ghana. The company's business line includes composting, sewage treatment, medical waste treatment, solid waste collection, and waste recovery, and recycling, to name just a few. Unlike smaller competitors, Zoomlion possesses an impressive fleet of modern waste management vehicles and is on the cutting edge of waste management technology in Ghana (Zoomlion Ghana, 2019). Zoomlion co-financed the construction of a waste management facility, the 'Integrated Recycling and Compost Plant (IRECOP') in Agbogbloshie, in collaboration with its European technology partner, Komptech Austria (Zoomlion, 2019). The facility is the first industrial-scale mechanical waste separator and composting facility in Ghana and opened in 2019 (IRECOP, 2019). (See Photo 4).

Photo 4. Construction of the new multifaceted waste recycling facility in Agbogbloshie.
Source: Field assistant

The new facility is in relative proximity to the scrapyard in the newly named, Accra Waste Recovery Park, an industrial hub for the recovery of waste materials into reusable products (Zoomlion Inc, 2019). (See Map 4). The material recovery rate of the facility is expected to be as high as 90 percent for mixed waste. The facility is designed to process about 200 metric tonnes of waste per day and nearly 100 metric tons of organic compost daily (Zoomlion, 2019). Based on the company's news release, the facility will expand its business ventures to incorporate additional waste treatment streams, e.g., waste components such as tires, electronic waste, and metal scrap, among others (Zoomlion Inc, 2019).

Expanding its capacity to dismantle e-waste safely would add to the company's diverse range of waste management service and possibly cut out informal sector operators. The company is entertaining the idea of opening buyback centers (similar ideas floated by Swift Africa Green Programme in collaboration with the Ghana EPA, and GIZ) where people can sell their end-of-life electronic and electrical equipment and devices at nominal prices. The company would then dismantle the items and sell the recovered metals and other valuable components to local, regional, and foreign buyers. At this point in the conceptualization phase, Zoomlion envisions that it would purchase scrap from the dealers in Agbogbloshie and other enclaves throughout the country as it is more equipped to deal with the challenges of electronic waste management in Ghana. When asked about the impact on the young men who depend on scrap dealing for their livelihoods, the company representative referenced one of its mandates, i.e., to create employment for the youth of the country. As such, the company would work to ensure that the livelihoods of informal workers remained unaffected by the construction of the recycling facility.

Map 4. Location of Accra Waste Recovery Park

Source: Google maps. Retrieved September 19, 2019

These are just a few of the organizations working in a relatively small space and on one specific issue. Added to the mix, but with lesser influence on the terrain, are researchers and the research institutes, universities and think tanks they represent that churn out an overwhelming number of articles, conference papers, presentations, documentaries, news releases and externally funded projects, with meetings and workshops that have not solved the challenges that Agbogbloshie presents. Inquiries about my former research participants indicate that nothing substantial has changed in their daily lives. They have not moved up the socio-economic ladder in Agbogbloshie, nor has the condition under which they labour improved. For example, many of the burners are still burners despite their fervent desire to find employment that is more lucrative and less injurious. Although Agbogbloshie is well studied and has received considerable research and project funding in the last decade or more, those persons most affected are still left behind amid all the international and local efforts to improve their quality of life. The adage "the more things change, the more they stay the same" or in the Twi proverb "3mere aa 3ne3ma 3guso 3sesa nu, na 3ne3ma da so gyena faako saa!" seems apropos under these circumstances. Little and Akese (2019), draw a similar conclusion. They critique the reactive technological solution-based approaches taken by the international NGO community and also by those projects funded through bilateral or international development cooperation. At the heart of their critique is the fact that only a small number of persons involved in e-waste recycling and scrap metal recovery realize substantial benefits. Those who seem to benefit the most are the bureaucrats of the various Ministries that have a mandate that incorporates the activities of e-waste workers, the executive members of the GASDA, and the more established scrap dealers, and the formal waste management and recycling sector.

Korle Lagoon Ecological Restoration Project (KLERP)

"The Odaw River has become not only a dumping ground for solid waste but also a receptacle for excreta, as some people squat along its banks to freely attend to the call of nature even in broad daylight. As a result of this extensive pollution, the Odaw River is virtually dead. There is hardly aquatic life in the river, especially at the places where pollution is very severe. Many years ago, people fished in the river" (Daily Graphic, 2012)

In the collective imagination of most Accra residents, the city has always had a problem with garbage. The problem is most severe in low income and informal settlements where open spaces and watercourses become communal waste dumps. Middle and high-income communities that pay for weekly garbage collection are not immune to the problem. It is not unusual to come across smouldering piles of garbage on a leisurely walk through the upper-income neighbourhoods of Dzorwulu, East Legon, or Airport Residential Area. Though burning is often used to reduce and dispose of garbage, the partially burnt remains nevertheless end up in the city's open system of gutters, canals, and drains during periods of heavy rainfall and are transported by various tributaries into the Korle Lagoon. As previously stated, the Korle Lagoon is a vital drainage system located to the south-west of the central business district (Karikari et al., 2006; Little & Akese, 2019; Onuoha, 2016; Owusu Boadi & Kuitunen, 2002). (See Map 5).

The lagoon channels surface run-off and floodwaters out of the city and into the Gulf of Guinea. The Lagoon's drainage function extends not only to water but also to household, commercial and industrial wastewater, sewerage, and garbage. Some of the primary sources of pollution to the lagoon includes;

a) Upstream activities;
b) Slum community of Old Fadama;
c) Fresh food markets;
d) Agbogbloshie scrapyard;
e) Other residential communities within its catchment area;

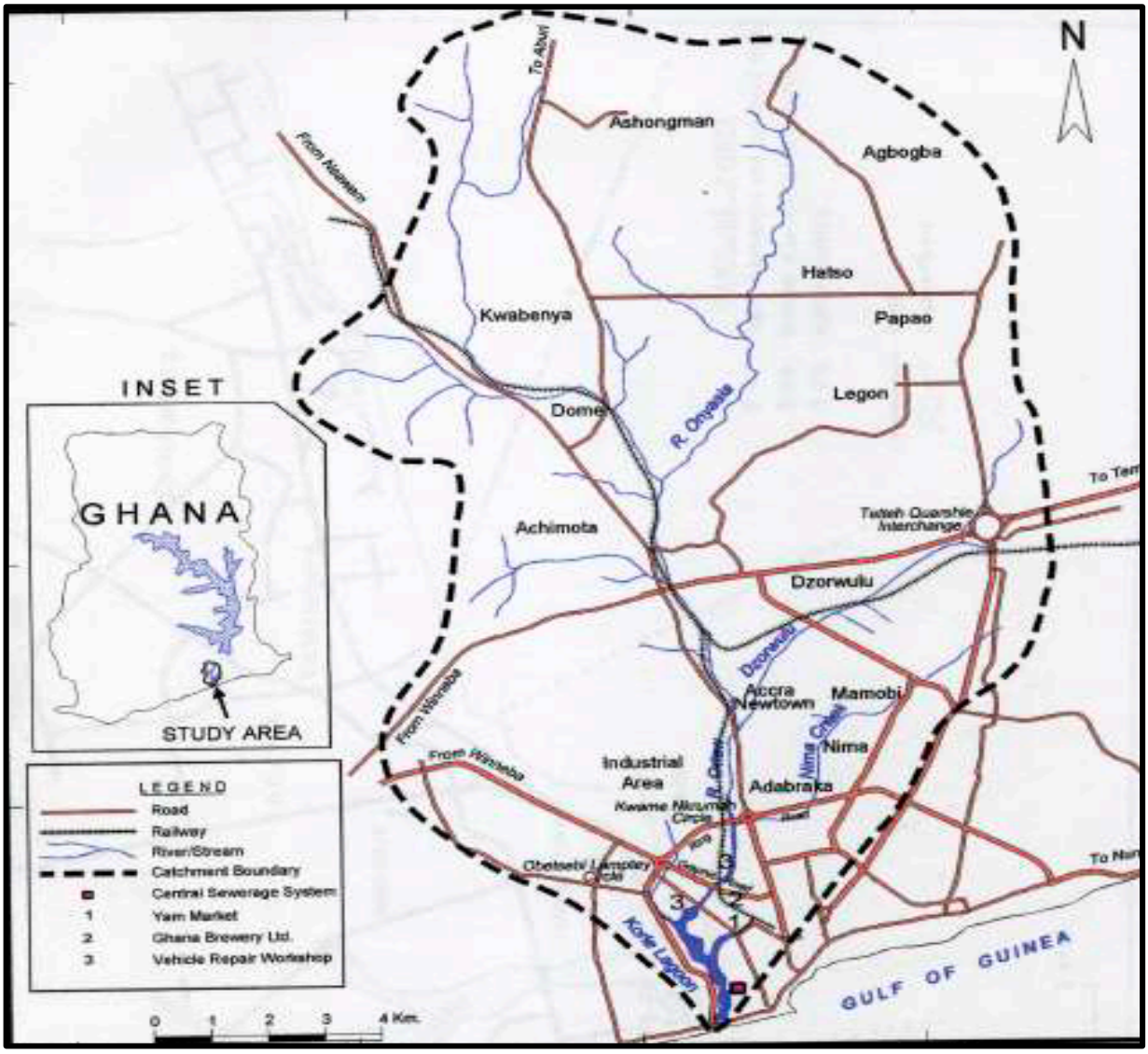
f) Commercial businesses within its catchment area;

g) Industry – factories and other manufacturing plants within its catchment area;

h) Public institutions – e.g., hospital and schools within its catchment area; and

i) The city's disposal of untreated sewerage at Lavender Hill (Onuoha, 2016; Owusu Boadi & Kuitunen, 2002).

Map 5. Map showing the catchment area for the Korle Lagoon



Source: (Karikari, Asante, & Biney, 2006)

During high tides, ocean currents push untreated sewerage discharged at Lavender Hill into the lagoon, which leads to further environmental degradation (Owusu Boadi & Kuitunen, 2002). Heavy siltation caused by soil erosion from the hinterlands and the deluge of garbage that is transported and settles at the mouth of the lagoon reduces its floodwater carrying capacity and leads to severe flooding incidences in low lying communities, e.g., Old Fadama and around Kwame Nkrumah Circle as recently as 2015. It is not surprising then that a direct correlation can be made between the biophysical state of the lagoon and its consequent lack of aesthetic appeal, and the anthropogenic activities concentrated at the tail end of the catchment area, e.g., informal, structurally weak buildings constructed along the banks of the lagoon, its floodplain, and within the buffer zones and the use of the lagoon as a garbage dump. For these reasons other residents in the city are unanimous in their condemnation of the squatters for the poor health of the lagoon. They lament the use of the lagoon as a public lavatory where people from the slums openly defecate and dump their residential and commercial waste – which is due to the lack of adequate sanitation services and infrastructure.

My discussions with older residents of Accra and a review of archived chats from online articles posted by the Daily Graphic (online), MyJoyOnline and GhanaWeb, allude to a period when the lagoon was a pristine wetland. The tone of the comments, both written and oral, reveals an almost mournful longing or nostalgic yearning for the lagoon that was once a source of freshwater fisheries, recreational activities, e.g., swimming, transport via small vessels like fishing boats and canoes, and a sacred site for Ga rituals (Little & Akese, 2019; Onuoha, 2016). Given the level of biochemical degradation that renders the lagoon a black, viscous, and toxic cesspit, these activities can no longer be sustained and enjoyed. The Korle Lagoon and its immediate surroundings has become an eyesore to residents and commuters of Accra. It is a source of public

and environmental health concern for the Ministry of Health and the Ministry of Sanitation and Water Resources and a potential flooding disaster for the National Disaster Management Organisation (NADMO). From the perspective of the AMA, the area is a blight on the urban fabric of the city. The narrative around the Odaw River and Korle Lagoon reads much like a dystopian fiction blending folklore and mysticism, with urban elitisms and ethno-religious prejudices, a city's visceral fear of garbage and filth and society's angst against discarded technology that does not disappear from view. This horrific dystopian landscape compromises Accra's reputation as one of the more vibrant and modern metropolitan cities in West Africa.

Government records tell a different tale about the history of pollution in the Korle Lagoon. Written and oral histories, newspaper articles, and government press releases suggest that pollution in the lagoon dates back at least five decades (Onuoha, 2016). Onuoha's research identified three specific periods and incidences that show the history of pollution in the lagoon. The pollution of the lagoon commenced in earnest when the first system of pipes and gutters was installed in the city. These pipes were supposed to channel storm and wastewater off city streets and into the lagoon and then out to sea. As the city expanded, and the volume of waste flowing into the lagoon increased, city authorities consistently failed to upgrade the capacity of the existing system of pipes and gutters (Onuoha, 2016). The inadequacy of the drainage system eventually led to the pooling of sewerage and garbage - channeled through the pipes - into the lagoon, causing pollution and concerns about hygiene (Onuoha, 2016). Further pollution of the lagoon again occurred in the mid 1940s when British and American Allied troops stationed in Accra dumped oil and sprayed large quantities of insecticide (pyrethrum and dichlorodiphenyltrichloroethane (DDT)), into the lagoon to eradicate the mosquitos that bred

malaria, which was infecting the troops (J. Roberts 2010 and K. D. Patterson 1979 as cited by Onuoha, 2016).

Rapid urbanization in the latter part of the 20th century and also the 21st century without the requisite infrastructure improvements continues to channel more effluent into the lagoon, further decreasing the water quality (Onuoha, 2016). Therefore by the 1990s, and before establishment of Old Fadama, the lagoon was already in a state of disrepute - the effects of an expanding city characterized by overburdened and failing infrastructure, a poor record of waste collection, inadequate and improper waste disposal facilities, and a population with a penchant for throwing uncollected garbage into open public spaces and waterways (Onuoha, 2016; Owusu Boadi & Kuitunen, 2002). The Korle Lagoon is, at worst, the casualty of a broken system that dates back to the 1940s and beyond. This historical foray into the pollution profile of the lagoon in no way diminishes or denies the adverse effect of the slum settlement, fresh food market, scrapyard, and other businesses on the level of pollution in the lagoon. It does, however, try to contextualize the linkage between the slum, the scrapyard, and the lagoon.

By the late 1990s, the city, its officials, residents, and businesses had had enough of the foul stench, the garbage, the headlines of dead bodies floating in the lagoon, and annual floods that devastate communities in low lying areas in the city. So around 1999, and with initial funding commencing in 2000, the government launched the Korle Lagoon Ecological Restoration Project (KLERP) (Benjamin, 2007; Owusu Boadi & Kuitunen, 2002). The project's goals included remediation of the lagoon, improvement of stormwater and drainage management to reduce flooding and to eventually develop the area around Old Fadama into a recreational park, and tourist attraction (Benjamin, 2007; Little & Akese, 2019; Onuoha, 2016; Owusu Boadi & Kuitunen, 2002). To this end, the government engaged in a series of externally funded projects to assist with

improving the biochemical, physical, and aesthetic conditions of the lagoon. Yet, key among its strategies was the eviction of those supposedly responsible for the degradation of the lagoon – the slum settlers. Other activities involve regular dredging of the heavily silted lagoon and the construction of a robust solid waste management system for the city. Funding for different iterations of the project came from the OPEC Fund for International Development, the ARAB Bank for Economic Development in Africa, the Kuwait Fund for Arab Development, the Government of Belgium, Standard and Chartered Bank of London, the World Bank, the British Government and the Government of Ghana (Lepawsky & Akese, 2015; Little & Akese, 2019; Onuoha, 2016; Owusu Boadi & Kuitunen, 2002).[78]

Though the KLERP was launched more than 15 years ago, at the time of my fieldwork in 2018, shoddy structures were encroaching onto the lip of the lagoon, all under the gaze of the AMA, NYA, and the EPA and the lagoon resembled a stagnant mass of plastic bottles, empty pure water sachets, and other waste that had settled around the non-operational flood control system. The congealed mass even formed a walkway bridging Old Fadama to the east of the lagoon to the area along Ring Road West. (See Map 6). Residents of Accra are thus of the opinion that the AMA has made very little headway into the remediation of the lagoon except for the city's ad hoc schedule of dredging that is often publicized in the media to assuage public outrage and dissatisfaction (Daily Graphic, 2012). Indications of dredging are evident by the piles of sludge deposited on the western banks of the lagoon and the dredging boats that lay idle or stuck in the shallow and murky waters of the lagoon.

[78] Research by Little and Akese (2019) estimates that as of 2018, roughly US$120 million has been spent on the KLERP.

Map 6. Waste Sedimentation in the Korle Lagoon

Source: Google maps. Retrieved September 19, 2019

Successive impediments to the realization of the goals of the KLERP show that threats and force directed at one of the many groups implicated in the pollution of the lagoon – the modus operandi of the AMA and other public agencies -- is ineffective. The city needs to collectively develop and invest in a robust solid waste management plan that meets the needs of all residents. Key to this is the construction of modern landfills and the provision of sanitation facilities in low income communities and slum settlements. The capacity of regulatory agencies like the EPA to monitor and enforce all legal instruments regarding the disposal of biohazards and chemical waste must also be improved. The relevant authorities should provide support to the informal sector to help improve the conditions under which they recover scrap metal from e-waste and dispose of the remaindered components and materials. Finally, public education on proper waste disposal practices, sanitation, and the ecological integrity of freshwater is essential. These are just some of the recommendations coming out of the interviews with a range of stakeholders. If disregarded and the status quo persists, Agbogbloshie will literally and metaphorically emerge as a zone sacrificed on the altar of urban elitism, ethnic politics, the partisan self-interest of political actors, poor planning, and myopic thinking attached to a Western planning perspective ill-suited for the specific context of Agbogbloshie.

Conclusion

If we accept the premise that not all waste is terrible or valueless, but that waste is a resource especially in times of transition, what then is the real purpose of the single story about Agbogbloshie? Who benefits from its circulation? And why does this single-story persist? [79] What

[79] See Lepawsky (2019). PSA: Beware of Easy Narrative. For more on the effects of easy narratives of blame and harm in Agbogbloshie.

we do know is that Agbogbloshie is more than just an illegal and out-of-control urban slum settlement with its beginnings tied to short-term decision making on the part of the city's authorities, namely the AMA. We also know that Agbogbloshie is in relative proximity to Accra's CBD where urban land values are staggering.[80] Another sign of the 'hot' real estate market in Accra is the construction boom that seems to have engulfed the city. New high-rise residential and commercial building and shopping centers, as well as the construction cranes which mark the commencement of another real estate project, are reminiscent of the construction boom in Toronto. Collectively, these developments provide the government with an opportunity to push its policies of urban gentrification, and the Korle Lagoon is its point of entry. Weber (2002) captures the essence of the role of the formal real estate investment market in the process of economic development in developing economies like Ghana. In his rendering, neoliberal redevelopment or revitalization amount to little more than property speculation which is very successful in laying the foundation for the deep excavation of value from previously devalorized urban property (p. 537).

Partisan politics has also shaped relations between the community and the governing political establishment into a quid pro quo system where the government by its silence and lack of political will protects the slum settlers from eviction and in return, the settlers maintain their support for the government of the day. Afenah (2010) concludes that "the costs associated with the globalization of capital and the neoliberalization of cities are creating new forms of translocal political solidarity and consciousness amongst those marginalized and excluded from the cities they inhabit" (p. 168). These groups leverage commonalities with existing international

[80] High property values are an indicator of the strength of the formal real estate market which provides income producing real estate assets, e.g., residential, retail and office units geared towards expatriate workers in Ghana as well as Ghanaians in the high-income bracket (Anim-Odame et al., 2009).

movements to bring attention to their issues. The circumstances around Agbogbloshie/Old Fadama support this notion. For example, community members in Agbogbloshie gained the support of Amnesty International in their effort to stop the forced eviction threatened by the AMA (Amnesty International, 2011).

This chapter offered an alternative explanation for the development of Agbogbloshie - one that departs from the doom and gloom rhetoric that places Agbogbloshie in similar terrain as Chernobyl. Labelling Agbogbloshie (inclusive of the scrapyard and slum settlement) as a wasted landscape goes beyond the state's neglect of the physical attributes of the place. In fact, the area's unending appeal rest on its physical attributes/features, i.e., the proximity to the coast, the natural lagoon, and its nearness to the downtown core of Accra. Yet, existing socio-economic livelihood activities and the people who continue to illegally occupy the area – adapting the urban space to suit their immediate needs - simultaneously overshadow the positive physical attributes, and paradoxically, become the casualties of both its current environmental degradation and its pending remediation. A thorough analysis of the phenomenon that Agbogbloshie has become, locally and internationally, therefore, warranted more than a historical and cultural investigation. My alternative approach to understanding the socio-spatial and political complexity of Agbogbloshie brought together the local political climate, ethnic struggles for power, income inequality, uneven regional development, urban (re)development policies and land speculation, water politics (hydropolitics), rural-urban migration, informal waste economies and growing in significance, climate change.

In the following chapter, another dimension of waste is addressed – the people - to provide a more nuanced understanding of the complexities that converge in this community Agbogbloshie/Old Fadama.

4. CHAPTER FOUR – People: Social Stigma & Labour Relations in Agbogbloshie

"Poverty is merely a squalid plight that degrades man. Poverty forces people to resort to the most unlikely devices to subsist or to avoid humiliation. It often reduces them to an animal-like existence exclusively concerned with attempts to survive." George Orwell (1933) in Down and Out in Paris and London cited by Maes-Jelinek (1970, p. 344).

Abstract

There has long been a tendency in human civilizations to treat those who work with waste as somehow permanently tarnished by their association with it. Established social norms encouraged beliefs that the lower classes, e.g., the poor and indigent, should be assigned the responsibility for all forms of waste disposal. This naturalizing representation of subordinated groups contributes to the enduring legacies that define informal waste workers - disposable labour - as waste. Mid-nineteenth century French writer Jules Janin captures the sentiment of his time on this point. He writes, “ragpickers are the dirt that they touch not just because of their contamination by the streets' grime but because they live outside "meaningful" categories: they are the rags that ‘have no name in any language.” Similarly defined by the work that they do, the conditions under which they do it, and their minority ethnic status in Ghana are e-waste workers in Agbogbloshie. In his reflective piece, “oh…you don’t look like a northerner,” Vincent Kuuire explores the historical and cultural undercurrents which shape contemporary ethnic divisions in Ghana. He writes, “to the minds of some Ghanaians, northern Ghana is synonymous with all things negative and retrogressive. It is a place inhabited by primitive, illiterate, destitute, unintelligible and intolerant people fighting meaningless chieftaincy or tribal wars. It therefore stands, that if you are a ‘northerner’, [labelled locally as pepeni and ntafuo], you should be illiterate and impoverished, an uncouth bunch of strangers living in the dirtiest and filthiest parts of the city and engaged in menial work or criminal activity. Whether ragpicker, scavenger or e-waste worker, their bodies become the physical embodiment of expendable matter, excess, surplus, waste. The underlying subtext here is the concept of disposability, which describes more than the ephemeral nature of the material objects that e-waste workers recycle; it also addresses the racialized elements of who becomes ‘waste’ or is ‘wasted’ under neoliberal capitalism. In this chapter, I use these narratives as a backdrop to show how the agenda of capitalism slowly subsumes e-waste workers. Their ‘wasted’ status has historical roots, and their direct relationship with electronic and household waste further exacerbates their denigrated status. The fact that the wider society links the degradation of the Korle Lagoon to their presence, also attests to the contaminative power of their very existence. Notwithstanding the notion of corruptibility that follows them, their ability to irrevocably alter the urban landscape makes visible within the planning gaze, zones of exclusion and spaces of invisibility and disposability.

Introduction

A comprehensive understanding of the social construction of waste must take into consideration not only the discarded objects but also the people whose business it is to discard or reprocess waste and the class positions they hold (Zimring, 2004, 2013). Waste making and its subsequent disposal is a social phenomenon tied to issues of power, class, gender, ethnicity and culture that reinforces the hierarchical ordering of society (J. Reno, 2015; Strasser, 1999; Thompson, 1979; Veblen, 1979; Zimring, 2004, 2013) and ensures the perpetuity of divisive class struggles. Though the pecunious or leisure classes, as noted by Veblen (1979), create substantially more waste than their counterparts (the impecunious class), they are nevertheless barred (because of their wealth and social status) from engaging with the waste that they produce. Their wastefulness and the trash that it generates is skillfully taken away from their field of vision by others deemed more 'fit' for the job. The identity of both groups is to some extent a function of their ability to purchase and consume. In the former, the pecunious class, the ability to purchase and consume over one's basic needs reaffirms the class to which they belong. In the latter, the impecunious class - incapable of meeting their daily caloric intake - steadfastly remove and make invisible all traces of the former's indulgence and in so doing, maintain class differentiation through the social division of labour (Strasser, 1999; Thompson, 1979; Veblen, 1979).

Once waste is out of sight (through geographical and psychological distancing), its afterlife becomes someone else's responsibility. In many developing countries, this responsibility falls on informal waste workers who form some of the most invisible and neglected social groups in societies across the globe. This naturalizing representation of subordinated groups contributes to the enduring legacies that define, in particular, informal waste workers (scavengers), as waste themselves. Such is the case with e-waste workers in Agbogbloshie, the *Dalits* in India, the

catadores of Brazil and the *Zabbaleen* of Cairo, to name but a few. Kuuire (2013, para. 3) explores the historical and cultural undercurrents which shape contemporary ethnic divisions in Ghana. He writes, “to the minds of some Ghanaians, northern Ghana is synonymous with all things negative and retrogressive. It is a place inhabited by primitive, illiterate, destitute, unintelligible and intolerant people fighting meaningless chieftaincy or tribal wars. It therefore stands, that if you are a n*ortherner*, [labelled locally as pepeni and ntafuo], you should be illiterate and impoverished, an uncouth bunch of strangers living in the dirtiest and filthiest parts of the city.”

The alienation of these groups occur because social and cultural categories such as class, race, gender, ethnicity and citizenship interact on multiple and often overlapping levels to create systems of discrimination and subordination. Such systems disadvantage certain social groups and place them into what Giroux (2014) refers to as zones of exclusion and spaces of invisibility and disposability. Waste workers, e.g., in Agbogbloshie are maligned because their work, though essential to the maintenance of order and cleanliness, is viewed as "dirty and morally and socially degrading" (Zimring, 2013, p. 80).

Not much has changed for this group since mid-nineteenth century French writer, Janin described “ragpickers as the dirt that they touch not just because of their contamination by the streets' grime but because they live outside "meaningful" categories: they are the rags that ‘have no name in any language” (Stallybrass, 1990, p. 72). This perception conflates the already unclean status of the work with derogatory stereotypes of those engaged in it. The disdain levelled at this work ensures that those who work with waste are the economically and culturally marginalized,

racialized, and gendered[81] (Bauman, 2004; Furniss, 2012; Jayasinghe et al., 2013; Rafi Arefin, 2015; Strasser, 1999; Thompson, 1979; Zimring, 2004).

The concept of the *human-as-waste* or *wasted humans*, as defined by Bauman (2004), is the theoretical anchor of this chapter. The concept is used as a metaphor to describe how disenfranchised northern migrants working and living in Agbogbloshie/Old Fadama come to personify waste. Their wasted status has historical roots and their direct relationship with e-waste and other household waste further exacerbate but also justifies in the minds of other ethnic groups, their denigrated status. The fact that other residents of Accra link the degradation of the Korle Lagoon to their presence attests to the contaminative power of their very existence.

The notion of corruptibility that follows northern migrants aside, the chapter shows how global capitalism co-opts their labour in the service of more capital accumulation. How does this happen? As I mentioned in earlier chapters, the externalization of waste responsibility creates savings for the exporters and costs for the importers. By their already cheapened labour, e-waste workers in Agbogbloshie subsidize the cost of bringing recovered scrap metals into new rounds of production, resulting in a double saving for capital but at the expense of the worker's health and the integrity of their environment. This chapter provides an account of the historical relations that created the myth of the northerner in Ghana and which has, to some degree, influenced the participation of this group in specific forms of informal employment in Ghana. Secondly, it shows how the historical conception of the northerner and the division of labour in Ghana and internationally creates the conditions for their further exploitation under capitalism.

[81]While waste workers in many places are predominantly women, in Agbogbloshie, electronic waste recycling and scrap metal recovery are male-dominated activities. Women are not engaged in the heavy lifting, nor are they involved in other forms of informal waste collection and disposal (young men on motorized tricycles are paid to collect and dispose of waste by some market vendors and businesses in the area.

Northern Identity Formation in Ghana

Setting the Context - Mary Douglas on Dirt

Scholars have associated societies' general fear and contempt for waste and those who work with waste with the earlier work of Mary Douglas (2001),[82] Purity and Danger. Douglas asserts that dirt is the by-product of the systematic ordering and classification of matter by society in general. In so far as ordering involves rejecting inappropriate elements then dirt is representative of matter out of place (2001, p. 36). This definition is relevant to how society understands and relates to its material waste. Individuals circumventing acceptable notions of sanitation, i.e., working with waste, find themselves 'ritually' unclean, and not in compliance with social norms (Douglas, 2001; Zimring, 2013). Coverly et., al. (2003), after Douglas, states that at its most abhorrent, waste is portrayed as a "slumbering, festering, unwelcome beast" that threatens the orderliness and sanctity of modern society (p. 2). The above description both anthropomorphizes (through the use of bodily metaphors) and deploys a discourse of monstrosity to the category of material waste in the same way monstrosity is invoked to describe and dehumanize other classes of people - waste workers, scavengers (rag pickers), refugees, prisoners, the homeless, welfare recipients and the permanently unemployed – because of their "sheer alterity" (S. Johnson, 2015, p. 182). They are 'the refuse of all classes, the unnameable, according to Gidwani and Maringanti (2016, p. 118).[83]

Construed as polluting bodies with a powerful sense of revulsion (J. O. Reno, 2014), it is difficult to separate the body (person and their labour) from their trade, i.e., the material constituents of their work. These social groups are consequently judged as contaminating because of their profound ability to disrupt social norms, i.e., how they fit (or do not fit) into normative

[82] Original publication, Douglas, 1966

[83] Original quotation from Marx (1963). The Eighteenth Brumaire of Louis Bonaparte. New York: International Publishers. Chapter 7, p. 38

systems of social classification and order. It is thus possible to extend to some social groups the nomenclature of waste because others have defined them as such in their active imaginations. Social groups that work with and embody waste are therefore always and perpetually out of place in progressive and modern societies that value order, purity and cleanliness. The Zabbaleen of Cairo, Egypt, a predominantly poor Coptic Christian and religious minority group, face similar forms of objectification and abjectification (as garbage people). Their material association with waste as scavengers, trash collectors, and recyclers marks them as dirty and unclean (Furniss, 2012; Rafi Arefin, 2015). In this way, the current division of labour continues to perpetuate class divisions between those who waste and those who must manage and dispose of that waste. The fact that marginalized groups continue to disproportionately bear the burden of waste disposal is indicative of their place in society. The following section provides a narrative account that traces the historical origins of the myth of the northerner - as other, different, less than human - and how it has led to their perceived disposability and debasement in a society plagued by ethno-regional inequalities, ethno-religious tensions and class tensions.

Social Stigmatization & Contemporary Views of Northerners[84]

In social psychology, a stereotype is an overly simplified and generalized belief that targets specific groups in society. One of the problems with stereotypes, like single stories, is that they assume that generalized perceptions of a group are representative of each individual in the targeted group. Another problem with stereotypes is that the generalized perceptions themselves may be

[84] For the purposes of this study, the term "Northerner" is used as a blanket term to refer to the people from the three Northern Regions of Ghana (Northern, Upper East and Upper West). The study does, however, acknowledge that Islam is the dominant religion of the three Northern Regions, and according to past census data, the greater proportion of 'northerners' are Muslim.

skewed and distorted through ethnic and religious prejudice, cultural biases, ignorance, historical conflicts, and/or socio-economic difference. Northerners who migrate to Accra and other major cities in Ghana are often susceptible to the homogenizing and prejudicial effects of stereotypes (J. Abdulai, 2009; Kuuire, 2013). They are sometimes called by many different and often degrading or defamatory names. The singular variants in the Akan language are *Pepeni*/*Otani*/*Sreimni*, whereas the plural variants are *Mpepefuo*/*Ntafuo*/*Sreimfo* and in the Ga tradition, *Hausa nyo* (Ntewusu, 2012, p. 3). These aliases refer to people from the three northern regions of Ghana. The term *northerner* is the English variant that encapsulates and homogenizes the cultural and linguistic differences of the many northern ethnic groups.

These names arise from historical relations and ethno-religious prejudice towards people from Ghana's three northern regions by other ethnic groups (Ntewusu, 2012). While many argue about whether the names are descriptive substitutions or derogatory epithets, the names nevertheless work to create a distinction between northerners and other southern ethnic groups, e.g., the Akans, Gas and Ewes.[85] These derogatory epithets, function to claim superiority over, and thus subordinate the other - the northerner. In so doing, these names further relegate northerners and the areas where they live and work to the realm of surplus – inferior, belligerent, violent, filthy, and waste (Kuuire, 2013). These observed ethnic and political asymmetries sustain the *myth* of the northerner as inferiorly different and thus distinguishes them from other ethnic groups in Ghana. The following comments culled from my interviews reveal the extent to which some individuals and/or segments of the Ghanaian society, continue to perpetuate negative ethnic and religious based stereotypes and prejudice against northerners in general, and northern migrants

[85] The term Akan refers to multiple ethnic groups in Ghana. It includes sub-groups such as the Asante, Fante, Ahanta, Akyem and Akuapem (Agyei-Mensah & Owusu, 2010, p. 505).

working in Accra. These attitudes have subtly led to their exclusion and discrimination and continues to shape their relations with other ethnic groups in Accra and Ghana more broadly.[86]

1. "Northerners tend to have an inferiority complex when they get to Accra, which is why they are so aggressive. They try to intimidate everyone" (Former Grants Coordinator, Ghana, June 2017);
2. "Northerners are violent by nature. They are difficult to deal with because of the culture in the north. I do not go to Agbogbloshie because of them. The place smells too much; it is too dirty and unsafe" (Security Guard, Ghana, July 2017);
3. "Mpepefuo are not human beings! They are dirty, dirty people. Look at where they live, in filth!" They have a way of living in every slum community in Accra" (Ghanaian Expat, Toronto, August 2018);
4. "These people! They have no understanding" (Money mobile vendor, Agbogbloshie, August 2018); and
5. "Northerners are very strong naturally. They can carry any load. A northerner who is my size is very, very strong compared to me" (Banker, Ghana, August 2018).

The brutality, prejudice and violence that undergird these statements is evidence of the long-running process of marginalization and erasure – the legacy of historical inter-ethnic conflict (between the Asante Kingdom and northern ethnic groups) and later, British colonization. This occurs despite the many contribution of northerners to Ghana's political, economic, social and cultural institutions, e.g., the northern regions have produced ministers of government, members of parliament, presidents and other educated professionals. These comments are nevertheless part of a menacing and dehumanizing narrative based on ethnic and religious discrimination and which is used to sometimes pathologize the otherness of northerners. They are narratives that

[86] Bukari, K.N., Schareika, N. (2015) research on stereotypes, prejudices and exclusion of Fulani pastoralists in Ghana, highlights a similar pattern of behaviour towards another marginalized and primarily Muslim ethnic group.

work at differentiating and ostracizing northern migrants in Accra and other metropolitan enclaves (except for the three northern regions) into specific spaces, and so, reinforce socio-economic inequalities and locally held stereotypes and unconscious biases.[87] They also tend to rationalize and legitimize forms of state-sponsored violence as "deserved punishment" (Higgins & Swartz, 2018, p. 91), e.g., intimidations, evictions, arrests and confiscation of property – acts which my research participants lament are common occurrences in the daily lives of the community.

