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Tshwane Remake:

An ethnographic study of outside-circularity and deconstructive creation from the waste reuse practices of the urban waste precariat

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A thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

School of Geography, Archaeology and Environmental Science

Faculty of Humanities

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Declaration

University of the Witwatersrand, Johannesburg

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SENATE PLAGIARISM POLICY

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Abstract

The study consists of an ethnographic inquiry into the waste reuse practices performed by the urban waste precariat on the landfill and streets of Pretoria East, City of Tshwane. I analyse the contribution of this social grouping to the urban circular economy and environment by conceptualising of these waste reuse practices as value-production processes not rooted in capitalism, practised outside of state and formal market recognition and support. I term these forms of existing circularity "outside-circularity" and identify an alternative value-production process termed "deconstructive creation". The deconstructive creation process produces life from capitalist ruins, an alternative form of value to capitalism. This form of value draws on new formations of kinship and exchanges in a subsidiary and care economy, and functions on principles of everyday communism. Life from the capitalist ruins finds expression in two ways. Firstly, urban life that is more than mere material sustenance is produced, and a form of social solidarity as new kinship formations develop between Zimbabwean migrants in the City of Tshwane. Secondly, urban space is produced in the form of street craft markets and garden beautification to transform the suburban aesthetic.

I problematise portrayals of waste reclaimers as an undifferentiated group exclusively performing reclaiming and recycling of paper and packaging materials. For this I develop and apply the social categorisation 'urban waste precariat', to move beyond the term 'reclaimer' with its singular focus on paper and packaging recycling. The term urban waste precariat incapsulates both recycling and reuse practitioners and hereby, I portray the complexity of the urban waste economy to include waste reuse practices, a cluster of waste work excluded from the literature in South Africa, thus far. Methodologically, I identify points of transition that are seminal to the circularity of the practices seen as meshwork. These points are discard, salvage, disassembly, transformation, exchange, and use. In addition, I trace circuits of material flow, both human and nonhuman, to portray the meshwork that entangles to form waste reuse practices. Through critical ethnography and by viewing waste reuse practices through the concept of skill, I show how space is relationally produced by tracing the socio-spatial history of traditional craft making skill development. The ethnographic data illustrate how this skill is employed in waste reuse practices, from artist hubs in Zimbabwe (Mbare and Chitungwisa) to its emergence through migration in Pretoria East's informal

street markets and suburban gardens. The study thus argues for the potential of sustainability and circularity to emerge from such skilled waste reuse practices of deconstructive creation.

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Chapter 1: Introduction

1.1 Background

Lynnwood Road is one of three main avenues cutting through the City of Tshwane's south-eastern suburban node, and for a small stretch of about a kilometre it narrows down to a single lane on either side, forming an almost permanent bottleneck to the flow of traffic. In this section, vehicles generally move at a walking pace, the only speed this bumper-to-bumper traffic allows. This offers ample time to motorists and passengers to feast their eyes on the assortment of colourful wire and wooden crafts, outdoor furniture, dog kennels, flower beds, paintings and garden partitioning displayed for their perusal and, hopefully, their purchase. The crafters, artists and sellers responsible for this miscellaneous collection of goods can also be observed eagerly awaiting the interest of their next customer, while others continue in their skilful process of carving, weaving and assembling second-hand materials into aesthetic and functional artefacts.

About ten kilometres away, north of this informal craft market, lies Hatherley Landfill, one of three remaining municipal landfills in the City of Tshwane. In the same way that industrial factories represent the birthplace of many commodities, the city's landfills represent the end point where many commodities are dumped or buried underground. However, as has now become general knowledge for researchers, scholars and waste managers, landfills have been transformed into teeming waste recovery economies, where people (whom I will later refer to as the urban waste precariat) revive discarded materials by salvaging, sorting and selling it to be recycled. These recovery actions are specifically focused on paper and packaging materials. Yet, on Hatherley Landfill, transformative actions of revivification are also performed on construction and electronic waste. Here discarded electronic devices are salvaged, disassembled and sold to be used again, while bricks retaining their structural integrity are extracted from the rubble and sold again. But what connection is there between the street craft market and the municipal landfill? The answer is waste reuse practices.

South Africa currently faces significant challenges in solid waste management. The latest national data from the State of Waste report indicate that 65.2% of the solid waste generated in 2018 was deemed non-recyclable according to current state and market capacities, and

ended up on landfills (Department of Environmental Affairs, 2018). This cluster of waste mostly consists of organic waste, construction and demolition waste, electronic waste and other negative-value materials[1] (Department of Environmental Affairs, 2018). Although the informal sector is active in this solid waste cluster, scholars have paid surprisingly scant attention to this area of waste compared to the paper and packaging cluster (Oelofse & Strydom, 2010; Von Blottnitz et al., 2022). In previous research (Reyneke, 2016), I identified several waste recovery and revaluation practices connected to this waste cluster which can be more adequately termed as waste reuse practices. State and market solutions to the problem of unmanageable waste often neglect to take into consideration the livelihoods of the poor who are dependent on waste materials, and reclaimers might therefore face the risk of being cut off from their livelihood if these waste reuse practices remain an under-studied topic.

1.1.1 The circuits we know...

In the urban South African context, as is the case in most of the developing world, formal waste management remains the responsibility of local government, with increased involvement from the private sector in the current era of neoliberalism (Department of Environmental Affairs, 2018). In many cities of the Global South, consumers insert discarded materials into formal, public and private waste management processes from residential suburbs and private industrial zones, all of which constitute a known waste stream. By "known", I refer to the fact that this waste stream has been researched extensively. In addition to these formal, known waste streams, other growing waste streams exist, which can solely be attributed to efforts of the informal sector (Godfrey et al., 2016; Godfrey & Oelofse, 2017).

In South Africa, the actors within this informal sector are largely comprised of the by now ubiquitous street waste pickers navigating their makeshift trolleys along busy urban streets, from the point of generation to the point of sale. Over the past decade, academics and advocacy groups have lobbied behind this informal sector's contributions to waste

[1] This term refers to waste materials that have a higher recycling cost than what the market is willing to pay for the recycled material.

management and pointed to the significance of their impact on diverting solid waste from municipal landfills by reclaiming and recycling solid waste materials (Fredericks, 2018; Millar, 2018; Samson, 2019; Schenck & Blaauw, 2011). In South Africa, these individuals are generally referred to as waste pickers or reclaimers, and practitioners of such waste practices operate either on urban streets or situate themselves on public and private landfills, concentrating their salvage sorting and selling activities mainly on recyclable paper and packaging materials. This by now somewhat recognised waste stream forms part of what is referred to as circularity or a circular economy through recovery, reuse and recycling (Godfrey & Oelofse, 2017). These two waste streams (formal and informal) are what I call *known circuits* of urban waste material flow, as they are known to researchers, public authorities and environmental activists.

1.1.2 The circuits we don't know: Short-circuiting

However, another form of waste-to-landfill diversion exists, which also occurs at the hand of the informal sector. This entails waste reuse practices and is different from recycling. Waste recovery practitioners in this circuit mainly base their work on the reuse of waste materials through salvage, disassembly and transformation. This cluster of waste workers consists of salvagers and crafters situated on the urban street or landfill. Their waste reuse process begins with the salvaging of waste materials which are deconstructed and at times transformed through creative skill into new commodities or crafts. Something significant occurs in the waste reuse practices of the waste reclaimers and crafters, setting them apart from waste pickers. As described above, waste materials are discarded by suburban residents and businesses and inserted into formal waste streams managed by the local municipality.

In the City of Tshwane, the public and private sector manage formal waste streams through public–private partnerships and make landfills and recycling centres their final destination. However, through the transformative actions of waste crafters, some materials flow back into the same urban spaces where they were generated. By selling their products of reuse directly from the landfill or from the street kerbside where they have established an active craft market, the urban waste precariat's products of reuse are absorbed back into the suburban residential spaces of Pretoria East. This material stream forms a "short circuit", as in the electronic sense, where a circuit follows the path of least resistance when the established

circuit is interrupted by unintended contact. This analogy aptly describes this waste reuse process, as reuse practices require minimal economic and material throughput to establish and sustain it.

This lesser-known circuit of waste material flow carries historical significance. It is common practice in developing countries to situate urban landfills on the periphery of the city (Lawhon, 2013; Moore, 2009; Reno, 2016). Landfills are also typically closely situated to low-income areas or industrial nodes (Chamane, 2009; Millar, 2018). During the apartheid era it was a typical practice to locate landfills close to demarcated black low-income urban areas (Hallowes & Munnik, 2008). In the urban South African context, with its history of apartheid, landfills thus remain situated in proximity to poor majority black residential zones of cities, although most of these landfills were established during the apartheid era. Between 1948 and 1994, South Africa's white Afrikaner nationalist government embarked on a systemic process of racial segregation which forcibly removed and re-located the black majority of its population, thereby disenfranchising them (Lemon, 2021). This inhumane system is known as apartheid, and this study illustrates just how enmeshed waste material flows are in this historical spatial arrangement.

Through the salvage and transformative actions at the hands of the waste crafter, waste materials are often circulated back into the urban space where they were discarded. Wooden pallets discarded by construction companies of Pretoria East are salvaged and transformed by waste crafters into outdoor furniture and sold to suburban residents to circulate these materials back into the same urban space. A similar process occurs with garden refuse from tree fellers, where it is bought and transformed by crafters and sold at street craft markets.

Driving from my home in the historically white, Old East Pretoria suburbs of the City of Tshwane, the route to Hatherley Landfill takes me from the opulent suburbs of Pretoria East with their characteristic security estates and shopping malls through an industrial node known as Silverton and lastly into the landfill, which is surrounded by working-class residential

areas and a more recently erected informal settlement, unofficially named Marikana.[2] There are various circuits of material movement that connect this urban node to its larger metropolitan region and global market. One of these is the circuit connected to waste reuse practices, which connects the landfill and surrounding scrap-metal sites to wealthy eastern suburbs. These are the circuits intricately connected to the urban waste precariat and shaped by their creative skill. The urban nodes, consisting of industrial zones, township areas and higher-income eastern suburbs, continue to be separated along racial and class distinctions (Hamann & Horn, 2014; Horn, 2021), but through waste reuse practices a circuit of relation is formed.

In the apartheid era, the human and nonhuman material flows between designated white and black urban spaces were restricted through black urban influx control, which was set in motion by the Stallard Commission in 1922 and subsequently the Native (Urban Areas) Act of 1923 (Horn, 2021; Lemon, 2021; Maylam, 1995). This circuit of movement was limited to the arduous daily commute of the city's majority black labour class, serving white needs (Ballard, 2004b) (an aspect discussed at length in Chapter 4). After almost three decades of democracy, this daily movement of black working-class individuals remains intact, although what has changed is the racial demographic of these historically white suburbs, which have become slightly more integrated (Horn, 2021). In addition, the data captured in this study point to a circuit of material flow of solid waste from historically white suburbs into industrial zones of the city (which served as buffer zones during the apartheid era), through the salvage, deconstructive and transformative actions of the urban waste precariat and back into wealthy historically white residential areas in the form of crafts and outdoor furniture.

In the contemporary moment, writers have studied how clusters of the population left outside of formal wage labour contest their position and forge livelihoods for themselves in neoliberal urbanities (Faulk, 2012; Ferguson, 2015; Millar, 2014; Millar, 2018). This research contributes to these studies by theorising a value-production process alternative to capitalism

[2] The name Marikana carries political significance as it is named after the small mining town in North West Province where 34 miners were killed by the South African Police Service on 16 August 2012 during a six-week strike.

and, in addition, exploring the contribution of the urban waste precariat's waste reuse practices to the circular economy of the City of Tshwane.

Further, a number of authors have recently conceptualised solid waste and its generation as modern-day ruins (Crocker & Chiveralls, 2018; Dawdy, 2010; Edensor, 2005; Gordillo, 2014). I situate my own understanding of waste among them, and specifically apply the terms "ruins" and "ruination" to refer to the excessive generation of solid waste, driven by factors such as planned obsolescence and single-use materials (mostly packaging and electronic devices), rendering the consumers the societal role of 'waste maker' (Packard, 1960) . As Prince, an e-waste reclaimer working on Mooiplaats Landfill, explained to me, "I often find cell phones in the dumpsite, still working, nothing wrong with them." Cell phones are not the only devices that are constantly replaced by updated versions, and Prince also collects and sells computer, radio and television parts. After their brief lives, these materials soon become discarded, modern-day ruins of neoliberalism. I draw a linkage between ruins and neoliberalism in the sense that neoliberalising markets and states are defined by relaxed state regulation, often allowing multi-national companies to import technologies at lower prices and quality than local markets (Harvey, 2005). In this way neoliberalism exhilarates the process of ruination at a phenomenal pace as suggested by Packard (1960), compared to the historical understanding of ruination as slow decline of world empires for example.

Writers who follow Adorno's negative dialectics denounce the idea of historical progress in human society and make "ruins" their subject of study (Dawdy, 2010; Gordillo, 2014; Stoler, 2013; Tsing, 2015). Arguably the most prominent among this discourse on ruins is Ann Stoler (2013), who innovatively dismantles the idea of ruins as a material product trapped in the historical epoch of its time, and rather suggests ruin as an ongoing process she terms "ruination", which she traces back to colonialism. This makes the concept relevant to the analysis of ruins in contemporary times to processes such as neoliberalism and neo-colonialism, where ruins in the form of solid waste are anomalous to ideals of progress.

History shows that with the emergence of a new economic epoch we also witness the formation of informal economies in certain geographical urban pockets. The dawn of industrialisation on the Witwatersrand in the late nineteenth century serves as an example

of this, where numerous informal markets were established by marginalised groups who could not gain access to the booming mining industry (Van Onselen, 2001), such as the economic activities of the amaWasha,[3] taxi-cart operators and brick makers. It was exactly during the onset of industrialisation that a need for urban solid waste management developed and consequently an informal sector evolved as well. The ethnographic accounts captured by Van Onselen (2001) convey the character of the market and bureaucratic structures of the time. In the same way, this research project compiles a recent historical account of waste reuse practices in the City of Tshwane with the aim of demonstrating the historical and current relationship between these activities, the waste economy and governance within the city.

Through an ethnographic inquiry, the waste reuse practices of crafters in the City of Tshwane were studied as existing forms of circularity outside of formal state and private market-based recognition and support. The waste reuse practitioners draw from traditional skill to produce crafts and outdoor furniture. In this study, I argue that their value-production processes are not based on capitalist principles of production but rather draws on a subsidiary and care economy that crystallises in forms of everyday communism (Graeber, 2010), and therefore the value produced is not capital. I define the value they produce as "life from the ruins of capitalism", which finds form in two ways. First, it produces urban subjectivity since the waste crafters, the majority of whom are Zimbabwean migrants, form new kinship structures based on affinal relations (Graeber, 2001; Mauss, 1966) as they establish street craft markets in South Africa. Secondly, through these practitioners' waste reuse practices, a new city aesthetic is produced which transforms the suburban garden. The research thus contributes to existing bodies of literature on waste reuse; the relationship between waste and value; the social production of urban space; and urban life in a post-apartheid urban context.

Gregson et al. and Crang et al's research on cargo-ship breaking in Bangladesh (Crang et al., 2012; Gregson etal., 2010) captures the process of ship disassembly, as large container ships are broken down and piece by piece materially become absorbed into the Bangladeshi coastal towns to form goods in informal markets along the streets. They describe the scenery driving

[3] The amaWasha were a Zulu guild of male laundry washers on the Witwatersrand from 1890–1913.

down the coastal roads and alongside the shops and traders, who re-sell anything of use salvaged from the ships, ranging from furniture, gym equipment and toilets. For example, crafters produce what is locally called *choki-choki*, and these are sought-after furniture pieces, typically bought by the emerging middle class in Bangladesh. The portrayal of this process aids in visualising the quite similar waste reuse processes that unfold in Pretoria East. Through the meshwork conceptual lens (Ingold, 2007), I capture and analyse these waste reuse practices.