Counternarratives to the above, exist. These positive affirmations again fall in the realm of stereotypical generalizations of northerners. Examples of these counternarratives include admiration for their work ethic. They are typically regarded as very productive workers, who are also capable of performing the most physically demanding of activities. Their individual determinations to improve their socio-economic condition is almost commonly referred too.

Although northern migrants in Accra protect the city from being smothered by its garbage, and so maintain the orderliness integral to modernity, they are often objectified and treated as a problem, especially in Accra. Northerners – representing a heterogeneous social grouping – are therefore produced and reproduced as a longstanding problem for the Ghanaian state – *a people vexingly out of place*. Viewed as utterly hopeless and lacking in the inherent qualities needed to become full participants in society, they elicit feelings, equal parts contempt and fear from the rest of society. Migrant workers from Ghana's northern regions as well as Accra's urban poor, expelled from productive circuits of capital are, therefore, targets of ethnic and class discrimination and victims of the persistent poverty that results from both.

[87] In some circles, the denigration of northerners is almost always viewed as being perpetrated by southerners. This may lead to a similar issue, i.e., the universalizing of southerners as one monolithic group. Ethnic, religious and cultural biases are all too common in Ghana and should be not relegated to one group or region.

Socio-Economic Conditions in Northern Ghana

Poverty has many dimensions and is characterized by low incomes; poor health outcomes, e.g., malnutrition, respiratory infections, and higher infant mortality; illiteracy and livelihood insecurity, among others (Ghana Statistics Service, 2018b).[88] These characteristics of poverty are widespread in Ghana's three northern regions. Of the three, the Northern Region is one of the poorest. It covers about one-third of the country, approximately 70,384 km^2 by landmass (R. M. Al-Hassan & Diao, 2007; R. Al-Hassan & Poulton, 2009; Cooke et al., 2016; IFAD, 2012; Wood, 2013). The Northern Region is bounded by the Upper West and Upper East to the north, the Ghana-Togo border to the east, on the west by Ghana-Côte d'Ivoire border and the recently created Savanna Region and to the south by the Brong-Ahafo and the recently demarcated (as of 2018) Oti Region (Wood, 2013). (See Map 7).

While Ghana has six agro-ecological zones defined by their natural vegetation, soil and climatic conditions, the Sudan Savannah and Guinea Savannah cover all of the three northern regions. (See Maps 7). Unlike the wetter southern zones, these agro-ecological zones have a unimodal tropical monsoon, allowing for only one primary growing season (Oelbaum, 2010; Wood, 2013). This results in high rates of seasonal unemployment among the youthful population as the economy in Ghana's three northern regions has remained primarily agrarian, with the majority of its population working as smallholders in the agricultural sector (Awedoba, 2006) or as petty traders. The main crops cultivated in this zone include maize, millet, sorghum, rice, cassava, yam, onions, pepper, tomatoes, shea nuts and groundnuts.

[88] Analysis of poverty in Ghana focuses on consumption poverty. The poor are classified as those who lack command over their basic consumption needs, including food and non-food components. Expenditure on a minimum consumption basket is required by an individual to fulfill his or her basic food and non-food needs. This expenditure is referred to as the poverty line. In Ghana, two poverty lines are calculated. The upper poverty line (referred to as the poverty line) and the lower poverty line (referred to the extreme poverty line) (Ghana Statistics Service, 2018b, p. 5).

Although Ghana is often acclaimed by mainstream development institutions and commentators as one of West Africa's economic success stories, apparent disparities and inequalities exist along the north-south and urban-rural divide (R. M. Al-Hassan & Diao, 2007; Alston, 2018; Asante & Gyimah-Boadi, 2004; Ghana Statistics Service, 2018b; Oelbaum, 2010; Wood, 2013; World Bank, 2004). In 2012, a report by the International Fund for Agricultural Development (IFAD) noted that the incidence of poverty, as well as food and nutrition insecurity, remained widespread throughout the northern and savannah regions of Ghana (R. M. Al-Hassan & Diao, 2007; IFAD, 2012; Wood, 2013). The savannah regions (see Map 7 for ease of reference) in Ghana are part of its agricultural belt, particularly in terms of maize and yam production. However, these regions suffer from higher incidences of poverty, especially within their rural communities (Ghana Statistics Service, 2018b). For example, between 2016/2017, 39.5 percent of the population in rural communities across Ghana were considered poor, compared to 7.8 percent in urban conurbations. In terms of the incidence of extreme poverty, rural areas accounted for 15.6 percent compared to urban localities, which stood at 1 percent (Ghana Statistics Service, 2018b).

Based on the seventh round of the Ghana Living Standards Survey (GLSS7)[89] conducted for the period 2016/2017, the poverty incidence rate was highest in the three northern regions of Ghana - Northern Region 61.1 percent; Upper East 54.8 percent; and Upper West 70.9 percent.[90]

[89] The GLSS is a Government of Ghana (Ghana Statistics Services) publication that presents the latest analysis of the living conditions and well-being of Ghanaian households and the poverty profile for the country. The GLSS is nationally representative of the population and collects data on education, health, employment and household expenditure on food and non-food items (Ghana Statistics Service, 2018b).

[90] A person is deemed to be "poor" in Ghana if their income is less than GH¢1,760.8 equivalent per annum (this is representative of the upper poverty line), while the "extreme poor" (the lower poverty line) live on less than GH¢982.2 per adult equivalent per annum for the period 2016 to 2017 (Ghana Statistics Service, 2018b).

Map 7. Ghana's Old (10) and New (16) Regional Boundaries and its Agro-ecological Zones

Source. Acheampong & Avorgbedor (2017)

Ministry of Foreign Affairs and Regional Integration – Republic of Ghana (n.d.)

Source: Wood (2013)

While the Upper West Region had the highest poverty incidence rate between 2016 and 2017, the Northern Region accounted for 20.8 percent or 1.8 million of the poor, making it the highest single contributor (by headcount) to Ghana's poor. A similar pattern emerged in the 6th round of the GLSS – 2005/2006 (Ghana Statistics Service, 2018b).

As mentioned earlier, Ghana has a two-tier system for calculating poverty, the upper and lower poverty line. During the same period, i.e., between 2016/2017, a similar pattern arose as it pertains to calculations of extreme poverty, i.e., those living on less than GH¢982.2 per adult per annum. The three northern regions had extreme poverty incidences higher than the national average, and which worsened between 2012/2013 and 2016/2017. The Upper West Region had the highest incidence of extreme poverty at 45.2 percent, followed by the Northern Region at 30.7 percent and the Upper East Region at 27.7 percent. In 2016/2017, the Northern Region, Upper East Region and Upper West Region together accounted for 67.2 percent of those living in extreme poverty in Ghana (Ghana Statistics Service, 2018b).

Factors contributing to persistent poverty (both the incidence of poverty and extreme poverty) in the three northern regions are complex and contentious. Impediments to sustained agricultural development (e.g., soil infertility and degradation, and the adverse effects of climate change) are often targeted as the most significant contributors to persistent poverty. Also important are socioeconomic issues, such as lower primary and junior secondary school enrolment rates and higher dropout rates, especially at the senior secondary school level. Likewise, insufficient investment and access to community health services result in poorer health outcomes for northern populations compared to their southern counterparts. Also, fewer economic opportunities other than agriculture, lead to higher rates of seasonal and also structural unemployment and poor infrastructure development physically isolates the three northern

regions from the other more economically and socially advanced regions. Lastly, lack of public sector investment by consecutive governments is but a few of the socio-economic and political challenges that maintain regional inequities within the country.

A statement by the United Nations Special Rapporteur on extreme poverty and human rights in Ghana noted that about 70 percent of northern residents occupy the bottom 20 percent income group for the country at large (Alston, 2018). Again, the reason for this is their dependence on agriculture as the main economic engine of growth and employment. In 2016/2017, as in other years, the poverty incidence was highest at 42.7 percent among households employed within the agricultural sector (Ghana Statistics Service, 2018b). In terms of general literacy, statistics indicate that the incidence of poverty decreases as the educational level (quality and duration) increases. For example, 44 percent of household heads with no formal education were poor compared with 0.9 percent among those with secondary and tertiary level education (Ghana Statistics Service, 2018b).[91]

The regions' underdevelopment and poverty profile vis-à-vis the rest of the country has attracted a blend of development policy prescriptions from international development agencies, NGOs and successive governments. These development solutions were designed to improve the socio-economic conditions in the regions and bridge the poverty and income inequality gap with

[91] There is a positive correlation between education, employment and poverty. Households heads with some degree of formal education tended to be economically better off and were less likely to be employed within the agricultural sector. Disaggregated by region and sex, the northern savannah regions recorded the lowest net school attendance rates (NAR). Net attendance rates of children at Primary, JHS and SHS is the number of children of official schooling-age who are attending Primary, JHS and SHS as a percentage of the total number of children of the official school age population (Ghana Statistics Service, 2018b). In 2016/2017, the savannah's (i.e., Guinea and Sudan) net school attendance rates at the junior secondary school (JSS) level was 14 percent for males and 17 percent for females. Though comparatively lower than other regions, there were appreciable improvements in both gross and net attendance rates at primary, junior high and senior high school levels between the 2012/2013 and 2016/2017 cycle of the GLSS in the northern regions. Improvements in school attendance rates favoured females in most regions compared to males (Ghana Statistics Service, 2018b).

the southern regions. Oteng-Ababio et al., (2017), describes these interventions as "a successive blend of failures and limitations in development policy" (p.5). It is thus not surprising that northerners are the poorest (according to Ghana's 7th GLSS) and most discriminated against ethnic group in Ghana. Their chances for socio-economic mobility remain relatively low compared to other regional populations and ethnic groups despite positive growth trajectories associated with the oil industry in Ghana (Oteng-Ababio et al., 2017).

Regional North/South Disparities in Ghana

As previously indicated, Ghana's economic development trajectory proceeds along a north-south divide where the northern regions lag far behind the southern regions. Despite decades of development progress and promising strides towards poverty reduction – with the help of international aid agencies - these benefits are not evenly distributed geographically. What has materialized is the continued legacy of pre and post-colonial political and economic policies that did not bridge the already existing chasm between the three underperforming northern regions and the southern regions specifically, the Greater Accra Metropolitan Area (GAMA). These policies instead led to more significant disparities and inequalities (R. Al-Hassan & Poulton, 2009). A number of reasons for the development gap between the North and South have been identified through studies and consultancies funded by the Government of Ghana and in partnership with foreign aid agencies (e.g., the World Bank, IFAD, International Food Policy Research Institute (IFPRI), UNICEF, USAID, and the Deutsche Gesellschaft für Internationale Zusammenarbeit (the German Government development agency), academic institutions and international and local NGOs. The studies alluded to the following as the critical issues that have and continue to facilitate the regional disparities in Ghana.

1) Pre and post-colonial and ethnic relations in Ghana;
2) Post-independence ethno-regional politics;
3) Economic development policies & Structural Adjustment Program (SAP);
4) Under-performance of agricultural sector; and
5) Net out-migration from the northern regions (R. M. Al-Hassan & Diao, 2007; R. Al-Hassan & Poulton, 2009; Talton, 2003; World Bank, 2004).

Pre and post-colonial and ethnic relations in Ghana[92]

The historical underpinnings of the north-south divide in Ghana are rooted in both earlier relations between the powerful Asante Kingdom and the subordinated northern kingdoms and acephalous ethnic groups and later, the racist attitudes and divisive British colonial administrative policies (Asante & Gyimah-Boadi, 2004; World Bank, 2004). British colonization of Ghana – then the Gold Coast – had a twofold effect. In the first instance, colonial administration shattered traditional ethnic relations around ownership of land in the northern regions.[93] To simplify its mechanisms of control, the colonial government sought to homogenize culturally diverse groups. Those ethnic groups already organized as kingdoms or governed by a chief, had their political status elevated and their legitimacy to rule reaffirmed. Conversely, those acephalous ethnic groups, e.g.,

[92] Research on the origins of northern underdevelopment in Ghana, typically starts with British colonization and their policies that privileged development in the southern region of Ghana where gold and plantation agriculture were dominant. However, the foundation of northern underdevelopment should be connected to the much earlier subjugation of northern ethnic groups which predated the arrival of the British. Berry (1994) writes of the Asante's wars of expansion and how this led to the subjugation of northern ethnic groups, e.g., Mamprusi, Dagomba, and Gonja by the more powerful Asante kingdom. See Berry (1994), Ghana: A Country Study for a more detailed account of precolonial ethnic encounters and relations.

[93] According to Talton (2003, p. 194), the British exercised their rule over Ghana's north by establishing a system of authority based on the imposition of "tribal structures and chief-centred political jurisdictions that forcefully incorporated non-centralized societies, such as Konkombas. The Konkombas are a predominantly Muslim ethnic group in the northern region. The Konkombas, unlike the powerful Dagomba, Gonja and Nanumba tribes, do not adhere to chieftaincy protocols though they have religious leaders. In Ghana, the Konkombas have limited political power and access to land. These have been the central reason behind the bloody conflicts with the Dagomba, Gonja and Nanumba over the years (Minority Rights Group International, 2019; Talton, 2003).

Konkombas, that were not centralized and did not follow the custom of chieftaincy were politically and economically marginalized and made subordinate to cephalous groups (Talton, 2003). The political (re)structuring of ethnic groups relations fostered longstanding ethnic discord in the northern regions, which culminated in several violent clashes between the powerful Dagombas and the landless and politically disenfranchised Konkombas. The inter-ethnic conflicts that erupt in the northern regions and elsewhere where large populations of northerners live, e.g. Agbogbloshie, in some respects, feed into the negative stereotypes that other ethnic groups hold of northerners. This perception may also contribute to the slower pace of public investment in a region that appears to be politically and ethnically divided.

British colonial policies are also at the centre of the north-south divide that partitions the country, as the colonial government actively sought to promote the political, economic and social status of the South at the expense of the northern regions, which were mostly a source of cheap and reliable reserve and migratory labour. The result is a country divided, such that the spatial orientation of ethnicity, religion, and economic development, if overlain on a political map of Ghana, almost correlate. For example, the largest ethnic group, the Akans (inclusive of the Asante, Fante, Ahanta, Akyem and Akuapem) are predominantly Christian and reside mostly in the southern, wealthier and more advanced regions of the country. The second largest ethnic group, the Mole-Dagbani, is largely Muslim and have traditionally settled in the northern regions of Ghana (Asante & Gyimah-Boadi, 2004; World Bank, 2004). Of the two populous groups, the Akan have enjoyed relative economic and political dominance during British colonial occupation and the post-colonial period of independence (Asante & Gyimah-Boadi, 2004).

These unwritten yet enforced classifications of ethnic groups fomented the colonial characterizations of northern identity, more so than the southern ethnic groups of the

transitional, deciduous forest and coastal savannah zones. (Refer to Map 7). British colonial policies, therefore, created a situation in Ghana where one's ethnic identity determined to a great extent, the social, economic, and political opportunities available. The divisive and discriminatory attitudes of the British ensured that the northern regions and their cephalous and acephalous groups were regularly in contention over issues of power and group autonomy but more importantly, that the North did not advance in tandem with the rest of the country during and after British colonization (Oteng-Ababio et al., 2017; World Bank, 2004). The diverse forms of capitalist accumulation premised on various rounds of inclusion and exclusion of northern labour, and pursued under British rule led to regional economic and political differences which remains the basis for the politics of regionalism in Ghana today (Plange, 1984). These colonial attitudes enshrined in administrative policies continued to inform economic development pathways even after Ghana gained independence from Britain on 6 March 1957.

Post-independence ethno-regional politics

In the early days of independence, ethno-regional politics and struggles played a significant role in independent Ghana's political and economic development. Short term gains in agricultural development in the northern regions, e.g., the Nasia Rice Mills, the Zuarungu Meat Factory, and the Pualugu Tomato Factory, ended with the ousting of Ghana's first Prime Minister and President Kwame Nkrumah in a violent coup in 1966 (Oteng-Ababio et al., 2017). The situation in the northern regions did not improve under subsequent military interventions into the political management of the country. Despite attempts to ensure that political parties were national in character and scope and not factional or regional, sectarian influences continued to pervade

political discourse and consequently fractured and undermined the national development foundation set during the Nkrumah era (Asante & Gyimah-Boadi, 2004).[94]

How does this affect the three northern regions in Ghana? Ethnocentrism and regionalism operate somewhat like unconscious bias within Ghana's political system. The underrepresented northern ethnic groups appear to be pawns in the broader political rivalries and power struggles between Akans and Ewes.[95] Ethno-regional bias, prejudice and power struggles can inadvertently drive competition for national resources and public sector investment at all levels of government (Asante & Gyimah-Boadi, 2004). The result is that underrepresented groups and regions fare worse than those who have more political power and representation. This complex juxtapositioning of ethnicity, religion, regionalism and class has allowed political elites and successive democratically elected governments to exploit divisions and classifications to suit personal and ethnic biases (Asante & Gyimah-Boadi, 2004). Hence, in post-independence Ghana, existing regional inequalities continue to define the northern regions as poor and economically marginalized and the southern regions as economically advanced and progressive (Asante & Gyimah-Boadi, 2004; Oteng-Ababio et al., 2017).

[94] A poignant example of this was the 1969 general elections, where the ethnic background of the leaders of the political parties impacted voting patterns and behaviours (Asante & Gyimah-Boadi, 2004). Today, voting patterns that reflect ethnic allegiance and regionalism are an entrenched feature of Ghana's political landscape.

[95] Competing political parties, despite avowals to the contrary, find themselves falling back on age old sectarian and divisive politics to maintain their grip on power. In Ghana, the leadership of the main political parties has historically been of Akan (stronghold Ashanti Region) or Ewe (stronghold Volta Region) descent (Jockers et al., 2009). Likewise, the country's former presidents as well as senior administrators in several public institutions (with notable exceptions), have been of either of these two major ethnic groups, Akan and Ewe and presumably Christian. See also a short commentary by Bob-Milliar and Lauterbach (2019) about the role of religion in the political process in Ghana and the direct links between the Christian elite and the political class. Noteworthy is the fact that the majority of the political elite in Ghana hails from the southern region which is predominant Christian.

Economic Development Policies & Structural Adjustment Program (SAP)

In the early days of independence (1957 to 1966), the government of the late Dr. Nkrumah embraced an import-substitution model of development specifically to boost its agricultural sector (Oteng-Ababio et al., 2017; World Bank, 2004). The military regime of the National Redemption Council (1972- 1979) continued the work that Nkrumah started (R. M. Al-Hassan & Diao, 2007). The period ushered in significant capital investment in the three northern regions in the areas of agricultural development and agro-processing, infrastructure, education and other institutional developments in banking and finance and marketing (World Bank, 2004). Before the seeds of economic development could fully blossom, the regions were again plunged into economic decline as the Ghanaian economy could not sustain the financial burden imposed by import-substitution policies nor the subsidies paid to farmers (R. M. Al-Hassan & Diao, 2007; Oteng-Ababio et al., 2017).

The failure of Nkrumah's northern development agenda was just the beginning of the economic challenges that would engulf the three northern regions. Between 1983 and 1993, thereabout, Ghana pursued a set of economic reforms or what is widely known as a structural adjustment program (SAP) with support from the International Monetary Fund (IMF) and the World Bank (Boafo-Arthur, 1999; Oteng-Ababio et al., 2017; World Bank, 2004).[96] Boafo (1999) notes that between 1983 and 1992, Ghana implemented six fiscal reform packages. The SAP required that the government reduce spending through cuts in healthcare, and education, the privatization of state-owned businesses, market liberalization, the removal of barriers to free

[96] On December 31, 1981, the Provisional National Defense Council (PNDC) led by Flight Lt. Jerry John Rawlings ousted the civilian government of the Peoples' National (PNP) led by Dr. Hilla Limann. The PNDC was supposed to be a socialist party however, by April 1983, the party abandoned its socialist ideology and introduced into the Ghanaian economy a series of austere policies in concert with the World Bank and the IMF. The Fiscal austerity packages were known as structural adjustment program (SAP) (Boafo-Arthur, 1999).

trade and the de-regularization of its financial markets leading to currency devaluation. Countries had to adhere to the fiscal constraints advanced by the IMF and the World Bank in order to qualify for much needed loans (Boafo-Arthur, 1999; World Bank, 2004).

Like other developing countries across the globe, Ghana did not escape the injurious effects of these externally recommended yet self-inflicted IMF and World Bank promoted fiscally austere policies. SAP-induced austerities engulfed the entire country and cut across ethnic and class divisions. Sweeping and far-reaching austerities notwithstanding, certain regions fared a little better than others during the SAP reform period, e.g., the cocoa, timber and mineral producing areas of the Ashanti, Brong-Ahafo, and Western Regions, the port cities of Tema and Takoradi, and the urban metropolis of Accra (the national capital) and Kumasi (the Ashanti capital) (Asante & Gyimah-Boadi, 2004) – absent are the three northern regions.

Though hailed in some quarters as an example of the success of the SAP in West Africa because the country realized substantial improvements in its socio-economic standing, enhanced industrial capacity and a fraught but eventual transition to democracy (Hutchful, 2002), the effects were not equally distributed. The historically disadvantaged and economically depressed northern regions continued to suffer benign neglect during most of the period (Asante & Gyimah-Boadi, 2004). In the northern regions, the effects of the government's drastic spending cuts as part of the adjustment period included the removal of agricultural subsidies, which caused the collapse of the agricultural endeavours of smallholders. Defunding of infrastructure works and the public sector in general, and the imposition of user fees for services which had been previously free in the northern regions rounds out some of the immediate effects which resulted in the norths reverting to its previous position as a labour reserve for the southern region (Oelbaum, 2010; World Bank, 2004). In light of the inability of the SAPs and other policy interventions to reduce the inequalities

between northern and southern Ghana, successive governments have relied substantially on foreign aid to bridge the economic and social development gap. Given the changing nature of international development aid and its limitations, this is not a viable strategy, as can be seen by the continued poorer development outcomes in the northern Ghana (World Bank, 2004).

Under-performance of Agricultural Sector

Agriculture is the primary source of livelihood security in Ghana's three northern regions, which remains matter of grave concern for the government and public policy community. Historically, northern Ghana has been defined primarily by its subsistence-based agricultural economy and its characterization as a labour reserve for the southern regions of Ghana (R. M. Al-Hassan & Diao, 2007; R. Al-Hassan & Poulton, 2009; Boafo-Arthur, 1999; World Bank, 2004). In many ways, these characterizations work simultaneously to maintain the economic and political dominance of the south vis-a-vis the north. Despite incongruent policies by various governments and incursions of foreign aid and development programs, economic development generally and employment in non-agricultural sectors, specifically in the northern regions, have not expanded as in other regions in the country.

While most policymakers concede that the prospects for reducing poverty in the northern regions depend on its ability to create more employment and strategic investment opportunities in non-agricultural sectors, this recognition has not resulted in many concrete outcomes. Instead, Ghana has continued to experience tremendous growth in industry (e.g., oil production) and the service sector in the south. In recent years, these sectors have outpaced and displaced agriculture, with the service sector becoming the most significant contributor to GDP (Ghana Statistics Service, 2018b), further marginalizing the northern agricultural belts. Sustained economic growth

concentrated in the south has not trickled down sufficiently to the northern regions, leading to increased income inequality between the two geopolitical regions of Ghana. The traditional basis for economic development in the north, agriculture, has instead become a crippling vice, which the North has not been able to shake off. As such, failure to modernize the agricultural sector, as well as the lack of sustained investment in other economic sectors and the uneven provision of social services on par with the southern regions, continues to shape the relative positioning of northerners within Ghana's socio-economic hierarchy and the social practices and discourses arising from it.

Net Out Migration from the Northern Regions

The seasonal nature of agricultural employment in the three northern regions also results in higher rates of out-migration (R. Al-Hassan & Poulton, 2009; World Bank, 2004) a trend that started with British colonial occupation. During the long dry season, young men and women migrate southwards in search of employment opportunities to ward off the effects of extreme poverty (Oelbaum, 2010). As economic migrants, they face several obstacles, given that antipathy toward economic migrants are spreading everywhere. As ‘aliens' in Accra, poor northerners occupy the least rewarding economic positions. They tend towards employment within the informal sector, which further adds to their stigmatization and social exclusion. For example, calls for the immediate eviction and permanent relocation of Agbogbloshie's migrant workers and residents stem from a confluence of factors that the media, government and other interest groups have pinned on the backs of northern migrants. Some of the accusations and contentions include the worsening air and water quality and soil contamination in the adjacent area of the South Industrial Estate and residential communities near the Agbogbloshie scrapyard. Also, public anger

persists around the stalled $48 million urban renewal and ecological restoration of the Korle Lagoon which is supposed to aid in flood mitigation in Accra (Amoako et al., 2019; Owusu Boadi & Kuitunen, 2002).[97]

The economic and social consequences of migration from Ghana's three northern regions to urban enclaves, especially in Accra, are felt in both localities but may be more so by migrants who inhabit a liminal space, adopting different attitudes and values to navigate both settings. As an alien or outsider in Accra, these migrants face social segregation in the form of access to housing, employment and healthcare. Also, successive government policies that flip-flop between benign tolerance to outright antagonism at the constant influx of more migrants and the changes that they bring to the urban landscape further cement the migrant's sense of exclusion in the city.[98] Their reception within specific urban settings, work in tandem to maintain historical and contemporary views of the 'northerner' among southern tribes in Ghana. Also, their desire to maintain close ties with their rural communities through remittances, marriages and regular visits home, also requires that they cast off any offending learnt behaviours from their southern hosts. Northern migrants in Accra must, therefore, be able to navigate two spaces – the rural and the urban.

From the above accounts, northerners do not fare very well in their hometowns because of structural and systematic policies (dating back to colonial occupation) that reinforce the regions'

[97] For more details on the flooding events that affect Agbogbloshie and Old Fadama communities, see Amoakoa, Cobbinaha and Darkwah (2019). Complex twist of fate: The geopolitics of flood management regimes in Accra, Ghana. Cities, 89, 209-217.

[98] The growing slum populations is a burden on the City's ageing infrastructure and services. Also, higher incidents of violent crime associated with sporadic eruptions of ethnic clashes between northern tribes in Agbogbloshie and anti-social behaviour of their unemployed youth work together to create a general sense of antipathy towards the group at large. These incidences, issues and concerns define northerner migrants in the imaginaries of 'polite' Ghanaian society as a problem for the City of Accra.

underdevelopment. The same can be said about northerners who migrate southwards and become part of the urban poor. While they earn more money and can support family, institutional practices and policies, as well as cultural norms, reproduce in varying degrees the existing conditions in the north, while migrants are in the south. For example, the places where northerners live, the work they do and their relationships and interactions with other ethnic groups is a replay or remake of north-south relations in Ghana. This is taken up in the following section in terms of rights to the city.

Rights to the City – Scrap workers v/s the AMA

E-waste recycling and scrap metal recovery in Agbogbloshie and elsewhere in Ghana emerged through a mixture of structural and chance circumstances, e.g., the country's reliance on imported secondhand electronics, its lack of capacity to properly and formally manage e-waste, local demand for iron and steel scrap by the steel manufacturing sector in Tema and high rates of unemployment among the urban population and other localities where informal recycling has mushroomed. An important observation stated in other sections of this dissertation is the fact that e-waste management – recovery, recycling and disposal – has long been the business of the informal sector in Ghana. The reason is quite clear, the waste management department of the AMA does not have the in-house capacity – infrastructure, personnel and resources – neither do the private solid waste management firms through which the department contracts out waste collection and disposal services. Nevertheless, the waste management department of the AMA considers the activities of the informal e-waste workers as illegal and a nuisance even though they provide an essential service that the city cannot deliver (at this time). A crucial issue for the department is the indiscriminate dumping and outright burning of unwanted material components

leftover from the dismantling of e-waste and derelict vehicles. This is done in contravention of by-laws which ban such activities. In 2018, the AMA published the following fines for open burning in various planning zones, industrial areas (GH3000), commercial areas (GH1000), residential neighbourhoods (GH850), and within the Central Business District (GH720) (personal communication, representative of the Waste Management Department, October 2018). When asked about the number of fines levied in Agbogbloshie, the director admitted that the Assembly did not have the resources to enforce this by-law, hence the flagrant disregard by scrap workers, especially the burners.

The already antagonistic relationship between the AMA/EPA coalition and informal scrap workers is again compromised by what the departments see as the unwillingness of the occupants of the scrapyard to pay for waste collection services, preferring instead to use the Korle Lagoon and the vacant lands next to the ICGC (International Central Gospel Church) as a dump, casually referred to as 'bɔɔla'.[99] By such accounting, there is an implied assumption that the scrap workers and those in Agbogbloshie/Old Fadama have a general immunity to the filth that surrounds their places of work and sleep. This view is counter to what members of the Greater Accra Scrap Dealers Association (GASDA) stated in the media. The Secretary of the GASDA, in an interview for a local television program, stated that requests for the installation of communal containers in the scrapyard have gone unfulfilled by the AMA. He lamented that without these communal containers, unusable materials from dismantling activities would continue to be dumped or burnt on-site (Secretary of the GASDA, June 30, 2017). While the workers use the lagoon and other open

[99] The contentious relationship between the AMA and informal e-waste workers has much to do with prior evictions and demolition of informal residential and commercial structures in Agbogbloshie/Old Fadama and the AMA's continued pressure to force the informal residents out of Agbogbloshie.

spaces as dumps to dispose of the scraps of their labour, part of the pollution problem is also household waste generated by the expanding slum settlement, the residence of many scrap workers.

Though the AMA couches its criticisms of e-waste workers in Agbogbloshie in relation to what the organization sees as their disregard for proper waste management and sanitation practices, their fierce intolerance of e-waste workers seems more like an extended project geared at evicting them from the city. Longstanding disputes between e-waste workers in Agbogbloshie and residents of Old Fadama and the AMA, the National Youth Authority (NYA), Ghana EPA, and the ICGC are contentious, and feelings of distrust and resentment are high. The AMA is unwavering in its resolve to evict illegal slum settlers. The organization views both the workers and residents of Agbogbloshie/Old Fadama as illegitimate, since their work activities do not conform to the current regulatory guidelines and their community is classified as an illegal development. These spoken and unspoken sentiments have led to clashes between the AMA, the police and workers and residents of Agbogbloshie/Old Fadama. Demolition exercises that destroyed the homes of slum settlers were carried out in June 2015 and again April 2020 with the AMA threatening further evictions in the future (Darko, 2020; Lepawsky & Akese, 2015). The AMA uses force, intimidation but also the power of rhetoric to frame the community and its residents as unfit for Accra. In this way, the organization stigmatizes the community by pointing out issues related to open burning, indiscriminate garbage disposal, open defecation and other unhygienic behaviours that marks the community as a form of contagion.

The existing tug-of-war between local authorities and the informal sector and also between the formal waste management industry and informal scrap workers boils down to questions about access, ownership and management of e-waste: mainly who owns it, who wants

it, who should get it, and why but also questions about who has rights to the city. These questions were easy to answer when scrap metal recovery was a nascent activity with few actors - somewhere between the late 1990s to early 2000. E-waste belonged to those who collected and dismantled it. Few people were interested in holding on to e-waste and were content to pass along the burden for disposal to e-waste and scrap metal collectors. This is no longer the case as more players enter the market, especially formal waste management companies. Further, the disparagement of the role of the informal sector in solid waste management by local authorities suggest that the formal waste management sector is better placed to manage waste in a more environmentally friendly and aesthetically pleasing manner, keeping it always out of sight.

A similar situation is described by Gidwani and Maringanti (2016) in their research on Bholakpur, India. The authors suggest that where informal waste economies flourish, corporate capital that circulates within the formal sector can encroach on and even subsume informal waste economies capturing value from waste. Through this process, workers in the informal economy may begin to have limited access to the urban spaces where they once collected their valuable resources (Gidwani and Maringanti, 2016 p. 118). The construction of Zoomlion's waste recovery and compost facility and the government's plan to build a state of the art EEE recycling facility in Accra, does not portend well for e-waste workers in Agbogbloshie and their continued presence in Accra.

The Scrapyard & Scrap Dealing

To the casual observer, Agbogbloshie is a place of chaos and disorder - its complex patchwork of activities overwhelming. However, amidst the aesthetic disorder, a vibrant and lucrative informal scrap sector thrives despite growing political pressure calling for its relocation. The scrap metal

trade has existed in Agbogbloshie for more than two decades, commencing in earnest in the early 1990s.[100] Despite the risks, scrap dealing in Agbogbloshie is a path to economic and social upward mobility for many of the migrants and families, if not in Accra, at least in their hometowns (if and when they return). It is how many escape extreme poverty, seasonal unemployment and chronic food insecurity in the northern regions. While the risks are high and the health consequences long-term, "working in Agbogbloshie is a transition point; it is not meant to be a permanent destination" says a professor working with the community (personal communication, Professor at the University of Ghana, May 2017). Anecdotal information, however, suggest that only a fortunate few make the desired transition out of Agbogbloshie.

In Country E-Waste Supply Chain

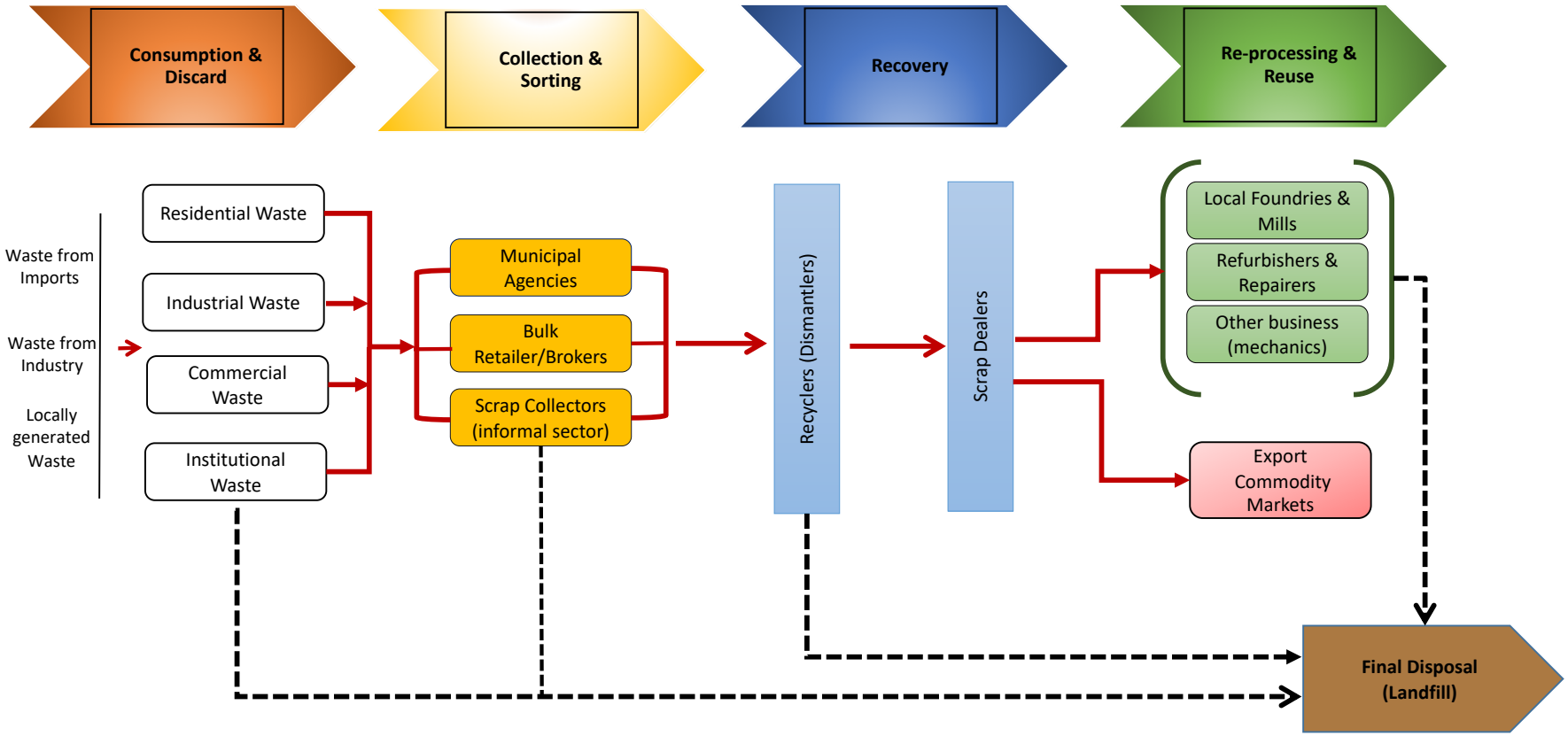
Figure 4 is a simplified representation of the scrap metal value chain in Agbogbloshie. It shows the general and observed characteristics of the sector, paying particular attention to the movement or transfer of e-waste and scrap metal between various actors. It shows how e-waste enters the system and who takes control of it at different points along its journey after its initial disposal to re-processing and reuse. Scrap collectors are the leading players at the point of acquisition as they coordinate the retrieval, collection, and sorting of e-waste. Once collected, e-waste is transported to the scrapyard for the retrieval of reusable components and high value scrap metal. Scrap dealers normally take possession of these scrap metal and components which is sold domestically

[100] Young men from Ghana's Northern Region who migrated south for economic opportunity and to avoid the ethnic conflicts engulfing the three northern regions continue to dominate the trade. These young men are engaged in the least economically rewarding and socially elevating work within Accra and other centres of commerce and industry in Ghana. The sector is estimated to employ between 4,000 to 7,000 people directly and another 20,000 to 30, 000 indirectly in the City of Accra. These informal activities generate about $100 to $300 million annually, sustaining the livelihood of approximately 200, 000 people nationwide (Daum et al., 2017; Grant & Oteng-Ababio, 2016; Oteng-Ababio et al., 2014; Prakash et al., 2010).

and internationally. Unwanted and non-valuable parts get diverted to informal dumps with much of it is burnt as the community does not have consistent waste collection services. The hierarchical ordering of the sector and the power differentials between actors reveals existing tensions rooted in historical and socio-cultural legacies of ethnic and class divisions. Unlike what is popularly portrayed in the media about foreign companies dumping obsolete electronic and electrical equipment under the guise of charitable donations into Ghana, my interviews with scrap dealers, secondhand retailers of electronic devices (particularly computers) and roadside sellers of home-used household appliances revealed the importance of the African diaspora in facilitating the importation of secondhand and end-of-life electronic devices from the USA, Europe and other source countries.

Though no definitive data is available about the contribution of the African diaspora to the quantities of e-waste entering Ghana, they are nonetheless involved in the transnational flow of secondhand EEE and end of life electronics. For example, some of the roadside vendors interviewed were selling used household appliances for families abroad. This was quite common (based on casual conversations) especially with regards to used clothes, used vehicles and the same applies to electronics. These small businesses are an additional source of income for the sender (in the diaspora) and also provides income for the extended family in Ghana. Other vendors used friends and family in the diaspora to purchase these items in bulk, which would be sold in roadside stores or to smaller vendors. These items come in shipping containers ranging in size from boxes, barrels or entire 40ft containers. Given the introduction of the new eco-levy, which applies to new and used electronics entering Ghana, the continued role of the diaspora community will be tested. Unrelenting advocacy on the part of the Basel Action Network (BAN),

Figure 4. Schematic Representation of the Scrap Metal Value Chain



Source: Author's own construction.
Note: The African diaspora, charities, local retailers, government and public institutions and private consumers facilitate the entry of new, used and end-of-life EEE into Ghana

international and local NGOs has been blamed for inadvertently pushing the once visible trade underground. A 2016 UNEP report, however, suggested that 85 percent of the e-waste found in Ghana and other West African countries is internally generated (Minter, 2016). In other words, the idea that other countries are subverting international agreements and re-routing containers filled with e-waste to obfuscate port and customs authorities seems less and less accurate. Notwithstanding, what matters to those involved in the supply chain for e-waste is not how it gets into Ghana. They are concerned with its ready availability.

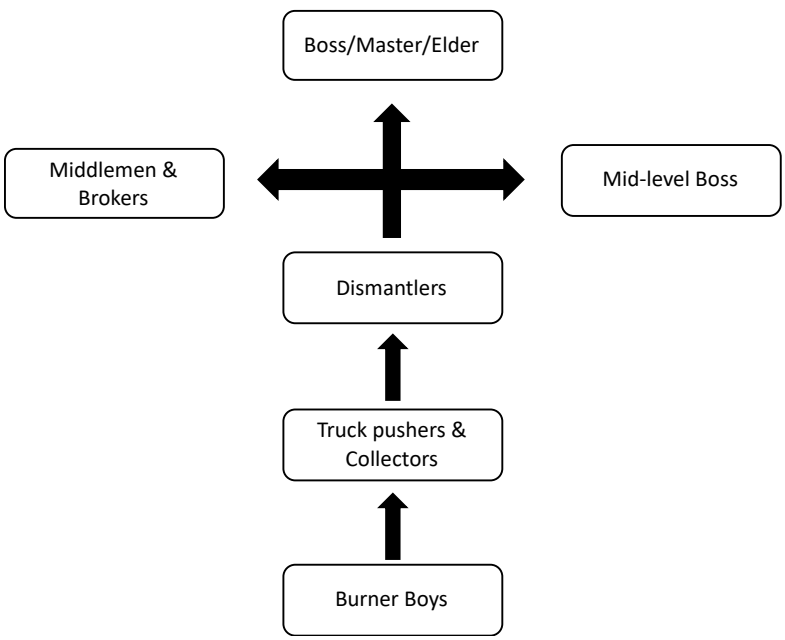
Work Typologies in Agbogbloshie

Recent waves of new migrants to Agbogbloshie come through connections with family and friends who made the journey before their arrival. What drives this interest in the scrap metal trade? For many of these young men, the scrap trade is their best chance of survival in Accra. It requires no formal training (i.e., you learn by watching), start-up costs are low, and it provides access to rapid cash flow (i.e., daily paid work). The latter point is very significant as many of these young men and also the women employed in ancillary or supportive activities (e.g., like food vending) send remittances to the north, sometimes daily, to support their immediate and extended families. As with most organizations and social groups, members typically self-organize into hierarchies, assigning rank and status to members according to their skill, power and influence. In the same way, social and work related hierarchies exist in Agbogbloshie despite its informal nature. Scrap workers fall into three interconnected tiers: at the top are the members of the Greater Accra Scrap Dealers Association (GASDA). They are typically older men who are either community leaders and elders or those who have much experience in the scrapyard. Their workers refer to

them as the boss, master or elder/senior. [101] In the middle are the mid-level bosses (usually younger men who have moved up the ranks) and middlemen and/or brokers who work independently and may hire workers as needed. At the bottom are scrap workers who work as piece-rate wage labourers. (See Figure 5). Some of the young men work exclusively for one boss and require permission to work for anyone else, whereas others are unattached and work for whoever is willing to pay them. Scrap workers carry out specialized jobs in Agbogbloshie.

The low entry level skill requirements mean that there is a high level of substitutability amongst the workers. We commence with the lowest-ranked work typology and work upwards to the highest.

Figure 5. Organization Structure & Work Typologies in Agbogbloshie



Source: Author's Construction

[101] I use the word master as it was how my research participants referred to their employers.

Burner Boys

Burning, more than any other activity related to e-waste recycling and scrap metal recovery, has literally captured the gaze of photographers and amateur documentary filmmakers. The burners have been the central feature of documentary films, and photo exhibits about the hazards posed by rudimentary methods of copper extraction. These visuals immortalize dystopic photographs of a devastated landscape, and the people who work and live there, while simultaneously eliciting a myriad of responses including consumer guilt, shock, and horror among global audiences. The dissemination of these images featuring smouldering bundles of cables skillfully manoeuvred by racialized youths has spurred much of the debate about the adverse environmental and public health effects of e-waste recycling and scrap metal recovery in Agbogbloshie. The burning of cables to extract copper releases toxic flame retardants, dioxins and other toxins into the natural environment -- air, water and soil -- which can eventually bioaccumulate in humans and animals. Persistent exposure to this suite of toxic chemicals has been linked to neurological, reproductive and developmental impairments in affected populations (Daum et al., 2017). Given the adverse effects linked to this rudimentary form of copper extraction, the burners have faced a lot of backlash locally.[102] Despite their global notoreity, the burners occupy the lowest position (i.e., financially) in the hierarchy of scrap work in Agbogbloshie. At the burn site, young men ignite tightly bound bundles of cables and wires using cheap, and easily accessible flammable materials,

[102] It should be noted that despite the negative depiction of the activities of the burners, burning garbage/refuse as a means of waste management and disposal has a long history in Ghana and is a common activity carried out daily in many communities around Accra. In communities across the country, private residences and businesses alike engage in burning activities to get rid of accumulated garbage. This can be attributed to the inability of the state to provide effective waste management services and the cost attached to such services. In low-income communities where garbage removal is slow and intermittent, burning becomes the only viable waste management strategy. Given the widespread use of this practice, the activities of the burners should not attract as much public condemnation and vitriol as they do. On a broad scale, widespread burning of garbage throughout the breadth of Ghana probably contributes more to environmental deterioration than the activities of the burners in Agbogbloshie.

e.g., Styrofoam, (recovered from discarded refrigerators). The sole purpose of this activity is to extract the copper and brass encased by the protective rubber coating. When the plastic and vinyl coating is burnt off, the exposed copper and brass is cooled using bags of sachet water or 'pure water,' sold for 20 pesewas each.[103] (See Photos 5).

Photo 5. Burning and cooling of cables to retrieve copper scrap

Source: Seth Gafah - China Xinhua News Agency/CNC TV & Moukaddem (2011); Photo credit Dr. Kwei Quartey

On average, the burners receive between 1 and 2 Ghana cedis for every bundle of cables they burn.[104] To supplement their income, they collect small bits of copper left after burning. These tidbits are stored until there is sufficient scrap copper to sell (in quantities not less than a pound). Because of the meagre financial returns from their labour, compounded with the conditions under which they work, e.g., the frequency of burns, bruises and respiratory illnesses, some of the burners expressed their desire to move into other lines of work in the scrapyard, e.g.,

[103] Sachet water is the main source of drinking water in Agbogbloshie. Public washrooms and showers are another source for collecting drinking water. However, because of the location of the burn sites, sachet water is the most expedient coolant available. Air cooling is not a viable option as it would take too long and impact how quickly the burners can get paid and how much work they could do within a day.

[104] There have been three iterations of the Ghanaian cedi, since independence in 1957 – the first, second and third cedi. Initially pegged to the colonial currency, the British pound, the Ghanaian cedi, has gone through several rounds of devaluation due to inflation. On the August 10, 2010 1 Ghana cede was equivalent to 0.26 Canadian (Global Currency Services, 2020).

dismantling or leave the scrap business altogether (Burner, personal communication, July 24, 2018).

The Truck Pushers & Collectors

A common sight in Accra and its surrounding residential communities are groups of young dishevelled looking men, heads bowed, backs hunched, arms extended backwards, muscles taut and stretched to their limits. This is the working posture of those young men that pull heavy unyielding hand-drawn carts, called 'trucks' used to transport their cargo (scrap metal and other metal bearing waste) back to the scrapyard. Truck pushing is also what awaits most new entrants into the community who do not have an established older relative or guardian who can help them get into other lines of work. These young men will almost always start as truck pushers, also known as collectors. (See Photo 6).

Photo 6. Truck pusher pulls a hand drawn cart loaded with empty PC cases
Source: Minter (2016)

Truck pushers traverse local communities, city streets, business parks and dumpsites looking for discarded EEE. As they traverse through residential communities, they chant the phrase Condemn! Condemn! - a signal of their approach and willingness to unburden households of any unwanted appliances, tools, equipment and other materials with ferrous and nonferrous metal content. More recently, collectors purchase domestic (household) and commercial scrap for a small fee. Some say that people know the value of scrap, so they no longer want to give it away for free. Others believe that as the sector comes under greater public scrutiny and more people get involved, the nature of the business changes and more money has to change hands.[105]

The Dismantlers

The scrap brought into Agbogbloshie is dismantled or taken apart by young men popularly referred to as dismantlers. (See Photo 7). The purpose of this activity is to retrieve the valuable metals, usually iron and steel, copper, brass and aluminum. Dismantling is not limited to WEEE; reusable car parts and parts from other household appliances also enter the market for resale. Dismantling is very rudimentary, relying on simple tools such as hammers, screwdrivers, spanners, and chisels. Brute strength is, however, an essential ingredient. Dismantlers, if they are young and relatively new to the area, work for an elder or master (boss) and are paid per item dismantled (this was the case for two of my interviewees).[106] Compared to the burners, truck pushers and collectors, dismantlers earn more money for their labour. The amount paid is based on the item

[105] Shoe cobblers use a similar method to announce their presence in the community. They usually beat on a wooden box that they carry using a metal instrument. The sound it makes is distinct and well-known.

[106] The price paid per item dismantled varies as televisions, air conditioning units, refrigerators, stoves, etc., all vary in size and complexity. Also, depending on the relationship the dismantler (in this instance) has with his elder/master/boss, he may be paid more than the average – which ranges from about 5-10 cedis for a TV, AC unit or small fridge.

and the difficulty that it poses to dismantle, e.g., a small fridge can fetch between 15 and 20 Ghana cedis (personal communication, dismantler, Agbogbloshie, July 2018).

Photo 7. Dismantlers at work
Source: Seth Gafah - China Xinhua News Agency/CNC TV

Middlemen/Brokers

Another intermediary group amongst the scrap workers are the copper purchasers and also middlemen who procure iron and steel (sometimes illegally) and aluminum scrap for export. Some of these men work almost exclusively as procurers of copper and its derivatives or alloys, brass and bronze. Copper, though found in lesser quantities, attracts higher prices compared to scrap iron and steel and aluminum. A recurring pronouncement during my fieldwork was that the Nigerians purchase much of the scrap copper. While copper is exported to foreign destinations by Ghanaians and Nigerians alike, some of the locally procured copper supports local jewellery production in both countries. Walking through any of Ghana's public markets, e.g., Makola, Kaneshie or Madina, the casual observer will notice a wide array of brightly polished and cheap jewellery ornaments for sale. The relatively low prices say something about the quality of the

jewellery - though they look attractive, they tarnish easily. The lower prices also allow the urban poor to engage in conspicuous consumption habits (that they otherwise cannot afford) and adorn themselves during festive occasions such as Eid al-Adha, weddings, outdoorings, and baby naming ceremonies.[107]

Mid-Level Bosses

Mid-level bosses, as I define them, work independently and may hire casual workers as needed and for specific tasks. Unlike the more financially established bosses, they typically procure smaller quantities of scrap iron and steel, aluminum and copper. To supplement their income, they may be engaged in other activities such as purchasing and selling used lead-acid batteries (ULAB), and reselling used and working car parts. One participant admitted that he sometimes sells his accumulated scrap to the bigger bosses if he has difficulty collecting enough scrap ferrous metal to fill a 10-15 tonne truck which will be conveyed to Tema for sale to any of the steel manufacturing plants. One of the reasons cited has to do with the size of the area apportioned to them by the scrap dealers association, which may not allow them to stock more substantial quantities of scrap. Another is the fact that they do not have the established networks, nor the financial resources and workers to procure large quantities of scrap at any one time.

Bosses/Masters/Elders

The highest-ranked work activity is occupied by the bosses/elders/masters, some of whom are also members of the scrap dealers association. These men do not work with scraps directly (i.e., they do not usually get their hands dirty); instead, they employ their juniors to do the labour-

[107] Outdooring new babies is a traditional and formal ceremony in Ghana, where new-born babies are introduced or presented to the gods, society and dead ancestors. It usually takes place on the 8th day after birth.

intensive work. Each morning these ‘big men' distribute monies much like an advance to ‘their small boys' (truck pushers/collectors) who will go around sourcing scrap. The role of the boss/master/elder as a moneylender and the resulting financial dependency on him reinforces the relation of authority and hierarchy within the scrapyard. Alternatively, if they (i.e., the masters) have direct contact with bulk suppliers, they can arrange for the delivery of the scrap consignment to Agbogbloshie. At this point, another set of young men under their authority will sort, dismantle and store the scrap until an entire load is ready for conveyance to Tema where many steel manufacturers operate. (See Photo 8).

Photo 8. Scrap Metal loaded on a truck headed to Tema
Source: Author

Unlike the younger workers who are typically daily paid, these entrepreneurs can make between GH18,750 and GH25,000 for a 25-tonne load of iron and steel scrap sold to steel

manufacturing plants in Tema.[108] It can take anywhere from one month or more to accumulate 25 tonnes of iron and steel scrap for a seasoned scrap dealer who has intimate knowledge of the trade.[109] This time frame is very subjective. It depends on factors such as the availability of scrap, the number of workers, the success of the collectors in procuring good value for money, the current market price of scrap metal, cash flow, and the loyalty of scrap dealers' supply networks. Some of these bosses/masters/elders are also slumlords within the community, exercising another layer of control on the younger members. Though residents and workers generally know that they have no legal title or rights to the land in Agbogbloshie and Old Fadama, senior and more influential community members rent rooms and plots for the construction of residential and commercial dwellings. This occurs in spite of the constant threats of eviction from the AMA. It shows that within their ranks, those with power and authority can exact profits on property that they have no legal right to occupy or lease.

There is Money in Waste – "Money Dey for 'Bɔɔla"[110]

Below is a sample of the transaction records of three of my research participants. Given a notebook and pencil, they were asked to record their daily expenditures and income. Some chose to record only transactions that pertained to their involvement in scrap metal trade, while others

[108] Interview data indicates that the price per tonne is dependent on the quality of the scrap, with HMS 1 (heavy melting steel or scrap) being the highest value (e.g., scrap from Caterpillar Inc. construction and mining equipment and ship scrap). These yield more iron and steel (95 to 99 percent) during the manufacturing process than lighter scrap recovered from, e.g. home appliances. HMS 2 (e.g., engine blocks and other car parts) yields 90 to 93 percent; and mixed or light scrap (e.g., metal tins, scrap from home appliances etc.) has the lowest value with yields between 70 and 75 percent (personal communication, staff of Steel Manufacturing Plant, September 2018).

[109] The same interviewee who stated that it took two months to accumulate 25 tonnes of iron and steel scrap, was collecting another truckload within three weeks of dispatching a truckload to Tema. This goes to show the fluidity and constantly changing circumstances that moderate the informal scrap trade.

[110] 'Bɔɔla' is the Twi word for trash, garbage, refuse. In Agbogbloshie, it also refers to the informal dump bordering the scrapyard and International Central Gospel Church. I borrow the phrase "Money Dey for 'Bɔɔla'" from an article written by Kumi, Hemkhaus and Bauer (2019).

recorded their wages, savings and spending on food and other ancillary items. The purpose of this exercise was to get a better sense of the income potential for those workers involved in the least financially rewarding forms of e-waste work. But also, to provide my research participants with an opportunity to document for themselves their spending patterns vis-à-vis their income. While this is in no way an exercise in financial literacy, my hope was that my research participants would be better informed and thus make decisions that improved their financial security. In Photo 9, the participant (a mid-level boss) recorded his daily purchases of iron and steel, aluminum, brass and copper, which amounts to GH31,000,000 in Ghana's second cedi calculation or GH3,100 in Ghana's third and current cedi. On that same day, he was able to sell GH18,000,000 worth of scrap or the equivalent of GH1,800. For clarification, the difference between what was bought and sold does not necessarily indicate a financial loss. What was sold could be a combination of new and old scrap metal stock. As a result, no direct correlation between the two transactions for that day is possible.

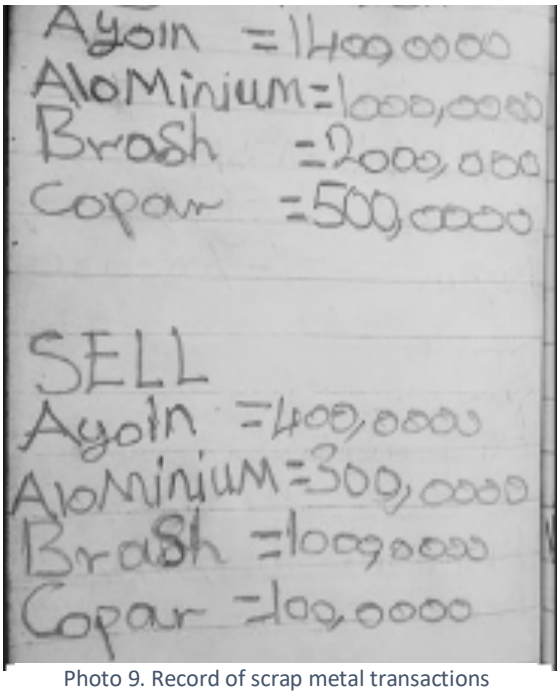


Photo 9. Record of scrap metal transactions
Source: Research participant

The research participant (the dismantler) who submitted Photo 10 provided details about his hours of work, daily pay, savings and spending for the day. On this day, he worked for about 7 hours ending earlier than usual (not much work was available). Within the seven (7) hours, he dismantled three (3) motorbikes and seven (7) laptop computers for his master. At the close of the day, he receives GH30. During earlier conversations, he indicated that he has big plans for his future in the north. Though he never revealed his plans, he did indicate his interest in opening a business. To achieve this goal, he saves regularly. On the day in question, he saved GH15 to his mobile money account. He prefers this very flexible and convenient form of savings - which is very popular in Ghana - to the more formal banking institutions. In addition to the monies allocated for savings, his daily expenses included food (GH10). Though not noted, basic amenities like showers and use of toilet facilities cost anywhere from 1 to 2 Ghana cedis.

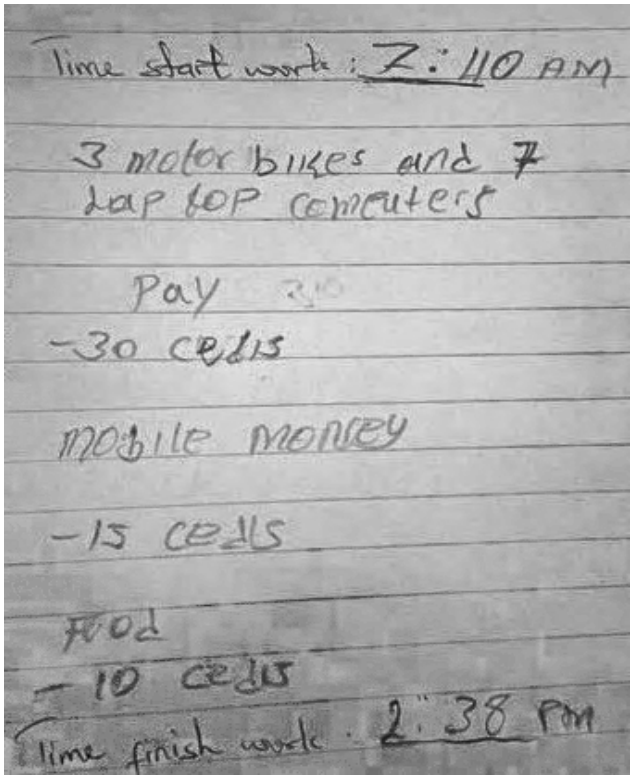


Photo 10. Record of pay, savings and food costs
Source: Research participant

Another participant (a mid-level boss) submitted a record of how much scrap metal his collectors sourced from the advance given to them. (See Photo 11). The advance was GH200. On their return to Agbogbloshie, the three collectors weighed in total 229 kilograms of scrap metal. Two outcomes/scenarios are possible under this arrangement based on this transaction record. Each is explained below.

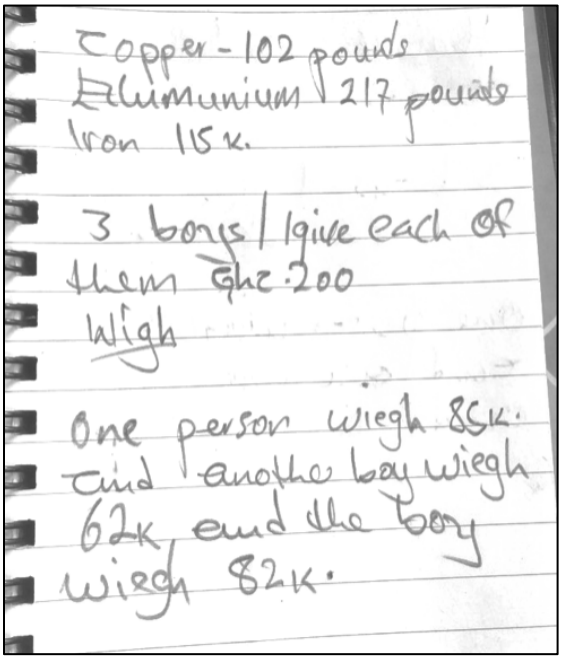


Photo 11. Record of scrap purchases by collectors
Source: Research participant

Scenario 1

Under this arrangement, the collectors only make a profit if they paid less for the scrap than its weigh-in value. For example, if the scrap cost the collector GH150, but its actual value is GH200, then his boss gets the scrap, and he gets to keep the difference between what he received, i.e., GH200 and what he paid GH150. His profit is GH50. Some bosses may allow their workers to keep small amounts of aluminum and copper as additional payment.

Scenario 2

At the same time, if the collectors do not negotiate the price of scrap effectively, they will incur a loss. For example, if they use up the GH200 to purchase scrap, but the weigh-in value of the scrap is lower, e.g., GH150, the collectors will have to return the difference, i.e., GH50 to their boss. The collectors are the losers in this transaction because the boss gets scrap metal plus the difference in the advance and the weigh-in value.

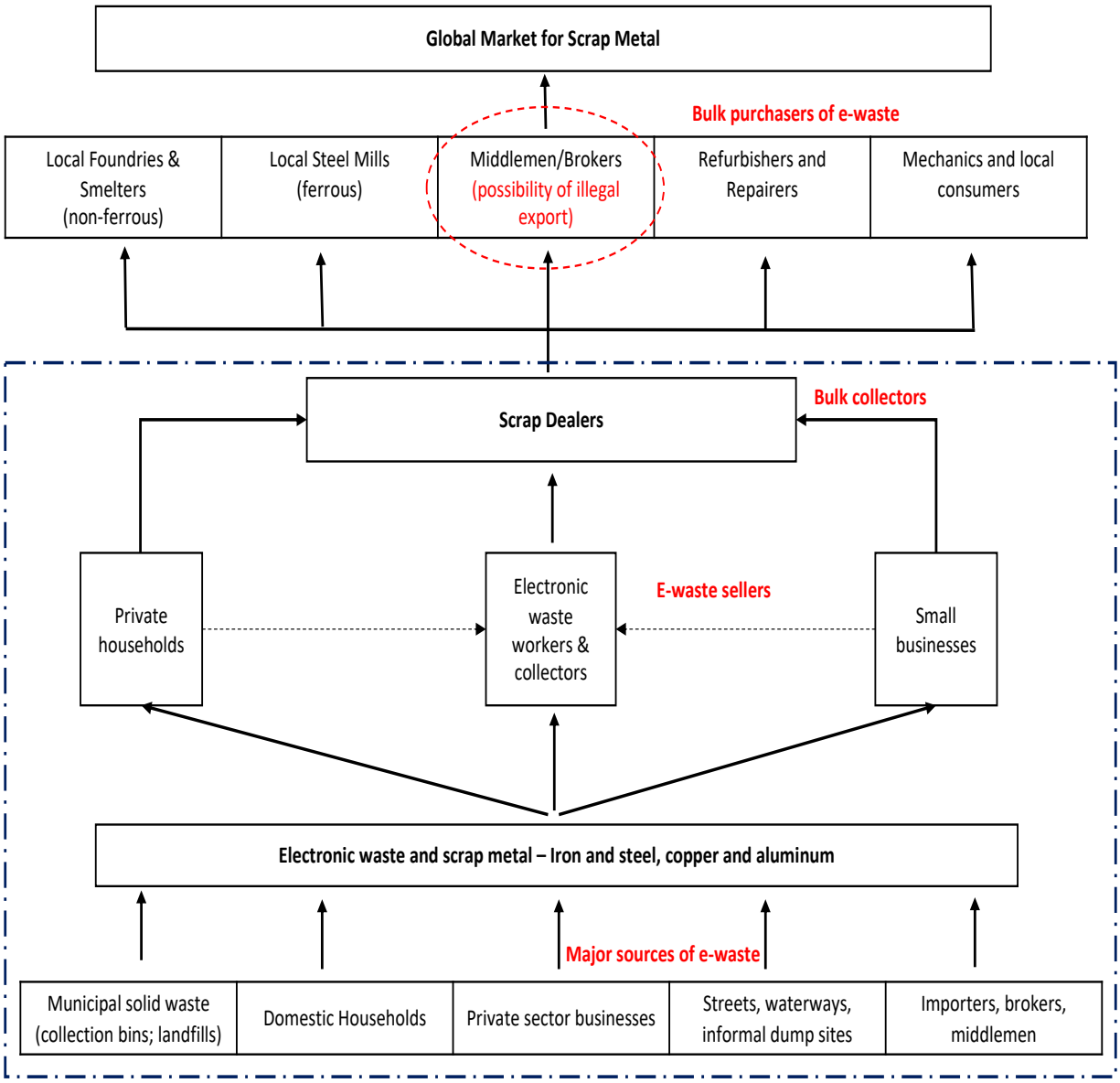
Informal-Formal Sector Vertical Linkage

Figure 6 maps the somewhat vertically integrated, fluid and dynamic system that is the informal-formal electronic waste and scrap metal recovery sector, specific to Accra. The base of the diagram shows the main sources of electronic waste and other metal-bearing waste in the City. From these sources, the three base metals, iron and steel, copper and aluminum are either purchased or collected freely. For example, e-waste and other metal-bearing waste indiscriminately dumped in open public spaces and accessible municipal waste repositories is free for the taking. Some dealers have long standing relationships with private businesses who provide them with larger consignments of e-waste. In this way, the scrap dealers[111] are the central figures around which the three main scrap metals circulate between the informal and formal sectors. More substantial quantities of scrap are bought, sold and in some instances illegally exported in the latter.[112] Much like gatekeepers, they straddle both economic spheres and act as the interface between the informal collection side of the business and the more formal manufacturing side.

[111] The position of scrap dealers within the sector has much to do with their access to cash and the financial resources needed to purchase large quantities of e-waste. Also important is their intimate knowledge of the business, the informal social networks they have established with suppliers and the major steel manufacturers in Tema as well as their socio-cultural standing within their immediate community and ethnic group.

[112] Though Ghana banned the export of ferrous scrap metal (e.g., iron and steel), in 2013 persons across both sectors and within the government conceded that exports of these metals persist.

Figure 6. A Sketch of the Informal E-Waste and Scrap Metal Recovery Sector in Agbogbloshie



Source: Author's construction.
Note: The dotted blue line is the bounds the legal and informal dimensions of the scrap metal sector in Accra. Beyond this somewhat blurred boundary, the sector enters the realm of greater formality but where illegal exports can abound. Though much has been written describing the scrap metal sector in Agbogbloshie as informal, my research shows that the boundary between formality and informality is highly porous in this context, as the sector has forward and backward linkages that cut across this perceived divide

Scrap metal transactions as indicated earlier, occur within two competing markets - the international versus local. Dealers in Agbogbloshie weigh the relative importance of the two markets and typically privilege international markets over the local and sometimes regional

markets. One of the main reasons for this privileging of the international, is the higher prices received from foreign brokers and the fact that these prices are paid in US currency (personal communication, Representative Scrap Manufacturer's Association, September 2018).

A representative of the GASDA, offers a different explanation. He states that the steel manufacturers in Tema/Accra collude to place downward pressure on scrap metal prices which reduces the unit price for scrap metal. Scrap dealers, therefore, feel justified if they decide to circumvent the ban on ferrous exports to secure better prices for their scrap (personal communication, Scrap Dealer, June 2017). Lower price demand in the domestic market, verses more profitable revenue streams from the international market, creates tension between scrap dealers, local steel manufacturers, and government policy-making divisions. Competing and conflicting interests pits different parties against each other, with each jostling for more control over how the scrap metal sector operates and evolves.

In the upper half of the diagram, the sector is much more structured. Local and small-scale foundries and smelters, refurbishers and mechanics consume a small proportion of the recovered scrap metals. The bulk purchasers of scrap metal are the domestic steel manufacturers concentrated within Tema Heavy Industrial Area and free zone.[113] Polite enquiries about the extent to which their manufacturing activities depended on the scrap metal purchased from local dealers went unanswered. The steel manufacturers were, however, quick to point out that their production capacity exceeded the actual amount produced because of insufficient quantities of local scrap. Because Ghana banned the export of ferrous scrap in 2013, the exact quantities sold

[113]In Ghana, free zones are industrial and manufacturing enclaves, e.g., Tema Industrial Area where goods imported and produced are generally regarded, insofar as import duties and taxes are concerned, as being exempt. Free Zones Enterprises may be sited at designated "enclaves" or scattered as single-factory enterprises at various locations in the country (Ghana Revenue Agency, 2019).

to brokers and middlemen acting in concert with foreign companies is unknown. However, representatives from the steel manufacturers association and some government officials suspect that the quantities are quite high.[114]

Social Group Dynamics in Agbogbloshie

Social stratification or structuring within social groups is not exclusive to the formal economy or society proper. Informal social, political and economic hierarchies emerge in situations without a defined system of order typically provided for by the state. Work and social life are structured in much the same way in Agbogbloshie as it obtains outside the community. Though these workers and residents are members of the lower class within the broader society, within their community, their ethnic and kinship ties, religion, income, gender, and political affiliation work to hierarchically organize the members of the community. For example, when we examined the various work typologies, the executive members of the scrap dealers association and the bosses/elders/masters occupy the highest standing within the community. Other senior members of the community (e.g., mid-level bosses and religious leaders) follow. Next in line are the owners and operators of other businesses, e.g., repairers, mechanics. Dismantlers, truck pushers and collectors and finally the burners round out the general organizational structure of the scrapyard and community. Seldom talked about because they do not actively participate in the labour-intensive scrap work are the women who prepare and sell food, water and clothing. Their underrepresentation within the scrap trade and overrepresentation in food preparation adheres to cultural and patriarchal beliefs that dictate the role of men and women within their community.

[114] An article posted on the All Africa website entitled "Ghana: Economic and Organized Crimes Office (EOCO) Impounds Scraps Metals Meant for Export" is evidence of the continued illegal export in ferrous scrap (Bediako, 2014).

Partisan political loyalties are a polarizing phenomenon within Agbogbloshie and Old Fadama. Though labour within the community is relatively immobile, political affiliation can impact workers' ability to move up the informal social, economic and political hierarchy in Agbogbloshie. After the 2016 elections, supporters of the defeated political party, the NDC, and the former chairman of the scrap dealers association (also a supporter of the NDC) felt that they were not treated favourably by the new chairman and his supporters who aligned themselves to the current governing party, the NPP. What this means is that during the reign of a specific political party, its supporters in Agbogbloshie may do better financially than the supporters of the ousted political party. At the last elections, the defeat of the NDC empowered supporters of the NPP to forcefully, in some cases, evict NDC supporters from Agbogbloshie, including the past chairman – who has taken up residence across the Korle Lagoon.