This meshwork conceptual lens differs from the Marxist use thereof, which emphasises social production of space through labour (Chakrabarty, 1992; Lefebvre, 1974). In my own use of the meshwork approach I include constellations (Gordillo, 2014) formed by the material medium (waste ruins) and human skill, as well as kinship formations to produce space. The approach thus perceives different urban spaces as nodal points where discarded waste materials respectively undergo different transformations as they are moved through the hands of the skilful urban waste precariat, through exchange to suburban buyers and into their suburban gardens and homes as decoration. In this way, the municipal landfill and main avenues of Pretoria East materially bleed back into their surrounding residential nodes as, for example, in the industrial node of Silverton, wooden pallets and metal wires are both manufactured and discarded. Points of discard form relay points, the metal wire is taken to be sold at scrap-metal sites and drivers of building-material delivery vehicles drop off wooden pallets on the side of the street to sell to waste crafters. Spatially, these processes of material flow connected to waste reuse practices are perpetually making and remaking the city on a daily basis.

1.2 Context, problem statement and knowledge gap

Waste and solid waste management have become a point of interest and subject of study for many researchers across the globe as urbanising populations are increasingly integrated into a consumerist lifestyle and municipalities, especially in the Global South, are running out of landfill airspace (Godfrey & Oelofse, 2017; Millington & Lawhon, 2018). These factors, combined with increasing economic inequality and high unemployment rates, means that the number of livelihoods dependent on reclaiming waste materials has increased; for example, in South Africa the reported total number of reclaimers increased from 37 000 in 2005

(Schenck & Blaauw, 2011) to between 100 000 and 215 000 in 2017 (Godfrey & Oelofse, 2017).

Parallel to this, globally, governments are committing to move away from linear circuits of material flow towards establishing circular economies (UN Environment Programme, 2022). However, there exists a fundamental contradiction between capitalist markets' drive for growth and maximising profit and the goal to achieve circularity (Hickel & Kallis, 2019; Valenzuela & Böhm, 2017). The basis of this tension is ascribed to the fact that ever-increasing growth relies on constant market expansion, which in turn requires greater amounts of "material throughput" (Hickel & Kallis, 2019). This stands in opposition to the goal of a circular economy aimed at decoupling economic growth and increased material input to attain sustainability. The waste reuse practices of the urban waste precariat in the current study are situated within urban spaces of capitalist economic activity, and the study highlights the existing tension between differing forms of value production in the urban waste economies of the City of Tshwane. Given the formidable influence of current free-market policies enforced by wealthy countries, and even neoliberalising states of the Global South, I explore the presence of the urban waste precariat in the wealthy suburbs of Pretoria East as space contestation which opposes the capitalist status quo within this urban space.

Through an investigation of waste reuse practices, this research project builds a critique of the current drive within the global sustainability discourse towards a "circular economy" to assert that capitalism's drive to maximise profit stands in opposition to circular economy establishment. Here I side with researchers who argue that circularity in capitalism is in principle impossible, since recycling and reusing material input opposes market principles of maximising profit and low cost of production, whenever virgin material input is available at lower cost (Hickel & Kallis, 2019; Valenzuela & Böhm, 2017; Velis, 2017). The study builds on this critique by evaluating current waste reuse practices in the City of Tshwane, South Africa, as a form of existing circularity practised outside of state and formal market recognition and support. I argue that the potential therefore exists for sustainability and circularity to emerge from these waste reuse practices.

On an epistemological level, the historical processes of capitalist expansion and industrialisation brought about borders, distinctions and fixed categories, or what Ingold terms “lines of separation and occupation” (Ingold, 2007), thus removing, distancing and alienating processes of production from the crafter, labourer and, most importantly, the consumer. Therefore, I argue that this separation did not only occur in industrialist production processes, but also brought about deep societal separation and stratification, which has culminated in the unprecedented unequal society we all live in today. In the substantive chapters of this thesis, I introduce and discuss the concepts “outside-circularity” and “deconstructive creation”. I developed these two concepts to be explored as possible alternatives to these lines of separation, and in order to move from linearity to circularity.

Within the existing literature on waste and recycling, a growing body of research is emerging which investigates the relationship between waste and value. The focus of this body of work, written mainly on the Global South, has been placed on the analysis of informal recycling activities seeking to build on existing research of value, the state of the economy and the shaping of urban subjectivities (Millington & Lawhon, 2018). However, these debates have paid surprisingly scant attention to the salvaging of materials for reuse, re-sell and refurbishing (Isenhour & Reno, 2019). I use the term “reuse” to refer to all forms of waste material transformed and directly re-inserted into the market or for direct use, as opposed to sale and insertion into formal recycling processes. These include remake, refurbishing, re-sell and valorisation. Millington and Lawhon have identified a need for research in this field, suggesting studies on “the diverse forms of valuation that accompany (and structure) contemporary dynamics of waste” (2018:14).

I became aware of the existing distinction between practices of recycling and practices of reuse while conducting research in Pretoria East in 2015 (Reyneke, 2016). Here I identified several practices that do not neatly fit the description of conventional paper and packaging recycling by reclaimers. Although research has been done on waste reuse practices in the South African context (Samson, 2012; Schenck et al., 2021; Viljoen, 2014), these works are not extensive and generally do not include the alternative waste reuse practices that the current study focuses on. These reuse practices are performed spatially on the fringe of landfill sites, but also remain, in contemporary market dynamics, on the fringe of market

valuations – and arguably on the fringe of existing literature on waste management in South Africa. In order to broaden the terms waste pickers and reclaimers to also include waste reuse practitioners, I therefore developed the concept of the urban waste precariat.

1.3 Key concept: Urban waste precariat

1.3.1 Concept development from data

As described above, my investigation into the material flows related to organic, construction and electronic waste led me to identify waste revaluation practices that do not fit existing descriptions and conceptualisations which focus exclusively on the *recycling* practices of reclaimers without including their *reuse* activities. These practices entail work other than reclaiming, sorting and recycling and are better described as *reuse* within the waste recycling discourse. Under the term "reuse", I include practices of remake, re-sell, refurbishment and valorisation, such as the repair of electronic devices and the processing of used bricks to be sold again. This also includes "direct reuse", which occurs when no physical transformation or alterations are applied, and the material is simply used again in the same way and for the same purpose before it was discarded. Value-production processes related to these practices involve creative, transformative actions which draw on socio-cultural skills and traditions applied to salvaged waste materials. For example, waste crafters make use of discarded materials salvaged from landfills, scrapyards and kerbsides to transform them into craft pieces, outdoor furniture, dog kennels, firewood, *mampara* bricks[4] and refurbished electronic devices. Once deconstructed and transformed, these material artefacts are inserted into market exchange flows and sold on the city's streets or directly from the landfill.

1.3.2 Commonalities and differences between reclaimers and waste crafters

Waste reuse practices, which form the main subject of investigation for this study, follow a different process from the recycling circuits of paper and packaging, where waste materials are reclaimed and inserted into the recycling value chain. In the recycling circuits, formal private-sector actors determine the economic value of salvaged materials, which are transformed back into raw usable materials, after their exchange for money. Scholars have

[4] This is the term used by reclaimers on landfills for reusable bricks extracted from building rubble. The word *mampara* is also a colloquial term used to refer to something of someone of lesser grade or status.

argued that value production in these recycling circuits occurs through reclaimers' labour process of salvaging and categorising (Millar, 2008; Samson, 2012). There exists, however, an additional form of value production that does not revalue waste through recycling. This distinct value-production process emerges through waste reuse practices. In the reuse process, the crafter or maker recognises the possible use-value and commodity potential of a certain material before an official or formal commodity circuit is established. Practitioners initiate this process through salvage, followed by the application of creative, transformative actions to the material, thereby determining the future trajectory of the material independent of pre-existing market commodity streams, or public policy resolves.

The distinction I make here is important both for theoretical and political reasons. To the reader it might seem that I stress reuse practitioners' distinctive process in order to argue for a different form of integration into formal structures compared to recycling practitioners. However, my primary intention with this distinction is to identify the reasons why reuse practitioners have been omitted from the national integration initiatives in the South African context. This will be discussed in greater detail later in this thesis. Secondly, I make the distinction between reclaimers and waste crafters in order to assert that reuse practices constitute not only a different value-production process but also a different form of value in itself. Here two aspects deserve recognition: the aesthetic contribution of reuse in the form of craft and art pieces, as well as the fact that reuse requires a lower material throughput in the production of new functional commodities, such as outdoor furniture or salvaged bricks and therefore remain the preferred practice in terms of environmental impact. In addition, it is important to note that the actors involved in reuse and recycling practices share common circumstances and social standing, and therefore it remains most beneficial to situate all these individuals under one conceptual term.

1.3.3 Inclusion of waste reuse practitioners

As previously mentioned, research produced by social scientists on solid waste management in South Africa has thus far focused overwhelmingly on the recycling of paper and packaging materials and on reclaimers' contributions to these processes (De Kock, 1986; Godfrey et al., 2016; Godfrey & Oelofse, 2017; Samson, 2017, 2019; Schenck & Blaauw, 2011). This has led to a singular view of the revaluation of waste, and the complexity of waste material circulation

regarding reuse has not received representation. Although some writers have noted waste reuse practices in the South African context, their research did not specifically focus on reuse practices and these studies do not offer an extensive in-depth portrayal or theorisation of these practices (Samson, 2012; Schenck et al., 2021; Viljoen, 2014). By tracing the circuits of flow through points of deconstruction and transformation, the ethnographic data presented in this study produces diverse portrayals of the urban waste economy, which further illustrate the complexity related to urban waste material circuits, the skill involved in waste reuse practices and the forms of value that are produced in the urban wastescape of the City of Tshwane.

A variety of terms have been employed to describe the individuals who generate an income through the collecting and selling of waste materials. Literature produced from Africa in the English language included terms such as scavenger, waste picker, collector, reclaimer, salvager, recycler, informal-sector collection worker, garbage picker, picker, cart pusher and waste harvester (Samson, 2010). A brief review of the work most recently published on the subject of informal waste work in South Africa indicates that the terms reclaimer and waste picker have now widely been adopted (Barnes et al., 2022; Millington et al., 2022; Mlotshwa, et al., 2022; Samson, 2019; Uhunamure et al., 2021). In addition to the absence of extensive studies on waste reuse practices in South Africa, the terms “reclaimer” and “waste picker” do not capture or include waste reuse practices and practitioners, but rather are used to describe the actors and actions of recycling practices. This has led to a universalisation of the experiences of individuals who generate an income through the salvaging, reclaiming, refurbishing and sale of waste materials. Currently, in the South African context under policy formation such as the *Waste Picker Integration Guideline for South Africa* (DEFF & DSI, 2020), these forms of reuse practices and the people who perform them have been accommodated; however, they have not been included in national integration initiatives.

1.3.4 Suggested new term

Contrary to the South African body of literature on waste and waste work, globally there have been significant contributions to our understanding of waste reuse practices. These works encompass an eclectic array of waste flows and have included studies of cargo-ship breaking (Crang et al., 2012); e-waste refurbishment and repair (Corwin, 2018; Reddy, 2013; Tong et

al., 2015); textile reuse and re-sell (Norris, 2012); infrastructural refurbishment and repair (Alexander, 2012; Doherty, 2019; Faulk, 2012); and miscellaneous landfill waste deconstruction and transformation practices (Chalfin, 2019). Due to the diversity of waste flows and practices involved, a widely adopted term has not been developed in the same way that "reclaimer" and "waste picker" describe the work related to recycling circuits. In the recycling sector, the adoption of such terms has had strategic value in terms of organising as a collective to garner recognition and access support from the state and private sector.

In view of these facts, I do not develop a concept that exclusively describes and conceptualises waste reuse practices and practitioners. My conceptualisation rather encapsulates actors in both recycling and reuse practices under one umbrella term, in order to broaden the perspective of unofficial waste revaluation, making it more inclusive of the diverse array of processes and individuals involved. For this purpose, I coin the term "urban waste precariat" to capture the socio-political realities that both reclaimers and reuse practitioners share, an aspect which I emphasise and elaborate on in Chapter 4.

The term "precariat" has gained renewed attention and sparked lively debate in social scientific writing since Standing (2011, 2014) employed it to describe the emergence of a new "class-in-the-making" whose members have in common conditions of precarity under neoliberal capitalism. According to Standing, "precariat" describes a class bracket between "the core" or the old orthodox working class and those that are not formally employed (2011). Significant aspects of this class bracket are that these individuals are employed on a temporary contract basis or are self-employed, and therefore do not have access to stable benefits related to formal labour employment.

Standing did not coin the term "precariat", and its origins date back to analyses of working-class subjectivity in Western Europe's process of de-industrialisation in the 1960s (Johnson, 2011). Commenting on Standing's work in *The Precariat,* Wacquant (2015) refers to his own use of the term in earlier works (2008, 2009) on cross-continental comparative studies of marginality, where he deemed the urban precariat to be a product of state stratification and classification. He argues that the state and media misrepresented the precariat, which led to their stigmatisation. Wacquant argues that Standing contributes to

this stigmatisation with his portrayal of the precariat as a "dangerous class" (2015:7). I align my use of the term with Wacquant's comment; my interaction with the urban waste precariat certainly did not evoke connotations of a dangerous revolutionary class, but rather a gradual and resilient form of insurgence. I must also emphasise that the significance of Standing's further development of the term lays in his broadening thereof to include not only the transformation of working-class conditions under neoliberalism, but also the inclusion of self-employed individuals operating in the informal economy (Standing, 2011, 2014), such as the urban waste precariat.

Criticism of Standing's work has been extensive and can mainly be placed along two strains. The first relates to the question of class distinction, and whether the precariat carries with it sufficient aspects for defining it as a class distinct from the working class (Frase, 2013; Munck, 2013; Seymour, 2014; Wright, 2016). Secondly, Standing has been criticised for his lack of differentiation between precarious realities and histories in the Global North versus the Global South (Breman, 2013; Munck, 2013; Scully, 2016). Standing builds up a substantive response in later work (2016) to defend his stance on both lines of critique, but I will not discuss the detail here. Various other writers on waste and waste work have also pointed to the precarious conditions related to waste work without the use of the term precariat (Chalfin, 2019; Crang et al., 2012; Fredericks, 2018; Millar, 2018).

For the purposes of this research, I have developed and chosen to adopt the term "urban waste precariat", due to its particular usefulness to this aspect of waste work, although I do not apply "precariat" in the same way as Standing (2011, 2014) in announcing the emergence of a distinctive new class. Rather than getting caught up in the theorisation of class making and unmaking, I take a pragmatic approach, as suggested by Jorgensen, that "the concept of the precariat must be translated into practice and that the concept is better seen as an analytical tool and as a strategic point of departure for political subjectivities" (2016:962). The fact is that, practically speaking, waste reclaimers and waste crafters share similar precarious conditions in their lives and work, be it waste recycling practices or waste reuse practices. Both waste recyclers and reuse practitioners face the constant threat of police harassment and physical displacement from the wealthy Pretoria Eastern suburbs, as their presence here is ceaselessly contested (an aspect thoroughly explored in Chapter 4). As mentioned, actors

involved in recycling practices have organised under the terms waste pickers and reclaimers and made progress towards recognition and support of their work. I broaden this perspective to include waste reuse practices in the unification of all these waste workers under one concept, the urban waste precariat. Therefore, the term urban waste precariat does not oppose or exlude other terms such as waste pickers or reclaimers, but rather encapsulates all these waste workers and their contributions. Lastly, the addition of the word 'urban' does not necessarily mean that these practices are limited to the urban context. This is simply the space in which the study was focused and future studies on precarious conditions related to waste work and its contribution could certainly be conducted in this regard.

1.4 Research questions

This research project set out to answer the question:

How do the waste reuse practices of the urban waste precariat contribute to the circular economy of a post-apartheid city (Pretoria East, City of Tshwane)?

Five sub-questions were explored in pursuit of answering the main research question.

1.4.1 Actors

The first sub-question seeks to identify the *actors* involved in waste reuse practices, both human (race, class, gender and nationality) and non-human (waste materials, market forces, socio-political structures and historical processes).

Who are the main actors involved in waste reuse practices of the urban waste precariat in a post-apartheid city?