One's kinship ties also influence relations of employment beyond what is clearly defined by the work typology we explored previously. Kinship and relatedness extend beyond blood ties. They can include affinal relatives and fictive kinship (Ibsen & Klobus, 1972) bonds that extend to in-laws, friends, neighbours and other members of one's ethnic group. So, while labour seems to be relatively immobile for those at the lower ranks, their upward mobility is possible through their political and kinship ties. Ethnic clashes between Konkombas and Dagombas in Agbogbloshie also mediate whether workers can move up the social and work hierarchy in the scrapyard. The traditionally marginalized Konkombas may find that the Dagombas majority population of Agbogbloshie makes it more difficult for them to move up the various informal social, political and economic hierarchies established in Agbogbloshie.

The following provides a more intimate look into the everyday realities of some of the research participants. Through their stories, we can begin to see more fully how the mythologized northerner ekes out a living by participating somewhat tangentially in the global capitalist market.

A Snapshot of Life in Agbogbloshie

New migrants to Accra find in Agbogbloshie a home, community, employment and relatively steady income. Agbogbloshie is an extension of their home. It is a site of social cohesion (Onuoha, 2016) much like the ethnic enclaves or neighbourhoods (Little Italy, Chinatown and Greektown – the Danforth) that give character to cities like Toronto and New York. Here is a story that one of my research participants related to me about his journey to Agbogbloshie:

> "I arrived in Agbogbloshie in 2007. I was 20 years old. After completing senior high school, my senior brothers and some friends encouraged me to come to Agbogbloshie to make money. I wanted to continue with school - but there was no money – so coming to Agbogbloshie was my way of making enough money to pay for more schooling. My parents are old, and they cannot provide for me anymore. I never went back to complete my schooling, though; the money in Agbogbloshie was good, and I did not want to give it up, plus you know people back home depend on you for money. They depend on you a lot. They think Accra has money. They are always calling for more money. When I came to Agbogbloshie, I started as a truck pusher even though my elder brother was working as a dismantler. I had to push truck for him so he could get goods to dismantle. I hated that work. The work was hard and humiliating. I was ashamed a lot – drivers and pedestrians would insult you all the time. The police would seize your truck and confiscate your scrap without reason. Sometimes they would say we are creating traffic problems or motorists will accuse us of damaging their vehicles. People everywhere mistreat you. Pushing 'truck' was just dirty work. Some days you can push truck and get nothing, but you still have to pay the rent for the truck. Pushing truck just made me feel inferior, and the money was not as good compared to what you can make dismantling. As soon as I saved enough money, I moved into dismantling. Now I work for myself - buying scrap and dismantling it. Buying and selling condemned batteries and car parts makes me more money than I would make farming in the north. I can make GH2,500 a month if things are good and the scrap is available. Now I rent by myself and I do not have to share it with anyone. Sometimes you can find more than ten people sleeping in one room! That is not

> for me. I like my own space, and it keeps you out of trouble. You know there are some terrible people here who make trouble for the community. I like Accra, but I want to go back to the north. Living in the North is cheaper – food, rent, transport - but there is only farming to do so people do not have money. Accra is more expensive than the north, but there are more jobs in Accra. Not big jobs; but work like this where you can make some money. The work in Agbogbloshie is for Northerners. Northerners usually do this type of work! We will suffer for money" (Scrap dealer, originally from Tamale, August 2018).

The above captures the highs and lows that define the lives and lived experiences of northerners but also northern migrants in Accra. It is one of small victories amidst a sea of antipathy, resentment, and violence. In his story, we see how some migrants want to stay in Accra (because of the economic opportunities) but at the same time are desirous of returning home. Many of those I spoke with indicate that their intention was never to stay in Accra. Yet, my visit to Tamale revealed that some return triumphantly (with resources to make a better go at life in their hometowns) whereas others, returned sometimes sick, injured or defeated. Young women, however, typically return to marry.

Human-as-Waste

Thus far, we have explored the historical legacies and the socio-cultural and political factors that define the northern identity in Ghana and how this identity further informs the economic opportunities afforded to them and which affects their social standing within Accra, more specifically. This third section of the chapter turns to a more theoretical discussion about their involuntary participation in the protracted process of becoming waste, the human-as-waste. Bauman (2004) succinctly captures the uncomfortable reality of marginalized groups around the world that have been made redundant and thus expendable because of the vagaries of the capitalist economy, i.e., its ability to subsume and exclude real estate, labour and resources.

"Redundancy whispers permanence and the ordinariness of the condition. To be redundant means to be supernumerary, unneeded, and of no use. There is no self-evident reason for you being around and no apparent justification for your claim to the right to stay around. To be declared as redundant means to have been disposed of because of being disposable. Redundancy shares its semantic space with rejects, wastrels, garbage, and refuse – with waste. The destination of the unemployed, of the reserve army of labour, was to be called back into active service (at a later time and under the right conditions). The destination of waste is the waste-yard, the rubbish heap." (Bauman, 2004, pp. 11–12).

Waste, wasting and wastage are not only limited to natural resources; they also apply to people and their labour - as I have alluded to previously. The Business Dictionary defines labour as the combined effect of human physical and mental energies used for the production of goods and services (BusinessDictionary, 2019). Under capitalism, labour takes on the form of a commodity, fictitious though it may be.[115] Thus, like "other commodities on the market, labour is consumed (within the capitalist system) and then disposed of [e.g., through redundancies, lay-offs, outsourcing, and use of temporary, part-time, and contract labour] when it is no longer needed 'as it creates no further value for capital' [author's emphasis] (Magdoff & Magdoff, 2004; Yates, 2011, p. 1688). Those who have been disposed of or made redundant become part of the reserve army of labour or as Hymer (1975) cited by (Foster et al., 2011, para. 3) called them the "latent surplus-population." This army exists on the fringe of the capital markets, transitioning between various degrees of unemployment – cyclical, structural, seasonal and sometimes permanent - awaiting opportunities to work typically at the bottom of the wage hierarchy (Foster et al., 2011).

[115] In the 'Great Transformation' (1944), Karl Polanyi challenged the commodity status of labour under capitalism. He referred to labour as a fictitious commodity because he thought that it could not be regulated like other factors of production by the forces of supply and demand (Paton, 2010). By alluding to the fictitiousness of labour as a commodity, Polanyi revealed the inherent tension in neoclassical theory between concrete reality and its idealist construction of the economy (Paton, 2010, p.77).

The disposability of labour under capitalism is, however, not a new phenomenon, even as labour is essential to commodity production, and its existence is impossible without it (McIntyre & Nast, 2011; Stanley, 2015). How does this work then? Foster et al. (2011) and Magdoff and Magdoff (2004), following in Marxist stead, assert that the current top-down inequitable system of economic gains depends on the exploitation of the international wage hierarchy and the international [colour coded] division of labour. This system creates enormous returns in the form of profits and dividends for corporations and investors headquartered in financial centers of the world. At the same time, the workers - a sizeable proportion from the global South - are paid less than the value of their labour even as they continue to create value for capital (Foster et al., 2011; Wright, 2006). The flexibility and mobility of finance capital and the movement of manufacturing and other labour-intensive industries to the global South create the conditions for this. Foster et al. (2011), therefore contend that in the late 20th and 21st centuries, capitalist development will increasingly feature a top-down structure with monopoly-finance capital to the top and at the bottom, a massive global reserve army of labour that works at the behest of the capitalist system. The existence of this massive and unprecedented global reserve army makes this global system of extreme labour exploitation or labour arbitrage possible (Foster et al., 2011; Magdoff & Magdoff, 2004).

In the context of Ghana and other developing countries, the expansion of the reserve army and its concentration in urban centers is a direct consequence of continued underdevelopment in rural communities, which leads to rural-urban migration and increasing landlessness within urban localities (Awumbila, 2014; Foster et al., 2011; Magdoff & Magdoff, 2004). The reasons for this expanding landlessness are varied. Some people blame the stagnation in the agricultural sector, which has not modernized sufficiently to remain competitive or financially feasible. Also, free, fair

and open market policies pushed by the World Trade Organization (WTO) have turned economies that were once self-sufficient in the production of rice and other grains to major importers. These combined policies have led to an exodus from the land, especially in rural communities. Land expropriation to make way for large-scale and most times externally funded infrastructure, industry and mining projects is another factor.

The negative perception of farming is another leading reason why young people are not entering the industry at an appreciable rate in Ghana. Farming and farm-work are no longer attractive to younger rural populations (McMichael, 2012) who are more interested in the glamour attached to work in information technology and the service sector. Their aspirations for work in the latter are, however, unmet, and they become part of that perpetually resolving pool of reserve labour in the city. The result is the decline in rural communities through outmigration and the growth of urban slum settlements to house the constant stream of economic migrants most belonging to the reserve army of unemployed labour. Rural depeasantization, therefore, progresses apace as opportunities for employment in urban centers continue to surpass rural employment generation - even though the labour supply continues to exceed its demand in urban centers.[116] The future of the reserve army in places like Ghana seems bleak under the current conditions listed by Foster et al. (2011). These are the expansion of international wage competition, capital's ability to take advantage of the global immobility of labour, and the existence of subsistence wages in much of the global south. Under these conditions, the reserve army in the global south is open to unbridled capital exploitation from the center (Foster et al., 2011).

[116] In Ghana, the Greater Accra Metropolitan Area (GAMA) dominates in terms of urban employment in both the formal sector (32 percent) and the informal sector (28 percent) (Arup & Cities Alliance, 2016, p. 11).

Thus far, the discussion of the human-as-waste aphorism has been in relation to the formation and expansion of the reserve army of labour. However, what is the composition of the global reserve army? Magdoff and Magdoff (2004), state that the composition and sources of supply of the reserve army have not remained the same over the years. Most notably, its composition has varied across history, according to local conditions and the economic relations between the countries of capitalism's center and periphery. In the 'center,' which represents Western democracies, the reserve army is predominantly made up of racialized members of the lower class and other minority groups. Today, they are immigrants and refugees who may or may not be legal citizens. In the USA, as in Europe, they are increasingly migrants who make the perilous journey across the US-Mexico border and the Mediterranean Sea. The legality of the immigration claims notwithstanding, many join the ranks of the domestic reserve army, which is disproportionately made up by Native Americans, Latinos and African Americans. In the global South, where a more significant proportion of the global reserve army is located, they are representative of the poor (both rural and urban). Their membership includes those from ethnic and religious minorities and other persecuted groups, women, migrants from neighbouring countries and the differently-abled (Bauman, 2004; Wright, 2006). Typically, they are denied respect and occupy the bottom rung in the social and wage hierarchy. Like the northerners in Agbogbloshie, they are considered outcasts with little to no affirmative social standing (Bauman, 2004; Wright, 2006).

Redundancy and disposability marks the flesh of the reserve army of labour and informs their value within global commodity production networks much like technological and functional obsolescence signals the actual and imagined loss of usefulness of electronic devices. Marked for disposability, the workers in the reserve army are always on their way to becoming waste (Razack,

2017, p. 1). Bauman (2004) suggests, however, that the production of humans-as-waste or more correctly, "wasted humans is an inevitable outcome of modernization and an inseparable accompaniment of modernity's order building"(p.5). The populations that become wasted are, therefore, a side effect of order building, which culminates in their social alienation and exclusion. They are marked as out of place, unfit and undesirable, and a menace to the fabric of society. However, because they, 'wasted humans,' are a product of modernity and required to do what others would not, they are allowed to operate on the fringe for as long as it is convenient and beneficial to the rest of society. Silently and efficiently, they make invisible - from the gutters, trenches, business parks, residential communities and landfills - post-consumption waste. In the absence of alternative employment options and government-sponsored social safety nets and in the presence of securitized class and surveilled political borders, they are given a false choice between joblessness and social exclusion or menial low paying and oftentimes polluting work e.g., as waste workers – as a form of livelihood security (Jayasinghe et al., 2013; Strasser, 1999). From a sociological standpoint, the human-as-waste or wasted humans image (Bauman, 2004), sheds light on how society values certain forms of work and not others, certain groups of workers and not others. Here the physical attributes of the work and the physiology of the workers, their race, class, ethnicity, gender and citizenship or lack thereof have a significant influence on who gets wasted.

Applying the Human-as-waste to Agbogbloshie

In the previous sections, we saw how the ethnically diverse group of people that live in Ghana's three northern regions and their diaspora within the country's metropolitan enclaves variously denigrated as 'northerners' have long been socio-historically, culturally and politically produced by

certain segments of the Ghanaian society as an ethno-religious and regional problem for Ghana and its large Christian population (e.g., Asante, Ga, Ewe) that live in the southern regions. The comments of the Korle Wulomo – Chief Priest of the Naa Korle captured below, is more evidence of the vitriol that is heaped unto northerners living and working in Agbogbloshie/Old Fadama. [117]

> "Because of this Sodom and Gomorrah, 'the lagoon is like this' [author's emphasis] enti na ɛyɛ saa! "It is my wish and my desire [that] we should dredge the lagoon, and we should remove the Sodom and Gomorrah people from there, then the lagoon will go back to how it used to be in the past." Korle Wulomo—Chief Priest of Naa Korle, cited by (Onuoha, 2016, p. 7).

Allegations like the above circulate in Accra about the role of workers and residents of Agbogbloshie/Old Fadama in contaminating the Korle Lagoon. Like the above statement attributed to the Korle Wulomo, residents in Accra vehemently believe that the dumping of the slum's domestic waste into the lagoon (an action admitted to by residents) is the cause of its polluted and dismal state (Onuoha, 2016). Even more appalling are stories of dead human corpses thrown into the lagoon by Agbogbloshie residents (Onuoha, 2016). These accusations depict the slum dwellers as interlopers, polluters, and violent criminals, and the deterioration of the lagoon is the environmental consequence of their presence. The accusations also cement the idea that Agbogbloshie workers and residents of Old Fadama settlers are a source of contamination and a threat to Accra's urban development.

Other forms of dehumanization circulate within the public realm. In 2013, a massive fire destroyed several structures in the slum community of Old Fadama, which is home to many northern migrants in Accra. Online comments about the near-fatal incident again revealed deep-seated apathetic attitudes towards northerners in Accra. The following are some of the comments posted in relation to the article, 'Sodom and Gomorrah gutted by fire' (GhanaWeb, 2013).

[117] The Naa Korle is believed to be the eponymous resident deity of the Korle Lagoon by the Ga community of Accra.

1) "Now that your government is in power [NDC], why don't you go back home in the North and impress on Mahama to open up industries, trade and commerce so you can have a meaningful life?";
2) "What has Mahama[118] done for these mpepefuo? Akonfem [guinea fowls] farms?";
3) "Akonfem farming is booming, time for these guinea fowl warriors to go back. The Northerners who came to Accra during the guinea fowl war[119] between the Konkombas and Nanumbas need to go back to the North to do Akonfem farming";
4) "Fire service wait till every house is [burnt] down. This [fire] will [make] the evacuation very fast. Pls [please] make sure that they do not build that slum anymore. They have refused [to take] any advice to move";
5) "This fire is deliberate; they want you to leave the area for some[where] else. You were told for a long time to move out, but still, no sign [that you will leave], if persuasion fails [then] comes force"; and
6) "Let them leave that stinking place with immediate effect, please. What a Nation?

Each of these statements reveals an anti-northerner and to some extent, an anti-Muslimism sentiment that continues to guide not only inter-ethnic group social relations, e.g., in the area of marriage where ethnocentrism stills hold influences. But, also at the national level where economic development projects show ethno-regional biases – evidenced by the lagging performance of the northern regions vis-à-vis the rest of Ghana.

The cultural and political configuration of the human-as-waste and its applicability to the bodies of northerners in Accra is visible in the unreported deaths in the community and the lack of public outcry. The body of a young man found floating face down in the muddy and polluted Korle

[118] John Mahama is the former president of Ghana. He served between 2012 to 2017.
[119] The Guinea Fowl war is a reference to the ethnic dispute between the Konkomba and Nanumba that culminated in violent conflicts in 1994 and again in 2000. The conflicts centred around land ownership, chieftaincy, and representation between cephalous and acephalous ethnic groups in the Northern Region of Ghana.

Lagoon is evidence of the performance of the project of disposability.[120] The body was fished out by his friends in the community and quickly buried according to Islamic custom. There was no official enquiry, no autopsy, or investigation. He was just another migrant who died through no fault of anyone. At best, his death was the unfortunate consequence of his personal decision to engage in risky behaviours or hazardous work. Those who cheat death but suffer disabling workplace injuries are quickly sent 'back home' for traditional treatment as the Korle Bu teaching hospital, like many other unfunded and overcrowded health institutions in Ghana, fails to provide the necessary care. Agbogbloshie, in some ways, is just as hostile to the northerner as the residents of Accra. Its harsh environment is a function of the conditions of work, lack of basic infrastructure, sub-par housing, poor sanitation and drainage and waste management services. These act in concert with the socio-cultural and political environment to exploit the labour of healthy workers while casting out those who are unfit through illness, injury or death.

Sporadic evictions and demolitions by the AMA reinforce the disposability and non-belonging of the residents of Agbogbloshie/Old Fadama. On 22 June 2015, a demolition squad on instructions from the AMA and with assistance from the Ghana Police force destroyed several commercial and residential structures which left many Old Fadama residents homeless (Amuzu, 2018; BBC News Africa, 2015; Daum et al., 2017; Lepawsky & Akese, 2015). Those who lost their homes and possessions were forced to 'go back home' where they 'belonged.' Based on the above

[120] The body was fished out of the Lagoon in the latter months 2017.

comments, northern migrants in Agbogbloshie had upset the order of things in Accra.[121] They were thus, too visible, too loud, too polluting but also, too politically powerful.[122]

The northerners living in Agbogbloshie may feel like they are in an impossible situation. They are hardworking despite all the negativity hurled at them. Their willingness to work and support their extended families is the impetus for their migration as work is scarce in their villages and towns. Moving to Accra allows them to work, not in government offices or private firms, but eking out a living within the fringe or informal economy. Working the streets day and night, they learn the ins and outs of the city quickly - how it operates and where they are accepted and where they are not. Spatially excluded within Accra, the majority of northerners – those with no formal education and no discernible competitive advantage - occupy spaces and engage in precarious, unsafe and arduous work that may have long-term health consequences. On closer examination, the processes that continue to mythologize, dehumanize and inform the identity of northerners in Ghana, expose the importance of ethno-sectarianism, regionalism and thinly veiled religious tolerance.

The next section juxtaposes the working conditions of scrap workers in Agbogbloshie and those who work in the steel manufacturing plants in Tema Heavy Industrial Area. The comparisons made are based on two tours of the steel manufacturing plants - Tema Steel Company (September 18, 2018) and Sentuo Steel (September 19, 2018).

[121] Anecdotal information suggests that the AMA's push to evict the residents has much to do with their demands for legal title to the land on which they are now squatting.
[122] Even as the AMA and others would like to see Agbogbloshie demolished, none of the parties have had the courage to mandate their eviction. The residents of Agbogbloshie know this and use it to their advantage especially during election period.

Scrap workers and Factory workers

E-waste workers in Agbogbloshie represent one of several groups actively involved in the local iron and steel industry in Ghana. Research on this group has been extensive, however, it has neglected those workers (in the formal sector) who forge metal from scrap. Working under similar conditions to their counterparts in Agbogbloshie, they receive no attention in the literature. In the following, I briefly describe the similarities in the two environments, one informal, the other formal.

Of the two steel manufacturing plants I visited in Tema, all the factory floor employees were male, ranging in age from their late teens to their early sixties.[123] A quick scan of the organization of the workforce, reveals its differentiation by race and citizenship. The floor workers are all black, Ghanaian (or West African), whereas the majority of the supervisors, engineers and other more senior employees (within the manufacturing environment and corporate offices) are of Indian or Asian descent. That should not be surprising given that the three manufacturing plants visited during my fieldwork are foreign-owned entities, except for Sentuo Steel, which is a public-private partnership with the Social Security and National Insurance Trust (SSNIT), an agency of the government of Ghana. Much like the workers in Agbogbloshie, these steel workers work under similarly challenging circumstances. The plants are dark, dusty and extremely hot. In actuality, one of the plants visited is made up of a series of partially enclosed warehouse buildings – some connected, while others are not. The plants are constructed from what looks like corrugated metal sheets. The steel frame of the plants does nothing to control the temperature within those buildings when the arc or induction furnaces are heated to melt the scrap metal. Aware of the

[123] A quick google search for steel manufacturers in Accra list about ten major companies involved in the production of iron rods, steel coils and steel balls for the construction and mining sectors. The sector relies on scrap dealers in Agbogbloshie to provide scrap metal which is often supplemented with semi-finished ingots in the production process. The steel mills I visited had a long history of purchasing scrap metal from the dealers in Agbogbloshie. The two that allowed me to tour their facilities were recommended by the scrap dealers.

effects of high temperatures on workers, one of the mills I visited does not turn on its furnace until late in the afternoon towards evening especially on extremely hot days.

Whereas the young men in Agbogbloshie work with little protective equipment, most of the young men working in the steel plants had some safety clothing, e.g., boots, hard hats, gloves in some cases, a few sported eye goggles and noise protection gear. Their meagre protective clothing did nothing to diminish my anxiety about the safety of the workers and myself. My inquiries about health and safety and the history of industrial accidents, were met with statements that suggest that accidents typically involve new workers – who get injured because of fear. Fear of what? Fear of getting burnt by the smouldering liquid steel, hot rebars and iron rods or even the equipment.

Research by Akormedi et al., (2013); Amankwaa, (2014); Amoyaw-Osei et al., (2011); Asampong et al., (2015); Frazzoli et al., (2010); Heacock et al., (2015); Song & Li, (2014); and Yu et al., (2017) attest to the fact that scrap workers are exposed to toxic contaminants which adversely affect their lung function leading to higher incidences of respiratory illnesses. These adverse health outcomes are directly correlated to their working conditions in Agbogbloshie. The situation of the steel manufacturing plants is not much different. Studies have linked steelworkers to higher incidences of acute or chronic respiratory diseases e.g., asthma and noise-induced hearing loss (Hamzah et al., 2016; Nyarubeli et al., 2019) as a result of their exposure to metal dust particles and consistently loud sounds associated with their line of work. Similarities also exist, with scrap workers who are often impacted by workplace injuries ranging from small cuts and bruises to incidents that have required emergency treatment.

Working conditions aside, those lucky enough to find employment at the plants were employed as either permanent, contract or casual labour. Similar to the young men in

Agbogbloshie, these non-unionized workers complained about the low wages which were not commensurate with the work nor the conditions under which they worked. The pay scale (per month) at one plant was as follows; contract employees could receive about GH1000; permanent employees about GH700; and non-contract employees or casual labour about GH300 per month. Though permanent employees earn less than contract workers, they receive medical benefits and workmen's compensation that contract, and non-contract workers cannot access.

The expected formal-informal wage gap is almost non-existent between the steel and e-waste workers. The lack of substantive wage differentials challenges labour market theory, which suggests that informal workers typically receive lower remuneration than salaried workers engaged in similar activities in the formal sector. A dismantler earning between GH30 to 50 per day would make more than permanent, contract and casual workers employed by that steel plants. Even the lowest-ranked and paid scrap workers, the burners, make, on average more than GH300 per month. The higher wage-earning jobs held by /bosses/master/elders in Agbogbloshie carry a significantly higher earnings potential far surpassing the factory floor workers of the steel manufacturing plants. I note that this pay differential may be context-specific given that workers in Ghana, whether in the formal or informal sector, generally earn low wages at or just above subsistence level.

The separation between the two groups of workers is rooted in the division that exists between the formal and informal sectors. The formal sector is considered modern and progressive, whereas filth and disorder are the physical and psychological manifestation of the informal sector (Coverly et al., 2003; Lupascu, 2017; Moore, 2009). While one group operates within the bounds of legality and formality, the other operates in the zone of illegality and informality. Examined side by side, the two work environments are indicative of how society

creates the conditions for the exclusion of some segments within its ranks based on their socio-economic status, religion, ethnicity and the inability of the economic system to make full use of their potentiality. The dividing line between the two is nevertheless highly permeable because of the ease with which the existing capitalist economic system can simultaneously consume and expel human capital in both spheres as needed. Given the low entry job requirements and the vicissitudes of Ghana's steel industry, shocks to the sector can temporarily displace or permanently expel workers from the zone of legality into the zone of illegality – from inclusion based on usefulness to exclusion based on redundancy and uselessness. Inclusion and exclusion, therefore, intimately connected to the ebb and flow of capitalist production and consumption.

Conclusion

Waste in all its forms elicits within *civil* society intense feelings of abjection, disgust, and revulsion, due in part to fears of its contaminative and destabilizing effects on society. This inordinate fear demands the externalization, distancing, and invisibilization of material waste and the criminalization and corralling into state-defined yet neglected enclosures, of the human-as-waste. In this chapter, I extended the notion of waste from material objects to people. The chapter commenced by documenting the historically specific pre-colonial, colonial and postcolonial processes that produced, reproduced and fomented the pejorative identity of the northerner vis-à-vis the rest of the Ghanaian population. The construction of an overly simplistic and generalized identity for northerners by non-northerners remains profoundly entrenched and pervades much of Ghanaian society. In the eyes of non-northerners, northerners are a distinct cultural group that continues to reproduce within its ranks the same traits and stereotypes that have kept them politically, socially, culturally and economically insular and disenfranchised. This attitude or way of

thinking denies the heterogeneity of the people who are multilingual and multicultural and who have different historical orientations to Ghana.

What remains consciously and unconsciously denied, are the historically specific accounts and general societal acceptance of the socio-political, cultural and economic conditions and forces contributing to the enduring production and reproduction of the group as somehow not worthy of equal citizenship provided for under the constitution. The socio-political and economic subordination of northerners systematically reinforces and reinscribes unto their bodies and communities, a distinctive difference from the rest of society. It is this perverted logic that justifies their disposability, lives wasted by slow and intentional violence in Agbogbloshie, even as they subsidize - by their unpaid labour – waste management in Accra.[124]

The chapter also documented the governing organizational structure and work typologies in Agbogbloshie. From the descriptions, the work is arduous and dangerous and is shunned by many of the other ethnic groups in Accra because it is still regarded as waste work. Most of the heavy lifting is done by young men who have little to no formal education and learn by doing. Yet, they earn the least among all the players in Agbogbloshie's e-waste landscape and face pronounced exposure to toxins released during various stages of dismantling and burning. For these young men, their position within the internal hierarchy in Agbogbloshie, increases the pace at which their bodies are wasted.

A thorough investigation into the socio-economic and political standing of northerners in Ghana allows for an alternative understanding and discussion about waste and disposability that

[124] I refer to their labour as unpaid because the state does not compensate them for the work that they are doing concerning e-waste collection and disposal. They are providing a service to the city (despite their private interest in the waste that they collect), which the city cannot provide to its residents. While other public servants are remunerated, they are not, and so their work is unpaid.

has languished in disciplines that traditionally focus on material flows, throughput, entropy, resource efficiencies and waste minimization. Here the dehumanizing rhetoric of disposability is instead applied to the human. They are defined by a set of historical, political, and socio-cultural discriminatory practices and economic factors that confer on them the status of a disposable human corpus.

5. CHAPTER FIVE – Things: Iron & Steel, Copper and Aluminium

> "Recycling reveals the urban dimension of both wasting and revaluing and the linked but occluded ongoing geographies of constituent elements" Grant & Oteng-Ababio (2016, p.2).

Abstract

Recovered iron and steel, copper and aluminum are three base metals with much currency in the Agbogbloshie scrapyard in Accra. These metals are recovered from the expanding stocks of e-waste from consumer appliances and other discarded metal-bearing commodities from the building and construction sector, the automotive sector, shipbuilding, and equipment manufacturing. The steady growth of the scrap metal sector in Ghana is in part, a response to expanding local demand for scrap metals by steel manufacturing plants operating in Tema Heavy Industrial Area. Demand for ferrous scrap by foreign brokers increases the level of competition in the domestic market, and also helps to boost scrap metal prices locally. The sector's ethical orientation and strong policy support comes from advocates of sustainability who promote the economic, social and environmental benefits of regenerative processes such as repurposing, refurbishing, reprocessing and recycling. Driven by fears of imminent resource scarcity, processes of regeneration are part and parcel of the unmaking of waste which challenges the idea that post-consumption waste has no use or exchange value. Instead, these processes promote the development of parallel circuits of exchange premised on the recovery and (re)valorization of e-waste. Calls to reuse, repair, reprocess and recycle nevertheless advance a capitalist agenda (green or otherwise), and so function most importantly, to secure the uninterrupted growth of global capitalism by commodifying the waste created by the system. In this context, Agbogbloshie, emerges as a new zone for capitalist exploitation and surplus value accumulation. The circulation of capital in Agbogbloshie exploits political, economic and socio-cultural hierarchies and puts previously excluded surpluses, e.g., labour, and abandoned places back into productive work. This chapter explores how the material properties of e-waste shape the experiences of northern migrants in Accra and expounds on the transformative processes of disassembly and manufacture such that the discards which enter Agbogbloshie emerge in unrecognizable new forms.

Introduction

The demand for metals such as iron and steel, copper, aluminium,[125] as well as lead, zinc, gold, and nickel is expected to rise to meet society's increasing need for better, faster and more reliable technologies (Arrobas et al., 2017; Melo, 1999; Pérez-Martínez et al., 2019) e.g., consumer gadgets, wearable technologies, and other technologies powered by artificial intelligence. These base metals are extracted by metallurgically processing virgin in-ground ore deposits or through recovery processes that yield scrap metal from secondary, anthropogenic or in-use stock deposits (McCarthy & Börkey, 2018).[126] Given the finite nature of most virgin in-ground ore deposits, and the energy required to mine these ores, resource experts envisage a future threatened by increasing scarcity and higher costs associated with resource extraction and processing (Backman, 2008; Sun et al., 2016). An optimistic and sustainable view of the future requires new base metal reserves; improved extractive methods that reduce loss or leakage; and finally, the recycling and reprocessing of metal waste from the built environment (Backman, 2008). Rauch (2009), likewise forecasts a strategic move towards investment in in-use stock deposits through recycling and reprocessing activities that reduce reliance on virgin metal ores and minimize the production of waste rock, slag, and tailings generated from metallurgical processing.[127]

[125] Iron and steel is a ferrous metal with strong magnetic properties. It conducts electricity and heat and is very malleable. The low cost of iron and steel compared to some nonferrous metals (e.g., gold and copper) broadens its applicability throughout the industry. Copper is a strong durable metal desired mainly for its superior electrical conductivity. It is used in a number of applications, e.g., power, and communication transmission, electrical and electronic equipment manufacture, construction, etc. Copper is the world's third most widely used metal, after iron and aluminum. Aluminum is a nonferrous metal that is widely used because it is lightweight, rust-resistant, and has high electrical and thermal conductivity. Aluminum is widely used in building and construction sector, for the production of consumer durables, packaging (R. N. Lumley, 2011; Moosbrugger & Cverna, 2000).

[126] Terms such as virgin and secondary are used solely to identify the origins of the metals. They in no way imply the superiority of virgin ores or the inferiority of secondary metals. In most cases, virgin ores have little to no metallurgical advantage over secondary metals.

[127] Such activities are increasingly referred to in the literature as urban mining, i.e. the process of reclaiming compounds and elements from discarded products, the built environment and waste.

Discourses around urban mining and circular economies find legitimacy at this juncture, where e-waste is increasingly captioned as a valuable resource for emerging and developing economies (e.g., Ghana, Indonesia, and Vietnam) with markets for scrap metal in industrialized countries (e.g., Germany, Belgium, Spain, Japan, the Netherlands and the United States) (Observatory of Economic Complexity, 2019). The ethical orientation behind urban mining and the circular economy and their strong policy support comes from advocates of sustainability who promote the economic, social and environmental benefits of regenerative processes such as repurposing, refurbishing, reprocessing and recycling through parallel circuits of exchange (Giles, 2015). In demanding a rethinking of categories such as waste and value as objective descriptions of the status of an object, calls to reuse, repair, reprocess and recycle, however, advance a capitalist agenda (green or otherwise), and so function most importantly, to secure the uninterrupted growth of global capitalism by commodifying the waste created by the system.

Recycling companies are now part of vast networks that trade and reprocess scrap metals. It is estimated that about 45 percent of the world's annual production of steel, about 40 percent of copper, and 33 percent of aluminum is produced from scrap (CARI-ACIR, 2019). The mutability of some streams of (e)waste show that what has been discarded can return, in a manner different from when it was thrown out (Hetherington, 2004, p. 167), e.g., as scrap metals whether copper, aluminum or iron and steel.

In light of the anticipated revenue stream, the government of Ghana in collaboration with its various partners (See Chapter Three, Agbogbloshie's Global Footprint) recognize that recovered iron and steel, copper and aluminum are three base metals with a lot of currency not only in the

Agbogbloshie scrapyard or the local economy, but also internationally.[128] These metals are recovered from the expanding stocks of e-waste from consumer appliances and other discarded metal-bearing commodities from the building and construction sector, the automotive sector, shipbuilding, and equipment manufacturing. The recovery of these metals also forms the basis of the livelihoods of tens of thousands of migrants in Accra and their extended families in Ghana's three northern regions. (Refer to Chapter Four).

Observations in Ghana suggest that the informal economy relies on the formal sector for its raw materials. It is also equally true that the formal sector (represented by the steel manufacturing plants in Tema) relies on the informal sector for recovered scrap metals that are quickly siphoned into its metal production system. Boarder (2015) describes the relationship between these two production systems as symbiotic; however, Soule and King's (2008) work on competition and resource partitioning provides a more useful frame for understanding the interconnectedness of the two production systems. Under ideal conditions, each system takes ownership of the resource (in differing forms) at different points along the value chain. The market operates as a heterogeneous resource base (Soule & King, 2008), which allows informal economies to offer specialized services (e.g., scrap metal recovery) and take ownership of discarded commodities expunged from capitalist production networks. Notwithstanding these broader theoretical concerns, the energies of recyclers applied through hard work, experience, creativity, and entrepreneurial intuition, work to advance a capitalist agenda (Giles, 2015) even as capitalism exploits their labour - Accra's large pool of migrant labour.

[128] For instance, the 'Global Metal Waste and Recycling Market Report' (2020-2024), estimates that the worldwide market for metal waste and recycling is expected to grow from USD 287 billion in 2019 to USD 340 billion by 2024 (MarketWatch, 2020). This is the recovered value of a small fraction of the excesses expelled from capitalist production which far exceeds the annual GDP of Ghana.

In this chapter, I focus on the three base metals - iron and steel, copper and aluminum – that have come to define the community of Agbogbloshie/Old Fadama. This chapter explores how the material properties of e-waste shape the experiences of northern migrants in Accra. The chapter also expounds on the transformative processes, e.g., disassembly and manufacture enacted on e-waste such that previously discarded devices emerge in unrecognizable new forms. For example, the e-waste (e.g., obsolete electrical and telecommunications equipment and transmission cables), decommissioned mining equipment and materials (e.g. excavators and grinding balls), and auto-recycling scrap that enters Agbogbloshie is recognizable to anyone walking through the scrapyard. (See Photo 12).[129]

Photo 12. Scrap metal collected and dismantled in Agbogbloshie
Source: Seth Gafah - Video cameraman and editor, China Xinhua News Agency/CNC TV

However, when the accumulated stockpiles leave Agbogbloshie, the formerly intact and discrete commodities are unrecognizable. Instead, a disaggregated assemblage of jagged sheets and chunks of metal enters the global market as feedstock for new products or are used to refurbish and repair existing products. Two different worlds are at play here. In the first, and at

[129] One of the major sources of other metal-bearing scrap into West African countries like Nigeria is the importation of used automobiles that are anywhere from 5 to 10 years old (Sridhar & Hammed, 2016) from the USA, Europe and Canada. Ghana, on the other hand, has passed laws that prohibit the importation of vehicles older than ten years old with import duties increasing in line with the age of the vehicle.

the point disposal, the object which has lost its utility, worth, and desirability, enters the waste stream as a distinct whole, but with its value negated. In the second, and in the hands of e-waste workers, the object emerges in an altered commodity form (re)inscribed with monetary or exchange value. Also associated with this new value, is the myriad of livelihood opportunities that the afterlife of e-waste affords.

Global Metals

Metals have been foundational to the social and economic revolutions that litter modern society's evolutionary history. From the bronze and iron age to the industrial revolution of the 18th century and the digital revolution of the 20th century, metals production has been the cornerstone of economic growth, especially in the developed world and now in emerging economies across the globe. For example, China is a significant producer of iron and steel but also a major importer of ferrous scrap metal (ISRI, 2018). The country's dual agency helps to sustain its manufacturing sector as well as transportation and infrastructure development projects.

As the world grapples with the challenges of the new energy transition - away from fossil fuels to greener alternatives - in the 21st century, a discussion about metals is taking center stage (Arrobas et al., 2017). The demand for base metals such as iron and steel, copper and aluminum (as well as others such as cobalt and lithium) which facilitated the expansion of contemporary forms of industrialization is expected to increase with this new energy transition towards greener and cleaner technologies and methods of production. The importance of metals to many innovative developments that have become intimately connected to our modern everyday life is not expected to decline in the near future (Arrobas et al., 2017).

Iron and Steel

Iron is one of the planet's most abundant elements, found in both the core and the earth's crust (Blaszczak-Boxe, 2017; Sawe, 2018). The use of metalwork technology and the dissemination of iron tools, weapons, and other implements emerged during the period known as the ‘Iron Age' (Richards, 2011), spreading out from the ancient empires of the East, the Mediterranean and later to Europe. The distinctively black or dark greyish metal transformed daily life in ancient society, especially in the areas of agriculture and warfare, as iron replaced bronze in the crafting of simple tools and weapons (Whipps, 2008). New and innovative developments in iron ore processing, e.g., the discovery of wrought and cast iron and the invention of the blast furnace, were central to the success of most notably the British Empire (Mackie, 2019; Sawe, 2018) which later became the foremost industrial power during the industrial revolution by harnessing labour and the power of metals.

Iron is still the most commonly used metal today (Mackie, 2019; Whipps, 2008). Its production is as essential to economic development as is fossil fuels. It is foundational for building construction, automobile manufacturing, shipbuilding, and other industrial sectors. While virgin ores remain important to production, iron and steel (ferrous) scrap is valued because of the cost and energy savings gained through its use. Iron and steel scrap is sourced from many of the same industrial processes and consumer products mentioned above (ISRI, 2018). Today, iron and steel scrap is the most commercially recycled scrap metal worldwide (LeBlanc, 2019). The overall recycling rate for iron and steel scrap was 86 percent in 2014. Certain steel products have higher recycling rates, e.g., 95 percent for automobiles, 88 percent for appliances and 70 percent for packaging (Steel Recycling Institute, 2017).

Although the scrap metal sector by all indicators is a multi-billion dollar business globally, in Ghana, the full potential of the sector remains yet unknown. One reason for this is the lack of reliable statistics to assess the size and actual value of this sector in Ghana. As indicated earlier, the informality of the sector may be the main cause of this lack of information. During my interviews, the scrap dealers kept scant records of their transactions, e.g., the quantity of scrap collected within a week, month, or year. They were also very wary of divulging the value of their trade. The lack of information extends to steel manufacturers as well, who notoriously withhold information about their business operations. The following vignette provides a succinct yet descriptive narration of my tour (September 2018) of Tema Steel and West African Forgings (WAFOR) Ltd in Tema Heavy Industrial Area, Ghana.

Forging Iron in Ghana

It is scorching today; and the air still and humid. As we head towards the steel-framed building, bright and fiery sparks appear in vivid contrast against the darkened interior. My guide is the former production supervisor, now the financial clerk. Having received the required safety gear, a hard hat, the tour begins with an admonition to be extremely careful. At our first stop, I am enveloped by the intense heat, which makes me immediately aware that a burn here would be painfully severe. Facing a sizeable cauldron-like apparatus - the arc furnace - I watch as a huge magnet covered with scraps of various sizes, colours, and thickness deposits its haulage into the furnace. The once solid bits and pieces of metal now become a viscous molten firestorm of blazing yellow, orange, and red. In much the same way that squinting shuts out the brightness of the sun, the intensity, and brightness of the light emanating from the furnace is impossible to watch with the naked eye. Men clad in work pants, boots, gloves, and eye goggles add manganese and ferro silicon to the molten contents of the cauldron. I am told that these substances improve the purity of the molten iron. Within minutes, a shrill sound reverberates through the plant, a warning signal to all persons in the vicinity – lookout, lookup, stay clear. A bucket suspended on steel cables approaches and is lowered to receive the contents of the cauldron. Liquid iron now in the bucket glides seamlessly as if by invisible cords to another section of the plant. At this point in the process, the liquid iron changes state, and commences its transformation back into a solid state. Water plays an integral part in this transformative process. Poured into longitudinal water-cooled

> moulds, the liquid iron solidifies amid rising steam into dull grey yet heavy-looking rebars. These may go through a second heating cycle before casting into sinewy metal rods to be used in the construction and mining sectors.

Though worth less than copper and aluminum, because of its relative abundance iron and steel scrap is the metal most widely collected and traded by the informal sector in Ghana. For instance, one discarded personal computer (without a monitor and other accessories) contains about 69 percent by weight of iron and steel. It has more than 4 percent by weight in copper and about 5 percent in aluminum. Zinc, small quantities of other precious metals as well as plastic make up the rest of the PC's composition by weight (Tran & Salhofer, 2018, p. 1155). Similarly, iron and steel make up the largest share of the material composition of automobiles. Data from the World Steel Association indicates that about 60 percent by weight of today's vehicles (i.e., the body structure) is made out of steel. This averages to be about 900 kilograms, or roughly 2000 pounds, per vehicle (World Steel Association, 2019). Given the rapid increase in the manufacturing of consumer electronic devices and other household appliances as well as the percentage by weight of iron and steel in larger equipment, machinery, and transport vehicles, global iron and steel scrap availability is expected to rise. If this trend persists, Çiftçi (2017) suggests that ferrous scrap could replace iron ore in the production of iron and steel. For these reasons, i.e., its availability and demand, ferrous scrap will remain the scrap metal of choice for informal sector e-waste workers. At the time of this research project (July to November 2018), scrap iron and steel was selling for one Ghana cedi per kilogram within the informal sector in Agbogbloshie. Steel manufacturers in

Tema offered anywhere from GH1,100 to GH1,500 per tonne for iron and steel scrap based on its quality.[130]

Copper and Copper Alloys

Copper, a reddish-brown metal, is one of the most valuable of the three base metals scrapped in Agbogbloshie. It is, however, not as abundantly available as scrap iron and steel or aluminum. Copper's uses have expanded dramatically since its discovery about 10,000 years ago (J. R. Davis, 2001). Copper and its alloys, e.g., brass and bronze have widespread application in telecommunication infrastructure and electrical and electronic equipment manufacture. The properties of copper, e.g. its malleability, workability, castability, its electrical and thermal conductivity and its corrosion resistance qualities, makes it a precious non-ferrous metal (Copper Development Association, n.d.). Today, copper is used in the most critical of electrical applications and for non-electrical purposes, e.g., plumbing, roofing and manufacturing cooking utensils. Scrap copper is sourced from electrical cables, old pumping pipes, discarded cooking utensils and implements, extension and power cords, computer cables, telecommunication cables, household appliances and consumer electronic devices (e.g., air conditioning units, televisions, computers).

In Agbogbloshie, copper extraction is very rudimentary. Neatly woven bundles of plastic or vinyl-coated cables and wires are dosed with fire accelerants and burnt on piles of polyurethane foam and old tires. These fires are typically set so that the dark and acrid smoke blows away from the burn site, but often towards the very crowded market and the industrial complexes in the

[130] Ferrous scrap is traded and priced based on its HMS (heavy melting scrap) code. HMS 1 and HMS 2 are considered premium blends and fetch higher prices at the mills and foundries compared to mixed or light scrap. The Institute of Scrap Recycling (ISRI) defines what classes of scrap meet the HMS 1 and HMS 2 specifications. For example, wrought iron is rated as HMS 1 (Allied Scrap Metal, 2018).

area. Young men use long poles to manoeuvre the ignited bundle of cables and wires, adding accelerant or water as may be needed to manage the flame. (Refer to Photo 5 & 6). Burning can take anywhere from 10 minutes to an hour depending on the size of the bundle and the thickness of the plastic or vinyl coating. Copper is not commercially smelted in Ghana. As indicated in Chapter Four, interview data reveals that Nigerians are important purchasers of scrap copper which is then exported to foreign destinations for processing (Refer to Figure 6). Anecdotal information indicates that some of the scrap copper is used by local artisans to make cheap costume jewelry, which is often sold at the local markets, e.g., Agbogbloshie, Madina, and Makola. (See Photo 13).

Photo 13. Earring with coating peeling off
Source: Author

In Ghana and elsewhere, the high price for copper scrap has led to the theft of large transmission cables from local utility and telecommunication companies. Major headlines, e.g., "Copper cables belonging to NEDCO stolen" (April 2019); "Electric cable thief dies stealing" (January 2016); "Vodafone, Huawei engineers arrested for stealing cables" (July 2015) and

"Vodafone hit by the largest cable theft at Madina - 450 customers affected" (January 2013) [131] alludes to the prevalence of copper theft driven by the high prices offered by foreign brokers or dealers and the general price differential between scrap copper and other scrap metals. In response to these widely publicized thefts, the Government of Ghana proposed the drafting of legislation that would ban all exports of copper (Jamasine, 2013). In the summer of 2018, one kilogram of copper would fetch about 22 Ghana cedis or 10 Ghana cedis per pound.

Aluminium

Aluminum is a shiny, silver-grey relatively lightweight metal with a variety of industrial uses, e.g. automobile and appliance manufacturing, and aviation and transportation. Its widespread applicability is because of its thermal conductivity, rust resistance, malleability, and re-use value (ISRI, 2018; Royal Society of Chemistry, 2019). Local artisans in Ghana, Burkina Faso, Nigeria, Senegal, and even in Jamaica mould aluminum scrap into a variety of cooking and kitchen utensils. These are on display at local markets with some avenues for regional export. In these places, the local craft and cottage industries rely solely on recovered aluminum scrap or from waste from the local smelters. This includes, for example, aluminum scrap from beverage cans, vehicles, airplanes, shipping vessels, vehicular parts and new production off-cuts and drosses generated during the smelting process (R. N. Lumley, 2011) at the Volta Aluminium Company Limited (VALCO), the first industrial smelter in Ghana. Except for VALCO, which is involved in primary aluminum smelting, secondary aluminum production in Ghana is predominantly informal sector driven. The sector comprises small-scale entrepreneurs whose petty and informal production is more artisanal than

[131] In 2012, Vodafone announced that it had spent 5 million Ghana Cedis to replace stolen cables. In August of the same year, the company recorded 186 incidences where its cables were stolen (Ghana News Agency, 2013).

it is industrial (Osborn, 2016, p. 429). The items produced are ideally suited to the country's socio-cultural and economic circumstances.

Aluminum scrap is cheaper than copper scrap, averaging about 4.5 Ghana cedis per kilogram. It is nevertheless more expensive than iron and steel scrap and is the second most collected scrap metal in Agbogbloshie. Aluminum scrap collected in Ghana enters three streams. In the first instance, a sizeable quantity of good quality aluminum scrap is exported, e.g., to the Mercedes Benz factory in Germany (personal communication, staff from Ghana EPA, August 2018). Aluminum scrap also supports local small-scale foundries. The maximum daily capacity of these foundries is about 4 to 8 tonnes (personal communication, staff from Ghana Ministry of Trade, September 2018). These businesses produce an array of aluminum-based products, e.g., household cooking utensils, and corrugated roofing sheets for sale locally and regionally (Aluworks Ltd., 2019). Lighter, low density aluminum scrap, e.g., beverage cans, and roofing sheets, feeds local informal sector demand. These are smelted in crude foundries to produce items such as cookware (pots and pans locally referred to as daades&n); utensils; coal pots or cooking stoves (locally called gyapa); and construction related supplies, e.g., window frames and railings. In Agbogbloshie, I visited two informal aluminum smelting areas, one which produced 'gyapas'[132] and another which produced aluminum pots and pans. (See Photo 14).

Within the poorly ventilated sheds, a large crucible filled with aluminum scrap is heated over a makeshift furnace where wood and other flammable materials keep the fire ablaze. Unlike steel which requires temperatures ranging from about 1200^0C to 1370°C to reach its molten state, aluminum only requires a temperature of about 660°C (Osborn, 2016). The exact temperature at

[132] Traditional cooking stoves in Ghana.

which scrap aluminum begins to melt is neither known nor measured by the workers. Through trial and error (one can assume), the workers know when to add the scrap aluminum into the heated crucible, at what point to add fuel to the fire, and when the melted aluminum is ready for casting into moulds. Because aluminum melts at lower temperatures than other metals, it requires and consumes less energy in the production process (ISRI, 2018). In a region plagued by energy insecurity and even higher electricity costs, the lower energy requirements needed for informal aluminum scrap processing explains the commonplaceness of craft and cottage industries in Ghana and other West African countries.[133]

Photo 14. Crude aluminum smelting in Agbogbloshie
Source: Author

The longevity of artisanal aluminium smelting in Ghana and probably in West Africa is likely connected to the longstanding market for locally produced aluminum products that meets the

[133] For the artisans, independence from the national grid for their energy needs is what sustains their business

needs of a niche market within the domestic economy. Despite imports of cookware, for instance, from the UK and cheaper alternatives from China, these locally produced household pots and other implements are created and designed for specific local uses. (See Photo 15). The large (potbellied) aluminum pots, locally called daadesƐn, are used for making soup and other local dishes sold at roadside restaurants and 'bush canteens.' The design of the pots does not allow for use on conventional gas cookers or electric stoves. They are suited to and designed for use on local gyapas, outdoor cook stoves. The price of these recycled aluminum household cooking products is reflective of the relatively low purchasing power of the general population, which adds to their success even in the face of European brands like Binatone that grace the shelves of big box stores like Melcom, and the Game in Accra.

Photo 15. Locally produced aluminium pots (daadesƐn) and cooking stoves/ gyapa
Source: Osborn, 2016

The following section provides the context of recycling and recovery of the three base metals and traces their flow into and beyond the Agbogbloshie scrapyard. While no one in the

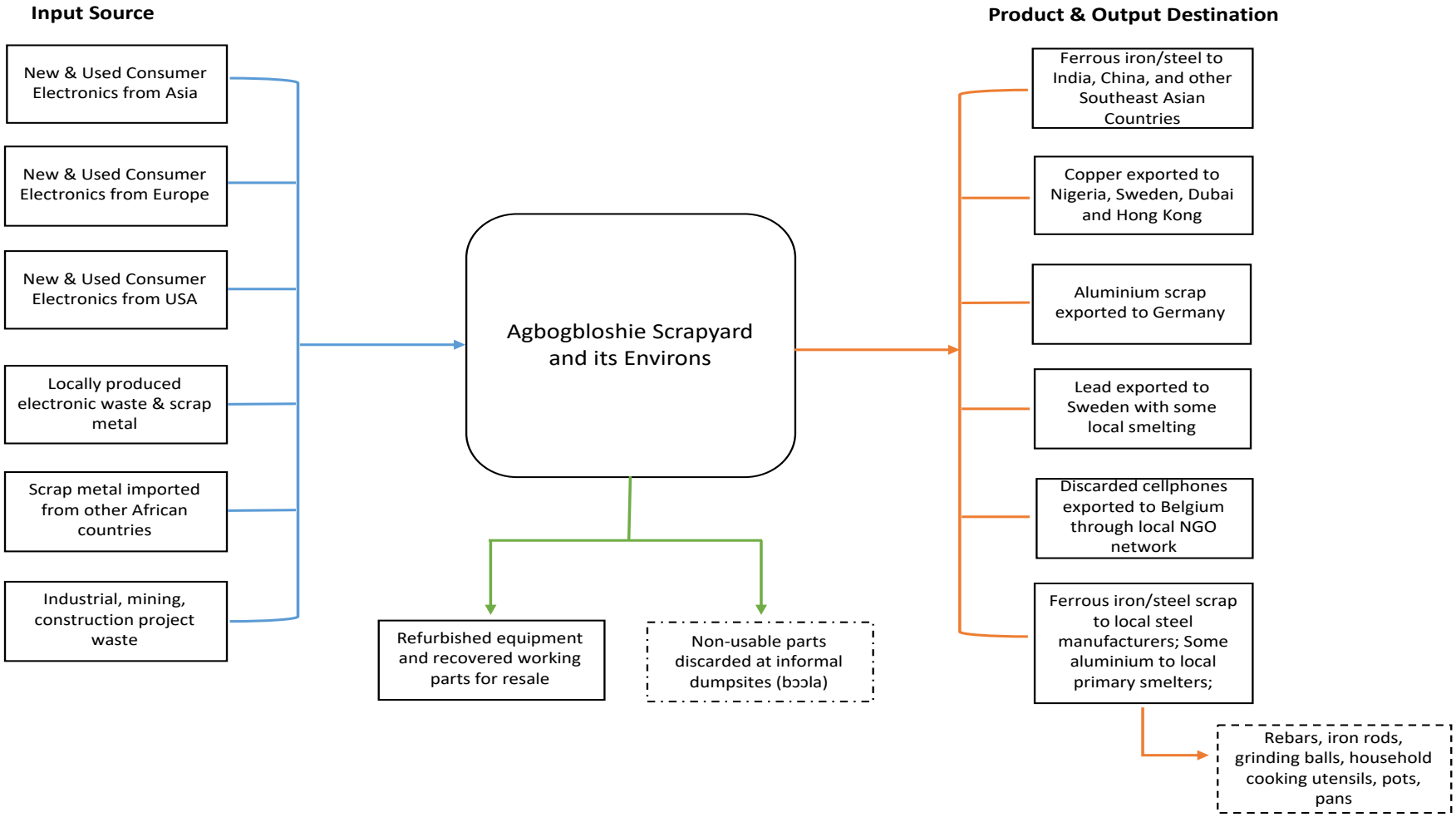
scrapyard refers to their activities as part of a circular economy, their activities facilitate the recirculation of metals into the supply chain.

Inflows of E-waste – Outflows of E-scrap

In developing countries, scrap metal recycling and recovery is generally an informal sector operation compared to the formal nature of the enterprise in developed economies such as Germany, the USA, and Japan. In Agbogbloshie, the former is especially true. Figure 7 maps the inflows of e-waste and other metal scraps and the corresponding outflows of scrap metal. It shows that new, used and end-of-life EEE in Ghana originates primarily in the USA, Europe, Continental Asia and some African countries.[134] E-waste moves into the informal economy in Accra and arrives in Agbogbloshie's scrapyard via four conduits; (1) unsuccessful repair of electrical and electronic devices; (2) non-usable parts discarded after repair and refurbishment; (3) through municipal solid waste which ends up in landfills where scavengers collect these devices for dismantling; (4) and door-to-door collection by collectors (truck-pushers) (Amoyaw-Osei et al., 2011). The corresponding outflow of scrap metals supplies domestic, regional and international markets. Grant and Oteng-Ababio (2016) list India, Japan, and Australia as the main destinations of Ghana's ferrous and non-ferrous scrap metal. China, Germany, Sweden, and Nigeria are also significant importers of scrap metal, e.g., lead and copper. These sites were confirmed during my interviews with scrap dealers, researchers at Legon and various ministry officials.

[134] The information for this diagram was culled from my interviews with scrap dealers, government officials from the Ministry of Trade, Customs and the Ghana EPA, representatives of the Steel Manufacturers Association and local NGOs.

Figure 7. Mapping the Inflows and outflows of e-waste and scrap metal through Agbogbloshie



Source: Author's own construction based on interviews with scrap dealers, government officials, steel manufacturers and local NGOs

Iron and steel, as well as some copper and aluminum scrap, support the local manufacturing and construction sectors and some cottage industries, e.g., craft and metalworks. Neighbouring countries, e.g., Burkina Faso, Côte d'Ivoire, Mali, and Togo, purchase locally manufactured iron and steel products for their construction sector (personal communication, representative of the Steel Manufacturers Association, September 2018). Iron and steel scrap is processed commercially by a number of local, foreign and public-private partnerships located within the Tema Heavy Industrial Area e.g., Tema Steel Company, West Africa Forging Ltd, Fabrimetal Ghana Ltd., Ferro Fabrik Ltd., and Sentuo Steel. With the exception of a few local (in)formal enterprises engaged in smelting iron and steel and aluminium scrap (e.g., N. N. Est Metals Co. Ltd.) as well as lead from used lead-acid batteries (ULABs) (e.g., Gravita secondary lead smelter and Goldline (FZE) Ghana Ltd), most of the valuable metals which fetch higher prices on the global market, e.g., copper and aluminium, are exported to the Middle East, Asia and Europe and other destinations for further processing – where greater value is captured at the downstream end of the value chain.[135]

The footprint or afterlife of those metals recovered from e-waste and other sources of metal scrap is expansive. As the scrap trade becomes increasingly global in nature, Agbogbloshie has emerged as a site that is simultaneously local and global; with locally generated scrap metal feeding into secondary metals production globally. Since Ghana's ban on the export of ferrous scrap -- the Ferrous Scrap Metals (Prohibition of Export) Regulations (L.I. 2201) of 2013 -- copper

[135] In general, the downstream end of the value chain is associated with value addition. Adding value requires the transformation of a product from its original state, i.e., raw material or unfinished product to a more valuable and usable commodity. The value of a changed product is added value. In the context of Ghana, there is little to no value added when scrap iron and steel, copper and aluminum are exported without processing. In that regard, the scrap sector is an upstream commodity exporter and captures less value compared to downstream industries involved in further processing.

and aluminium (non-ferrous metals) are the largest categories of scrap metal exported legally.[136] (See Appendix B for a summary of the Ferrous Scrap Prohibition Regulations).

Scrap Metal as Money in Transition

Thus far, this chapter has covered the status of e-waste and scrap metal recovery activities in Agbogbloshie. The first part of the chapter looked closely at the material properties of the three base metals and how this influences how scrap metal is collected, recovered and re-processed

[136] Between 2004 and 2010, the Government of Ghana allowed certain firms within the free zone area in Tema to export ferrous and non-ferrous scrap. The firms required a licence that allowed exportation on a consignment basis. Consignments were usually for six months (personal communication, staff of the Ministry of Trade, September 2018). These predominantly foreign firms, with vast international networks, exported domestically produced scrap to India, Southeast Asia and the Middle East. These firms operated as a local monopoly having exclusive export rights. Local scrap dealers desirous of participating in the legal export trade relied on the goodwill of free zone companies or middlemen/brokers. Grant (2016) points to the punitive monopoly power of free zone companies and the frustration on the part of local scrap dealers as the catalyst which started the illegal export of ferrous scrap. In Grant's (2016) telling, local firms sought to bypass and circumvent trade policies that had previously hindered their equal participation in scrap metal export. In 2010, under new political leadership, the exclusive export rights accorded to free zone companies ended with the passing of the L.I. 1969, the Exportation of Non-ferrous Scrap Metal Regulations. This allowed local firms the right to export scrap metal without having to engage with free zone companies or their agents. By 2013, another regulation, L.I. 2201 of 2013, the Ferrous Scrap Metals (Prohibition of Export) Regulations was introduced to deal with complaints levied by steel manufacturers who successfully lobbied the government to curtail exports of ferrous scrap all together (Grant, 2016). The success of their lobby hinged on their argument that domestic scrap exports were undermining their manufacturing capacity and their ability to supply iron and steel products to the construction and mining sectors. Since the institution of the ban, local scrap dealers in Agbogbloshie have repeatedly called for its removal and the return to those days when they could export scrap metal, especially iron and steel, independently. They allege exploitative practices, e.g., price-fixing on the part of large steel manufacturers which undermines their (i.e., the scrap dealers) ability to secure a reasonable profit from their activities. Though the export prohibition remains active, proper enforcement is lacking, according to members of the Steel Manufacturers Association of Ghana. Anecdotal information alleges that ferrous scrap metal is still illegally exported. Since the coming into force of the 2013 ban, the government, through the Ministry of Trade and Industry, allows some export of ferrous scrap, however, an application for a special dispensation or export license is necessary. Special dispensations are export licenses given to mining companies and the oil and gas sector. This license allows these firms to sell, for example, decommissioned mining and excavation equipment. The rationale is quite simple. The ministry argues that firms in the mining and oil and gas sector make large investments to secure the equipment and machinery to facilitate their work. These firms are allowed to recoup the costs of their investment by selling decommissioned equipment to the highest bidders, sometimes outside of Ghana. The Ministry attaches one caveat to this, however, that is, 30 percent of the scrap remains for the local market (personal communication, staff of the Ministry of Trade, September 2018). From the above, we see that the regulations governing the movement of scrap metals within and outside of Ghana are highly flexible and at times very murky. Depending on the source, scrap dealers, steel manufacturers and other foreign brokers and intermediaries are all implicated in the illegal export. For more on the evolution of Ghana's trade policy on scrap, metal exports see Richard J. Grant and Martin Oteng-Ababio (2016). The Global Transformation of Materials and the Emergence of Informal Urban Mining in Accra, Ghana and Grant, R. (2016). The "Urban Mine" in Accra, Ghana.

within both the formal and informal sectors, and where the final products (processed or unprocessed) finally end up. Also addressed is material flows, i.e., the inflow of electronic and other metal bearing waste and the corresponding outflow of scrap metal and also metal products to local, regional and international markets. The second part of the chapter looks at how these three scrap metals, in their new commodity form, trade on international platforms, e.g., the London Metals Exchange (LME),[137] and New York Mercantile Commodity Exchange (COMEX). The ability to trade scrap metal on these international platforms challenges normative notions of waste and the socio-cultural conventions that associate waste with filth and negated value (Morrison, 2015). E-waste and scrap metals, therefore, fall into the category of waste that Thompson (1979) defines has having transient value which can be regained over time. Scrap workers and dealers in Agbogbloshie attend to this transformation (from waste to value) in their daily activities in the scrapyard. Through a series of activities, e.g., scavenging, collecting, sorting, dismantling and stockpiling for final sale, scrap workers and dealers restore or capture hidden value – both material and non-material - from scrap. Within these local settings, e-waste workers contest the alienating effects of capitalist production and consumption cycles and in so doing, allow for the re-entry of 'e-waste' into productive systems (Saleh, 2016). Their ability to extract value from waste also speaks to their social reproductive resilience in the face of strategies of disposability that seek to criminalize, victimize, exclude and make invisible these social groups.

[137] Prices set by the London Market Exchange (LME) have traditionally served as the basis for the determination of metal and also scrap metal prices transacted on different markets and also in the informal sector. Though dated, Labys, Rees and Elliott (1971) note that LME prices are considered a most useful guide since they are highly responsive to world demand and supply, reflecting prices at which bargains are struck throughout the world rather than fixed or administered prices (p. 100).

(E)Waste/Value Dualism

Many disciplines spanning the humanities and the social sciences have gone down the proverbial rabbit hole to understand society's relationship with waste, how we create it, understand it, live with it, and dispose of it. However, a set of more poignant questions which are relevant to the 21st century and beyond are, how we recover, revalue and thus redefine waste. Research on waste and value, social categories previously thought to be diametrical, dates back to the work of Thompson (1979) in his seminal book, 'Rubbish Theory.' Thompson declared that rubbish and waste are socially defined, such that the boundary between rubbish and non-rubbish is determined by prevailing social pressures and changing norms (1979, p. 8). In other words, there are social and cultural forces at play that allow a previously abandoned, discarded or castoff object to transition from uselessness into usefulness as a newly defined and valuable commodity (Bloch, 2013). This configuration of the category of waste is entirely set apart from the Marxist political economy school of thought that understands waste as the antithesis of value, the harmful by-product or externality of global capitalism, synonymous with the devalued and that which is of no value or diminishing value. Reno (2009) does not agree with the narrow Marxist approach that views waste as a static, permanent and a terminal material condition. Instead, he states that waste circulates between different regimes of value, declining and increasing in value as if along a spectrum and as a result of ongoing social processes.

While Thompson (1979), Reno (2009) and Bloch (2013) each address the social processes or pressures that determine what is and is not waste, environmental, economic and political factors are also exerting much influence on waste classifications. For example, policies and practices that push for a higher rate of recovery of re-usable materials from various waste streams through repurposing, reprocessing, reuse and recycling are also propelled as much by

environmental concerns as by economic and political considerations. As long as the collection and reprocessing costs are lower than the value of recycled commodities, recycling and reuse make good economic sense.

In the same way that social and cultural forces and economic and political considerations shape the making and unmaking of waste (see Salehabadi,2014), these factors also exert influence on the conditions under which value is assigned and unassigned. Wright (2004), writes that,

"value under capitalism does not stalk about with a label on its forehead. Instead, the identity of value, and, by association, its antithetical form, 'waste', (emphasis added) is always socially constructed. In other words, value does not represent itself; rather, other things, such as money, or brand names, or even social identities, dictate the presence (or absence) of value within them. That which represents value's presence must continuously contribute to the further production and accumulation of capital. Otherwise, something that at one point represented the presence of value will come to indicate its absence if that representation does not further the production and consumption of capitalist value" (p. 370/1).

If we accept the insights of these authors, the preeminence afforded to strategies that promote e-waste recycling at the close of the 20th century and the beginning of the 21st should come as no surprise. Waste is more than the end product or negative externality of capitalist production and consumption. As capital includes the previously excluded, waste increasingly comes to represent money or value in transition.

Waste (Re)Valorization or (Re)Materialization

In economics, (re)valorization is defined as "an action or process that establishes a new or higher price or value for a commodity or asset" (Oxford Dictionaries, 2019). To this definition, I would add, '*that has been discarded, relegated to the trash heap, or to spaces outside of conventional zones of consumption*.' Waste (re)valorization is a business opportunity that capitalizes on the abundance of waste generated at the various stages of production and consumption (Kabongo,

2013). As an untapped, for-profit alternative to landfilling, and other traditional forms of waste management, waste (re)valorization extracts value from those waste streams for which there is sufficient demand. Within the field of industrial ecology,[138] waste valorization refers to a range of industrial processing activities aimed at reusing, recycling, or composting wastes into useful products, or sources of energy (Arancon et al., 2013; Kabongo, 2013). Scheinberg (2011) defines waste valorization as the "redirection of waste away from terminal points such as landfills and incinerators and into the industrial and other value chains for reuse and recycling (p.54). In this perspective, diversion and recovery are conceived of as sorting, arranging or categorizing wastes in order to valorize them (Kabongo, 2013). Similar definitions abound in the associated fields of engineering, science and technology, environmental science/studies and management and, more recently, food studies.

There are many benefits to re-valuing waste from an environmental and economic perspective. Such processes, like what occurs in Agbogbloshie and elsewhere, are therefore illustrative of how waste can take on new material forms as it traverses the boundaries and circuits of the capitalist market economy (Bloch, 2013) through inflows and outflows at the various stages of production, consumption, and disposal. See, for example, the 2017 Global E-waste Monitor, a publication sponsored by the United Nations University (UNU), International

[138] Waste valorization, as defined within the field of industrial ecology, is slightly different from other forms of waste processing, such as reuse and recycling. Reuse means the second utilization of the wasted product, in line with its first use or purpose – no chemical or mechanical processing is necessary. On the other hand, recycling considers the treatment or physical modification of the original object. Recycling is the recovery and re-introduction into the production cycle of recovered materials in partial or total replacement of raw materials. This treatment does not, however, imply the transformation of this material into a different product/commodity. The chemical treatment or processing of wastes constitutes a pivotal dimension of waste valorization, which is not the case for simple reuse of discarded products or abandoned objects. Waste valorization adds value to a residual using other means than reuse and recycling. Along the waste disposal hierarchy (e.g., reduce, reuse, recycle, valorize, and eliminate), waste valorization is the penultimate step before the object or material is discarded and sent to a landfill or eliminated. This perspective reinforces the idea that waste valorization is an elegant way of optimizing the use of resources (Kabongo, 2013, p. 2704).

Telecommunication Union (ITU) and International Solid Waste Association (ISWA). The publication cited the total value of all scrap metals and other materials present in electrical and electronic waste in 2016 to be approximately 55 Billion Euros globally (US$ 61.6 billion) (Baldé et al., 2017). The three base metals, iron and steel, copper and aluminum, accounted for 63 percent of the total by weight and 30 percent of the total by value (See Table 1).

Table 1: Potential Value of Recovered Materials from WEEE

Metals	Weight in Kilotons (kt)	Percent of total weight	Value in Euros (€)	Percent of Total value
Iron (Fe)	**$16,283.00**	**49%**	**$3,582.00**	**7%**
Copper (Cu)	**$2,164.00**	**7%**	**$9,524.00**	**17%**
Aluminium (Al)	**$2,472.00**	**7%**	**$3,585.00**	**7%**
Sub Total	**$20,919.00**	**63%**	**$16,691.00**	**30%**
Total of Other Material	**$12,232.30**	**37%**	**$38,136.00**	**70%**
Total	$33,151.30		$54,827.00	

Source: McCarthy & Börkey (2018). Global E-waste Monitor 2017.

In line with Moore's (2012) classification, an epistemological turn is evident in the report's treatment of electrical and electronic waste as a tradable commodity, which can be reintroduced into production circuits for further capitalist accumulation. As a corollary, formal and informal sector participation in e-waste recycling and scrap metal recovery is incentivized, especially in the global South. The processes of reclamation (segregation and aggregation), and re-materialization, therefore, highlight how the category of waste is unmade, a departure from traditional waste management solutions that sought to contain, treat and dispose.[139] The unmaking of waste,

[139] Within traditional waste management disciplines, waste is synonymous with filth, dirt, and hazards; materials that are out of place (see Douglas, 1966) because they have reached the end of their usefulness. This viewpoint implies that waste is detrimental to human health, the environment and the economy. Waste, its nature, quantity and material complexity is, therefore, a problem to be solved through policies that promote the 3-Rs of sustainability

therefore, extends its afterlife and revalorizes the very material properties or thingness of the discarded object -- one more stage in the ongoing process of circulation and accumulation of surplus value (Bloch, 2013; Moore, 2012; Nagle, 2011).

Valuing Scrap Metal on the International Market

As alluded to throughout the chapter, some of the most vital economic activities are reliant on commodities made from ferrous and nonferrous metals. The indispensability of these metals is the principal reason why metals, whether derived from virgin ores or scrap, are widely consumed and desired commodities - experiencing variations in worth and demand, in direct relation to global economic growth and periods of recession. Because discarded or used metals retain certain qualities, they can be recycled and reused over and over again. In Ghana, locally reclaimed scrap traverses geopolitical boundaries to meet the manufacturing needs of commercial consumers – steel manufacturing plants and smelters.

What makes scrap metal such a 'hot' commodity? Principally, its relatively lower price point compared to in-ground stock deposits. Typically, the price of virgin metal ores is the upper limit, beyond which scrap metal prices do not exceed. If the price of metal ores increases dramatically (due increased cost of extraction), there could be upward movement in the price of scrap metal, (if demand is diverted in that direction). The price of scrap metal is, therefore, directly affected by disruptions in the supply and fluctuations in the price of virgin ores (Bennett, 1964).[140]

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reduce, reuse, and recycle. These strategies amount to the application of technological solutions that safely remove and dispose of residual waste that, for reasons of chemical toxicity or prohibitive recycling costs, cannot re-enter the production process. See Scheinberg (2011).