1.4.2 Processes

Placing focus on circularity and material circuits of flow (human and non-human), the second sub-question explores the key *processes* that entangle to form waste reuse practices.

What are the processes that constitute the waste reuse practices of the urban waste precariat?

1.4.3 Spatial nodes

Starting from the assumption that spatial nodes are interwoven, the third sub-question investigates how these spatial nodes relate to each other to form waste reuse practices.

How are different spatial nodes interwoven to form the waste reuse practices of the urban waste precariat in Pretoria East?

1.4.4 Production of space

Building on the previous sub-question, the fourth explores the role that these nodes, circuits and meshwork (and constellation) connected to waste reuse practices play in the production of urban space.

What role does the nodes, circuits and meshwork connected to waste reuse practices play in the production of urban space?

1.4.5 Value production

The last sub-question seeks to identify, describe and analyse the value-production processes that are involved in waste reuse practices.

What are the value-production processes involved in the waste reuse practices of the urban waste precariat of Pretoria East?

1.5 Deconstructive creation

Within existing circular practices, both on the landfill and the street, the ethnographic data revealed points of transition that enable the waste material's circularity. These points are discard, salvage, disassembly, transformation, exchange and use (or display). *Disassembly* and *transformation* represent points at which the urban waste precariat apply their reuse skill, which often draws from cultural traditions. Through these two points, disassembly and transformation, a value-production process takes place that is unique to waste reuse practices. I explored these value-production processes to identify points where production occurs not based on capitalist principles while utilising discarded capitalist ruins, and therefore might produce value other than capital. Here it is necessary to state that none of

these practices are performed in complete isolation from or in absolute independence of capitalism, as all of the materials utilised are derived in one way or another from the discard of capitalist production and consumption circuits. In addition, some of the materials extracted through points of deconstruction in reuse practices were re-inserted back into capitalist commodity flows further up in the value chain, such as the e-waste materials, after being salvaged, disassembled and sold. The aim was therefore to identify points in the value-production process of waste reuse where a coupling of circularity and value-production alternative to capital occurs, and for this I developed the concepts *outside-circularity* and *deconstructive creation*. I build on the concept of deconstructive creation in Chapter 5.

1.6 Outside-circularity

There is an extensive body of literature arguing that capitalism and circularity are mutually exclusive (Hickel & Kallis, 2019; Valenzuela & Bohm, 2017). I agree with this line of argumentation; however, based on the data gathered for this study, I conceptualise a different angle in formulating a critique of current state and market-based drives towards a circular economy. My ethnographic data point to certain existing circular practices that are non-capitalist in terms of the value that is produced, embodied in the waste reuse practices of the urban waste precariat. I therefore call this outside-circularity. I am not the first to argue for the possibility of existing forms of circularity outside of state-based and formal market initiatives (Isenhour & Reno, 2019; Kalina et al., 2022; Tsing, 2015).

However, these writers do not advance existing circular practices as functioning on non-capitalist production principles. The literature on existing forms of circularity identifies the fact that current state-based drives to transition from a linear economy to a circular economy do not take cognisance of existing forms of circularity which draw on traditional cultural skill, thought and practices. Some authors who base their research on waste and waste work have noted this paucity (Isenhour & Reno, 2019); however, they have not made an extensive inquiry into these extant practices of circularity, especially those from the Global South. I distinguish my study from these writers to foreground waste reuse practices as existing circularity that are mainly based on non-capitalist principles of value production where a coupling of outside-circularity and deconstructive creation occurs in its circuit. The concept is explored further in Chapter 6.

1.7 Significance of research (scope and limitations)

Today, numerous forms of waste reuse practices form part of people's daily lives, ranging from domestic traditional thrift (Kalina et al., 2022) to industrial-scale cargo-ship breaking (Gregson, 2010), second-hand market exchanges (Alexander, 2009; Hansen & Le Zotte, 2019; Isenhour & Berry, 2020) and electronic waste disassembly and repair (Chalfin, 2019; Corwin, 2018; Tong et al., 2015). One might be tempted to assume that the driving factors behind such practices could be placed along a spectrum tied to scalar income brackets, with necessity at the one end and environmental concern at the other, with the urban waste precariat placed at the bottom of the spectrum, performing waste reuse purely out of necessity. However, the literature on precarious work suggests such assumptions that are based on "straightforward economic calculus" (Isenhour & Reno, 2019:4) to be inaccurate. In this regard, Millar's (2014, 2018) work on precarity highlights the flexibility related to unregulated waste work and the value that such practitioners attach to this aspect of their work. Similarly, Millington and Lawhon warn against the continuous portrayal of informality related to waste work and its relation to neoliberal governance which "reinforces north-south empirical and intellectual dichotomies" (2018:2), which risks the inclination towards a singular perspective.

Bearing these points in mind, the research conducted for this project builds on such complex portrayals of the varied and multiplicate factors behind waste reuse practitioners (Chalfin, 2019; Gregson, 2010; Isenhour & Reno, 2019; Millar, 2018) to capture the contribution of the urban waste precariat to the circular economy of the City of Tshwane. The research makes a unique contribution to the literature on waste reuse practices by capturing waste reuse in Tshwane as circular practices outside of state and market-based initiatives that draw on value-production processes to perform what I term "deconstructive creation" and are alternatives to capitalist value production. To accomplish this, the research endeavour concentrates on the urban waste precariat operating on an urban municipal landfill and alongside some of Tshwane's main suburban avenues. The urban waste precariat's reuse practices are tied to three waste streams, namely *organic waste*, *construction and demolition waste* and *electronic waste*. I focus on these three waste streams since, in the City of Tshwane, they constitute materials for which formal recycling circuits have not been fully developed yet.

The processes of salvage, disassembly and transformation I document here evokes Gregson et al.'s (2010) study on cargo-ship breaking in which reclaimers enable the movement of discarded material to create coastal furniture markets. In the current study, two unique aspects arise. Firstly, the majority of waste reuse practitioners utilising these waste streams and transforming the salvaged materials are black Zimbabwean men. Secondly, the material circuits established through their reuse practices entangle industrial, economic and suburban nodes to produce unique urban space and transform the suburban aesthetic. In this way the study shows how the pliability of waste materials allow this marginalised minority grouping to forge a livelihood for themselves in highly contested, historically white segregated urban space.

1.8 Chapter overview

Chapter 1: The current chapter comprises the introduction to this research project. I discussed the background to the research problem to situate waste reuse practices as an understudied subject in the City of Tshwane and, more generally, in South Africa. I introduce the reader to the research context, problem statement and knowledge gap where the relationship between waste reuse practices and the lack of formally established recycling circuits for organic, electronic and construction waste materials are discussed. This leads into the introduction of the concept of the urban waste precariat, which constitutes a theoretical term encapsulating both waste recycling practitioners and waste reuse practitioners in an attempt to bolster improved livelihoods for all those working in precarious circumstances and making a contribution to the urban waste economy. To achieve this, I develop and introduce two additional concepts, deconstructive creation and outside-circularity, to describe existing circular practices outside of state and formal market recognition and support, and the alternative value-production processes that they comprise.

Chapter 2: This chapter includes the literature review and theoretical framework of the study. The literature review covers three main themes or bodies of work which I draw from to develop a unique theoretical framework to answer the research questions of this study: waste reuse practices, waste and value and life from capitalist ruins. The combination of these bodies of work offers a distinctive perspective on the study of waste reuse practices, as none

of the existing literature on waste and value have conceptualised waste material as ruins of capitalism in its reuse. The first body of work reviewed examines social science literature on waste reuse practices, and here I identify and discuss four main themes: the relationship between extent reuse practices, the state and the market; reuse at different scales; the social life of waste; and the engagement of waste reuse practices with labour theory. The second body of literature reviewed involves the relationship between waste and value. I contribute to current debates on this theme by situating existing contributions within four quadrants divided by two axes, namely: inside or outside capitalism, and optimistic or sceptical. Since the study explores waste reuse practices as potential value-production processes alternative to capitalism, these quadrants form a useful lens through which to view the literature produced thus far. Lastly, I critically review work that I categorise under the theme "life from capitalist ruins", and these scholars take a critical approach to the notion of modernity and capitalism that can also be seen as progressive. The literature on ruins and ruination is useful to this study since I apply the concept of ruin to waste material as a necessary outcome of capitalism. This enables me to analyse waste material as constellations entangled with human skill and a multi-layered spatial-historical meshwork. In the last section, I develop the theoretical framework for this thesis by analytically discussing the quadrant outside-capital-optimistic reviewed under the waste and value theme in the literature review. Three schools of thought are woven together for this section, namely radical Marxist geography, assemblage theory and neo-Maussian anthropology. The combination of these scholarly approaches enabled the relational exploration of the social production of space through the skills of waste reuse practitioners and the exchanges that occur in their entanglement with waste materials. This theoretical framework informs the methodological approach adopted for the study.

Chapter 3: The research method and methodology are described in this chapter. These are divided into three main overarching research actions, namely identifying the actors, tracing circuits of reuse and identifying points of transition. To identify the actors, I set out to note both human and non-human actors that entangle to form waste reuse practices. The act of tracing describes my following of five different waste material streams on the landfill and the street to gather ethnographic data which illustrate and discuss the concept of outside-circularity. For the tracing of circuits, I adopted a participant observation approach to identify points of transition. The identification of these points formed a seminal aspect of this study,

as this is where the constellation of waste reuse practices, formed by the entanglement of waste material and human skill, emerged from the ethnographic data. To elucidate this entanglement, the study adopted an ontological commitment propagated by assemblage theory. This ontology denounces humans and human labour as central to the production of value, and rather allows for agency to be enacted by the material medium in relation with human labour. Thus, human and non-human worlds engage as equal potentialities. In addition, this chapter discusses the study area, which is comprised of multiple urban nodes, as well as the sampling method, study limitations and ethical considerations.

Chapter 4: In this chapter, I apply the concept of the urban waste precariat further and offer a critical historical account of this social grouping's presence within Pretoria East. The development of the urban area of Pretoria East has immense socio-political significance, as it ranked as one of the most valuable areas in the province of Gauteng in terms of property value in the last decade (Business Tech, 2017). This account covers the period prior to, during and after the apartheid era, seen through the historical lens of racial segregation, urban influx control, commons and enclosures. This urban enclave forms the spatial context of the study, and the chapter highlights the urban waste precariat as a social grouping of both waste recyclers and re-users. The chapter also contains a case study of the informal settlement named Plastic View and the nearby Castle Gate craft market, which was established by the urban waste precariat. The ethnographic data capture spatial contestations and alliances as the waste precariat establish a livelihood for themselves in this highly contested urban area. Lastly, I formulate a counter-narrative to the one portrayed in the media regarding the transient presence of the urban waste precariat. I employ historical data to show their permanence as well as the complex entanglement of the urban waste precariat with reclaimed waste materials and the property owners of Pretoria East.

Chapter 5: This chapter forms the second substantive chapter of the thesis and in it I identify and discuss six points of transition that enable the circularity of materials used in the waste reuse practices. These points surfaced through the tracing of waste reuse circuits, and they consist of discard, salvage, disassembly, transformation, exchange and use. I elaborate on two of these points, disassembly and transformation, to portray what is meant by the concept "deconstructive creation" as a value-production process alternative to capitalism and the

value that is produced as urbanism or life from the ruins of capitalism. The chapter also emphasises the waste reuse practices as constellations formed from waste material and human creative skill. The craft skills employed by street waste crafters are further explored here and situated within the cultural traditions of Zimbabwean migrants who have forged a livelihood for themselves in the new context of Pretoria East. Their movement from Zimbabwe to South Africa also entailed the movement of these traditional craft skills with them, which are then "regrown" in a new context with new material availability. The regrowing of waste reuse practices draw from existing and re-established kinship networks of affinal relations, and the ethnographic data reveal an economy based on everyday communism. These components build on what I identify as the subsidiary and care economy.

Chapter 6: In this chapter, I trace the circuits of material flow, both human and non-human, that entangle to form waste reuse practices. To accomplish this, I present ethnographic data gathered on Hatherley Landfill and the main avenues of Pretoria East as I traced these waste reuse circuits, specifically following the waste material streams of construction and electronic waste on the landfill, and metal wire, wooden pallets and tree off-cuts from the street craft market. The main aim of this chapter is to expand on the concept of outside-circularity, which describes a particular form of circular economy independent of state and market initiatives or support. In addition to describing a form of existing circularity, the concept also signifies a value distinction within the urban waste precariat between the recycling practitioners and the reuse practitioners. By following the waste materials from the point of salvage to the point of use, a value-production process emerges that is not based on capitalist principles of value production. Instead, the reuse circuits are enmeshed within a care and subsidiary economy that waste reclaimers and crafters operate within to obtain and sell their material goods. The circuits of flow that I portray in this chapter point to the complexity of the urban waste economy and how waste reuse practices contribute to it.

Chapter 7: This is the concluding chapter of the thesis, and it offers an overview of the main concepts developed and arguments made around the research question. In addition, I highlight the key contributions of the study to the broader understanding of the waste economy and those individuals who glean a livelihood from it. Lastly, I make suggestions for further research on the subject of waste reuse practices and the urban waste precariat.

Chapter 2: Literature review and theoretical framework: Waste reuse practices from capitalist ruins

2.1 Introduction

This chapter consists of a critical review of literature produced on waste and waste management, covering the various ways in which humans handle and relate to waste materials. The aim here is to engage literature relevant to the main research question, concentrating on waste reuse practices and their contribution to existing circularity in the urban waste economy. The chapter is divided into three sections, each covering literature related to one of the three main themes I have identified to assist in my research question.

The first section entails a discussion of research on waste reuse in its broadest sense. This includes studies on repair, remake, refurbishment, re-sell, maintenance and valorisation of waste materials. I categorise this body of literature under four themes: 1) the relationship between existing reuse practices and state and formal market circular economy establishment; 2) remake and repair at various scales theorised as part of broader socio-political processes; 3) biographical analysis of waste reuse materials following Appadurai's (1986) method with no labour theory applied; and 4) labour theory applied to waste reuse practices. In the second section, I conduct a review of literature on the relationship between waste and value. Here the works are categorised into four quadrants divided by two axes: inside or outside capitalism, and optimistic or sceptical. The third section of the review considers work that fits within the theme of "life from the ruins of capitalism", which take a critical approach to modernity and capitalism seen as progressive historical epochs and considers the potential for alternative value to emerge from their ruins. I conclude the chapter with a discussion of the theoretical framework developed for this research project. The theoretical framework draws from the literature discussed in the waste and value section of the literature review, specifically the writers I situate in the quadrant outside-capital-optimistic.

2.2 Waste reuse practices

The following section entails a detailed discussion of the four main themes I have identified in the approaches adopted by researchers who have studied waste reuse practices. It covers

an array of different conceptual terms that I cluster together under the term “waste reuse”, including remake, refurbishment, re-sell, maintenance and valorisation.

I am not the first to conduct such a review; specifically, two other reviews have been published. However, these reviews exclusively focus on second-hand economies (Hansen & Le Zotte, 2019; Payson et al., 2022). I make mention of these two reviews here because I do not include re-sell and literature of second-hand economies as part of my in-depth discussion. My focus, rather, is on transformative processes involved in waste reuse and the relationship between human skill and waste material as active agent. However, two aspects highlighted by these reviews are worth mentioning, as they relate to the themes I discuss below. Hansen and Le Zotte (2019) insightfully note the prevalence of three anthropological works (Appadurai, 1986; Douglas, 1966; Mauss, 1966) in conceptual approaches to second-hand economies. These works form a prominent part of this research project’s approach and are discussed in further detail in the theoretical framework section of this chapter. Payson et al. (2022) highlight the extraction and gentrification that is occurring in second-hand economies as new forms of value are opened up and states and capitalists seize opportunities for economic gain. Another aspect of these studies worth mentioning is the increase in research cited between the two reviews from 2019 and 2022, and the diversity of themes and approaches, indicating significant growth in this field of study.