[140] The reading referenced here dealt specifically with secondary aluminium, however the same logic applies to other scrap metal more broadly.

The international or global reference price of scrap metal is influenced very much by trading platforms like the London Metals Exchange (LME). The LME is a platform that facilitates transactions between buyers and sellers of metals. Because of the fluidity of commodity and stock markets, the prices on the LME act as a benchmark and inform to varying degrees, the prices at the regional and local levels, e.g., between scrap dealers and steel manufacturers, and scrap dealers and foreign brokers. The volatility in real-time prices, i.e., the potential for prices to fluctuate, is the result of several factors. Some of these include supply (production and inventories), demand (consumption), and the transportation cost for moving scrap between buyers and sellers. The actions of formidable trading blocs that are significant exporters and importers of scrap metal add to the volatility of commodity prices. For example, China and India may offer higher prices to secure reliable supplies of scrap metal, or they can curtail their demand or supply. Any of these actions have almost immediate consequences on metal prices.[141] Lastly, expectations of future supply and demand – futures trading – for ores and scrap have an impact on prices (Bell, 2019; Buechel, 2018; ISRI, 2018).

Table 2 shows the global export flows of ferrous and non-ferrous scrap in 2017. Here we see that the volume of iron and steel scrap traded, more than quadrupled the combined tonnage for copper and aluminum scrap. The total value of ferrous scrap was also appreciably higher than non-ferrous scrap, i.e., copper and aluminum. Despite the overall value of the ferrous scrap trade, the unit price of iron and steel (whether, tonnage or kilograms) is the lowest of the three metals.

[141] Recently BNN Bloomberg published an article on China's Zero Imports of Scrap Steel for the First Time This Century

Table 2: World Scrap Trade Export Flow (2017)

COMMODITY	VOLUME (METRIC TONNES)	VALUE ($US)
FERROUS (IRON AND STEEL)	83,257,018	$33,037,409,657
NONFERROUS		
COPPER	5,777,896	$16,558,664,254
ALUMINIUM	8,110,129	$10,989,721,106

Source: Institute of Scrap Recycling Industries (ISRI). (downloaded on March 28, 2019)[142].

Tables 3 and 4[143] provide a breakdown of these quantities to show the value per tonne and per kilogram for the three scrap base metals. These 2017 prices reflect domestic and global manufacturing demands, changes in currency markets, transportation disruptions, changing energy prices and the comparative cost and availability of virgin ore supplies (ISRI, 2018, p. 14).

Table 3: Average World Scrap Prices (per metric tonne)

COMMODITY/METALS	WEIGHT (METRIC TONNES)	VALUE ($US)
FERROUS (IRON AND STEEL)	1	$396.81
NONFERROUS		
COPPER	1	$2,865.86
ALUMINIUM	1	$1,355.06

Source: Institute of Scrap Recycling Industries (ISRI). (downloaded on March 28, 2019)[144]

Table 4: Average World Scrap Prices (per kilogram)

COMMODITY/METALS	WEIGHT (KG)	VALUE ($US)
FERROUS (IRON AND STEEL)	1	$0.40
NONFERROUS		
COPPER	1	$2.87
ALUMINIUM	1	$1.36

Source: Institute of Scrap Recycling Industries (ISRI). (downloaded on March 28, 2019).[145]

[142] Data table derived from the UN Comtrade Database (unadjusted).
[143] Data for these tables was derived from World Trade Export Flows for 2017
[144] Data table derived from the UN Comtrade Database (unadjusted).
[145] Data table derived from the UN Comtrade Database (unadjusted).

Extracting Value from E-waste in Agbogbloshie

Scrap metal, while not one of Ghana's major exports, has nevertheless attracted considerable entrepreneurial investment in places like Agbogbloshie in Accra and other sites in Kumasi, e.g., Dagomba Line and Suame Magazine. From its inception, it has been dominated by informal workers whose livelihoods are dependent on the availability of scrap metal and but also the stability of scrap metal prices – the latter, however, has proven to be illusive. As with most commodities, supply and demand (both local and international) determine the price of scrap. E-waste workers and scrap dealers coordinate the supply side while local steel manufacturing plants, foundries and other businesses are the primary consumers of scrap which is used as feedstock in their manufacturing processes. The prices quoted in Tables 1 to 3 are representative of the average prices of scrap metal on the global market and are not directly reflective of what pertains at the local level**.**

In Accra, the Steel Manufacturers Association of Ghana (SMAG) meets regularly to determine the price they will pay for iron and steel scrap over a particular period (personal communications, representative of the SMAG, September 2018). Despite attempts to keep local scrap metal prices below world market prices, local prices are susceptible to manipulation. Local players on the supply and demand side use quasi-deceptive strategies such as engineered scarcity on the part of scrap dealers and price undercutting between competing steel manufacturers. Brokers that purchase scrap metal for foreign markets exacerbate the problem by offering higher prices with payments sometimes made in US dollars. In other words, there is never a real fixed price for scrap metal at the local level. Instead, ‘prices are generally determined by negotiation, manipulation as well as speculation' (Saleh, 2016, p. 97).

At the policy level, the imposition of export restrictions in the form of a ban (L.I.2201 2013) on exports of ferrous scrap from Ghana, has had a two-fold effect on the sector. On the one hand, allegations by the SMAG that exports of ferrous scrap have and continues to have a crippling effect on the local steel manufacturing industry (which led to the ban) resulted in the ability of steel manufacturers to unilaterally lower the unit price of ferrous scrap. These prices are sometimes below world prices and at a price point, which reduces the profit margins of scrap dealers. Frustrated dealers were thus, easily targeted by brokers who offer higher per unit prices in foreign denominations (an attractive offer in light of the declining value of the Ghana cedi). Actions to curb exports and bolster the local steel industry has instead resulted in the rise of illicit exports and black-market prices for locally generated ferrous scrap. Having to compete with foreign as well as local competitors, steel manufacturers are more often than not outbidding themselves to secure their feedstock of local scrap. The situation with copper and aluminum scrap is not as contentious nor as complicated. In the absence of local capacity to re-process copper and aluminum scrap, much of it is openly exported with the requisite permit.[146]

Table 5 lists the negotiated prices of scrap within the informal sector in Ghana. The prices cited by my research participants in 2018 differ from others in the literature e.g., Prakash et al., (2010) and Grant and Oteng-Ababio (2012). Based on interview data, the prices are reflective of the situation between 2017 and 2018. Fluctuations in the price could be affected by the availability of scrap metal, local and international demand, and the overall quality of the scrap. High-value HMS 1 and 2 iron and steel scrap can fetch between 1200 to 1500 Ghana cedis per tonne (1000 kg), whereas mixed and light iron and steel scrap can fetch as low as 300 Ghana cedis

[146] The Exportation of Non-ferrous Metal Regulations, 2010 requires an export permit for non-ferrous scrap metal, i.e., copper and aluminum.

per tonne (1000 kg) (personal communications, representative from the SMAG and Ministry of Trade, September 2018). Scrap copper and aluminium prices tend to reflect less volatility. For example, enquiries into the price per unit of copper almost always returned at ten Ghana cedis per pound with aluminum averaging around two Ghana cedis per pound. One research participant did, however, lament about the declining exchange rate of the Ghana cedi vis-à-vis other foreign currencies (notably the US dollar) and its effect on copper prices (personal communication, scrap dealer, August 2018).

Table 5: Comparative Overview of Local Scrap Metal Prices

	Prakash et al., (2010)		**Grant & Oteng-Ababio (2012)**		**Field Data (2017/2018)**	
Metal	Price per kg (USD)	Price per kg (cedis)	Price per kg (USD)	Price per kg (cedis)	Price per kg (USD)	Price per kg (cedis)
Iron & Steel	0.46	2.46	0.99[147]	5.27	$0.19	$1.00
Copper	4.6	24.61	3.91	20.92	$4.15	$22.22
Aluminium	1.07	5.72	0.78	4.17	$0.83	$4.44

Source: Prakash et al., (2010); Grant & Oteng-Ababio (2012) and Field Data (2018).

In Table 6, we see the total value of scrap metal exports from Ghana in 2018. The figures provide a macroeconomic lens with which to examine the contribution of the sector. The data reflected in table 6, only covers export values compiled and reported by the responsible local institutions in Ghana. I explain the data reflected in table 6 as follows. First, the net weight and value of ferrous (iron and steel) scrap exports is lower than it might be in comparison to copper and aluminum. Some reasons for that are, the existing export ban on ferrous scrap; lack of

[147] For ease of comparison I have combined the per kilogram price of iron ($US0.21) and steel ($US0.78) which Grant and Oteng-Ababio (2012) have recorded as separate categories. In my interviews, iron and steel were used interchangeably and as such I found it more useful to combine the categories that the authors had subdivided. Interviewees did note that the price of iron and steel was dependent on quality with HMS1 having the highest value.

documentation about illegal exports of iron and steel scrap and local consumption of ferrous scrap by steel manufacturers and foundries. Second, copper waste and scrap, though it fetches a higher per unit price, its traded quantities are much lower than both iron and steel and aluminum.

Table 6: Scrap Metal Exports from Ghana – 2018.

COMMODITY CODE	**EXPORT COMMODITY**	**NET WEIGHT (KG)**	**TOTAL TRADE VALUE (US$)**
7204	*Ferrous (Iron and steel) Waste & Scrap*	1,703,272	$1,118,483
7404	*Copper Waste & Scrap*	1,610,161	$1,854,548
7602	*Aluminium Waste & Scrap*	9,605,118	$6,514,152

Source: Data extracted from UN Comtrade Database. Accessed May 25, 2019.

In Ghana, the collectors indicate the scrap copper is much harder to acquire because it does not occur in appreciable quantities vis-à-vis the other two metals. The Government of Ghana has also cracked down on the theft of copper cables, which negatively affected local telecommunication networks. Further, copper transported via road networks that connect Ghana to Nigeria and other sub-regional destinations may not have been captured and reported, and thus are not reflected in the total trade value. Third, aluminum waste and scrap account for the greatest share of the total trade value in metal scrap because there are very few hindrances to its export. Armed with letters of approval from the Ministry of Trade and Industry, companies like N.N. Est Metals Co., Potrodom International Ltd., Everest Metals Recycling Ltd., and Verve Global Ghana can export specified quantities of aluminum scrap as well as copper scrap over a previously established duration (as I indicated earlier). While there is room at the local level to negotiate and bargain in terms of the unit price for scrap, global commodity boom and bust cycles exerts a lot of pressure on local ability to fix or set the price of scrap metals. For example, China's ban on imports of ferrous scrap in 2017 resulted in a surplus of scrap metal on the world market and a reduction in the price. Social capital

and long-standing relationships between key players in the sector help to cushion the impacts of shifting global supply and demand for scrap metal. These relationships are also leveraged to secure prices, which are favourable to those involved. Still, asymmetries in power, class, and ethnicity exercise some influence on the relationship between scrap dealers and the various formal business entities with which they do business.

Conclusion

Saleh (2016) connects the absence of reliable data around the electronic and scrap metal sector, especially in the informal sector, to the fact that the source of these base metals is garbage, which presents statisticians, researchers, and policymakers with specific difficulties (p. 99). The fact that discarded products exist and circulate outside formal market networks (that codify, count and distribute) them increases the difficulties of quantification. The material transformation from valuable commodities to amorphous and disarticulated discarded entities with no, little or diminishing value creates additional complications. Added to the loss of commodity form is the fact that scrap metal recycling and recovery remains firmly wedged within the realm of illegality and illegitimacy, especially in developing countries like Ghana, which further confounds proper data collection. Despite this stumbling block, the data from the formal sector and anecdotal information from research on informal waste recovery indicate that scrap metal has a secure and growing place within the global system of commodity exchange.[148]

[148] See for example, Gidwani and Maringanti (2016). The Waste-Value Dialectic. Lumpen Urbanization in Contemporary India; Saleh (2016). The master cockroach: scrap metal and Syrian labour in Beirut's informal economy; Tong and Wang (2012). The Shadow of the global network: E-waste flows to China. In Alexander and Reno (Eds.). Economies of Recycling. The Global Transformation of Materials, Values and Social Relations

Because Accra is the epicenter of the e-waste recycling activities, the city center and its inner-city districts are emerging as zones of contention over access to the city but also to its waste - as we saw in Chapter Four. The city's alleyways, community bins, waste depots, transfer stations, business parks, residential homes and vacant lots are the new frontier of the urban mining sector. These urban spaces hold the material basis (i.e., e-waste) of the livelihoods of the urban poor, which later circulates through global commodity markets. This form of social entrepreneurship not only secures the livelihoods of the poor, but in many developing countries, it supplements, and in some cases, is the only form of municipal recycling (Scheinberg, 2011). While some in the environmental movement and green economy advocates elevate recycling to the category of an ethical or moral good, recycling and recovery of waste by informal sector workers is, first and foremost, an economic series of activities that involve commodity collection, extraction, aggregation and trading which are solely intentioned to provide some form of livelihood security (Gidwani, 2015; J. Reno, 2009; Scheinberg, 2011) for the urban poor who are fortunate enough to gain a foothold in a competitive economy. Scrap metal recovery in Agbogbloshie and other scrapyards is, therefore, a private or even individualized economic activity that leverages longstanding community networks of waste collectors, suppliers and other business partnerships, and through these networks, the global platforms that effectively price scrap metal and bring it back into production again.

In the same way that scrap metal goes through a transformative process that captures any remaining exchange and use-value, furthering the production and accumulation of capital, the surplus labour of the urban poor, under prevailing capitalist logic, are also sites that generate surplus value. Once excluded from active participation in the marketplace, their engagement in e-waste recycling and recovery results in their transformation out of uselessness from the ‘reserve

army of the unemployed'. Nonetheless, places like Agbogbloshie which were previously spaces of non-capitalist production are threatened by the predatory, encroaching and cannibalizing expansion of global capital. The result is that scrapping of electronic and other waste to secure valuable base metals could become, as Gidwani (2015) and Reddy (2015) note, a new terrain for dispossession and expropriation. Under this development, informal waste workers would continue to be assigned to labour-intensive, low value adding activities while the high-value downstream activities, e.g., metal extraction are carried out by large, 'authorized,' electronic waste recyclers. The terrain of dispossession and expropriation that Gidwani and Reddy talk about is already playing out in Agbogbloshie. Local waste management giant Zoomlion is geared up to command the lion's share of the scrap metal trade as it attempts to modernize the city's waste management regime. Scheinberg (2011) captures the changing reality of e-waste recycling and scrap metal recover in Agbogbloshie in the following quote: "the hegemony of global capitalism moves inevitably and implacably to absorb and undercut the renewing value of any social initiative that exists for too long outside its ambits" (p. 22).

6. CHAPTER SIX – Discussion: The Racialization of E-waste Recycling in Ghana

"Capital grows in one place to a huge mass in a single hand because it has in another place been lost by many," Karl Marx in The General Law of Capitalist Accumulation: Chapter XXV (1952, p. 310).

Abstract

This discussion chapter is dedicated to thinking about race and the capitalist system of growth that produces waste. The theoretical arguments discussed attempt to interrogate the many ways that capitalism and racism mediate the encounters between places and people and also things leading to their co-production as waste. I leave behind the individual and siloed accounts presented in Chapter Three, Four and Five and bring them into productive relations with the theoretical approaches discussed in Chapter Two. In what follows, I use Bair and Werner's dis/articulation perspective as my analytical lens to critically explore the phases of inclusion and exclusion of northerners into both local and global circuits of production. My analysis centres on historically rooted socio-cultural, political and economic processes that led to successive rounds of inclusion and exclusion of northerners from various production (albeit informal ones) networks. For example, in Ghana, ethno-regional tensions explain to some degree the struggles of northerners in urban spaces in Accra. On the global scale, the devaluation of historically racialized places and people maintains this group's (representative here of African/Black labour) exploitative inside/outside relations with circuits of production and accumulation. This racial and hierarchical ordering leads to the preservation of what Bair and Werner describe as uneven geographies of development which enhances the wealth of some places and people at the expense of others. Complementary to the dis/articulation perspective is my critique of green capitalism and green economy strategies (endorsed by urban mining and circular economy discourses) as perpetuating the racial logic of capitalism. In so doing, I challenge the claims by green capitalists who advance the notion that non-racial regimes of accumulation are possible at this present conjuncture. My case, example and the theoretical approaches discussed in Chapter Two point to the importance of race to the capitalist system of production and accumulation, and the colour coded international division of labour, which differentially values workers and hierarchically organizes global space. At its core, this discussion chapter shows how the interaction between devalued places, marginalized people, and discarded materials create the conditions whereby surplus value is extracted (in black and peripheral spaces) and captured (in white European and Anglo- American spaces) - racism and the racial logic of capitalism makes this possible.

Introduction

At the very beginning of this dissertation, I posed my research questions, which outlined the conceptual basis for undertaking this research exercise. I restate my research questions below.[149]

1) How have global asymmetries in power (i.e., political, economic and social) resulted in the emergence of Agbogbloshie as a place and space, which is both local and global in origin?
2) How have the material characteristics of technologies influence social processes at the margins?
3) How does the category of 'waste' inform the relationship between material objects, places and people (their bodies and labour) in the contemporary capitalist economy?
4) How does the experience of those employed at the tail end of the consumer electronics value chain assist in understanding the simultaneous (de)valuation of black spaces, and the (de)valuation for exploitation of black bodies within the global economy?

The above questions attempt to contextualize the 'symbiotic and almost always, antagonistic relationship' (borrowing from Discard Studies, 2015) between waste and the (re)materialization of value in our ever-evolving capitalist system. The questions also reveal the complexity inherent in research that departs from our traditional understanding of waste as denoting anything that has lost its usefulness and, therefore, its value. The crux of the matter is the tail end of the definition - 'loss of its usefulness' - which is highly subjective and open to much interpretation. Usefulness, whether perceived or actual, is an important determinant of whether anything becomes waste or is wasted (Hird, 2012). This is most evident in the material culture of the 21st century with its planned and perceived obsolescence, constant system upgrades, the endless cycle of urban decay

[149] These questions broadly explore the forms of life that exist at the boundary of waste and the (re)materialization of its value. 'Life' here stands in for reproductive life and, for my purposes, also the afterlife of non-human material forms of waste. Life in all the forms pertinent to this research exercise, however, depends on the materiality of the disposed waste in the same way that the relational agency of waste is dependent on the material constituents.

and renewal and its deployment of labour replacing technologies.[150] These seemingly innocuous developments lead to the greater ephemerality of things, places and people, for example, through shortened life-spans, waning significance, and renewed rounds of redundancy and superfluity.

My case study of Agbogbloshie reveals that there is no fixity to the category of waste. Allison (2019) draws similar conclusions, noting that "waste is a very fluid construct, which is inherently social, relational, and contextual and shaped by the norms of a particular time, place, and society" (p.19). The fluidity of waste, its making and unmaking, its social constructiveness, relationality and its material and immaterial dimensions also informed this chapter and dissertation. In what follows, I bring together the dis/articulation perspective, and an interrogation of the racial orientation of green capitalism and its green economy strategies to forward a race centered analysis of e-waste recycling and scrap metal recovery in Agbogbloshie. Subsumed within the theoretical frames are analyses that incorporate literature on environmental racism and injustice (dealing specifically with the racialization and unequal valuation of places and people) and racial capitalism (i.e., the process of extracting and/or exacting surplus value (gains) based on racialized forms of ordering within society and by extension the global economy.

The combined analysis of the three preceding chapters is an opportunity to understand waste as also the management of value. Here we see how material waste can move into and out of

[150] This monolithic and linear perspective on waste and its afterlife is, however, losing traction as capital finds new spaces to expand, incorporating once omitted or overlooked areas from its field of exploitation. What obtains is a cyclical system based on two intertwined processes where the process of wasting can with time and under specific conditions also lead to the (re)materialization of value. In the first instance, wasting represents "our collective ability to gather resources from around the globe and end their contact with us" (Clarke, 2015, p. 6) 'when we find them no longer useful' [author's emphasis]. And in the second, the (re)materialization of value, based on the ability of capitalists to exploit previously discarded, excluded and abandoned things, places and people through the mobility of capital and the manipulable ingenuity of labour. At the level of theory, waste is then the inverse of or a 'derivative' of the concept of value (noted by Zsuzsa, 2009) or, in this current political, economic, social and environmental space-time, value in transition (yet to be realized).

the realm of discard – from waste to commodity, valueless to valuable. Places are also susceptible to this inclusion-exclusion phenomenon through cycles of investment and disinvestment in real estate. People are included and excluded based on the boom and bust cycles that characterize capitalist production. However, some subjects are never fully incorporated into global circuits of capitalist production. By fully, I mean, their incorporation is temporal, context specific and spatially situated. The depth of their inclusion is a function of their particular historical and social construction and geopolitical position vis-à-vis the hierarchical ordering of states. This chapter, therefore, ties the becoming and unbecoming of three variants of waste (places, people, and things) in space and time to racialized forms of capitalist accumulation.

Looking Back to Look Forward

A Harsh Introduction to Big City Life

Ghana is in the throes of a rapid crisis linked to the pace of urbanization in its more populous cities. These cities are increasingly segregated as the income inequality gap widens and the size of the population of the urban poor balloons. While people emigrate to bigger cities like Accra to escape unemployment, under-employment and poverty, the cities are themselves plagued by high unemployment rates and lack of access to affordable housing and basic services such as water and sanitation, especially in informal and illegal settlements.[151] Newcomers to the city also face barriers to formal employment and typically seek out menial jobs in the informal sector as hawkers, street vendors and head porters (kayayei) and load carriers (Alston, 2018). The pernicious effects of the advance rental payment system within the private housing market are

[151]Ghana has a housing deficit of about 1.7 million units. Projections indicate that is will increase to 2.4 million in 2018, and 3.8 million by 2020 (Alston, 2018).

another impediment to their integration into the urban fabric.[152] Those new residents who cannot afford market-based rents in the city add to its homeless population who nightly transform public spaces such as bus stations and markets into informal dormitories. Others tend to flood existing informal settlements where housing charges are much lower, but where the overall quality of life is abysmal. As noted in Chapter Three, Agbogbloshie (Old Fadama) is one such informal and illegal slum/squatter settlement and is the number one destination for migrants from Ghana's three northern regions to Accra in recent years.

An unintended consequence of the steady stream of poor migrants and the expansion of informal and small-scale entrepreneurial activities, particularly those related to e-waste recycling and scrap metal recovery, is greater public visibility of the migrants (turned slum dwellers/illegal squatters), the conditions under which they live and their livelihood activities. People and activities that were once relatively hidden and ignored are today the focus of national and international scrutiny. Heightened confrontational encounters with planning and sanitation departments and a growing *Not in my City* attitude among more affluent urban dwellers are the costs of such intense visibility. This visibility is intimately bound up with the creation of new spaces of capitalist production where the previously invisible becomes visible and objectified. The result is a new set of embodied resources – object and subject - brought into the realm of capitalist exploitation (Thrift, 2005, p. 151). Thrift describes that these resources are the means for creating new kinds of previously unavailable products – as evidenced in the informal and artisanal activities that occur in Agbogbloshie and the forward linkages with downstream businesses, e.g., steel manufacturers. These new residents to the city should not, however, be written off as powerless

[152]Private housing providers in Ghana typically require renters to pay an upfront lump-sum payment of not less than one and sometimes up to five year's rent to secure accommodations.

victims. Their economic survival is secured because of their ability to capture and exchange the previously untapped value in discarded EEE locally and internationally. Also, their rights to the urban space are, in some ways, protected by their (un)conscious ability through perceived 'contamination' to alter the urban cityscape to meet their own needs. Their ability to organize politically is another means by which they cement their place within the urban fabric of Accra.

Is It a Media Smear Campaign?

Local media houses, politicians and bureaucrats, and many ordinary residents of Accra, see the Agbogbloshie scrapyard and the Old Fadama community as crime-ridden, filthy and illegal migrant settlements filled with northerners (mainly Muslim migrants from Ghana's three northern regions) and others of ill repute -- hence the apocalyptic name, Sodom and Gomorrah. International media refers to the area as the 'place where electronics go to die,' or the "graveyard for Europe's e-waste" (Brouck & Galindo, 2019).[153] Within the NGO community, environmental justice activists mostly treat waste as a negative externality of the neoliberal capitalist's production system. From that standpoint, their desire to bring attention to the toxic contamination wrought by hazardous chemicals (from consumer brands like Apple, Toshiba, Binatone and Samsung that are released during informal electronic waste recycling activities) continues to use age-old tropes that equate Africa and its people to corruption, poverty, death and decay. Their intent aside, much of their writings and documentaries perpetuate historically rooted racial stereotypes of Africa and its people.

[153] A review of the international coverage of e-waste recycling in Agbogbloshie reveals that the media did not always differentiate between the Agbogbloshie scrapyard and the Old Fadama/Sodom and Gomorrah slum settlement.

Pieter Hugo's photographic exhibit on Agbogbloshie entitled *'Permanent Error'* is a good example.[154] The title speaks simultaneously to the obsoleteness of discarded electronics, where permanent error indicates its inability to function or be upgraded to a new operating system. However, and this is not farfetched, 'permanent error' can describe the general perception by the world of Africa and its people. 'Permanent error' could represent a number of perceived failings of the continent, e.g., enduring poverty, food insecurity, the slow pace of economic development, endemic corruption, and decades-long civil conflicts and authoritarian regimes that threaten democracy. Samir Amin, in an interview, spoke to this idea. When asked …… "Does Africa have a place in globalization," he responded by stating that "international capital is purely concerned with Africa which remains for the whole world (especially the developed capitalist powers) a source of primary materials and even cheaper labour. However, for international capital (i.e., developed capitalist powers), Africa, and Africans, don't exist" (Amin, 2010). His answer shows how the chemical and material bedrock of Africa is valuable, but the place and its people remain disposable.

Getting to the truth about Agbogbloshie?

While some segments of Accra's urban populace (and maybe some segments of the international community) harbour feelings that range from pity and indifference to disdain and overt contempt for Agbogbloshie, they cannot escape the fact that Agbogbloshie is a site where the prepackaged lifestyles (reflected in the brands mentioned above) of the global consumer society splinter into its "common and [most times, toxic] material constituents" (J. W. Clarke, 2015, p. 10). Agbogbloshie

[154] For more on the work of Pieter Hugo, see Angelucci, Puckett, and Pieter (2011). Permanent Error. Prestel. Munich, New York, New York.

has become the proverbial 'away place' that scholars of waste studies point to in many of their analyses of waste distancing practices. It is the away place for the techno-trash of our consumer society.

More importantly, (at least as it pertains to this research) is the fact that Agbogbloshie is not solely the result of nefarious imports (as the Basel Action Network and other interest groups would have us believe). It is also a reflection of local consumer choice in Ghana and other destinations where the world's e-waste tends to accumulate. By local consumer choice, I mean the growing demand and consumption of electronic gadgets, which are themselves symbols of one's socioeconomic status, and the ability to engage in consumption habits previously reserved for the elite or political ruling class.[155] Also, access to these technologies ensures inclusion and participation in an increasingly digital world. It also bridges the digital divide that previously excluded some groups, e.g., low-income households and minorities, and specifically, developing countries, from its benefits.

From Plumwood's (2008, p. 141) critique of contemporary place discourse, Agbogbloshie fits into what she refers to as a "sacrificial, shadow or denied place"- wasted places.[156] It is the place where the full consequences of societies' conspicuous consumption habits and the true afterlife of its consumer gadgets become visible. The dark coloured and dioxin-laced smoke that blankets the community from copper extraction and the images of a dystopian '31.3 hectares'

[155] A 2011 UNEP reports estimated that in 2010, 50 – 85 percent of e-waste [purportedly] 'dumped' in five West African countries was domestically generated from the consumption of new or used EEE of good quality with a reasonable life-span. For the five selected West African countries (Benin, Côte d'Ivoire, Ghana, Liberia, and Nigeria) this is between 650,000 and 1,000,000 tonnes of domestic e-waste generated per annum (Schluep et al., 2011, p. 10).
[156] Plumwood (2008) contests the uncritical and oversimplified usage of terms such as the homeplace and one's place within contemporary place discourse. Plumwood's contestation is rooted in his belief that the concept of a singular homeplace or 'our place' is problematized by the dissociation and dematerialization that permeate the global economy and commodity culture (p. 139).

(Oteng-Ababio, 2012) LEGOLAND of discarded electronics interspersed with other waste are examples of this visibility. The most salient aspect from Plumwood's (2008) critique is, however, the recognition that spaces like Agbogbloshie make possible the existence of other ordered places in Accra. Nice places (e.g., Airport Residential area in Accra) and shadow places (e.g., Agbogbloshie scrapyard and Old Fadama slum settlement) are therefore inextricably connected – such that the former is nice because the latter is not so nice (Plumwood, 2008, p. 140). Internationally, the analogy would go something like this: nice places, e.g., Silicon Valley (in the San Jose Metropolitan Area), exist and are 'nice' because shadow and not so nice places, e.g., Agbogbloshie scrapyard (in Accra, Ghana) "disappear" the trappings of Silicon Valley's wealth. Though Plumwood (2008) suggests that sacrificial, shadow or denied places (wasted places) are disregarded, the fact that they are integral nodes in the circulation of commodities challenges this assumption and if not, suggest that their disregard is temporary, the result of moments of dis/articulation. These places are severed from conventional uses only to be articulated at other times and to other commodities.

Another dimension to the tale of Agbogbloshie is its commonplaceness - if we exclude its historicity and cultural specificities. By commonplaceness, I refer to the fact that Agbogbloshie is one of many similar places that have since the dawn of modern civilization painstakingly dealt with the detritus of human existence. There is nevertheless an ordering in effect here and alluded to by Plumwood that differentiates some places from other places - where some places exist as a privilege of others. This privilege rest on the historical, political and economic power relations that determine, which and whose places are made better and which and whose places are made worse (Plumwood, 2008). The relationship between Accra and Agbogbloshie can best be described then

as a microcosm of the broader hierarchical and bifurcated relationship between rural and urban, northern and southern Ghana and between the global north and the global south.

In the same way that the above example of geospatial and political ordering determines, which spaces are nice, and which are not, it also has implications for the organization of labour. The hierarchical ordering of places creates a division of labour defined by what Plumwood (2008, p. 142) refers to as "mind people and body people." Plumwood employs the phrase to describe one aspect of the disassociation or disconnect between society, and the material conditions that support its existence. She uses the relationship between the master of the house who seems oblivious to the work or existence of those who serve him to illustrate this point. I extend her analysis, however, as the idea of 'mind people and body people' resonates more fully with trends within the global or international division of labour, which differentiates between labour that requires advanced skills and intelligence and manual labour - the purview of unskilled or semiskilled workers. Within the global neoliberal economy, 'mind people' rule spaces of innovation like the Silicon Valleys of the world and tech-driven smart communities firmly implanted within the urban sphere. Body people, or those who labour with their bodies (i.e., engaged in manual labour and menial work), are relegated to rural communities, and the leftover interstices of the city, places like Agbogbloshie that siphon off and make invisible the excesses disproportionately produced by mind people.

In what follows, I present an extended discussion (which commenced in Chapter Two) of the two theoretical approaches I use to critically examine e-waste recycling and scrap metal recovery in Agbogbloshie. I use Bair and Werner's dis/articulation perspective as my analytical lens to critically explore the phases of inclusion and exclusion of northerners into both local and global circuits of production. My analysis centres on historically rooted socio-cultural, political and

economic processes that led to successive rounds of inclusion and exclusion of northerners from various production (albeit informal ones) networks. For example, in Ghana, ethno-regional tensions explain to some degree the struggles of northerners in urban spaces in Accra. On the global scale, the devaluation of historically racialized places and people maintains this group's (representative here of African/Black labour) exploitative inside/outside relations with circuits of production and accumulation. This leads to the preservation of what Bair and Werner describe as uneven geographies of development which enhances the wealth of some places and people at the expense of others. Complementary to the dis/articulation perspective is my critique of green capitalism and green economy strategies (endorsed by urban mining and circular economy discourses) as perpetuating the racial logic of capitalism. In so doing, I challenge the claims by green capitalists who, by advancing the notion that non-racial regimes of accumulation are possible at this present conjuncture, elevate the environmental cause at the expense of racial justice within regimes of accumulation. My case example and the theoretical approaches discussed in Chapter Two, points to the importance of race to the capitalist system of production and accumulation, and the colour coded international division of labour which differentially values workers and hierarchically organizes global space.

Histories of Northern Dis/articulation

Ghana's three northern regions have historically been (un)consciously excluded or have had a peripheral engagement with various circuits of capital accumulation. The result is a pattern of regional inequalities in economic development that has benefitted some regions at the expense of others. (See Plumwood, 2008 for an exploration of the politics of dwelling). Explanations for the entrenched disparities between northern and southern Ghana typically proceed along two paths.

Plange (1979b, pp. 4–5, 11) refers to these explanatory arguments as 'naturalistic fallacies' and the 'geography of activity.' The naturalistic fallacies' argument suggests that the harsh natural environment and adverse climatic conditions, as well as the general characteristics of the population (i.e., as primitive and backward) in northern Ghana, is to blame for its subpar performance economically and socially and thus, its relative underdevelopment vis-à-vis other regions in Ghana (Plange, 1979a, 1979b, 1984). The relatively dry and hot savannah zones of the northern region (refer to Map 7), its variable rainfall that averages about 800 to 1000mm annually, and poor soil quality which is susceptible to erosion (as a result of population pressures and poor soil management practices) are some of the naturalistic fallacies used to explain the underdevelopment of the region. Together, these have a direct impact on productivity and the types of crops that can be grown in the region (Plange, 1979b; Wood, 2013). Episodic periods of drought also exacerbate food insecurity in the region. These difficulties caused by the natural environment hinder growth and investment in export crops and natural resources, e.g., cocoa, coffee, as occurred in the south. The region, known for its production of shea butter and groundnuts has not expanded their production beyond the subsistence level and is thus geared mainly towards local and domestic markets (Plange, 1979b). The two explanations detailed above address the natural and geographic limitations of the region. Beyond these, as Plange notes, the character of the resident population is also proffered as an explanation for the region's continued underdevelopment. Based on colonial racial biases and their deliberate incitement of ethnic conflict, the 'intellectual incapacity' of northerners (broadly conceived) (Plange, 1979, p. 5) was blamed for their backwardness and inability to use the resources at their disposal to advance their societies.

The 'geography of activity argument' refers to the idea that differences in regional climatic conditions [as well as the (un)suitability of the natural environment] are the main determinants and/or push factors that encourage out-migration (whether seasonal or semi-permanent) from the North to the South of Ghana (Plange, 1979a, 1979b). Statements like the following, 'communities in the northern regions struggle with depopulation because of long histories of urban migration due primarily to shortages of meaningful employment' are fairly commonplace explanations bandied about in various bureaucratic circles to explain the problem of northern underdevelopment. These are based on early observations, first, by colonial administrators and later by researchers. They observed that during the long dry season those engaged in crop cultivation are generally underemployed compared to their counterparts in the forest and coastal zones where climatic conditions favour two growing seasons, and the cultivation of export crops and mining of natural resources such as gold and bauxite. These climatic variations and the diversity of employment opportunities condition the south as a more attractive destination for migration (Plange, 1979b).

These insights imply that the favourable environmental conditions in southern Ghana give it a comparative advantage over the north. While Plange concedes that seasonal migration between the two regions in Ghana was a common occurrence, he departs from pronouncements that suggest that migration was a form of natural adaptation to the hostile conditions in northern Ghana. The explanations described above, abound in academic and policy papers, and UN, World Bank and IMF project reports, where they continue to distort the long history of northern dis/articulation. These reports and policy documents promote an ahistorical account of northern underdevelopment vis-à-vis southern economic progress and lead to ineffective policy based solutions and iterative processes of dis/articulation into the current period. The end result is the

reproduction of Ghana's uneven geographies – a microcosm of global uneven geographies in which Ghana/Africa is intimately connected.

Going off Nii-K Plange's historical account of northern underdevelopment in Ghana, I make the case that the involvement of northern labour in e-waste recycling and scrap metal recovery in Accra is a continuation of a deliberate series of dis/articulations carried out by colonial administrators, the colonial state pre and post-independence, urban elites and the reigning political class. The first phase required their dis/articulation from their pre-capitalist modes of production and social relations and subsequent incorporation [articulation] first into the colonial, and later, capitalist system of production. In this present conjuncture, where e-waste management regulations abound, northern migrant labourers in Accra are facing yet another round of dis/articulation from their precarious livelihood activities, e.g., the construction of the waste recovery facility by Zoomlion (refer to Chapter Three) and the recent announcement of the recycling facility to be built in Agbogbloshie with funding from the German Development Agency. These developments will have an immediate effect on the informal sector and challenge their ability to maintain their foothold in the e-waste recycling and scrap metal business.

Under pressure to formalize informal e-waste management in Ghana, policymakers and the government are supporting private investors whilst simultaneously classifying as illegal the work of informal e-waste workers, e.g., Ghana's EPA threats to prosecute e-waste workers caught burning cables. Using the rhetoric of urban sanitation, environmental protection and remediation, integrated waste management, and public safety (i.e., vis-à-vis threats from illegal slum dwellers) they exclude northern labour from potentially lucrative production networks. These successive rounds of dis/articulation show that the reproductive capabilities of northerners continue to be determined by forces originating from outside the cultural and ideological confines of their

communities. Together, these strategies reaffirm the subordinated position of northerners, and their involuntary incorporation into Ghana's reserve army of labour - available for exploitation as and when needed by capital. Their dis/articulation from their traditional social relations and ancestral lands and their conceptualization as surplus, excess, and disposable in many ways marks the beginning of their wasted status, and their ability to make and/or to lay waste the places where they eventually inhabit. Dis/articulation and wasting become relationally significant such that the former leads to the latter and the latter is an indication of the completion of the former.

Phase I –Dis/articulation from Agrarian Social Relations

One of the greatest challenges to the early colonial state was how to recruit and retain native labour for the mines, agricultural plantations and public works in the southern region of Ghana (Akurang-Parry, 2000; Berman, 1984; Plange, 1979a, 1979b). To achieve this constant and cheap supply of labour, the British colonial authority embarked on one of its most destabilizing legacies of occupation of the then Gold Coast (present day Ghana). Their strategy for recruiting required the ruination of pre-existing cultural traditions and group relations in northern Ghana to meet these ends. In northern Ghana, and amongst the heterogeneous northern ethnic groups, the British Colonial Office embarked on a well-crafted campaign to (de)construct northern identity and reconstruct it within negative and callous imperialist notions of human worth. The aim of the colonial state was to structure local political institutions and pre-capitalist relations of production to its own advantage, i.e., exploitative subsidization and integration within the colonial capitalist system (Akurang-Parry, 2000; Berman, 1984; Bond, 2007; Konadu-Agyemang & Shabaya, 2005; Plange, 1984). To achieve these ends, northern communities endured periods of violent rupture, resulting in the social restructuring of their communities away from subsistence towards forced

low wage labour (Plange, 1984). Unmoored from their socio-material, cultural and spatial attachments, northern articulation into the colonial capitalist system was achieved through coerced conscription of previously self-sufficient peasants and traders into wage labour for plantation agriculture, gold mining in southern Ghana and public works, e.g., road and rail construction (Berman, 1984; Plange, 1979a, 1984) to link key centres of trade and commerce.

The making of the northern regions as a source of labour, first required the displacement of subsistence farmers and the reworking of agrarian relations (Nyantakyi-Frimpong & Bezner Kerr, 2017). Secondly, the pacification and/or defeat of the Ashanti people who controlled the northern trade route further pushed many northerners towards waged labour.[157] On the heels of the British victory over the Ashanti in 1897, British administrators destroyed competing commercial trading routes and centres such as in the town of Salaga and instead instituted trading relations that followed southwards (Plange, 1984). The colonial strategies of domination and subjugation included the dissolution of the power of the traditional chiefs and indigenous leaders, leading to the loss of their legitimacy amongst their people. For example, within the colonial bureaucratic structure in the northern regions, chiefly duties were limited to priestly duties and civil functions. The chiefs were not necessarily the Native Authority recognized by the colonial administrator (Plange, 1984, p. 39). In the end, all of this was done to secure a reliable supply of cheap labour (Plange, 1979a, 1984; Wood, 2013). The northern region was thus integrated into the emerging new colonial and capitalist economy primarily as a recruiting ground for labour for the capitalist enclaves in the south (Plange, 1984, p. 36). The use of force was commonplace in the

[157] Kumasi, the seat of the Ashanti Kingdom and doorway to the northern interior was occupied in 1897 with the exile of the Ashanti King (Plange, 1984). Later subjugation of the northern region entailed squashing any attempt at rebellion similar to what obtained with the Ashanti people in Kumasi.

administration of northern regions as their abled-bodied men resisted coercive conscription, and their redefinition as unskilled wage labourers.

Having conscripted able-bodied men into wage labour (by forceful dispossession through land grabs which were then vested in the Crown), colonial authorities introduced European household products into the local economy, making wage labourers of the last holdouts, local craftsmen and artisans (Plange, 1979a, 1984). The creation of new centres of European commerce, for example, Tamale, the destruction of traditional markets at Salaga and Yendi and the devaluation of traditional forms of exchange using cowrie were necessary for the successful dis/articulation of the northern people from their traditional ways of being and knowing, and their subsequent articulation into the colonial capitalist economy (Plange, 1979a, 1984). Northern articulation into the colonial capitalist economy was, nevertheless, limited to their designation as a labour reserve for other more lucrative regions in Ghana. Forms of capital investment that proliferated in other regions were thus systematically prevented in the north. Disparities in education, access to healthcare, employment and other social services were vigilantly maintained. Even today, northern identity is based on this legacy, and the normalization of British colonial constructions, which serve to reproduce northerners as disposal labour.

Phase II – Dis/articulation through Political & Macroeconomic Reforms

Boafo-Arthur (1999, p. 49) quoting Leftwich (1994) states that "significant change does not occur in any society without destabilizing the status quo, decoupling existing coalitions and building others and challenging some *political and economic* interest whilst promoting others" (author's emphasis). Ghana's experience with British colonial rule exemplifies this. So too does the country's experience with externally driven macroeconomic policies, e.g., the World Bank and IMF

Structural Adjustment Programmes (SAPs). The period of adjustment entrenched even further the dis/articulation of northern communities already marginalized by the urban bias of colonial and post-independence policies, and the use of its cheapened labour force to develop the industrial economy of southern and western Ghana at the expense of its own northern development.

The mandate of the World Bank/IMF sponsored SAPs instituted between the early 1980s and 1990s was to promote economic growth in Ghana, which had been crippled by international debt servicing (Boafo-Arthur, 1999). Nevertheless, in asking the following critical spatial related questions, i.e., "Who Gets What, Where, and How" under SAPs, Anyinam (1994, p. 447) inadvertently makes the case that the SAP period was indeed a form of entrenched dis/articulation especially in the northern region. Anyinam achieves this by using the "Who Gets What, Where and How" questions as an analytical framework to examine the spatial implications of SAPs in Ghana. For example, the 'who' part of the question tackles the regional (e.g., urban-rural), ethnic and class differences in the distribution of costs and benefits of the SAPs. The 'what' part of the question is a microlevel analysis of government programmes, or interventions in the various regions, their benefits, and the beneficiaries. Correspondingly, the 'where' and 'how' components of the question focus on the spatio-economic, social and cultural divisions in Ghana and how these affect the underlying pattern of resource distribution (1994, pp. 447–448).

So "who gets what, where, and how" of the limited gains resulting from the implementation of SAPs? Despite being lauded as an example of the successful implementation of SAPs in Africa (as noted in Chapter Four), the spatial implications of SAPs in Ghana are tainted by their reproduction and maintenance of uneven regional (under) development (Anyinam, 1994) and the dis/articulation of the northern region and its people from the benefits of economic development. The effects on the northern regions and its people included cuts in expenditure for

the already limited provision of basic social services (e.g., healthcare, water and electricity), gutting the remaining state-funded agricultural subsidies, and rising food prices as the country invested heavily in the production of cash crops for export markets while becoming more reliant on imported food to feed its population (A.-G. Abdulai et al., 2018; Anyinam, 1994; Wood, 2013).

The history of SAPs in Ghana is not solely an example of dis/articulation. It also involved the attempted (re)articulation of northern populations into the government's rural development schemes based on improved agricultural production. Anyinam (1994) and Wood (2013) make reference to the government's 'Operation Feed Yourself' programme and others like it. On the surface the programmes were designed to improve food security but in reality, they were the government's poorly conceived effort to improve socio-economic conditions in northern communities and correct the glaring disparities between regions. However, clearly absent from the various rural initiatives during and after the period of SAP are projects that increase the industrial and service oriented (e.g., banking and finance) capacity of the northern region. Again, we see how inherited ideologies of the northern region as a labour reserve and its people as unskilled continued to shape their incorporation into the development plans of the country. Unchallenged is the idea that the northern regions hold no productive potential in terms of export crop development and industrial capacity (other than agriculture). In its totality, the implementation of SAPs in Ghana extended the process of northern dis/articulation started under British imperial rule such that the economic policies of that period failed to alter the colonial legacy of lopsided regional development.

Phase III – Articulation into Informal Waste Economies

Two to three decades later, generations of young men and women in Ghana's northern regions have come to accept the ideology of migration to large urban centres as the only route to success, i.e., to improve their material conditions. During my fieldwork, some of my research participants expressed that the initial reason for their migrating to Agbogbloshie was to earn enough money to pay for their further education in the north. This shows that even the attainment of educational qualifications beyond junior high school required that these young men and women emigrate, as opportunities to earn their 'school fees' in the northern regions were few and far in between.[158] With only basic level education (if any), most were relegated to the margins of the urban economy and excluded from formal circuits of capital accumulation. Some found work in private households as cooks and cleaners (house boys/girls), and security guards; however, ill-treatment at the hands of their employers, meagre wages and poor working conditions pushed many into precarious livelihood activities in the informal sector as waste scavengers, load carriers, and food vendors, for example.

Prior to the domination of e-waste recycling and scrap metal recovery activities in Agbogbloshie, waste-scavenging and other informal livelihood activities had already come to define a large portion of economic activities there. Also, visitors to Accra could not but notice the city's struggle with, and over, garbage - an indictment of the effectiveness of solid waste management (SWM) in the city. Plagued by poor service delivery, especially waste collection, treatment and disposal, the authorities' failed attempts at keeping pace with the volume of waste generated by urban dwellers was quickly blamed on rapid urbanization and urban population

[158] None of those young men and women I interviewed returned to their hometowns to pursue their education.

growth. It is within this space (i.e., gaps in service delivery) that northern migrants first became (informally) articulated into the city's waste management landscape, collecting, refurbishing and disposing of household and commercial waste for a small fee. For example, at the time of my fieldwork, some persons in the community were engaged in collecting discarded (pure) water sachets for resale to plastic recycling plants. In the absence of their involvement in this waste diversion scheme, plastic waste ends up in the country's landfills or clogs up its drainage system.

Over time, discarded electronics accounted for a larger share and more valuable segment of the city's waste stream, leading to Agbogbloshie's emergence as an informal hub for the recycling and reprocessing of externally sourced and internally generated e-waste.[159] Again, northern migrants played a central role in its management as local authorities did not have the capacity to collect and recycle e-waste. Leveraging their strong sense of self-sufficiency, community networks and cultural values, these migrants sought to service underdeveloped markets in the urban centres where they settled by satisfying local demand for scrap metal by the steel plants in Tema, and the demand for secondhand motor vehicle parts.

As a result of their involvement in waste management, Northern migrants also found themselves (temporarily) articulated into the international secondary metals markets for iron and steel, aluminum, copper scrap and used lead batteries. Their articulation was the result of global demand for scrap metals by China and other emerging economies, which increased average

[159] The increasing consumption of electronic products, especially cellphones, computers and computer accessories in Ghana, coincided with the government's push for greater "e-literacy" among its citizens and also to bridge the digital divide between countries in the global south and the more advanced societies in the west. To achieve this goal, the government eliminated import duties on computers and computer accessories in 2004. Though widely popular, the government's policy around the importation of computers and computer accessories was somewhat impulsive as it did not take into account the management of the waste stream when both new and secondhand devices reached their end-of-life. Without the proper checks and balances, the policies opened the door for potential dumping of electronic devices that were either at or near their end-of-life by Ghanaians in the diaspora and recycling companies looking to strategically unload their supply of taken back devices.

metals prices between 2000 and 2008 (J. Davis & Garb, 2019). To the dismay of scrap dealers in Agbogbloshie, the passing of the Hazardous and Electronic Waste Control and Management Act, 917 and Legal Instrument (LI) 2250 in July 2016, which banned ferrous scrap exports, made it increasingly impossible for informal dealers to sell their scrap to exporters. More recently, the construction of a large waste recycling and compost facility in the vicinity of the scrapyard as well as the impending construction of another e-waste recycling facility, speaks of their dis/articulation within their broader articulation into the waste economy.

The lucrative nature of this informal economy, whether based on export or internal markets, as well as its problematic environmental health impacts, have not gone unnoticed by policymakers and others in the private sector. Given the international protocols that demand a cessation of all transboundary trade in hazardous (e)waste, and local regulations to curb illegal imports and effectively manage this growing waste stream, northern migrants are once again under threat of another round of dis/articulation. Their dis/articulation from the e-waste recycling and scrap metal recovery can also be understood within broader efforts at greening capitalism. Within this frame, high-tech and safe recycling is increasingly and symbolically disassociated with dirty, unsafe and degrading waste work – the purview of ethnic and racial minorities – and aligned with green economic initiatives such circular economy, and resource recovery. The disassociation of recycling from 'dirty' waste work opens up a space where formal actors can and do replace informal workers - with the help of the state, which works in the service of powerful capitalist interests.

Phase IV – Dis/articulation from the E-waste Commodity Chain

Gidwani and Maringanti's (2016) research on waste economies in Bholakpur, India and Davis and Garb's (2019) on Israel's Extended Producer Responsibility (EPR) legislation and its immediate effects on informal e-waste recycling in the West Bank, show that capital continues to aggressively appropriate and annex the wealth from lucrative informal economic enterprises. In Ghana, for example, for-profit professional and high-tech waste management and recycling firms are courted by the relevant authorities to expand their business processes to include waste streams that they previously could not manage. These entail government support for private sector investment in waste management more broadly and externally funded training and capacity building workshops targeted at small and medium-size enterprises (SMEs). These efforts do not typically attract those directly involved in waste processing in Agbogbloshie because of socio-cultural as well as what some of my participants see as ethnic biases. In addition to the competition posed by the formal waste management sector, the changing international and national regulatory environment has in many ways criminalized the activities of e-waste workers. For example, Ghana's regulatory frameworks (i.e., the Hazardous and Electronic Waste Control and Management Act (Act 917 of 2016) and associated regulations (LI 2250 of 2016) allow for the penalization of open burning of electrical cables – an activity widespread among the burners in Agbogbloshie.

Heightened demolition exercises carried out in the residential community abutting the Agbogbloshie scrapyard, attest to the criminalization of waste workers' presence in the city. After years of gradually appropriating and laying informal claims to this urban space (which seemed to have no immediate value in the city 'back then'), their claim is today being actively opposed by city officials and other residents of the urban core. Evictions and demolitions are often explained as mitigative measures necessary to dredge the sections of the Odaw River and Korle Lagoon and

hence reduce the potential for flooding during the rainy season. The June 3 disaster (of 2015), where several lives were lost as a result of flooding and then a massive fire, was partly blamed on the inhabitants of Agbogbloshie (Smith, 2015). The ecological restoration of the Korle Lagoon (described in Chapter Three) is another trope used to legitimize the city's efforts to forcefully evict residents in the expanding slum settlement. The city has for years literally and figuratively equated the deteriorating conditions of these two waterways with the presence of the slum settlement and the scrapyard. Hence, they posit at every turn that the success of the Korle Lagoon restoration project rests on the total removal of all illegal residents and businesses within the area.

Northerners working and living in Agbogbloshie are also criminalized in the court of public opinion. The history of ethnic conflict in the three northern regions as well as its sporadic manifestation in Agbogbloshie (between competing ethnic factions) is often used to portray them as violent and a threat to the stability of the city. Like most illegal settlements, the public tends to imagine the worst of the community and its inhabitants. Issues related to crime and violence and other social problems, e.g., congestion and the general unsightliness of the city is often associated with their presence. Given these multiple layers of criminality, it seems very likely that informal e-waste workers will face increasing challenges to their livelihood and their place within the urban fabric of Accra. Agbogbloshie's demise or re-engineering is characteristic of the ability of capital (aided by the state) to cannibalize the once denied, shadow and undervalued backsides of the city (i.e., former repositories for the city's excesses -- people and things) as a result of rising property values and property speculation, or, if the area presents opportunities, for new modes of capital accumulation.

From the standpoint of the dis/articulation perspective, northerners in Ghana have been embroiled in unrelenting circuits of involuntary articulations (inclusions) and violent

dis/articulations (exclusions) as capital finds new ways of either utilizing or expunging their labour. Their involuntary participation in the iterative process of dis/articulation is tied to their continued economic marginalization, social exclusion and stigmatization, coupled with more recent attempts to criminalize and banish them from their waste dependent livelihoods.[160] Produced as the surplus that is in excess to the immediate needs of the capitalist system, they embody the properties of waste, leading to their treatment as disposable (L. Bell, 2019). This embodiment is connected to their relations with materials expelled from the 'social body' (Gregson et al., 2016, p. 551) and also, because of historically embedded and culturally reproduced stereotypes that perpetuate their participation in particular kinds of dirty work. Using McIntyre and Nast's (2011, p. 1466) conception of racially ontologized hierarchies of space (*and people*), the uneven development of the northern regions and the hyper-exploitation of communities of northerners outside the region constitutes the deployment of what they call biopolitan ideals, i.e., the emergence of heightened possibilities of capital accumulation within necropolitan spaces like Agbogbloshie - a space of negation and the socially dead' (2011, p. 1467).[161]

Articulating Africa: Racial Subsidization & Green Capitalism/Economy

In the introductory chapter of this dissertation, I referred to Agbogbloshie as a site that is both local and global. Locally, it is embedded within a complex system of ethnic, political, economic and social relations that give rise to regional inequalities and where localized circulations of capital, exploit already marginalized and disposable labour. Globally, it is linked to the value chain for e-

[160] A recent article published online media portal in Ghana indicates that the Environmental Protection Agency will commence arresting and prosecuting scrap dealers and others who engage in open burning of electronics and other waste products (Gyesi, 2020).

[161] McIntyre and Nast's (2011) introduction of the concept necropolis is a combination of Mbembe's (2003) work on necropolitics and Foucault's (2010) work on biopolitics (p.1467).

waste and recovered scrap metals. In the former, it is at the terminal end and in the latter, at the upstream node - two of the least value-producing and accruing nodes on either chain. To place Agbogbloshie squarely within its local context, I used the dis/articulation perspective to chronicle how various circuits of capital have, since the colonial period, depended on the one hand on exacerbating existing ethnic and subcultural conflicts and on the other, the construction of the northern regions of Ghana as a cheap labour reserve where its able-bodied population is mobilized as needed, yet always kept in a permanent state of superfluity and disposability. Fundamentally, policies applied to the northern regions and northerners ensured that they stayed in a perpetual state of underdevelopment and existed to subsidize development (i.e., capital accumulation) in other parts of the country - their value or usefulness at all times intimately woven into their general expendability. To locate Agbogbloshie within the global political, economic, and environmental context, I extrapolate the subordinated, hierarchical and sometimes parasitic relationship between the northern regions and the southern region and northerners and southerners in Ghana, and Agbogbloshie vis-à-vis Accra. Northern (taken here to refer to the region and its people) articulation and dis/articulation into Ghana's fragile capitalist economy is used here as a frame or reflection of Africa's relationship with the developed world (its former colonial and current economic subjugators) and its historical insertion and contemporary locus in the global political economy.

Africa's articulation into the global political economy has always been about expropriating the richness of its resource reserves, exploiting its racialized, devalued and disposable population (for the most arduous, toxic and least financially rewarding employment opportunities), manipulating the pliability of its governing bodies, and in more recent history, sinking the excesses produced externally into its uncultivated or undeveloped *wastelands*. Together, these hint at a

prolonged period of accumulation by dispossession in Africa (see Harvey, 2003, 2004) and the legacy of racial capitalism after Robinson. Whether scrutinized from a linear mode of commodity production (e.g., extraction, consumption, disposal) or the (currently in vogue) circular economy model (e.g., use, reuse, repair, recycle), Africa continues to operate within the upstream nodes of commodity production networks as a supplier of raw and/or semi-processed materials and as a continental reserve army of differentially valued and racialized labour. Studies of waste recycling economies demonstrate a similar pattern. Despite Africa's increasing participation and contribution to global production, the continent by and large remains in the same position within successive circuits of material flows. In both instances, resource extraction and secondary material recovery, the continent captures the least value but continues to disproportionately bear some of the heaviest toxic burdens from its participation in commodity production and global capitalism.

All things considered, the value that African countries generate from their position in first and subsequent rounds of material flows (the backbone of commodity production) is negligible in comparison to the main productive industries, and the service sectors ensconced in the global North. The political and economic logic of neoliberal capitalism, therefore, configures Africa and its reserve army of racialized and disposable native people as surplused, and duly suited for work that is 'precarious, demanding, dangerous, dirty, demeaning, low paid and socially stigmatizing' (Merrill, 2011, p. 1549). Africa's insertion into the global political economy has, therefore, always been as an "integrated space of inferiority and difference" (Merrill, 2011, p.1559). In this way, racial hierarchies of places and people reflect the relational and relative divide (Werner, 2011) between geographic regions in Ghana and between Africa and its former colonial and neo-colonial subjugators, e.g., the USA and increasingly, China.

Moreover, as Africa remains a highly racialized space, the hyper-visibility of its blackness thwarts all attempts at socio-cultural assimilation into the dominant culture and society.[162] The blackness that engulfs Africa (in sharp contrast with Eurocentric whiteness), is used to legitimize and accelerate the exploitation of the continent's racialized difference especially during periods of global economic restructuring. The exploitation of Africa's racial difference by capital further validates Robinson's (2000) supposition that racism is a part of the logic of capitalism, hence capitalism is always racial.

From the above, we see that historical processes of othering and otherness are part and parcel of the racializing logic of capitalism in Africa (and other former colonies). These processes generate a surplus of wastelands and wasted lives vulnerable to the reverberations caused by the economic boom and bust cycles in the global financial capitals of the world. The fact that capitalism relies on the production of racially differentiated places and people, points to the veracity of Robinson's (2000) characterization of capitalism as 'racial capitalism' – a politico-economic and social system based on enduring racial hierarchies (of places and people) and where capital accumulation is dependent on processes of physical domination, expropriation, and violent dispossession (Kelley, 2017). It is from this realization that I elevate my analysis of e-waste recycling and scrap metal recovery in Agbogbloshie from its spatial fixity in Accra, Ghana and its theoretical moorings in disciplines concerned with its toxicity, environmental harms and residual value. I reposition it into broader analyses of how Africa (the place and its people) continues to be configured and reconfigured during periods of global economic restructuring. Here, I turn not only to a discussion of racial capitalism as necessary for neoliberal capitalist development but also its

[162] Socio-cultural assimilation into the dominant culture (i.e., whiteness) is more likely available to non-white populations that nevertheless present as white due to their lighter skin pigmentation.

relevance to green capitalism and green economy strategies into which recycling in Agbogbloshie has been recently configured.

Is Green Capitalism Racial?

A recap of some of the failures of global capitalism shows its trail of uneven development, e.g., stark global inequalities) between regions, countries and within countries, severe ecological crises that transcend geopolitical boundaries, successive market failures (leading to economic recessions) and a system of production that generates endless quantities of material waste. As previously mentioned, global capitalism also generates other forms of waste. It produces a staggering number of human rejects - wasted lives, disposable populations - in the bodies of refugees, migrants, the unemployed and other outcasts who are superfluous to the capitalist system (Bauman, 2004; L. Bell, 2019). Because capital also circulates through the built environment, its withdrawal through processes of deindustrialization, disinvestment, and austerity measures can lead to the abandonment, decay, and devaluation of these spaces (e.g., Flint, Michigan) (Nielsen, 2002; Weber, 2002). Contemporary processes of spatialized capital accumulation and dis/articulation, therefore, create the conditions whereby superfluous landscapes and populations inherit the properties of waste materials, of things deemed useless, disposable and polluting (Bauman, 2004; L. Bell, 2019; Nielsen, 2002).

Given the contested legacy of neoliberal capitalism and its racializing logic, how then does green capitalism (a derivative of the former) address the issue of race and racialization? Who are the beneficiaries of the green capitalist agenda? Who are the winners and losers? And who will be included and excluded from its circuits of accumulation and how? I ask these questions because there is a growing strand of research on e-waste recycling and secondary material recovery that

works at promoting these activities in places like Agbogbloshie as a form of green and sustainable entrepreneurship, and ecological consciousness. This narrative is premised on the idea that recycling and material recovery contribute, however slightly, to resource conservation and efficiency. More specifically, however, and in the context of developing countries burdened by high rates of poverty and unemployment, recycling and secondary material recovery are framed as a route to economic growth through ecological modernization and waste dependent development – two ways of interpreting the current attitude towards recycling and material recovery.

Ecological Modernization is a 'sociological theory of environmental reform that emerged in the 1980s' (Zimring & Rathje, 2012, p. 238). It is based on the perceived synergistic relationship between the economy and the environment (this sounds a lot like green capitalism) (Fisher & Freudenburg, 2001; Gille, 2015). The profit/growth imperative is still very much active in this discourse. This not so new argument states that economic development can be reformed such that environmental concerns are not sidelined but incorporated into economic development planning. This is believed to result in heightened care for the environment and better ecological outcomes (do you hear the chorus of green capitalists). From this perspective, the environmental problems that emanate from industrial activities are indicative of failures within the social, technical, and economic spheres. Technological innovation is essential to the saleability of this discourse because it is expected to prevent, treat and minimize industrial pollutants (Gille, 2015; Zimring & Rathje, 2012). Technology, then allows society to enjoy its high rates of consumption, and capitalists to produce and sell in excess of society's needs.

Gille (2015), building on Brownell's work on the 'new economic order of waste,' introduces the concept of waste-dependent development. Like Brownell, Gille finds that this approach addresses global relations and their social inequalities. Gille notes that strides in ecological

modernization in the global North come at the expense of the global South where the dirtiest and more polluting industries have relocated during the process of deindustrialization. An example of the spatialization of toxic burdens is the steady shifting of waste management responsibilities from the global North to South. The movement of industrial and consumer waste to the global South for recycling, material recovery and disposal occurs under conditions that could not transpire in the global North by virtue of their stricter environmental regulations. Waste-dependent development, says Giles, can, therefore, constitute a distinct mode of development. Under this model, developing countries (with high rates of unemployment and poverty and overwhelmed by external debt) rely on resource recovery, recycling, reuse, dumping, incineration and the acceptance of the dirtiest and most polluting industries as a way to join the world economy and increase economic activity, even though it remains relegated to the informal sector. This leads to a form of 'bifurcation of development' where new resources and virgin ores are central to development in Western economies (a metabolic cycle of new to old). Conversely, waste becomes the catalyst for development in the South (Gille, 2015, p. 196). To Gille's critical observations, I add that decisions about the externalization of waste, and the transfer of waste management responsibilities take advantage of already existing surplus labour - those previously expelled from circuits of accumulation.

Having explained the above race blind and/or race averse environment/ecology-meets-capitalism paradigms, I return to the discussion of green capitalism. From the available literature, the issue of race and the reproduction of racial hierarchies (that already permeate existing capitalist relations) remain insufficiently theorized within green economy discourses or under the structural changes wrought by green capitalism. The 'non-race-based' explanatory arguments espoused for the preponderance of informal and oftentimes dangerous recycling and material

recovery activities in racialized and marginal spaces like Agbogbloshie are typically couched in economic terms that draw on social indicators. The economic argument suggests that an underperforming economy, a surplus of unskilled and low-skilled workers, low job creation numbers, and state corruption in terms of resource allocation, are some of the reasons for the proliferation of these activities in particular spaces. The social argument draws on issues related to poor education and training, chronic poverty, rapid rates of urbanization and the corresponding lack of decent work opportunities, informality as a cultural norm, and the absence of social protections as explanations for participation in informal employment. Another argument that is gaining traction locally, at least in the case of Agbogbloshie, is the involvement of the diaspora community in facilitating some of these informal business activities for their immediate economic gains but also to assist family in their home country. The above explanatory arguments portray those workers who enter the informal waste economy as rational economic actors, who weigh the economic benefits of working in informal recycling vis-à-vis the alternative -- absolute destitution.

These efforts by the proponents of green capitalism to deliberately obscure a discussion of race are to my mind negligent and outright duplicitous. I make this harsh critique because there is racial historicity to their explanatory arguments (which they fail to address). A more current example of a deliberative attempt to sidestep the issue of race emerges from the UNEP's Towards a Green Economy report. In the report, the organization promotes recycling and material recovery as a generator of green jobs on the one hand, and on the other, the organization, in what can be read as an admonishment, states that to be truly green, jobs in waste management and recycling must meet the requirements of decent work, i.e., the provision of a living wage, elimination of child labour, adherence to occupational health and safety standards and regulations, social protection under the law, and freedom of association (UNEP, 2011, p. 13). The report's emphasis

on the signifiers of decent work could also be interpreted as an acknowledgement of the internalized risk and precarity of recycling and material recovery activities in the global South. In these localities with sparsely enforced environmental and labour regulations, some segments of the disenfranchised populations are engaged in rudimentary forms of recycling where the health risks are high, wages are low, and cases of child labour are not uncommon. Driven by deprivation, these workers must participate in forms of recycling that are known to have long-term health and environmental effects. To this, I would state categorically, that there is nothing green about rudimentary recycling and material recovery in Agbogbloshie.

What stands out in this report, and in the literature of green capitalism more broadly, is the noncommittal attitude and avoidance of directly engaging with issues related to race and racialization. One could surmise that this reticence is a subtle admission that green capitalism is not meant to overturn the racial foundation on which capital continues to accumulate. Rather, it is a strategy intended to secure new material stocks, places, and people for renewed circuits of surplus value accumulation. This outward attempt at restructuring the capitalist economy is necessitated by events that challenge its expansionary logic but not its inherent racism. I make this claim because the outsourcing or externalization of recycling industries to the global South relies on exploiting the racial, uneven and hierarchical differentiation of places and people. For example, Agbogbloshie, based on early research by Greenpeace and BAN, is listed in some circles as one of the ten most polluted places on earth (Walsh, 2013). This pollution is tied to informal e-waste recycling and scrap metal recovery. The pollution is not limited to the natural environment. The men, women and children who live and work in the vicinity of the scrapyard are also mired in this pollution. Yet, recycling and material recovery of low grade materials is still promoted both locally and internationally as a livelihood strategy for Accra's urban poor. The changing narrative that

elevates the material value and economic gains from recycling in the global South attempts to eclipse the environmental and health effects.

International NGOs and development agencies have also waded into the murky waters of green capitalism. These external agencies try to repackage and sanitize dirty, toxic and least-value-accruing recycling and material recovery activities in the global South as a viable economic option for its large pool of unemployed labour. With the assistance of local authorities, they work to promote the environmental and economic benefits of safe recycling. Though some may view the interest of these external agencies as benign and their efforts to restructure recycling activities that on the surface seem chaotic and dangerous, as benevolent, these agencies work to extend and give credence to the idea of green capitalism. By their advocacy, outreach and capacity building, they help to incorporate places and people previously excluded or disconnected from capitalist exploitation – opening the door for foreign capital to penetrate local economies. Using green and responsible rhetoric, these organizations connect environmental protection and sustainability and the local desire for poverty reduction to capital accumulation. They achieve this through multiple strategies that promote certain activities as sustainable and economically beneficial while masking a highly racialized agenda. Evidence from Agbogbloshie suggests that the needs of the urban poor and those involved in other precarious livelihood activities are not well served by the green economy model. Their meagre earnings cannot compensate for the short to long-term health and occupational effects of the work or even rehabilitate the contaminated environments where they live and work.

In Ghana, much of the secondary materials recovered from the scrapyard are exported (without further processing) to developed and emerging economies where they help expand their industrial capacity (but not Africa's). Africa remains more of a supplier of cheap raw materials and

low priced secondary resources but a market for more expensive finished products – the industrial output of developed and emerging economies. This points to a lack of localized industrial capacity, but more importantly, the continued extraction of surplus value from the labour of e-waste workers and the resources of the continent. Lastly, the materials that cannot be revalorized are most often indiscriminately dumped on land and in waterways, shifting the toxic burden from commodity producers and first use consumers to recyclers and their environments.

Recycling and material recovery, despite its green credentials, creates more investment opportunities for finance capital, whereas the environmental and health cost remains particularly high in the global South. Like its predecessors - sustainable development, de-growth, green growth - green capitalism is a catchy term that does not challenge the inherent inequalities and violence of neoliberal capitalist relations. Given the power and wealth held by dominant political and economic institutions, the vaulted goals of a green economy seem inconceivable without exploiting existing racial structures that continue to subsidize capital accumulation in both the global North and global South. For as long as precarious, dirty, dangerous and low value producing work continues to be disproportionately carried out by racial subjects in racialized spaces, the tech-savvy solutions-based approach of green capitalism will continue to benefit from capitalism's racializing logic. Green capitalism as it is construed today, therefore, remains an economic system that privileges profit and perpetuates the exploitation of racialized places and disposable people.

My assertion that the racializing logic of neoliberal capitalism is also shared by green capitalism is not based only on my analysis of the experiences of northern migrants in Agbogbloshie and their involvement in informal waste work, or the fact that dirty recycling is tucked away in racialized places, hidden from Western public scrutiny. It is also rooted in historically specific events, and analyses of previous struggles occurring at the nexus of race,

labour, and capital. Key among these events was chattel slavery, where racially commodified yet socially devalued black labour ushered in a more exploitative and expansionary form of early capitalism. Since then, black subjects carry four distinct burdens; they are imagined as inferior, produced as surplus (within the capitalist system), constituted as inherently violable, and treated as disposable because of their surplus status. Their fourfold fabricated condition has remained so within the long running project of modernity.[163] The social construction of the black body as different and therefore 'other' was possible through the deployment of race as a marker of difference and an indicator of the presence or absence of intrinsic value. Today race continues to be the canvas on which much geo and body politics plays out (L. Bell, 2019). It geographically marks the body, cheapens the value of labour and orders global space all in the service of capital (McIntyre & Nast, 2011, p. 1473).