A significant theme which arises from this body of literature is the interplay between the formal and informal economy in relation to waste reuse practices and these two forms of economic activity are intricately linked (Hart, 2010). In simple terms informal economy refers to economic activity that is not regulated by the state (Hart, 2010). In the literature on informal waste reuse, the practices are predominantly portrayed as threatened by formal state and private market approaches to circular economy establishment (Tong et al, 2015; Corwin, 2018; Isenhour & Reno, 2019). In my use of the term informal I position the waste reuse practices of the urban waste precariat in the same line of argumentation.

2.2.1 Relationship between extant reuse, state and market

The literature that I place under the first theme concentrates on the relationship between existing waste reuse practices and those established by state and formal market actors.

Authors I place within this section highlight the neglect of states, private companies and developmental entities to recognise existing waste reuse practices in their drive to establish waste reuse as common practice. I view these works as a response to the neglect by states to incorporate reuse in environmental and economic policy as a key component in their transition towards a circular economy (Valenzuela & Böhm, 2017). Here, the authors point to the political significance of understanding old and new forms of reuse and repair in a time of state-based circular economy establishment, whilst seeking new forms of economic value creation (Isenhour & Reno, 2019; Kalina et al., 2022; Reddy, 2013; Tong et al., 2015; Tong & Tao, 2016).

There has been literature fitting into this theme from both the Global North and Global South, although the largest portion has been produced from the Global South. Writing from the Global North, Isenhour and Reno (2019) argue that existing waste reuse practices are "deliberative actions" that open possibilities for "radical alternatives to mainstream consumer culture". They conceptualise reuse as "care work" that is not only material but also fundamentally ethical (2019:1).

This approach contrasts with writers from the Global South who, although calling for greater recognition of reuse practices' contribution, generally make no claims to reuse practitioners' ethical considerations (Kalina, 2022; Reddy, 2013; Tong et al., 2015; Tong & Tao, 2016). Most of these writers concentrate their research on e-waste streams, which constitute a significant material supply to waste reuse practices (Reddy, 2013; Tong et al., 2015; Tong & Tao, 2016). They acknowledge the active contributions of informal waste reuse practitioners to urban economies, but, strikingly, they all portray governmental entities such as states and municipalities as key actors undermining extant waste reuse practices. Reddy (2013) adds an additional layer to this by pointing to the disruptive workings of neoliberalism in the form of expansive privatisation affecting e-waste recycling practices in Bangalore, India. She illustrates how state intentions to "revitalise" the e-waste sector disregard the dynamics of existing informal recycling practices, and notes the risk of disruption to existing reuse practices when governments attempt to establish their own reuse without awareness or recognition of the existing ones (Reddy, 2013). Lastly, Kalina et al. (2022) make a unique contribution to studies of existing reuse practices with their study of reuse at the household

level. They argue that traditional African forms of waste reuse which occur within the domestic arena have been neglected from Western conceptions of recycling and reuse.

2.2.2 Reuse at different scales

Practices of reuse and repair occur at different scales, from individual practice in household cultural traditions, to municipal infrastructure maintenance (or lack thereof). Writers whose works I place in this second theme therefore conceptualise reuse practices to not only apply to individual actions but also to larger socio-political processes. This adds a novel perspective to the academic literature on waste reuse. Writers within this category theorise remake and repair as part of broader socio-political processes which shape and are shaped by remake and repair (or at least where the analysis of remake and repair provide insight into these processes) (Alexander, 2012; Bear, 2012; Doherty, 2019), whereas the majority of works discussed in other categories of this theme focus their analysis on individual practices of repair and reuse.

Two of these works study the reuse and repair action as executed by state apparatus within urban contexts. Doherty (2019) explores the banality of power and state formation in contemporary Kampala, where an "anti-political", state-initiated "urban repair and mundane maintenance" process is set in motion. In this study, a city-wide urban repair process of maintenance casts its focus on waste management and through discursive "cleaning" activities disrupts numerous livelihoods formerly sustained through its informal waste economy. Bear (2012) studies actions of repair and remake on the port of the Hooghly River, Kolkata. The author analyses practices of repair and reuse to understand the ethics behind social actors' responses to the destructive nature of capitalism, specifically neoliberalism. She shows how a state employee's patch and repair strategies were affiliated with Hindu ritual practice to argue that we cannot explain the resilience of utopian expectations of neoliberalism without understanding the ethical framings of decline within which the creative destruction it produces is understood. In Doherty's 2019 study, the state plays an active role in maintenance and repair to advance influence and surveillance, whereas in Bear's (2012) study it is the inaction and privatisation under neoliberalism of the state which leads to urban decay.

Alexander (2012) stretches the scale of repair practices to look at nationwide *remont* (*remont* means repair or renovation in Russian) in the Soviet and post-Soviet eras and gains insight into materiality in a non-capitalist society. Her study of Soviet *remont* practices offers a unique perspective in two ways. Firstly, she notes that, in the Soviet era, *remont* challenged conventional ways of seeing things in a time of chronic material shortage and constructivist-inspired propaganda, arguing that normative categories, relations and practices are brought into question at the point of repair. Secondly, by comparing repair practices in the Soviet and post-Soviet eras, she finds that, even though the material and ideological context transformed significantly, *remont* practices remained and continued in the same way as before. Thus, she illustrates how the practice of *remont* is not particular to Soviet Russia but symptomatic of the human condition (2012:265). Alexander's approach to the study of repair in Soviet and post-Soviet Russia therefore illuminates understandings of practices enacted by individuals but occurring on a nationwide scale, showing that through socio-political transition a certain material ontology remained and is itself in constant *remont*. Thus, acts of repair emulate a particularly human aspect of our being in the world and in constant *remont*.

2.2.3 The social life of waste (excluding labour theory)

Works characterised under the third theme study the social histories of waste materials as they are moved and transformed through different regimes of value, although human action or labour as focus point is omitted from the analysis and therefore not seen as central to the process (Crang et al., 2012; Gregson, 2010; Pye, 2010). These studies are informed by Appadurai's (1986) method of tracing the "social life of things". By following the transformation of waste materials through acts of repair and reuse, these writers are able to formulate semiotic understandings of value in the afterlife of commodities, both culturally and along class distinctions. These works greatly contribute to the understanding of processes involving transformations of discarded commodities in their afterlives; however, the actual labour processes are not explored. This is unsurprising as Appadurai's method builds on Georg Simmel's theory, which argues that value is generated through exchange as opposed to labour (Appadurai, 1986). I am not the first to point this out, as Herod et al. (2014) develop a Marxist critique of Appadurai and Simmel's work by interrogating these approaches through the lens of congealed labour. I highlight this aspect because the current study situates human labour

as central to value-production processes in waste reuse practices. However, I broaden the Marxist conception of labour by incorporating Ingold's (2000) concept of skill to theorise transformative processes of creative traditional skills enmeshed with non-human matter.

Crang et al. (2012) and Gregson et al. (2010) analyse the processes through which container ships are disposed, disassembled and reused, and Pye (2010)'s work is a collection of writings ranging from the reuse of neon lights in a Las Vegas "boneyard" to linguistic trash in the form of clichés. Crang et al. (2012) and Gregson et al. (2010) contribute to research on valorisation and revalorisation in two ways. Firstly, they focus on stable objects and identifiable artefacts that are destroyed and materially reconfigured. Secondly, the final commodity subsumes and obscures the original object. Pye (2010), in contrast, emphasises two aspects particular to waste reuse. Firstly, that discarded objects carry memory (memory and forgetting), and, secondly, that trash is an integral factor in the construction of value systems. The difference between these approaches can be traced to their theoretical framework, as Pye draws on Douglas's (1966) structuralism to analyse cultural value systems, whereas Crang et al. (2012) and Gregson et al. (2010) align with assemblage theory, since they apply the concept "arts of transience" where objects are constantly in a state of becoming.

2.2.4 Waste reuse and human labour

Research studies in this last theme offer theoretical depth in their approaches as they concentrate on the human labour involved in waste reuse practices (Chalfin, 2019; Corwin, 2018; Faulk, 2012). Faulk (2012) and Chalfin (2019) situate their studies within a neoliberal context, and, where Faulk challenges neoliberal notions of work, Chalfin theorises what she terms "dialectics of precarity" to view waste reuse as part of the urban infrastructure which embeds lives and labour. Faulk's study is a more direct response to neoliberalism as she argues that retrenched employees contest neoliberal notions of work, which focus on the individual, to regain primacy of social and national benefits in forming cooperatives. Chalfin points to a similar forging in her ethnographic data where two contrasting processes are simultaneously at work: while waste workers use concrete labour to destruct and disassemble materials, they are also forging inalienable social ties in solidarity networks on the dump where deconstruction (material) is followed by construction (social). The distinction here is that, unlike Chalfin, Faulk views labour not as the embodied act of labouring but as a political

category. However, Chalfin's study has further ontological implications related to labour theory, and here it overlaps with Corwin (2018)'s study of electronic waste repair and reuse economies in Delhi, India. Corwin challenges the emphasis on the categorical term "waste", arguing that, "the most common way that e-waste is unmade ontologically is not through recycling but instead through the re-animative labour of refurbishing and remanufacturing, and in particular the making of reassembled computers using previously unrelated parts" (2018:23). Both Corwin and Chalfin apply a Marxist theory of value as they foreground human labour as the basis for value creation. But they make a novel contribution with their view that labour in the afterlife of commodities does not occur under capitalist forms of production, therefore producing value other than capital. This theme is further explored in the following section.

2.3 Waste and value

An extensive body of literature has been produced on the relation between waste and value, and scholars have taken various approaches in theorising this relationship. Notably, Millington and Lawhon (2018), Moore (2012) and Samson (2012) have compiled comprehensive literature reviews on this body of work, each creating a unique and insightful thematic analysis of the literature.

Millington and Lawhon (2018) conduct a review of waste geographies from the Global South. The authors draw from southern theory and suggest this focus can be productively extended through greater consideration of the production of value and the role of materiality and technology in the wastescape. Here they identify four conceptual vectors through which they examine trends and suggest new directions in southern waste studies, namely: 1) a focus on informality; 2) multi-scalar governance of wastescapes; 3) work that analyses reinscribing waste with value; and 4) work with a consideration for metabolisms.

Moore (2012), in contrast, conducts an innovative review of conceptual frameworks used to theorise waste and questions related to waste. She situates these frameworks along two axes: the first axis divides essentialised and relative meaning or value associated with waste, and the second divides waste perceived as separate from society or embedded in social processes. The quadrants formed by these axes offer an insightful reference for locating my own

research both theoretically and conceptually, since this study of waste reuse practices places emphasis on the pliability of waste material and further points to its relative meaning or value related to the creative or innovative human action applied.

Samson (2012) identifies three key themes in studies on capitalist value production from waste materials: 1) value production necessarily generates ever-increasing amounts of physical waste, but, parallel to this, wasted human and productive capacity are also generated; 2) waste is viewed as something out of which value is generated; and 3) there is potential value to be created out of waste material with the incorporation of a labour theory of value. In their review, Samson notes that "the radical potential of practices rooted in values other than those of capital is the focus of a growing body of literature" (2012:58). These works are discussed in more depth in the theoretical framework section of this chapter, as the theme of values alternative to capitalism constitute the basis around which the concepts of "outside-circularity" and "deconstructive creation" are formulated. Samson (2012) highlights the important fact that discussions around value inside capital versus outside capital have neglected feminist literature on this subject. The current study situates itself within the third theme identified by Samson (the potential value created out of waste material) and makes a contribution to this body of work in its focus on reuse practices.

As much as these reviews offer perceptive commentary and analysis on work produced up to the present, apart from the works discussed in Samson's (2012) third strand, the discourse on waste and value has been dominated by analysis of economic value, and the reviews mostly speak to this form of value. Here I note Isenhour and Reno's (2019) insight that contemporary economic logics have neglected value generation in locations such as "distribution and disposal". A key aim of the current study is to focus on value production and exchanges that do not necessarily fit within linear production-consumption-disposal systems, i.e., the mould of capitalist production.

However, this does not mean it will be avoided completely. In response to the other reviews, what follows is a literature review structured around the same existing body of work, but in it I formulate my own framework allowing for a wider range of values to be considered. Similar to Moore (2012), I situate work on waste and value within a framework of two axes forming

four quadrants. The first axis has on the one pole "value within capitalist production" (inside capital) and on the other "value produced outside of capitalist production" (outside capital). This axis divides works according to whether their theoretical approach is applied to processes of capitalist value creation or other value-creation processes. This follows the definitions of "inside" and "outside" explained in Chapter 1. The second axis demarcates "optimistic" on the one pole and "sceptical" on the other. For this axis, it means that the theory applied is either optimistic or sceptical about the position of the actor behind the transformative waste practice, in terms of their ability to exercise autonomy or determine value under their own terms and conditions. It must also be added that, whereas the previous reviews mainly looked at economic value creation, the current review will include sociological as well as cultural value creations or structures (Graeber, 2001:1–2).

2.3.1 Inside-capital-optimistic

The review begins by looking at the quadrant I have labelled "inside-capital-optimistic". Research within this quadrant is characterised by the assumption that value is produced from waste material, and these writers situate these value-production processes within capitalist market economies (Barr et al., 2001; Bulkeley & Gregson, 2009; Gidwani, 2015; Lewis & Rauturier, 2019; Millington, 2018; Samson, 2015, 2019). Gidwani (2015) and Samson (2015, 2019) both adopt neo-Marxist approaches to situate the role of the urban waste precariat within the urban political economy of waste. The writers emphasise the integral role of the urban waste precariat in establishing the informal waste economy, but also portray their vulnerability to state and market forces. Gidwani (2015) applies the term "infra-economy" to India's waste economy in an attempt to blur the stark distinctions between the formal and informal typically applied to market distinctions, and hereby illustrates how integral the work of waste pickers is in the urban waste economy. Gidwani shows how the highly organised work of waste pickers allows for effective manoeuvrability against state and market threats, but, importantly, avoids romanticising their position. Instead, Gidwani points to their work as integral albeit exploited in a post-colonial capitalist economy where individuals were skilful in forging this position. Contrary to scholars who argue that capitalism necessarily produces human waste, Gidwani (2015) develops a rather more progressive argument by casting a more optimistic light onto waste pickers' position and acts of contention.

Parallel to Gidwani (2015), Samson (2015, 2019) applies the theoretical concept of "accumulation by dispossession" in a novel way to show how the state and market seek to capture new spheres of accumulation opened up by waste pickers. In her account, she is attentive to offer fair representation of waste pickers' contention as a critical response to scholars who neglect to represent the assertive actions of waste pickers in the face of market and state volatility. The epistemic agency of waste pickers as creators of new knowledge and as people who hold crucial knowledge is thus foregrounded. This is something that other scholars have not focused on. Samson's work shows how waste pickers have contested state actions of accumulation by dispossession and successfully warded off the state and capital's strategies to dispossess them. Samson follows similar theoretical approaches in the studies "Old trash, new ideas" (2016) and "Not just recycling the crisis" (2017).

Within the same quadrant of inside-capital-optimistic, I identified a second theme in the approaches of researchers in geography (Lewis & Rauturier, 2019; Millington & Lawhon, 2018). These writers conduct a review of research on waste picking globally and from this formulate innovative approaches to guide further research and ways of conceptualising global waste economies. In their paper, Lewis and Rauturier (2019) build on scholarship emerging from economic geography and anthropology that aims to challenge narrow commoditised conceptions of labour and value. Typically, waste picking is viewed as "outside of market-based conceptions of the economy, value and labour" (2019:493). The authors do not conceive of the value produced as outside of the capitalist market, but they make waste picking part of the value chain by problematising the distinction made in literature along geographic lines where, on the one hand, excessive consumption and dumping takes place in the Global North and, on the other hand, waste picking or scavenging is practiced as survival strategy in poor communities of the Global South.

This view typically portrays waste pickers as passive victims of top-down forms of industrial and consumer capitalism. These authors (Lewis & Rauturier, 2019; Millington & Lawhon, 2018) incorporate the term "global gleaning" to bridge this problematic distinction as a way to reposition waste picking as representative of a space for potential resilience and innovation, skilled labour and value creation that offers models for adaptive urban futures. Millington and Lawhon (2018) recognise the potential for value to be generated from waste,

contributing unique views in their focus on southern theory. Although Millington and Lawhan's (2018) paper serves as a review of existing texts and does not specifically explore waste labour processes, it recognises labour as the fundamental factor in value production and suggests that this should receive greater emphasis in future studies of value production in the waste economies of the Global South. They argue that incorporating southern theory allows for "a relational understanding of multiscalar wastescapes" (Millington & Lawhon, 2018:1). While they argue that studies in the Global South have focused on informal work and its relation to neoliberal governance, they also suggest that this can be productively extended by also placing emphasis on the production of value, and additionally on materiality and technology. This is relevant to geographies in the Global North dealing with the effects of austerity and over-consumption or to those in the Global South addressing issues of environmental degradation, inundated waste management structures and lack of resources.

The last major theme identified in this quadrant emerges from studies with a focus on household waste management and potential approaches to minimisation (Barr et al., 2001; Bulkeley & Gregson, 2009). Bulkeley and Gregson (2009) follow a similar conceptual argument as Lewis and Rauturier (2019) and emphasise the importance of expanding the commodity value chain post-consumption. In this article the authors adopt a pragmatic approach in their conceptualisation of a value theory related to waste. They develop this approach with the aim of reducing waste generation. This theoretical argument is grounded in the understanding that consumers' acts of what the writers call arts of transience are at the core of unmanageable waste generation.

Barr et al. (2001) develop an analytical framework for the study of behaviour related to household waste management. Although their paper is policy focused and lacking in theoretical depth, the development of the framework incorporates cultural value systems in relation to environmental perceptions. Underlying this approach is the understanding that industrialised capitalist countries generate unmanageable amounts of solid waste. Thus, the aim of the paper is to find a causal correlation between value (environmental values) and human actions in the hope of curbing the unmanageable amount of solid waste generation. Barr et al. (2001) suggest extending the social life of waste material as a way of reducing the copious amounts of waste generated. In other words, the potential to create value out of

waste material is recognised; however, the authors do not make any practical suggestions as to how this might be achieved beyond their conceptual insights.

Both papers (Barr et al., 2001; Bulkeley & Gregson, 2009) consider the potential of creating value out of waste within capitalist processes. Unfortunately, these writers entertain the idea that waste management challenges could be addressed through consumer perception and behavioural change, without making any structural links between surplus production under industrial capitalism and unmanageable waste generation.

2.3.2 Outside-capital-optimistic

The second quadrant, labelled "outside-capital-optimistic", includes the work of researchers who consider the radical potential for value to emerge from multifaceted relations with waste materials (Chalfin, 2019; Gidwani, 2008; Graeber, 2001; Gibson-Graham, 2006; Gregson, 2010; Graham & Thrift, 2007; Reno, 2014; Reno, 2018). Work situated within this quadrant contains three sub-themes: 1) new materialist approaches to the waste and value relationship; 2) value generated from obscured waste disassembly practices; and 3) theory rooted in value alternative to capitalism.

Approaches in the first theme are captured in the work of Reno (2014, 2018) and Gregson and Crang (2010), which suggests a new approach to waste studies in making materiality the centre of their discussion. These scholars suggest a movement away from constructivist approaches which, in their opinion, have dominated the discourse on waste studies. Reno suggests an approach he terms "bio-semiotics". In this approach, waste is productively thought of as a moment of exchange between living beings, the temporary illusion of non-life, which continues to be microscopically lively and readily gives way to more macroscopic arrangements. Ultimately this approach aims to formulate a new environmentally conscious materiality, one which opens our awareness to *all* possible processes and exchanges, not only those informed by capitalist market (i.e., extraction, production, consumption). Gregson and Crang (2010), however, conduct a review of waste scholarship that emphasises waste as "becoming" (contingent processes) and "unbecoming", the sequestered back-end of materials life cycles. Their suggestion to focus on the material of waste calls for a move beyond waste categorisation and governance to consider "opening out its ontological

politics" (Gregson & Crang, 2010:1026). However, one has to ask, when the centrality of human action is lost, what is then left to be said about value? On the one hand, it could be argued that it is our anthropocentrism and a disregard for other life processes that led to our current catastrophic environmental predicament. On the other hand, removing human action as central focus poses the challenge of being inundated with internal relations and complexities which Hart (2018) refers to as "a giant bowl of spaghetti" that could lead to conducting research for research's sake or getting lost in absolute relativism. One would do well to steer clear of what could be termed the pitfalls of new materialism, merely pointing to the complexity of our material world and losing its crucial social application in the process.

In the second theme within this quadrant, value is generated from waste disassembly (Chalfin, 2019; Graham & Thrift, 2007). Like Gidwani (2015), Chalfin views precarious work such as waste disassembly as part of the urban infrastructure which embeds lives and labour. This is what Chalfin describes with her term "dialectics of precarity" (2019). She captures the lines and flows of bodies and materials spanning across national and cultural borders to constitute the meshwork of the dump. Graham and Thrift (2007) incorporate Heidegger's concept of "ready-to-hand" to argue, firstly, that a ready-to-hand tool cannot be seen as an isolated object but immediately implies a whole process or system of interconnectivity. Secondly, they argue that it is only when these "tools" break down that we become aware of this interconnectivity, because of its ubiquity; as they state, "disconnection produces learning, adaptation and improvisation" (2007:5). Both these authors draw from assemblage theory to illustrate disassembly as essential practices but cautiously avoid the use of actor-network theory as they place particular value on human skill and labour. Here specifically, Chalfin (2019) blurs the stark distinction between so-called old and new materialist approaches, with the old focusing on labour, class and human action (Marx), and the new on objects, networks and non-human agency (assemblage). She uncovers the contrasting workings of twenty-first century late capitalism by emphasising the precarious conditions it creates as well as potential for accumulation. Thus, where Chalfin points to the value in human labour of disassembly, what she calls "the dialectics of precarity", Graham and Thrift (2007) illustrate maintenance and repair as pivotal to human existence and essential to our learning processes.

Further, Chalfin (2019) highlights how waste work challenges mounting alienation from production processes and planned obsolescence under late capitalism. Chalfin incorporates a concept of value, namely "excess value" (which she borrows from Bataille (1988)), and contrasts this with "surplus value" produced through the exploitation of human labour, stating that excess value is released through the destruction processes of discarded materials. She cements her argument in discussing two contrasting processes simultaneously at work: while waste workers use concrete labour to destruct and disassemble materials, they also forge inalienable social ties in solidarity networks on the dump. Chaflin's article therefore emphasises the creative-destructive nature of late capitalism and the potential for alternative life and livelihoods gleaned from the after-life of capitalist ruins.

The last theme of this quadrant explores work covering theory rooted in value alternative to capitalism (Gibson-Graham, 2006; Gidwani, 2008; Graeber, 2001). Writers within this theme have one key thrust in common: they all challenge the notion of capitalism as an all-encompassing and unchangeable system, and they therefore explore possible alternatives to it. Each, however, adopts unique approaches within their own exploration. Gidwani (2008) follows a Marxist approach to distinguish between "politics of work" and "politics of labour". His politics of labour refers to the classical Marxist dialectical relationship between capital and labour, essential conditions for the capitalist mode of production. However, by politics of work, Gidwani seeks to "reclaim for that term its heterogeneous and irreducible sense of meaningful fabrication—labour as potentiality: potentiality as activity" (2008:212). Simply put, all valuable human activity that refuses to be defined or reduced to capital is therefore "not-capital" (Gidwani, 2008:213). Gibson-Graham (2006) also follows a Marxist approach but they formulate a feminist critique of the political economy, specifically focusing on the interconnection between capitalism and gender. They explore how capitalism perpetuates and reinforces gender inequalities and argue that capitalism is not a monolithic entity but rather a diverse and contingent set of economic practices. However, importantly, they also emphasise the potential for alternatives and resistance to arise within these same structures. Graeber (2001) follows in the tradition of Marcel Mauss to formulate what he calls a neo-Maussian approach to value theory. His theory of value does not explicitly deal with waste and value; however, the theory itself makes way for the conceptualisation and analysis of forms of production which do not fall under capitalism. The theory, which casts creative

human action as fundamental to value creation, is applied as a critique of proliferating neoclassical economic models such as *homo economicus*, formalist understandings of economic activity and value which view humans as consistently rational beings functioning as self-interest-maximising individuals operating under conditions of scarcity. Similarly, Gidwani (2008) argues for a movement away from the conventional Marxist relation between labour and value. He suggests the rejection of capitalism as a coherent complex whole wherein a plethora of values can be fitted into. Instead, Gidwani (2008) suggests we look at value creation as an assemblage of numerous different forms of value creation. Research within this quadrant is most useful to the current study as the ethnographic data point to similar processes of value produced outside capitalist lines of production.

2.3.3 Inside-capital-sceptical

The third quadrant, labelled "inside-capital-sceptical", discusses literature focusing on value production within capitalist processes. In this quadrant, the labour and life circumstances of the urban waste precariat are cast in a sceptical light in terms of their own autonomy. These writers argue that capital necessarily turns human labour to waste (Gidwani & Reddy, 2011; Goldstein, 2009; Wright, 2006; Yates, 2011). Drawing from Marxist theory, these scholars argue that surplus value is extracted from the exploitation of labour power, and in the particular case of the waste economy this applies to reclaimers and transformers of waste materials. Samson notes that Zygmaut Bauman (2004), although not following a Marxist framework, was the first to employ the concept human waste in *Wasted Lives: Modernity and its Outcasts*; however, Bauman does not write about this in relation to capitalism but rather as the natural outcome of modernisation (Samson, 2012:52). Following Bauman (2004), the works noted here make use of the concept of "human waste" in their own analysis of waste-related labour.

Gidwani and Reddy (2011), Wright (2006) and Yates (2011) take these thoughts further by formulating quite a desolate theory of human waste related to surplus populations: they see no potential for agency under capitalist production in the lives of those labouring on waste. Birkbeck (1987) also fits within this line of thought and was the first writer to apply social theory to the act of waste picking, or what he called "informal recycling". He makes the argument that informal recyclers are nothing more than casual industrial outworkers with the

illusion of being self-employed. He therefore refers to them as self-employed proletarians, being self-employed but selling their labour to recycling companies. He emphasises the fact that, although they might determine their working hours and conditions, they do not determine the prices paid for materials and do not have access to the benefits that formal employment has to offer. While noteworthy, these works contain a significant blind spot regarding the way they theorise the struggles of people who, according to them, are turned to "human waste". This is expanded upon in the last section of this chapter, section 2.4.

2.3.4 Outside-capital-sceptical

The fourth and last quadrant is labelled "outside-capital-sceptical", and for this section I discuss three works that potentially fit within both the second and fourth quadrants (Fredericks, 2013; Gille, 2007; Moore, 2009). These authors draw on Douglas's (1966) term "matter out of place" in relation to waste and how ideas of order and disorder function in a modernising city. Gille (2007) writes about value and waste in socialist economies. In socialist Hungary, waste was seen as an input for production. Each economy has its own "waste regime" and has the potential to produce negative or positive value. Similar to Gille's work, Fredericks (2013) and Moore's (2009) work is closely related both teleologically and in the theoretical framework they adopt. The socio-political context for both articles is set in political disputes, where waste workers use the ambiguous characteristic of waste as a tool for protest action. In this way, waste workers point to their integral role within a modernising city. These articles do not fit neatly into either quadrant two or four. The authors clearly point to the production of waste within capitalist economies and the relation it has with the given socio-political and spatial context. However, the authors do not seem to make the argument that value is generated out of waste material but rather point to the ambiguity regarding the cultural perceptions of waste, where it has the potential to disrupt or create value.

2.4 Life from capitalist ruins

In Chapter 1 I pointed out that numerous researchers studying waste have recently conceptualised solid waste and its generation as modern-day ruins (Crocker & Chiveralls, 2018; Dawdy, 2010; Edensor, 2005; Gordillo, 2014). In line with these authors, I situated my own perception of waste materials applied the terms "ruins" and and its generation to "ruination". Following in Harvey's (2005) conception of neoliberalism, I drew a linkage

between ruins, ruination and neoliberalism in the sense that neoliberalising markets and states are defined by decreased state regulation, opening up markets to multi-national companies to import technologies at lower prices and quality at the expense of local markets (Harvey, 2005). Building on this, the following section reviews scholars who take a critical approach to capitalism and modernity by placing specific focus on capitalism as a creative destructive process which leaves various forms of ruin in its wake (Chakrabarty, 1992; Dawdy, 2010; Edensor, 2005; Gordillo, 2014; Stoler, 2013; Tsing, 2015). The review consists of both historical and contemporary perspectives, where the authors suggest a turn to the specific characteristics in capitalism and modernity that necessarily produce modern-day ruins. Although these authors write about seemingly diverging subjects, from disparate disciplines, they all share the common aim of eradicating capitalism and modernity's authority and commonly held perceptions of their permanence, while others also consider the possibility of life to emerge from capitalism's ruins.

2.4.1 How ruin is perceived

Schumpeter (1950) first developed and applied the term "creative destruction" in reference to what capitalism does. He developed the term to describe the constant technological innovation under capitalism, which leads to progress but also to disruption in the market and the obsolescence of other innovations and industries. Schumpeter does not view this as a fatal flaw in capitalism but argues that it allows for a more democratic future to emerge, as the world becomes all the more unbalanced in wealth and power. In contrast, the authors reviewed in this section have critically analysed progressive perceptions of capitalism and modernity (including industrialisation) and the disruptive consequences they have had (Dawdy, 2010; Gordillo, 2014; Stoler, 2013). Gordillo (2014) and Dawdy (2010) conduct their studies on perceptions of material ruin, adopting a negative dialectic (Adorno, 1973) approach to modernity and capitalism. Gordillo (2014) specifically applies the concept of constellation and points to the fetishization of ruin when he states, "The best-kept secret of the heritage industry is that its ruins are rubble that has been fetishized" (2014:9). Dawdy (2010) notes a similar parochial view in how the term modernity carries a discursive history characterised by a point of rupture followed by evolutionary progress. There is no consensus around the exact historic moment of rupture, but she explains it is generally understood to

have been ignited by a number of innovative ideas and technologies which gave way to endeavours of imperial expansion between the fifteenth and seventeenth centuries.

These studies of the afterlife of ruins or rubble are in constellation with a history of colonialism and late capitalism, which point to processes of ruination or "destructive production" (Gordillo, 2014; Tsing, 2013), rather than Schumpeter's (1950) creative destruction. Specifically, Gordillo (2014) states that Schumpeter downplays the violence of this historical process and therefore takes a more critical approach to capitalism than Schumpeter, placing it in a longer history of exploitation of social and natural resources especially in the colonial era. Dawdy (2010) directs her criticism at academic work to show that, despite the significant critique aimed at the understanding of modernity as temporal and exceptional in anthropology and archaeology (and other social sciences and arts), it still permeates these social sciences. Dawdy therefore attempts to lay this perception to rest by stating that fundamental to the understanding of modernity as temporal and exceptional is the fact that it allows for the disjuncture or split between archaeology and ethnography, and between ancient archaeology and historical archaeology (a linear split between modernity and antiquity), and specifically the treatment of modern urban ruins as dystopic, thus fetishized. Stoler's (2013) approach corresponds to Dawdy's, however; Stoler's focus is less on ruin(s) as a static product of the past than it is on ruination as an active, continuous process that "allocates imperial debris differentially and *ruin* as a violent verb that unites apparently disparate moments, places and objects" (Stoler, 2013:7). In the same way that Dawdy analyses the effect of modernity on spatiotemporal landscapes and urban wastelands, Stoler looks at its ongoing effect from a post-colonial paradigm, constantly aware of its colonial past. She therefore suggests a *turn to* rather than an *overlooking of* the ruins of modernity, an aim which the current study adopts in relation to neoliberalism and its colonial part (discussd Chapter 4)

2.4.2 What ruins do

In addition to perceptions of ruins, authors have also analysed what ruins do (Dawdy, 2010; Edensor, 2005). Like Dawdy, Edensor (2005) suggests a similar turn to ruins, but he specifically studies industrial ruins. While Dawdy argues that a turn to ruins would undermine the perception of modernity's stability and progressiveness, Edensor suggests that ruins already

cause disruption or rather threaten normative structures. Edensor follows a structuralist approach, drawing from Douglas's (1966) concept of "matter out of place" to formulate his argument that the materiality of industrial ruins disrupts the normative placement and ordering of objects. Edensor also argues that waste material serves as evidence in a critique of the universal myth of progress driven by "the innovative power of capitalism" (2005:316).