The struggles of racialized people and the symbolic and actual devaluation of their bodies and spaces of being under capitalism continue in subaltern spaces in the global North and more broadly in the global South. For example, grassroots organizing challenged the siting of toxic waste facilities in mostly racialized communities across the USA led to the environmental justice movement. More recently, the subprime mortgage crisis that gripped the USA in 2008 revealed how the racial spatialization of financial risk and the 'socialization of loss' worked in the interest of investment banks. While the US government bailed out Wall Street, racialized borrowers in predominantly racialized communities loss their homes as a result of their inability to service high

[163] The relationship between surplus populations and capital is not fixed. Persons categorized as surplus within contemporary capitalism are articulated into the capitalist system to varying degrees ranging from precarious employment (e.g., e-waste workers in Agbogbloshie) to the permanently unemployed (e.g., incarcerated populations). The designation of zero value (to capital) says Pulido (2016) is held for the most peripheral surplus populations. Yates (2011, p. 1680) expresses similar sentiments on surplus populations – "once relegated as permanent surplus…these populations are little more than human waste, excreted from the capitalist system."

interest predatory debt, which led to widespread foreclosures (Chakravartty & Da Silva, 2012, p. 363). In Michigan, the prioritization of fiscal solvency vis-à-vis the health of citizens led to the water crisis in Flint in 2014. Cutbacks to spending on public services by the emergency manager showed how the 'premature deaths' of racialized people simply did not matter in the longer term, especially as they were not contributing to the economic welfare of the state (Pulido, 2016, p. 2).

In the global South, calls for accountability after incidences of illegal dumping of toxic waste in former colonies -- e.g., Haiti, Nigeria, Cote d'Ivoire, and the Philippines -- are also part of the ongoing struggle against the predatory expansion of capital and its inclination to externalize harms. The period of structural adjustment in Africa was no different. The policies of the IMF and World Bank weakened what little social protections were existent and increased poverty and inequality whilst securing foreign government and corporate interests. Countries in Africa, Latin America and the Caribbean saw their natural resources exploited, and their wealth transferred to former colonial and imperialist powers, i.e., the USA and United Kingdom. The geographical distribution of structural adjustment policies (its application to former colonies), the construction of their populations as racial subjects, and the paternalistic approach by the IMF and World Bank (read as the inability of these populations to manage their own affairs) are indicators of the racial logic that underpinned the structural adjustment policies deployed by these international financial institutions - which only furthered the global neoliberal agenda. In each of these cases, racialized subjects -- previously constructed as excess and thus disposable commodities -- were subordinated to the whims of capital at the hands of multi and transnational corporations and/or with state complicity, or both.

The examples mentioned above show that the devaluation and crafted superfluity of racialized places and people has been, and remains, a central feature of global capitalism. From

the colonial past to the neoliberal present, the lives of Africans have been wasted through forms of capitalist hyper-exploitation, and through slow and state-sanctioned violence. This was the case during British colonial occupation, subsequent American political and economic interference, and this remains the case with China's neo-colonization or contemporary imperialism. The hierarchical differentiation and devaluation of superfluous places and racialized people in the service of capital all constitutes racial capitalism, and Africa is its poster child.

As a system of accumulation predicated on exploiting group differentiated vulnerabilities (based on race), racial capitalism enables the accumulation of more power and profit (in the hands of capitalists) but at the expense of the other (Pulido, 2016, p. 1). And so, the external promotion and investment by NGOs, development agencies and the private sector in recycling facilities in Agbogbloshie, can be interpreted as an attempt to resolve particular crises of capitalism, whether social, political or economic. In this case, the crisis is focussed on managing the growing stockpiles of electronic waste and not so much about improving the conditions of racialized people or protecting their environments. The exploitation of racialized places and people seems then to be a feature present in all iterations of capitalist development, including green capitalism – transforming modes of dispossession and othering while hiding the grey residues of conventional capitalism. In many ways, green capitalism is a reinvention of older forms of accumulation — colonialism and (sustainable) development.

Conclusion

Both the dis/articulation perspective and green capitalism and its green economy strategies point to the interlocking forces of racial inequity and economic disparities at play in global capitalism. One enduring consequence is the ensuing racial hierarchies of places and people that reinforce the

relations of race and capitalism as articulated systems of subjugation and domination. The dis/articulation perspective with its focus on the reproduction of uneven geographies and the inclusion and exclusion of some places and people into circuits of production, opens up a space for a discussion of race, as the majority of those excluded from circuits of production and also accumulation are racialized. As commodity production (e.g., the electronics and e-waste value chain) is increasingly fragmented with actors geographically dispersed, the articulation and dis/articulation of places and people become more pervasive and exploitative. Their articulation and dis/articulation responds to the power ceded to transnational corporations that dominate global trade and capital flows. These global entities disconnect places and people from circuits of production as capital moves to other locales connecting other places and people or, as Prey (2012, p. 255), citing Thrift puts it, "*new forms of connection produce new forms of disconnection."* This spatialization of business processes is possible because of open markets administered through free trade policies, the increasing mobility of capital, lower manufacturing and labour cost (in emerging and developing economies) and technological innovations that connect disparate parts of the business process "with no loss in profitability or capitalist control of the overall process" (Wallace & Bradley, 2012, pp. 111–112). Together, these conditions facilitate the geographical fragmentation of production according to the competitive advantage of each location (De Backer & Miroudot, 2013, p. 5), which further reproduces global hierarchies of racialized places and people.

On the other hand, green capitalism and its green economy strategies, obscure or minimize the significance of race – giving the impression that the environmental and economic benefits that it promises are (or can be) equally distributed to all places and people despite our global orientation toward growth-led and profit-driven development (Brand, 2016) and racialized forms

of accumulation. A critical question yet to be answered by green capitalism is whether it can provide redress to structural inequities caused by racism and capitalism, where some people are displaced or left behind economically, and power relations favour the elites. Or whether any form of capitalism can be reformed sufficiently to ensure justice for racialized populations (Dawson, 2018). In both the dis/articulation perspective and green capitalism and its green economy strategies, race and capitalism are hence mutually articulated systems of domination with each having its effects in producing subordinated racialized communities independently and in articulation (Dawson, 2018).

7. CHAPTER SEVEN – Conclusion: Race, Waste and Capital Accumulation

> "Environmentalism for Blacks has to mean not merely challenging the patterns of Wiz disposal but also in effect their own status as the racialized refuse the black trash of the white body politic" (Mills, 2001, p. 89).

E-waste Recycling and Racialized Accumulation

This dissertation started out as an enquiry into how (certain) people and (certain) places and things come to inhere the characteristics of waste, defined broadly as the loss of utility or value according to societal norms and economic calculations within the global capitalist economy. Agbogbloshie scrapyard presented an ideal case study for this exploration. On the surface, the case study of e-waste recycling and scrap metal recovery in Agbogbloshie shows how economic and political forces work to transfer the responsibility for hazardous waste management and thus shift costly, low value, and more toxic recycling to emerging and developing economies. The concept of cross-national unequal ecological exchange is one way of understanding these economic relations based on unfair trading practices between unequal players (Rice, 2007).[164] Like the initial reading of the case study, this framework provides a surface level analysis and does not fully contextualize the historicity behind the kinds of economic trade relations that give rise to cross-national unequal exchange. In what follows, and through the process of elimination, I therefore retrace the steps taken to reach my conclusion, i.e., the racial, uneven and hierarchical differentiation of places and people, and their contingent disposability within various iterations of capitalism, are the conditions of possibility for the emergence of informal e-waste recycling and scrap metal recovery in Agbogbloshie. This is the result of continued regimes of racialized accumulation. My claim is also rooted in the fact that the racial structures that underpinned centuries of capitalist racial exploitation, from the colonial past to the 'green' neoliberal present, continue to live on. The analyses developed throughout the dissertation suggests the pressing

[164]Unequal ecological exchange is a framework that conceptualizes how the material throughput (e.g., energy, natural resources, and waste) of industrial and today, deindustrializing countries negatively impacts developing countries in the global economy. It amounts to an increasingly disproportionate utilization of ecological systems and the externalization of negative environmental costs by industrialized countries and, consequentially, declining utilization opportunities and the imposition of exogenous environmental burdens on developing countries (Rice, 2007, p. 43).

need for a more critical approach that stresses the relevance of work on the capitalism/racism nexus.

My journey began with the 'it makes economic sense' rationale. From a purely economic standpoint, recycling, especially of electronic devices and appliances (made increasingly more difficult because of the complexity of design) is comparatively more expensive in deindustrializing economies. This is the result of more stringent environmental and labour regulations. It therefore makes economic sense to explore less expensive avenues for recycling, i.e., in emerging and developing economies. Seen this way, the agglomeration of dirty recycling facilities in Africa and China but also in necropolitan spaces (See McIntyre and Nast, 2011) in the global North (absent other contingent and/or structural factors) follows an economic logic. Countries in the business of exporting their waste find a cost effective solution, while receiving countries (typically poorer with lax regulations) capitulate to the promise of jobs. The economics of e-waste recycling, specifically its importance as a livelihood strategy for northern migrants in Accra, its importance to the growing local steel manufacturing sector, its contribution to Ghana's economy, and its connections to global markets for secondary materials were addressed in Chapter Five. As indicated in the opening lines of the chapter, recovered iron and steel, copper and aluminum are three base metals with much currency in Agbogbloshie.

The economic argument, however, obscures other possible and compounding factors and explanations, such as the context of historical and political relations that enables the externalization of dirty, low value and hazardous recycling to emerging and developing economies. For example, the transboundary movement of e-waste took advantage of existing historical structures that organized places and people such that the needs (both economic and environmental) of the core (read as advanced and deindustrializing economies) were met at the

expense (both environmental and health) of the periphery (read as emerging and developing economies). The economic argument ignores global asymmetries in power (i.e., political, economic and social) that shape contemporary patterns of capitalist accumulation, and in so doing, it fails to account for capitalism's ongoing recourse to racially differentiated hierarchies of places and people, and the processes of exploitation and expropriation that enable accumulation in all its iterations.

Next, I applied the relational approach to understanding waste and wasting in the context of Agbogbloshie. My key assumption was that one of the object entities -- either the people, place or thing -- must have already been defined as waste in the active imagination of the public, be they local or global. Waste then becomes a constitutive element of socio-spatial and material relations. This is evident as close quartered interactions with, e.g., material waste results in other spheres taking on the character of waste, whether people (waste workers) or places (slums settlements). As indicated in Chapter Four, people working with waste share in its contaminative essence leading to their social stigmatization as, e.g., the untouchables. This points to the relational – whether material or symbolic - character of encounters with waste. In the same way, places are produced as waste through their socio-spatial interactions with discarded material objects and superfluous human populations. Places used to dump material waste and house the 'human-as-waste' (Bauman, 2004) are themselves polluted and so become inseparable with the forms of waste that they inter. Capital disinvestment also creates wasted places characterized by decay, blight and contamination, which we see in Chapter Three. Those who inhabit such zones by association also share in its wasting, degeneration, and decay, by and large, its eroding and collapsing value (Nayar, 2017). In the above observations we see how interactions between waste and non-waste can lead to the latter taking on the character of the former.

But what if all three object entities were already defined as waste prior to their extensive engagement, abrasive and sublime encounters and interconnections with each other? Is a relational argument still relevant in this case? I put forward this question because this is the reality in Agbogbloshie. The people, economic migrants from Ghana's northern regions, are construed as existing outside the boundary of the human, and since the colonial period, reside in a liminal space, shifting between periods of exploitative incorporation and dehumanizing forms of disposability. In Chapter Six, I detailed the four phases of northern dis/articulation into local and global circuits of production and accumulation. These were facilitated by colonial administrators, the colonial state pre and post-independence, urban elites and the reigning political class. The place, Agbogbloshie, was in a state of biophysical decay and social malaise associated with poverty, high unemployment, lack of social services e.g., sanitation, rising informality and ensuing political neglect. All of these pre-dated the arrival of e-waste. And lastly, e-waste, traced to North American and Western European consumers, is the discarded remnants of their insatiable appetite for modern technologies. Agbogbloshie, in some ways, is representative of a spatial and temporal fix, for superfluous people, superfluous spaces and discarded things.

The relational approach, that is, the tendency of waste to disrupt socio-spatial norms (Bemmel & Parizeau, 2020) and define new social relations, though useful, does not adequately address why certain people and certain places come to embody waste and are treated as such within contemporary capitalism. An approach that focuses solely on the ability of waste to inform new social relations ignores the history of slavery, colonialism and imperialism, important facets of racial capitalism. It is therefore only through a critical engagement with race that we can understand capitalism's propensity to create its own excess – waste -- through processes that

cheapen and exploit racialized people and places, and how their location within geographic space informs the direction of flow of material waste.

To further advance this problematique, I leave behind the previous analytical perspectives, i.e., the economic and relational, and instead take on considerations of race and racialization, and the usefulness of racial capitalism, as a critical theoretical project that grapples with the role of race in the production of capital. This theoretical turn of events, required the redefinition of my earlier research questions, as follows: What structural conditions within contemporary (late) capitalism enable the transboundary movement of hazardous e-waste (deposited at takeback centres and recycling facilities in the USA, Canada and Western European countries) to places like Agbogbloshie, Ghana? How have these structures been maintained and reproduced, and why?

By "places like Agbogbloshie," I mean places that have historically and even today remain racialized, e.g., other West African countries, China, and elsewhere in Asia. These deeply reflective questions, though by no means new, are often under-theorized in purely economic arguments as I have shown above, but also within social constructivist paradigms, conventional environmentalism and other ecological analyses. In asking why, my purpose was to leave behind scholarly preoccupations with economic logic and environmental conservatism and delve deeper into the history of capitalism's relations, actions, interactions and entanglements with racialized people and places. A racialized argument is also necessary and cannot be ignored as the people who undertake the work of recycling and the places where this work takes place have a long, exploitative and oppressive relationship with the capitalist system. Racialized hierarchies of places and people are the product of history and politics and for structural reasons, capitalist accumulation depends on its reproduction (Fraser, 2019).

Proceeding from the above, my inquiry developed along two paths. Important to both, is the idea that places, people, and things come to embody 'waste' as they enter and are later expelled from multiple circuits of capital accumulation (Gidwani, 2013; Gidwani & Maringanti, 2016). A key consideration here is the temporal dimension of waste, whether places, people or things. By temporal dimensions of waste, I allude to the fact that the category of waste is not necessarily a permanent status. The vital materialities of waste determine under what circumstances it can find a second life for surplus value accumulation, which attests to the mutability of waste (Moore, 2012) as a concept and material category.

Starting with Bair and Werner, their dis/articulation perspective proved useful in examining the twofold process of exclusion and inclusion as the structural basis for globalized commodity production and its entangled relations with the reproduction of uneven global geographies (Jennifer Bair & Werner, 2011a, 2011b; McGrath, 2018). Exclusions and inclusions are not one-time occurrences; rather, the dis/articulation perspective speaks to its enduring recursivity as constitutive of commodity production (Bair & Werner, 2011a). The process of exclusion ruptures the relations within which used-up factors of production (land and labour) and former commodities were once constituted, and so, as waste matter they are rendered inarticulate and expelled from the system.

Expulsion, like the concept of waste that I mentioned previously is, however, not necessarily a permanent condition, as places, people and things can be brought back into productive relations based on renewed circuits of capital (in previously abandoned zones). This implies that the relationship between waste and our productive system is porous and fluid. Essentially, wasted places, people, and things can come to represent future value-appropriating sites for capital through new rounds of extraction and other methods of appropriation -

transformation, reterritorialization, (re)materialization and valorization. It is nevertheless through these moments of inclusion and subsequent exclusion that uneven global geographies - spatial inequalities at multiple scales (e.g., city, region, and nation-state), uneven development and racialized, politicized, and gendered structures of domination – are maintained and reproduced.

Bair and Werner's theorizations align well with Gidwani and Maringanti's (2016) work on the waste-value dialectic. The proposition of the waste-value dialectic that resonates with the dis/articulation perspective is referenced below.

"The conditions of possibility of capitalist value lie in people, places, and things that come to be designated at the front end and back end of capitalism as waste. Waste is a vital, heterogeneous entity that must be effaced, enrolled, exported, or expunged: which of these forms of violence is unleashed depends, on large part, on waste's materiality: its potential to be of service to capital accumulation or to interrupt this circuit" and *the racial configuration of the places and people where waste is interred* (author's emphasis) (Gidwani & Maringanti, 2016, p. 125).

I take from this statement that capitalism cannot but create waste and that this waste can beget future value for capital, especially during periods of economic restructuring. Both the dis/articulation perspective and the waste-value dialectic, in particular ways, attend to the relationship between disposability, exclusion and abandonment – precursors to the category of waste. These forms of violence are often meted out against marginalized and racialized peoples and their communities. The above perspectives indicate that racialized hierarchies of places and people are the life blood of capital accumulation.[165]

The second part of my argument proceeded along the lines of an inquiry into the perpetuation of race politics in the agenda of green capitalism and by extension its renewed

[165] This assertion is similar in many ways to the gender argument, specifically the exploitation of women's labour under capitalism. See for example, Mies, M. (2014). Patriarchy and accumulation on a world scale: Women in the international division of labour.

embrace of recycling as a green economy strategy. Green capitalism's romance with recycling has much to do with the mutability and temporal character of waste. The ability of 'objects to de-materialize' and splinter into their constituent parts, what Gregson and Crang (2010, p. 9) call 'the unbecoming of waste,' provides capital with more opportunities to extract value within secondary material flows. For example, recycling makes available recovered materials for exchange on secondary material markets and commodity specific trading platforms. By embracing recycling and material recovery, green capitalism also exploits racialized populations that have a history of engagement with waste work within the capitalist system.[166] Capital, therefore, takes advantage of its own excesses, the abundance of waste and surplus populations, to create more value.

With regards to the value inhered in waste, green policy initiatives currently exist to promote the economic and social benefits of improved material recovery. The initiatives mentioned in Chapter Two included the circular economy model and urban mining based on the approach to waste as resource. These market-based solutions are at home within the green capitalist agenda where the promotion of recycling on the one hand protects the capitalist growth motive (by being least damaging to established industrial production). On the other hand, recycling artfully diverts the environmental effects of capitalism's unfettered growth by shifting dirty, low value recycling further afield, to places like Agbogbloshie. Under such a system, markets can theoretically continue expanding (Rogers, 2007) as green capitalism forges new horizons for capital accumulation.

[166] Rogers (2007) makes a convincing argument that recycling was the lesser of all other evils and for this reason it was accepted by industry. The evils included bans on certain materials and industrial processes, production controls, minimum standards for product durability, and higher prices for resource extraction (p. 235-6).

Recycling, resource recovery and waste work are conceived of as one and the same across many cultures. The work is considered hard, dirty and infused with negative connotations that dampen prospects for the social mobility of workers. Because of social stigma and the physical hardships and health risks involved in waste work, it is almost always associated with ethnic and racial minorities and typically processed in peripheral locations (Gregson et al., 2016) like Agbogbloshie. The authors note that efforts to improve the image of recycling generally fail because it 'falls within the cultural orbit of waste work' and so, continues to be undesirable to higher valued workers but a means to an end for racialized workers (Gregson et al., 2016, p. 22).

Research on waste work in Europe, specifically, that related to recycling and material recovery, shows a similar pattern. It relies on racialized migrant labour pulled from the secondary labour market. Europe's reliance on racialized minority populations to carry the weight of its lofty goal of a clean, green and sustainable regional economy is a prime example of how green capitalism depends on the uneven and hierarchical differentiation and valuation of workers (Bonatti & Gille, 2019; Gregson et al., 2016). Shifting the lens to the global South, only validates these observations that waste work, where it occurs, and who gets to do it will always be intrinsically bound up with the politics of race (Gregson et al., 2016) and place.

In this chapter and those preceding, I offered an alternative analysis of e-waste recycling and scrap metal recovery in Agbogbloshie that departs from more common narratives concerned with its environmental and health effects and somewhat diametrically, its economic potentialities. My main argument is that the activities in Agbogbloshie are part and parcel of historically instituted labour hierarchies ordered by race and the geopolitics of nation-states. I weave a story that connects Agbogbloshie, at this current conjuncture, to broader mechanisms of differentiation that extends backward to colonial occupation and linked to the neoliberal and green capitalist

present. These racially mediated hierarchies maintain and reproduce the very conditions necessary for renewed rounds of capital accumulation. In closing, I therefore reiterate my conclusion that the racial, uneven and hierarchical differentiation of places and people, and their contingent disposability within various iterations of capitalism, are the conditions of possibility for the emergence of informal e-waste recycling and scrap metal recovery in Agbogbloshie.

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Appendix A - E-waste Regulations

The Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal is an international treaty that regulates the movement of hazardous waste from developed (OECD) countries to developing (non-OECD) countries. The Convention was adopted on 22 March 1989 by a Conference of Parties in Basel, Switzerland and entered into force in 1992. There are 187 Parties to the Convention and 53 signatories (Secretariat of the Basel Convention, 2011c).[167] The Convention came about in response to public outcry following the discovery, in the 1980s, that Africa and other parts of the developing world were used as dumping grounds for toxic waste coming from outside the region. The Convention aims to protect public health and the environment against the adverse effects of hazardous wastes dumping. It achieves this by placing restrictions on the transboundary movement of hazardous wastes, e.g., e-waste, except where it is perceived to be in accordance with the principles of environmentally sound management (Secretariat of the Basel Convention, 2011b). An essential stipulation of the convention, however, is that Annex VII countries that have ratified the Convention, (e.g., the Organization for Economic Development (OECD), the European Community (EC) and Lichtenstein) cannot ship waste to non-Annex VII countries (e.g., all other signatories) (Kellenberg & Levinson, 2014; Lepawsky, 2015a; Secretariat of the Basel Convention, 2011b). The Convention requires member countries to publicly report details about their exports and imports of hazardous and other waste (Kellenberg & Levinson, 2014). Ghana acceded to the Convention on May 30, 2003. This action came into force

[167] The obligations of the treaty legally bound Parties to the Convention. Each Party to the Convention must indicate that it is willing to undertake the legal rights and obligations contained in the treaty. Though signatories to the Convention must indicate their intention to comply with the obligations of the treaty; they are, however, not legally bound to the treaty (Secretariat of the Basel Convention, 2011c).

on August 28, 2003, 90 days after the submission of its instrument of accession (Secretariat of the Basel Convention, 2011c).

Despite substantive support from countries on both sides of the geopolitical divide, the Convention continues to grapple with its attempt to develop a robust framework that will end the (illegal) trade/transboundary movements in hazardous waste. Lepawsky (2015a) levies some criticisms at the Convention. He refers to its 'problematic geographic imaginary,' i.e., it's global North vis-à-vis the global South binarism (p. 7). Lepawsky argues that the Convention erroneously assumes that the hazardous waste trade, specifically the e-waste stream, is uni-directional when, in fact, south-to-south flows of e-waste are growing in significance. The author also cites concerns levied by signatories to the Convention regarding the apparent arbitrariness of categorizing countries as belonging to Annex VII or non-Annex VII.

The 'Ban Amendment' addresses some of the loopholes and ambiguities of the Convention.[168] It constitutes an agreement among its Parties to improve the effectiveness of the Convention by prohibiting all movements of hazardous waste between Annex VII and non-Annex VII countries, regardless, of whether the waste is destined for reuse, recycling, recovery or final disposal (Lepawsky, 2015a; Secretariat of the Basel Convention, 2011a).[169] Lepawsky's earlier criticisms nevertheless remains unaddressed. Australia's concern elucidates more clearly the issue that Lepawsky raises. The essence of this grievance is that non-Annex VII countries, with the capacity to responsibly manage (i.e., reuse, recycle, recover or dispose) hazardous waste, are

[168] In its initial iteration, the Convention did not expressly prohibit exports of hazardous waste from Annex VII countries to non-Annex VII countries. The Convention stipulated that procedures for receiving informed prior consent must be adhered to by the parties involved (Lepawsky, 2015a). This clause was one of the main weaknesses of the unamended Convention.

[169] The "Ban Amendment" requires that OECD countries that are Parties to the Convention prohibit all transboundary movements of hazardous wastes (covered by the Convention) that are intended for final disposal or destined for reuse, recycling or recovery operations to non-OECD (Secretariat of the Basel Convention, 2011a).

barred from importing waste because they are not Annex VII countries (Lepawsky, 2015a). This raises questions about the requirements for entry into Annex VII grouping, which seems to be based on the developed/developing country global binarism and not on industrial or environmental competency and capacity.

The Bamako Convention

Developing countries have, for decades, had their lands and water bodies polluted as a result of toxic waste dumping – a phenomenon referred to as toxic or waste colonialism by some in the academic community (Liboiron, 2018). Toxic waste dumping has a long and checkered history in Africa. From the early 1980s, reports of hazardous waste dumping in Guinea-Bissau, Nigeria, Cameroon, Zimbabwe, Benin and Somalia, to name a few, made headlines in the global media.[170] The Basel Convention was supposed to be the first line of defence against illegal flows of hazardous waste e.g., e-waste from OECD to non-OECD countries (Lepawsky, 2015a, 2015b). Signatories to the Convention were expected to incorporate the fundamental principles of the Convention within regional and country-specific policies and legislation. The Bamako Convention is an example of such a regional initiative. The Convention was initially negotiated by the twelve member nations of the African Union (formerly the Organization of African Unity) at Bamako, Mali, in January 1991. It came into force in 1998 and currently has 29 signatories and 25 parties (Organization of African Unity, 1991; UNEP, 2018).[171] The Convention requires African states to take legal, administrative, and other punitive measures to prohibit the import of any hazardous

[170] For more on these incidences, see; Brooke (1988); Harden (1988); Helmore (1988) and Short (2016).
[171] Parties to the Convention as of March 2016 include Benin, Burkina Faso, Burundi, Cameroon, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of Congo, Egypt, Ethiopia, Gabon, Gambia, Libya, Mali, Mauritius, Mozambique, Niger, Senegal, Sudan, Tanzania, Togo, Tunisia, Uganda and Zimbabwe.

waste into their territories (Sirleaf, 2018; UNEP, 2018). For example, the convention imposes "strict, unlimited liability on hazardous waste generators as well as setting out appropriate rules and procedures for compensation for damages resulting from illicit waste imports" (Organization of African Unity, 1991).

Unlike the Basel Convention, which makes exceptions for certain hazardous wastes (e.g., radioactive materials), the Bamako Convention bans all forms of hazardous waste imports into Africa and limits transfers of hazardous waste within Africa (Organization of African Unity, 1991; Jim Puckett, 2017; Sirleaf, 2018; UNEP, 2018). Despite the strong wording and provisions of the Bamako Convention, however, the parties to Bamako lack the financial, human resource, and infrastructural capacity to effectively enforce the provisions of the Convention and stop the inflow of hazardous waste into their borders (Sirleaf, 2018). While Ghana has yet to ratify the Bamako Convention (Puckett, 2017) it passed locally specific legislation in 2016 to attend to the e-waste problem within its borders.

Hazardous and Electronic Waste Control and Management Act – Act 917 (2016)

In Ghana, regulations to control the importation of hazardous waste date back to 2008. In that year, the government passed the Energy Efficiency Regulations (L.I.1932),[172] prohibiting the manufacture, sale or import of incandescent filament lamps, used refrigerators, freezers, and air conditioners - a subset of appliances that falls within the definition of e-waste (van der Velden et al., 2019). The Energy Efficiency Regulations criminalized all activities that facilitated the importation and sale of these now-banned electrical appliances. The effectiveness of this

[172] These regulations form part of a global transition away from ozone-depleting CFCs found in refrigerators and towards more energy-efficient lighting.

regulation is, however, still questionable. At the time of my fieldwork (in 2018), used refrigerators, deep-freezers, and air conditioners were on display at many local shops. I specifically recall one roadside stall along the Agbogba-Ashongman Road, where these used items were freely available for sale. The ease with which these items can be sourced even with the existing regulations speaks to the lack of local enforcement.

More specific e-waste regulations came into force in 2016 in the form of the Hazardous and Electronic Waste Control and Management Act (917), as well as the corresponding Hazardous, Electronic and Other Wastes (Classification), Control and Management Regulations, or Legal Instrument (LI) 2250. The Act calls for environmentally sound and sustainable management practices, as it relates to locally generated and imported waste electrical and electronic equipment (WEEE) into Ghana. There are two important aspects of Act 917. The first is the establishment and collection of an Advanced Eco-levy, which applies to imported new and used (home-used) items entering Ghana. The eco-levy is based on the extended producer responsibility (EPR) framework and the "polluter pays principle" (EPA, 2018). Fundamentally, the EPR transfers the financial burden of e-waste management from local municipalities and shifts the responsibilities and costs of recycling to producers, manufacturers and importers. An outcome of the EPR model of management is the formalization and further privatization of e-waste management through regulated collection and recycling channels (J. Davis & Garb, 2019). An unintended consequence of the EPR model is that it displaces the informal sector, ignoring or rendering illegal their livelihoods based on processing e-waste (Gidwani, 2015; Gidwani & Maringanti, 2016; Gidwani & Reddy, 2011; Reddy, 2013, 2015). The EPA and other implementers of the EPR, have not indicated whether any mechanisms will be in place to protect the role of the informal sector in e-waste recycling and processing in Ghana.

The second aspect of the law provides for the establishment of 'the fund'. The eco-levy is the revenue source for the fund which is managed by an administrator appointed by the Ministry of Environment, Science, Technology and Innovation (MESTI) in consultation with the Ministry of Finance. [173] The administrator is responsible for the disbursement of funds as per the stipulations of Article 21 and Article 28 of Act 917 (Kumi et al., 2019). The government intends that the fund will support research and development to improve the handling and recycling of e-waste. At the time of my fieldwork in 2018, the exact process for receiving or drawing down on funds to support research is unknown. The EPA is also developing a take-back scheme (for discarded electronics) that allows producers and importers to reclaim in whole or in part, the levies paid if they can prove that they have satisfactorily diverted electronic and other hazardous waste from landfills through robust recycling practices. Contravention of Act 917 could result in stiff financial penalties and possible prison terms of as much as 20 years (Kumi et al., 2019).

Institutional bottlenecks, lack of capacity, market pressures (e.g., volatility in scrap metal prices), competition as well as cultural norms around garbage disposal and widespread poverty, however, cripple the current legal framework to manage the influx of hazardous waste in Ghana (van der Velden et al., 2019). The top-down approach of government initiatives to formalize and make the activities of the informal sector more sustainable and environmentally sound also constrains the effectiveness of Ghana's legal frameworks that attempt to regulate all things e-waste. The failure of Ghana's legislative instruments is displayed most agonizingly in Agbogbloshie.

[173] Importers must register with the EPA and pay the advance eco levy to Société Générale de Surveillance SA (SGS before a shipment gets to Ghana. Société Générale de Surveillance SA (SGS) is a Swiss inspection, verification, testing and certification company. The SGS is the designated external service provider that collects the advance eco-levy on behalf of the government of Ghana. The company conducts physical inspection and verification at the point of purchase of all new and used EEE and tyres awaiting export to Ghana per with Article 21 of Act 917 (EPA, 2018; Kumi et al., 2019).

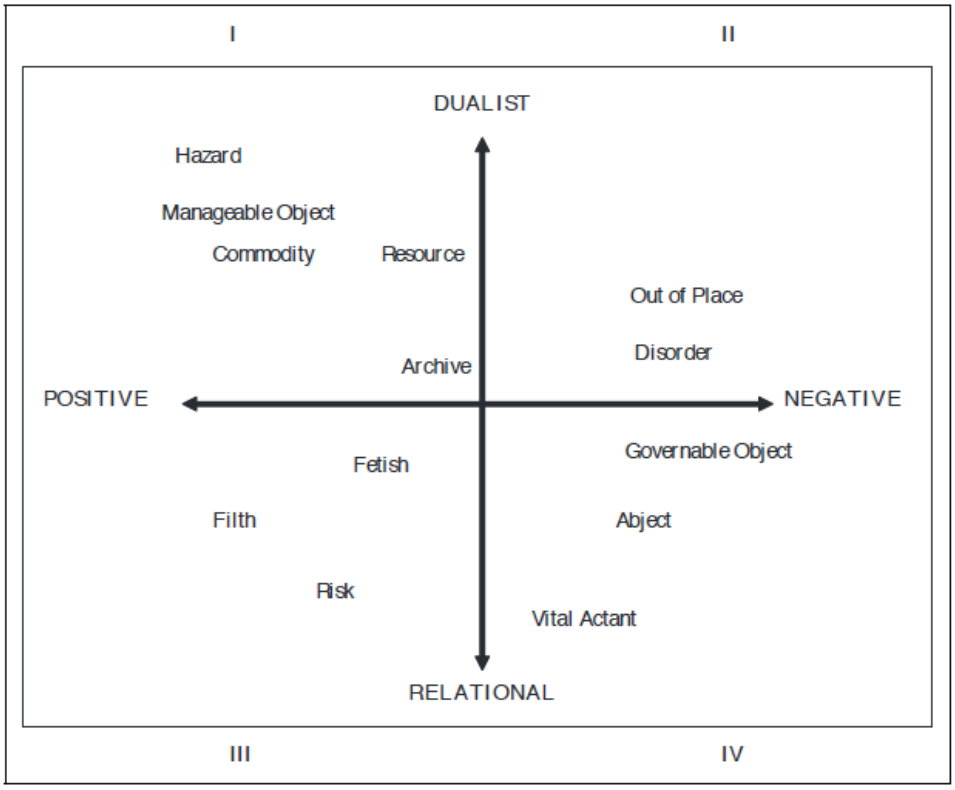
Appendix B – Moore's Waste Classifications

Moore's Classification

Moore's graphical representation of the emerging literature on waste is guided by two questions. Can objects be defined positively by the essential characteristics inherent to them or negatively, only in opposition to something else? Do certain social processes pre-exist objects and subjects or do objects and subjects, together, help to constitute society and space? (Moore, 2012, p. 783). Following from these questions Moore plots the variegated conceptualizations of waste along two axes, positive-negative and dualist-relational. (See Figure 8). Ideas of waste along the positive-negative axis concentrate on the specific character of waste that can influence how it is valued or devalued. Positive conceptualizations of waste assign to it specific meanings that are directly related to its materiality and are less likely a function of its interaction with society.

Concepts on this side of the axis, therefore, objectify and essentialize waste. To the opposite end of the axis (negative), waste is largely indeterminable and exceed easy categorization. Concepts of waste that emphasize its social, cultural, and spatial relativity are located on this side of the axis (Moore, 2012, p.782). The second axis (dualist-relational) frames the relationship between waste and society. Moore explains that she used the term dualist because it conveys ideas that define waste and society as separate spheres that nonetheless interact in countless ways. Conversely, relational concepts of waste focus on the mutually constitutive, immanent, and emergent encounters between people and things (Moore, 2012, pp. 782-3). Plotting sometimes overlapping conceptualizations of waste along these axes as Moore does, highlights the ways that different views of what waste is within distinct scholarly fields have the potential to disturb certain taken-for-granted ideas about value, politics, and socio-spatial ordering.

Figure 8. Moore's Conceptualization of Waste



Source: Moore (2012)

My research on e-waste, for example, crosses many of the boundaries that Moore sets up in her classification. In the first instance, my research operates within the *positive-dualist* quadrant. Within this quadrant, waste is objectified and essentialized. It is understood as hazard, a manageable object, a commodity, and a resource (Moore, 2012). In this quadrant the materiality of waste takes precedence. In the *positive-relational* quadrant, waste is defined as something that is largely external to society, such as a fetish, filth or a risk. Moore citing Gregson and Crang, (2010) states that as fetish waste contains, and thus has the power to reveal, the uneven political and economic relations of capitalist production. As fetish, waste embodies the social relations of its production, but obscures these as it becomes an object through which surplus value circulates

(2012). My research fits squarely into this quadrant as waste in all its forms is connected to global asymmetries in commodity production networks. My research also draws on to a lesser extent on the ideas of waste captured in quadrant IV (*negative and relational*). For my purposes, waste as abject is more about how notions of abjection are also about the processes of expelling wasted objects, places, and people. This expulsion is essential to the production of modern [urban] spaces and citizens (Moore, 2012, p. 792).