Dawdy (2010) shows what is meant by modernity's temporality and illustrates alternatives in popular culture and scholarship. She highlights how "modernity's temporality" has affected spatiotemporal landscapes, overlooking urban wastelands, a central part of modernity's destructive character.

2.4.3 Possibilities from ruins

Lastly, authors have also considered the possibilities that might arise from the transformations of ruins caused by modernity and capitalist expansion (Chakrabarty, 1992; Edensor, 2005; Tsing, 2015). Chakrabarty (1992) and Edensor (2005) interrogate the relationship between industrial ruins and urban space. Chakrabarty (1992) formulates a critique of modernist readings of the appropriation of public space in India. This is done by contrasting structuralist speculations based on a preliminary study of historical and anthropological material to these modernist readings. The writer uses this approach to analyse perceptions of "the outside space" which gathers garbage. The need to transform open spaces into public spaces, he argues, speaks of the governing of chaos to finding order in disorder. Edensor (2005) also considers the ordering of urban space, specifically the ordering of material ruins. Here Edensor, like the participants of the current study, considers the potential for the material ruins to be reinterpreted and reused. Edensor suggests the loss of the "magic of the commodity", or value allows for the potential to be reinterpreted in its reuse state. Tsing (2015) traces the flow of matsutake mushrooms from gift to commodity and back in a global capitalist context to draw attention to the environmental ruins from colonialism to capitalism and the possibility of life to emerge from it. She incorporates three analytical concepts – scalability, salvage accumulation and global supply chain – in order to construct an argument which illustrates how the current neoliberal market makes use of non-capitalist, non-scalable production models to sustain itself. She argues that it is these non-scalable processes that go unnoticed but are much needed in maintaining life processes.

These processes consist of entanglements between human and non-human beings which Tsing refers to as “latent commons” and which she argues could be mobilised in a common cause. This complements her suggestion that pre-capitalist economic forms still exist which could be used to rethink the unquestioned authority of capitalism in our daily lives. Hereby Tsing suggests a consideration of the possibility for a precarious life free from the capitalistic understanding of progress, but rather one that is more representative of the world we live in. As I began to discuss in Chapter 1, I portray waste materials as ruins of neoliberal capitalist markets, where neoliberal markets exhilarate the process of commodity obsolescence and thereby the ruination process.

2.5 Conclusion to literature review

In this review, I have critically engaged three bodies of literature that are key components of the current study. The first considers work on waste reuse in a broad range of approaches which has greatly contributed to our understanding of these practices at various scales and in an array of different contexts globally. In this section, I have presented the contributions of various scholars, but I have also identified the gaps that would deepen the way we understand and situate waste reuse, specifically in urban neoliberal contexts. Particularly, I have emphasised the value of applying a labour theory of value to the process of waste reuse, a point which will be built on in the theoretical framework.

The second body of work reviewed examines the relation between waste and value. In order to situate the current study within this body of work, I have formulated four quadrants and placed the reviewed works under these. My study of waste reuse practices in the City of Tshwane fits within the quadrant named outside-capital-optimistic, and in the following section I elaborate on this theme by further engaging and analysing the theoretical frameworks that the writers from this quadrant have developed.

The third section of this review is titled “life from capitalist ruins”, and the critical approaches to modernity and capitalism adopted by these writers enable me to make a novel contribution to the study of waste reuse. By splicing together the ontologies of writers of the outside-capital-optimistic quadrant and the writers in the “life from capitalist ruins” section, in the

following section I lay out the current study's contribution to our understanding of waste reuse.

2.6 Theoretical framework

The literature review discussed numerous writers who have, in different capacities, considered and explored the emancipatory potential related to waste reuse practices (Chalfin, 2019; De Angelis, 2007; Edensor, 2005; Gidwani, 2013; Graham & Thrift, 2007; Isenhour & Berry, 2020; Tsing, 2015). However, this emancipatory potential did not constitute the main research theme of these writers. In the current research project, I make waste reuse practice, seen as alternative value production, my main subject of study, and for this I develop a theoretical framework befitting the task. This following section is comprised of a discussion of the developed theoretical framework, which builds on two bodies of work discussed in the previous section. One body theorises the relationship between waste and value, and the second conceptualises works on the theme of "life from the ruins of capitalism". These two bodies of work have as their epistemological foundation the three theoretical lineages of radical Marxist geography (including autonomous Marxism), assemblage theory and neo-Maussian approaches. In the following section I discuss these theoretical works and how they comprise the developed theoretical framework to address the main research question and sub-questions.

2.6.1 Value beyond capital

Some neo-Marxists (De Angelis, 2007; Gibson-Graham, 2006; Hardt & Negri, 2000; Harvey, 2004) have sought to identify existing alternatives to capitalism within contemporary society. These writers incorporate the concepts of "commons" and "enclosures" to theorise the possibilities for self-organisation and advancing society, based on value not rooted in capitalism. I share this aim with the aforementioned writers; however, in my quest to identify existing practices not rooted in capitalism, I mostly draw from neo-Maussian scholars (Graeber, 2010; Munn, 1986, 2007) to theorise social relations and market exchanges, and from assemblage theorists (Ingold, 2000; Tsing, 2015), who aid in the formulation of concepts that simultaneously capture materiality, human skill and space-making entanglements. This is kept in constant conversation with Marxist approaches and writers in radical Marxist

geography (Hart, 2006, 2018) as these thoughts and concepts frequently overlap. These scholars, Marxist, neo-Maussian and assemblage, do not deny the intrusive effects of capitalist expansion and the devastating effects it has had on most of the global human population, limiting its benefits to a minority elite class. However, while bearing this unequal reality in mind, they carry an emancipatory inclination aiming to achieve two goals simultaneously. While scholars within this "value beyond capital" theme firstly analyse, unpack and aim to dismantle capitalist processes, they also entertain the possibility that an alternative to this form of value might already be in practice within contemporary society. Thus, the second aim of their research is to identify the possible alternatives to our current unequal predicament already practised in present-day contexts.

The previous section consisted of a literature review discussing theories on waste and value, and one of the identified strands, labelled "outside-capital-optimistic", was placed as one of four conceptual quadrants dealing with similar theoretical themes. "Outside-capital-optimistic" denotes that the work focuses on value theorisation outside of or alternative to value rooted in capitalist production. This theoretical framework is not exclusively developed to capture value produced outside of capitalist production, but rather encapsulates capitalist value while also, importantly, stretching beyond its bounds. Three writers have developed approaches that explore the "radical potential of practices rooted in values other than those of capital" (Samson, 2012:58). These writers and their works discussed are David Graeber's *Toward an Anthropological Theory of Value* (2001), Vinay Gidwani's *Capital, Interrupted* (2008) and Massimo de Angelis's *The Beginning of History* (2007). I analyse their theoretical approaches and how they relate to my own framework in the following section.

Although Gidwani makes a contribution to the "problem of agrarian transition", or what he terms a genealogy (in the Foucauldian sense) of agrarian capitalism, he also touches on the aspect of waste in relation to colonial governmentality, "channelling and forming in desired ways the errant matter of native subjects and their physical environments" (2008:xx). However, Gidwani's core argument seeks to challenge the assertive narrative of capitalism as an all-encompassing totality that renders all human and non-human activity reducible to capitalist production. He shares this thrust with De Angelis (2007), who argues that capitalism wants to usurp all other values under its own law of value. De Angelis explains that capitalism

forces individuals through enclosures to become dependent on the market for production and reproduction of their livelihood, whether under wage labour or unwaged. Thus, even though some are not working or selling their labour to capitalism, they all fall under capitalism's law of value. Graeber (2001) addresses the same hyperbolic attribution given to capitalism by drawing on a rich body of literature in economic anthropology to develop an approach he calls neo-Maussian. This is in reference to Marcel Mauss and his work in *The Gift* (1966), where Mauss offers an extensive ethnographic account of gift economies. Mauss aimed to show how a thriving gift economy is practised within a context supposedly enveloped in capitalism's law of value and exchange.

In their consideration of alternatives to capitalism, the writers each take a unique approach. De Angelis argues that capitalism can be contested by forging new value practices from the "outside". However, new value practices cannot be defined in the abstract but must be developed in struggle. Therefore, when differing values come into conflict it constitutes a "value struggle" (De Angelis, 2006:31). De Angelis's use of the term "outside" correlates with my own concept of "outside-circularity". By outside-circularity I capture waste reuse practices that constitute a form of circularity separate from state and market-based initiatives to establish a circular economy. In addition, these practices do not follow capitalism's law of value, but also do not completely function independent of a capitalist market. In other words these practices do not exist in a bubble, but are gleaned from capitalism's ruins to produce new things of value.

Gidwani's (2008) distinction between "politics of work" and "politics of labour" does well to theorise these "outside" practices. As previously mentioned, Gidwani's politics of labour refers to the classical Marxist dialectical relationship between capital and labour, which are essential components to the capitalist mode of production. Gidwani seeks to redefine "politics of work" to encompass all valuable human activity that refuses to be defined or reduced to capital, which can therefore be viewed as "not-capital" (Gidwani, 2008:213). In later work Gidwani discusses this not-capital value to be gleaned from the urban commons, where waste landfills serve as an example of a commons utilised by surplus labour. However, Gidwani here considers the possibility that this surplus labour could serve to subsidize and supplement capitalist accumulation (Gidwani, 2013: 776). While Gidwani's formulation of

politics of work is useful and succeeds in certain values outside capitalism, it has some limitations. The waste reuse practices I seek to analyse also contribute to value in the form of the city aesthetic, new kinship formulations and the production of space. These do not seamlessly fit with and theorise actions related to work, but rather is more akin to O'Hare's (2022) argument which posits that poor communities salvage waste from the commons to form care giving economies. For this Graeber's (2001) value theory of creative human action offers a more apt theoretical lens.

Graeber (2001) develops his value theory by placing creative human action at the centre, thereby casting a wide theoretical net, as opposed to a Marxist approach, which exclusively centres human labour. However, Graeber's theory views society as constituted by creative human action inseparably connected to a material medium, therefore aiming to bridge the materialist-ideology binary. Based on this, Graeber argues that power takes on two forms, visible and invisible. Visible power is concrete and serves to invoke action, such as the physical appearance of a monarch, whereas invisible power is abstract and has the potential to act, for example via the state apparatus. He uses this to argue that struggles over value are political, firstly, and, secondly, more about *how* value is to be defined than about value itself (Graeber, 2001:115). This understanding of value is summarised in the notion of "constitutive imagination", which Graeber borrows from autonomous Marxists (Kalb, 2021). Graeber's conceptualisation of constitutive imaginations allows for the value theorisation of alternative value-production processes – for example, in the form of "deconstructive creation" and "outside circularity", two concepts which I develop and employ here. However, Kalb's (2021) criticism of this theory is that it becomes a parochial and fragmentary theory that needs to be adapted with every new geospatial application, therefore losing ground as a universal theory. However, for the purposes for theorising waste reuse practices, this limitation was not encountered.

De Angelis (2007) also considers, like Graeber, that alternative value practices already exist in contemporary society. Furthermore, De Angelis writes about "detritus", a result of extraverted surplus labour and surplus value. Detritus refers to those pushed outside of wage labour and those working for low wages. In his view, detritus permeates the body and life activity, and he sees people working with waste as the ultimate example thereof. However,

De Angelis also enthusiastically argues that those entangled with detritus are uniquely positioned to develop alternative values within the context of their struggles for reproduction due to the fact that waste material temporarily remains an undetermined value. This train of thought bridges this first body of work, "value beyond capitalism", to the next, "life from capitalism ruins" and assemblage theory, which I discuss in the following section.

2.6.2 Assemblage theory and life from capitalist ruins

One approach that writers have taken to debunk capitalism and modernity's perceived exceptionalism is to discredit portrayals thereof as the apex of humanity's natural progress. Here I highlight the work of Adorno (1973) and Benjamin (Benjamin and Tiedemann, 1999) for their influence on the literature I discuss hereafter. In his book *Negative Dialectics*, Theodor Adorno (1973) aimed to rid the dialectic approach of its teleological tendencies, an aspect he argues Hegel never critically interrogated. Not only does Adorno adopt a Marxist dialectic approach in analysing and criticising capitalism, but he applies this to the whole of humanity and its history, discrediting especially the view of modernity as exceptional and progressive. For Adorno there is no progress in this. Adorno and Walter Benjamin were academic and intellectual collaborators, with both having strong relations to the Frankfurt School, and Adorno drew most of his negative dialectics approach from Benjamin's (1999) concept of "constellation", particularly its potential to counter the fetishization of objects (Gordillo, 2014:20). Gordillo explains Benjamin's concept as follows:

> Constellations point to processes that are stored in objects, but that are also outside of them: an outside that is multicentered and has a plastic, elusive form, for constellations have no clear boundaries and superimpose on each other, forming palimpsests.
>
> (Gordillo, 2014:20)

Benjamin argued that the passing of time did not bring progress but fragmentation, such as the fragmentation of an object from the processes that constitute or produced it (Benjamin and Tiedemann, 1999). Here I point out a similar thrust in thinking between Adorno and Benjamin in their negation of societal progress, which is often accepted as the natural trajectory of human evolution. I apply this thought to historical processes of capitalist expansion and the eventual unmanageable generation of waste in the post-apartheid urban context of this study. In the last section of the preceding literature review I discussed authors

who capture negative dialectics in their own work, emphasising the ruins left in capitalism's wake (Dawdy, 2010; Edensor, 2005; Gordillo, 2014; Stoler, 2013; Tsing, 2015).

In addition to the theoretical line of negative dialectics, most of these writers also incorporate concepts from assemblage theory in their approach. I discuss my own use of assemblage theory below, which mainly takes inspiration from Ingold's concept of "environment without objects" (Ingold, 2010). As mentioned earlier, there are significant conceptual overlap between assemblage theory and radical Marxist geography, and here I discuss my use of assemblage theory in comparison with these Marxist approaches, which I draw from to a lesser extent. Ingold's understanding of the meshwork concept forms a theoretical angle similar to Lefebvre (1974), Hart (2018) and Massey (1994), who consider space to be socially produced through interconnectedness of relations with wider arenas, and the particularity in this interconnectedness to form part of the same complex whole. But what sets Ingold apart from these theorists? Is his concept of an environment without objects and the negation of exceptional human agency truly so different from the Marxist approach of dialectic materialism?

In a paper titled "Bringing Things to Life", Ingold (2010) discusses his ontological concept of environment without objects, whereby he suggests a view of the material world as constantly in flux and in movement, a world where things are constantly "coming to life" through its entanglement with various simultaneous processes. He further argues that it is through its outward surface that an object reveals itself to the perception, serving as an interface to "more or less solid substances" (2010:6). The theory emphasises the permeability of surfaces and borders, arguing that it is the constant patterning of flow and flux that constitute surfaces and borders of things in his environment without objects. I illustrate this perspective at numerous scales in the study, ranging from waste materials being transformed at the hand of the urban waste precariat to their movement with their waste materials across different urban nodes from landfills to industrial zones to suburban zones.

Regarding spatial conceptualisations, Hart's (2018) approach is valuable as it offers a spatialised understanding of Marx's method pivotal to the study of waste and remake practices within a post-colonial urban space. For this, Hart employs the work of Lefebvre

(1974), who is known for his use of dialectical materialism specific to urban production of space. In particular, she applies Lefebvre's regressive-progressive method, which refuses separation between space and time. Hart's approach is grounded in a non-teleological conception of dialectics, which she argues is what distinguishes Marx from most other dialectical theorists and allows for a philosophy of internal relations rather than seeing processes as part of an overarching whole. Hart and Ingold share this relational, non-teleological emphasis in their approach, whereas conventional conceptions of capitalism and the market are understood to have an abstracting effect in the form of commodification, allowing "things" to be seen as separate from the processes that constitute them. In this sense, both approaches carry a demystifying quality. However, Ingold's relational approach is more aligned to assemblage theory, as he draws heavily on the work of Deleuze and Guattari (1987) and incorporates the concept of "matter-flow" in his understanding of materials as processes with their own agency, whereas Hart grounds her approach in Marxism, which foregrounds human labour.

In summary, Hart adopts dialectical materialism, whereas Ingold is positioned in the new materialism or assemblage theory. The main difference here being that assemblage theory completely rids itself of the prominence given to the human position, allowing agency to non-human material and dialectical materialism centres human action (labour). This aspect was essential as it enabled me to conceptualise a novel understanding of constellations, viewed as an entanglement of material medium and human skill.

Ingold also applies the concept of meshwork (which he borrows from Lefebvre), a concept quite similar to constellation. Ingold describes meshwork as an entanglement of interwoven lines, created by the movement of human and non-human matter alike to form "architexture" rather than "architecture", and he emphasises its ontological significance being in the entanglements that form reality, rather than the connection of dots (Ingold, 2000, 2007, 2010). Constellations, in contrast, conceptualise the capturing of human and non-human processes in the material medium, although being simultaniously "inside" and "outside" the object. Ingold is critical of the hylomorphic model, as he argues that its emphasis on the distinction between form and matter became unbalanced in its use throughout Western thought as humanity sought to wield its mastery over nature. He argues that, throughout the

Enlightenment and Modern eras, Western society increasingly shifted to view the world as active human agents exercising form onto passive non-human matter.

This historically unbalanced view of reality has misguided social scientists from capturing what he calls processes of formation or meshwork. It is this very disjuncture between humanity and nature that Ingold finds to be at fault and what he aims to overcome in his formulation of a relational-ecological-developmental synthesis. His approach gives preference to processes rather than objects and accentuates verbs rather than nouns. Here Ingold diverges from Benjamin's (Benjamin and Tiedemann, 1999) constellation, as in constellation processes are stored in the objects, whereas in Ingold's (Ingold, 2007) meshwork there are no objects, only "things", meaning greater emphasis is placed on the gathering together of the processes that constitute so-called objects, and objects are perceived as materials somewhat removed from the processes that entangle to constitute them. This perspective allowed me to conceptualise what I termed "outside-circularity", by identifying the processes or circuits of waste reuse practised outside of state and market-based circular economy initiatives.

Lastly, I apply these circuits of outside-circularity to the production of urban space. In his book titled *Lines: A Brief History* (2007), Ingold formulates a perceptive lens in his ontology of the environment and its relation to "the organism". For this he makes use of binary comparisons drawn between wayfaring and transport, and between inhabitation and occupation. The difference between wayfaring and transport can simply be explained as two modes of travel, where the one is a simple point A to point B connection pre-planned by the traveller, whereas wayfaring, its opposite, allows for a certain level of improvisation as the organism wanders and entangles with its environment. The comparison between inhabitation and occupation compares the ideas of dwelling and building. To expand on the spatial implications of his theory, Ingold formulates the dwelling perspective, which he contrasts with the building perspective. In the former, the organism-person immerses themselves into an environment where both entities are continually coming into being in a regular pattern of life activity (Ingold, 2000:153). In the latter, people inhabit a world of socio-cultural phenomena to which form and meaning has already been attached. By drawing the comparison between inhabitation and occupation, Ingold makes his perspective relevant to theories around

production of space. He states, “Wayfaring, in short, is neither placeless nor place-bound but place-making” (2007:101), as the life-lines entangle to form meshwork or what he calls an environment without objects.

I incorporated these concepts from Ingold’s meshwork approach to the waste reuse practices and practitioners in this study. This guided me to become aware of the multiplicity of processes – social, cultural, material and economic – that constitute waste reuse practices. I captured these processes in the formulated concepts of subsidiary and care economy, everyday communism, kinship structures and craft skill, all of which are further discussed in the substantive chapters.

2.7 Conclusion to theoretical framework

In this chapter, I have critically discussed the writers placed in the strand titled outside-capital-optimistic in the literature review, in terms of their theoretical approaches to value. Along with these, I have included writers from radical Marxist geography and assemblage theory. I have compared their ontological differences and discussed how these enable theorisation of practices rooted in values other than capitalism and allows for the consideration of potential alternative value producing processes to already be in practice. Specifically, the theoretical frameworks of Graeber (2001), Ingold (2000) and Hart (2018), woven together and kept in constant dialogue, together form the theoretical framework of this research project and greatly assisted in analysing the waste reuse practices of the urban waste precariat as they remake the post-apartheid city and urban life. By paying specific attention to the lines of entanglement between waste crafters, waste reuse practices, discarded or reclaimed waste materials, the state and market, the study illustrates how value is produced in ways that encapsulate but also go beyond capitalist modes of production. Therefore, the theoretical concepts of everyday communism, meshwork, environment without objects and critical ethnography are applied in the chapters that follow.

Chapter 3: Methods and Methodology

This chapter presents a detailed account of the methods and methodology developed and employed in conducting fieldwork for this research project. The fieldwork was divided into three main thematic components: finding the actors, tracing circuits and identifying points of transition. In the first section of this chapter, I introduce the study area, followed by a description of the methodological approach and its development process, including the works of authors from whom I borrowed for this development. The second section entails an overview of the methods applied which enabled me to attain the data relevant to answering the research questions. The third section includes a brief discussion of the sampling process, study limitations and ethical considerations of the study.

3.1 Study area: Post-apartheid urban context

The City of Tshwane is the largest municipality in South Africa in terms of land mass. It had a population of just over 2.9 million people in 2011, which increased to 3.3 million by 2020 (City of Tshwane, 2020; Horn, 2020; Statistics South Africa, 2011). It is the current administrative capital of the country and contributes 10% of the national economy's GDP (City of Tshwane, 2020). The city boasts a fast-growing economy compared to other South African cities, which is mainly attributed to well-established finance (25%) and manufacturing (13%) sectors, with the automotive industry as the most consistent major contributor in this respect (City of Tshwane, 2020). Although boasting a thriving economy, the city has not been averse to increased urbanisation coupled with growing economic inequality, by now a quotidian aspect of the South African urbanscape. Horn notes that "old apartheid patterns prevail" (2020:12) in the form of majority black and white unintegrated areas, and that continued growth of a mainly white population in the south-eastern area of the city has become an entrenched phenomenon. This south-eastern area forms the suburban node where most street waste crafters are situated and have established informal craft markets over the last two decades.

The study is situated within this post-apartheid city, specifically the eastern region known as Pretoria East. The area constitutes the wealthiest region of the city and was reported in 2017 to have overtaken Johannesburg's wealthiest suburb, Sandton, as the most valuable area by square metre in the province of Gauteng (Business Tech, 2017). The reason for situating the

study within this part of the city is twofold. Firstly, Pretoria East contains one of the few remaining municipal landfills within the city still fully in operation, namely Hatherley Landfill (see Figure 1, circled in green). This is a key aspect of the study as it entails identifying practices of reuse and remake which are operated from the landfill by the urban poor largely situated in the northern section of the area, contrasted against the opulence of the population residing in southern section of the same urban area. Secondly, as mentioned, this area contains some of the wealthiest residential areas in the city and retains racially unintegrated spatial legacies, carried over from the apartheid era, with a majority white population residing in the south-eastern suburbs (Horn, 2021). This foregrounds the stark contrast of the urban waste precariat's presence within this suburban area along class and race distinctions, and relates to perceptions fostered by wealthy private property owners of a potential threat to their properties and value systems (this aspect is discussed in detail in Chapter 4). Due to this location's proximity to high-income purchase power, waste crafters have over time established an informal craft market on the kerbsides of these suburbs, where they display their crafts and other products made from salvaged waste materials, all while facing constant police and residential harassment.

The urban area of Pretoria East consists of both historically white and black residential zones, which in the apartheid era were strictly demarcated according to the racial profile of their populations (Horn, 1998, 2020). These white and black urban zones were typically separated by industrial buffer zones and "green belts", as is the case with Pretoria East, where the industrial areas known as Silverton and Waltloo form such an example (see Figure 1, circled in orange). Silverton currently remains a thriving industrial area and hosts numerous businesses connected to the buying and selling of waste materials. A significant aspect of the study entailed the tracing of these waste materials from the area's landfill into the industrial zone, through the transformative hands of the urban waste precariat and the informal craft market, and back into the suburban houses. The study therefore focused on waste reuse practices in operation alongside the following main routes in Pretoria East: Lynnwood Avenue, Atterbury Road, Garsfontein Road and Solomon Mahlangu Drive (M10) (see Figure 1, highlighted in blue, pink, turquoise and green). The tracing of waste materials in motion required of me to incorporate multiple sites into my research area and for this I employed a multi-sited ethnographic approach (Marcus, 1995).

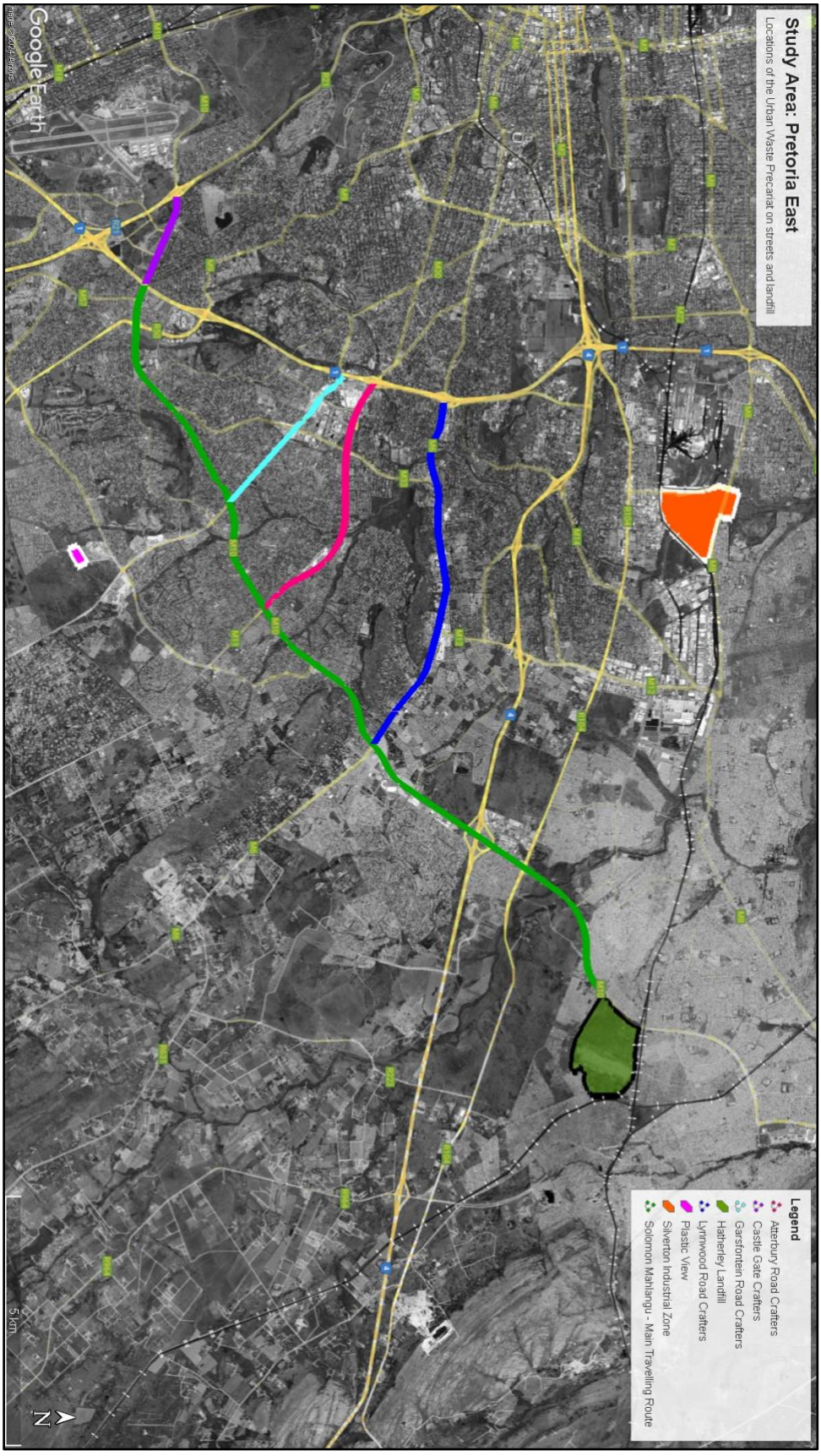


Figure 1: Map of Pretoria East showing research areas (by Bennie Burger)

Two of these fieldwork sites were co-occupied both by practitioners of waste recycling and by practitioners of waste reuse, as I place both these groups under the umbrella term of urban waste precariat. These two sites are Plastic View (Figure 1, pink demarcation), a black informal settlement situated amongst the wealthy, predominantly white suburbs in Pretoria East, and Castle Gate (Figure 1, purple line), a waste craft market situated adjacent to a large private property development. In the case of Plastic View, I studied the way the urban waste precariat gradually established themselves in this wealthy suburban area and succeeded in forging a livelihood for themselves. In the case of Castle Gate, the research focused on the way the urban waste precariat established an informal market on the street kerbside and were initially displaced by private property developers, yet showed resilience by reoccupying the space in the aftermath of this private development.

3.2 Notes on methodology

At its core, this research project entailed an ethnographic study of waste reuse practices in a post-apartheid urban context. In studying waste reuse, the project sought to analyse these practices as processes of production in terms of value (both economic and cultural), space and urban life. In the analysis, I identified this form of value production outside of current state and formal market-based initiatives towards circular economy establishment and as producing value alternative to capital. As mentioned, this form of value goes beyond mere economic value and, for the analysis, I developed a novel theoretical framework (discussed in Chapter 2) in conjunction with a complementary methodology.

3.2.1 Epistemological approach

Waste reuse practices consist of an entanglement of socio-cultural and traditional skills, discarded waste materials and numerous urban processes that propel these material media in motion. My methodological aim was to study the products of reuse practices in their entanglement with other socio-material processes, both historical and present. Therefore, I incorporated a methodological approach that is rooted in a synthesis of Dawdy's (2010) and Hart's (2006) work, particularly what Dawdy terms dialectical seeing, and Hart's critical ethnography approach. The reason for this combination is twofold. First, Dawdy's methodological suggestion not only encourages the researcher to unveil hidden mundane processes of for instance commodity production, but also takes a critical stance against

modernity's temporality to cast waste materials as "ruins of modernity". Second, while Hart's critical ethnography does not specifically take this critical stance on modernity and its ruins, importantly, it allows for the movement from complexities and the particular to the concrete, while, similar to dialectical seeing, it draws connections between processes "across different spatial scales" (2006:982). In effect, this allows the researcher to make non-positivist generalisations.

Now, why would this combination be ideal for answering the main research question of this study? The study aims to identify the contribution of the waste reuse practices of the urban waste precariat to an urban circular economy. The word contribution immediately conjures up questions of value. As I have discussed earlier, these reuse practices were explored in their potential to identify value that goes beyond the bounds of capitalist production and therefore I developed a theoretical framework which conceptualises value in its multiplicity. The same applies for the methodological approach. By applying dialectical seeing and critical ethnography, I was able to identify the actors (human and non-human) and trace the circuits of material flow which entangle to constitute waste reuse practices.

Dawdy (2010) borrows her dialectical seeing from the work of Walter Benjamin, most notably his later work in '*The Arcades Project*' (Benjamin and Tiedemann, 1999). Here she writes about Benjamin's fascination with everyday objects remarking,

> what Benjamin strove to see was how material culture pulsed with meaning long after the moment of production because it embodied a particular history and web of social relations spun by a restless political economy.
>
> (Dawdy, 2010:768)

Dawdy explains how Benjamin anticipated the process of modern ruination in a time of economic and political uncertainty when he wrote, "we begin to recognise the monuments of bourgeoisie as monuments even before they have crumbled" (1999:13). It is quite fascinating to think that Benjamin jotted down these notes in the early twentieth century, and Dawdy reminds us just how relevant and necessary this approach still is in order to formulate an understanding of the present-day neoliberal era. I introduced the concept of perceiving waste material as ruins of neoliberalism in Chapter 1, and here the concept overlaps with Dawdy's methodological suggestion of seeing dialectically. The approach invites

the researcher to interrogate mundane objects by identifying the meshwork of processes that constitutes the object to unmask its socio-cultural significance. In the neoliberal era, objects are propelled into the state of discard through planned obsolescence, feeding into a bustling informal economy such as the waste reuse markets established by the urban waste precariat (Chalfin, 2019; Packard, 1960).

I made use of Dawdy's (2010) methodological suggestion during phases of participant observation conducted with the urban waste precariat, as they transformed waste materials. However, noting that the mystical logic of commodity aesthetics forms a key cog in the machinery of the capitalist market, I incorporated this aspect significantly in my tracing of the waste materials' previous commodity phase, prior to their being discarded. Practically, by tracing the lines of waste materials, the method of seeing dialectically enabled me to unveil or demystify the commodity aesthetic. Similar to Marx's concept of commodity fetishism, the mystical logic of commodity aesthetics aptly describes the situation where consumers are caught up in aspects of the commodity at surface level, but the processes that produce and constitutes it are hidden. In this research project I made use of this concept to retrace the commodity post-consumption to be re-aligned with the processes that produced it. This aids in breaking away from the objectified view of the commodity rather to be seen as a thing constituted by a myriad of processes. Specifically, tracing these reuse processes of production historically aids in breaking down the linear view enforced by modernity and capitalism and allows us to conceive of a potential alternative reality, one possibly outside of modern and capitalist bounds, where material as ruin or waste simply constitutes one phase before a next form is shaped.

These suggestions (Benjamin and Tiedemann, 1999; Dawdy, 2010) are congruent with Hart's (2006) methodological approach of critical ethnography, which forms a key component of my own methodology. As Hart's critical ethnography entails a method that identifies "power-laden processes of constitution, connection, and dis-connection, along with slippages, openings, and contradictions, and possibilities for alliance within and across different spatial scales" (2006:982). The method therefore differs from other ethnographic approaches that capture accounts of local variations or global processes.

By applying this method, my own ethnographic data revealed the human and non-human processes that entangle the urban waste precariat with waste material medium and the socio-political power forces related to their waste reuse practices. By employing critical ethnography, Hart contributes to recent work which views primitive accumulation as a continuous process (Hart, 2006, 2016; Harvey, 2004), adding to debates around accumulation by dispossession in the current neoliberal geopolitical context. This corresponds to Dawdy's (2010) suggestion of breaking down the linear perception of modernity and capitalism, and of society as developing along an evolutionary scale, where primitive accumulation was thought to be a specific moment in history, not to be repeated. I combine both dialectic approaches suggested by Dawdy and Hart to spatially relate reuse practices to their current post-apartheid urban context. The concept of constellation (Benjamin and Tiedemann, 1999; Gordillo, 2014) proved to be useful as it allowed me to trace the processes that constituted the reuse practice as an entanglement of waste material and the developed human skill. Discarded waste materials and the skill applied in their transformation do not constitute things in themselves, but rather consist of multiple processes of historical salvage, production, consumption, movement and exchanges. These processes are stored up in the material and skill to form palimpsests of its historical making and also determine its future trajectory. I applied this perceptive in my tracing of circuits in each waste material studied, as well as the skills acquired by the urban waste precariat.

3.2.2 Ontology: Assemblage theory and new materialism

Recognising non-humans as key actors in the shaping of waste reuse practices required that I take a particular ontological presupposition which allows for the conceptualisation of human and non-human agency alike. For the development of such a methodological approach, I consulted the works of assemblage theorists who have also contributed to the genre of new materialism in their recent writing, particularly the works of Tim Ingold (2000, 2007, 2010) and Anna Tsing (2015).

New materialist approaches have gained popularity as a theoretical approach in research among scholars in the social sciences in the last decade (Fox & Alldred, 2015), and their application in the current study formed a seminal component of the methodological development, as new materialism offered a novel perspective to the understanding of waste

material's affordances to the livelihoods of the urban waste precariat. I briefly discussed some of these scholars and their work in Chapter 2 (Ingold, 2010; Reno, 2014, 2018; Tsing, 2015). New materialist approaches draw mainly from assemblage theory and actor-network theory, predominantly the works of Latour (1991) and Deleuze and Guatarri (1987), and my developed methodology particularly resembles Deleuze and Guatarri's ontology of a plane of immanence, as waste reuse practices are regrown through the unique entanglement of each reuse practitioner and waste material medium. New materialist approaches have especially gained traction in an era where human centrality is brought into question and the agency of non-human organisms and matter is explored, an aspect that highlights the pliability of waste materials applied for reuse. This has mostly occurred in our contemporary moment as researchers seek to understand the complex relationship between the human and non-human worlds, how global climate change emerged from this relationship and how a mew materialist approach can assist in exploring possible solutions to the imminent crisis (Ingold, 2007; Reno, 2014, 2018; Tsing, 2015). This recent inclination has certainly sparked new and innovative approaches to study human and non-human dialectic relationships, especially opening up much-needed, productive dialogue across academic disciplines (for example, see Critical Ecology Lab).[5]

Fieldwork conducted for this thesis can be divided into two main segments. In the first, I traced circuits of material flow. In the second, I identified points of transition within these circuits. The points of transition focus on the human action that is executed, yet these human actions are never seen in isolation from their entanglement with non-human factors, where, true to an assemblage theory approach, there is no single point or aspect which defines the transformation, but, like a machine, the practice constantly deterritorialises and re-territorialises (Deleuze & Guattari, 1987). These points are seminal to circularity, as the transition of each allows for the movement and transformation of the material medium. Discarded waste materials carry a distinct pliability that enables their future commodity potential to be evaluated by the urban waste precariat based on the material's potential to be transformed into something of value through the disassembly and transformation skills of the urban waste precariat. This is a process that is unique to waste reuse.

[5] https://www.criticalecologylab.org/

3.2.3 Development of Western philosophy and scientific method

To elaborate further on these ontological thoughts, in the following section I provide a brief history of Western philosophy, the development of the scientific method and my methodology's ontological presupposition situated within this historical process. The aim here is to communicate how Western thought developed to substantiate modernism and capitalism, how it is perpetuated at present and how the developed methodology positions itself in relation to these ontologies in order to study waste reuse practices as alternative value-production processes. The section highlights two debates in ancient Greek philosophy, one between Plato and Aristotle, and another between Parmenides and Heraclitus, to foreground the ontology which does not separate form and matter, and which accepts change as constant.

Scientific research as we have come to know, understand and apply it today was deeply influenced by the hylomorphic model (Ingold, 2010). Although hylomorphism is a nineteenth-century term derived from the Greek words *hyle* (wood/matter) and *morphe* (form), it is used to refer to the metaphysical theories markedly explored by Plato and Aristotle, contending that reality consists of the coming together of form and matter. Their arguments developed along similar lines, but where Plato reasoned that form could be conceived of as separate from matter, Aristotle thought more dialectically, focusing on the relationship between form and matter. He argued against the possibility of form perceived separate from matter (Ingold, 2010). Both Marxism and assemblage theory follow in this ontological perspective, and my own methodology shares in this lineage.

According to Graeber (2001), a similar debate occurred earlier in the development of Western philosophy between the philosophers Parmenides and Heraclitus. Their debate mainly revolved around opposing theories of change and permanence. Heraclitus argued for change as the only constant and any idea of permanence or the fixity of objects as illusion. He is well known for the statement that "one cannot step into the same river twice", which aptly describes the basis of his argument. In contrast to this, Parmenides reasoned that change was an illusion and that objects could only be comprehended if they existed to a certain degree outside of time and change (Graeber, 2001:50). Parmenides's theory gained wide acceptance,

greatly influencing Plato, Pythagoras and most thinkers in Western philosophy, allowing for the conceptualisation of the workings or mechanics of physical and abstract reality. The allure of Parmenides's thoughts is quite reasonable, as it opened up the potential for *a priori* truths to be discovered (Graeber, 2001:50). Parmenides's thoughts inspired other rationalist thinkers to go on searching for these truths thought to have been self-evident in reality (Russell, 2011).

A definite line can be traced from these early Greek philosophers all the way to the development of the scientific method during the Enlightenment. Research conducted in this era tended to favour Parmenides and Plato's side of the debate, focusing on that which can be applied universally regardless of time and context, leaving the dialectics of form and matter and "change as constant" to be silenced in their wake (Graeber, 2001). Intellectuals were interested in unveiling grandiose universal truths, not only of the physical world but also of human nature and society (Russell, 2011). During this period, intellectuals like Locke, Voltaire and Rousseau produced groundbreaking work in their social theories of historical human development, but it was Auguste Comte who sought to establish a strong positivist influence in social science. Since then, positivism had a lasting influence on social scientific research, especially given its potential to predict human behaviour and societal shifts (Russell, 2011). However, what were thought to have been great advances in research were also used to justify major social injustices during the colonial era and processes of industrialisation. Due to this fact, the second half of the twentieth century was dominated by a critical reaction and move away from positivist approaches to social phenomena in most social science disciplines (Russell, 2011).

This brief historical overview of the development of Western philosophy and the scientific method offers an account of the way in which an ontological rift was historically established between form and matter, and the effects it gave rise to. My aim here is to, in some sense, return to Heraclitus's ontological perspective which denies the possible separation between form and matter. This is not a novel endeavour, since numerous writers have historically stayed within the Heraclitean tradition. I situate the key authors whose work I have drawn from (Dawdy, 2010; Hart, 2016; Ingold, 2000; Tsing, 2015) for my methodological

development within this tradition. Graeber also places himself in this tradition, and states that,

> an alternative, Heraclitean strain has always existed—one that sees objects as processes, as defined by their potentials, and society as constituted primarily by actions. Its best-known manifestation is no doubt the dialectical tradition of Hegel and Marx.
>
> (Graeber, 2001:52)

Ingold was greatly inspired by Deleuze and Guattari (1987) in his development of the concept of environment without objects, where things are not fixed or do not exist independently of time and space, but entangle and untangle with the organisms and materials of their immediate environment (Ingold, 2010). For their ontology of immanence, Deleuze and Guattari were inspired by the seventeenth-century Dutch philosopher Baruch Spinoza, and the notion of environment without objects can be compared to Deleuze and Guattari's plane of immanence, where all things are encompassed and constantly in the process of becoming (Deleuze & Guattari, 1987). This concept is illustrated by waste crafters who bring discarded materials back to life through their waste reuse practices. All of this is also very much in keeping with Heraclitus's change as constant, where the material transience is illustrated through the transformative skill of the urban waste precariat. I have discussed and noted the theoretical differences between assemblage and Marxist theory in the previous chapter, but here I point to their convergence in relation to the thoughts of Heraclitus. The concept of constellation (Benjamin & Tiedemann, 1999; Gordillo, 2014) builds on environment without objects and change as constant, as it perceives objects as capturing processes inside and outside of them, forming palimpsests as each layer is added.

In conducting participant observation and semi-structured interviews for this ethnographic study, I took inspiration from both Ingold's (2017) ethnographic approach and Hart's (2006) critical ethnography. Both Ingold and Hart's approach to ethnographic research offered invaluable insight to contribute to the questions this research projects sought to address, especially the following sub-questions: *What are the key processes that entangle to form waste reuse practices? How do spatial nodes relate to each other to form waste reuse practices? What role do nodes, circuits, meshwork and constellation play in the production of urban space?*

In conducting fieldwork, I drew from both these authors' approaches and methods. Ingold compares anthropology and ethnography, and the following statement assists to elucidate his distinction:

> An anthropological education gives us the intellectual means to speculate on the conditions of human life in this world, without our having to pretend that our arguments are distillations of the practical wisdom of those among whom we have worked. Our job is to correspond with them, not to speak for them.
>
> (Ingold, 2017:21).

Ingold argues that ethnography has become the opposite, where researchers use it purely as a method for data collection, to analyse and construct a representative case study to be compared to other case studies on the subject. For Ingold, the key aspect in ethnography lies in the method of participant observation, which might be viewed as two opposing actions, but he argues that you cannot have the one without the other. It is not a data-capturing tool, but rather an "ontological commitment" (Ingold, 2017:23), as observing and participating are one and the same action and allow the researcher to immerse and respond.

The reflexive turn in ethnographic studies came about as a consequence of postmodern influence. This placed greater emphasis on the ethnographer's positionality and power relations embedded in the practice (Clifford & Marcus, 1986). Bearing this in mind, as a researcher, one's own position in society carries both enabling and limiting factors in conducting research. In addition, a critical stance needs to be taken in terms of the possible historical injustices that were committed in the name of research in order not to repeat them or perpetuate problematic relations. My position as a white, middle-class male in the space of a post-apartheid urban context required constant critical engagement to "correspond" with my research participants, as Ingold suggests (2017). My initial fieldwork visits to Hatherley landfill were met with noticeable reluctance from my participants to engage in conversation. This continued to be the case even after the municipal landfill manager, who clearly held rapport with the urban waste precariat, introduced me and my work to my participants. I decided to change my attire from casual T-shirt and jeans to a more utilitarian overalls and wide-brimmed hat ensemble, in the hope that this might portray a more professional and legitimising image. This, along with the iterative site visits, allowed for less

guarded interactions with my participants and I explain this process in more detail in Chapter 5 and 6. In addition, I might add, I was 34 years of age at the time of fieldwork, and I am able to converse fluently in English and Afrikaans and all the interviews were conducted in English or Afrikaans. My research participants were black, male foreign nationals born in Zimbabwe and although their first languages are Shona and Ndebele, all participants were fluent in English. These participants ranged between twenty and fifty years of age.

I established earlier that both Ingold and Hart's methodological configuration can be placed within the Heraclitean tradition, which consists of an ontology of immanence. Both writers make ethnography their preferred research method. However, as briefly mentioned above, Ingold has reservations about what has become the normative understanding and use of the ethnographic method. I made Ingold's suggestion of responding to participants, rather than capturing data my ideal while investigating the creative human skills that emerged in waste reuse practices. However, the study also investigated how waste reuse practices relate to the production of urban space. In the article "Denaturalizing Dispossession: Critical Ethnography in the Age of Resurgent Imperialism" (2006), Hart writes with the intent to challenge imperial views of the world both academically and in public discourse, and to do so she incorporates two methods, namely critical ethnography and relational comparison. Hart explains her development of critical ethnography in the following way:

> At a broadly methodological level, I want to underscore the importance of critical ethnography and strategies of what I call relational comparison. Such ethnographies are not accounts of "local" variations or instances of a "global" process. Nor are they case studies of the impact of globalization, imperialism, or any other set of inexorable, pre-given forces. Nor do they simply represent methods for the detailed production of area knowledge. Instead, critical ethnographies offer vantage points for generating new understandings by illuminating power-laden processes of constitution, connection, and dis-connection, along with slippages, openings, and contradictions, and possibilities for alliance within and across different spatial scales.
>
> (Hart, 2006:981-982)

Here she addresses two key points in area studies: the application of impact models in the study of globalisation and global processes, and debates around the theoretical distinction

between place and space. To do this, Hart applies Lefebvre's (1974) concept of space-time to historical global processes, where it would typically be done in a much more parochial way, focusing on "a city" or "a sub-culture". In relation to area studies, Hart mentions "conceptions of space (or space–time) and scale as actively produced through everyday practices that are simultaneously material and meaningful can do vitally important critical work in illuminating the exercise of imperial power" (Hart, 2006:980). Hart further speaks to recent work touching on situations of accumulation by dispossession, and in doing so she exposes power-laden processes that can now be constituted as resurgent imperialism. Although the processes I investigated did not constitute "resurgent imperialism", Hart's critical ethnography guided me in the investigation of how colonial and apartheid socio-spatial legacies were being reproduced in Pretoria East.

3.3 Method

As discussed above, exploring waste reuse practices as potential existing forms of circularity outside of state and formal market-based initiatives required the tracing of material flow circuits, as well as identifying points of transition along these circuits that are key to the material's circularity. I conceived of these points as nodal connections or gatherings of multiple circuits of flow, forming the meshwork which constitute waste reuse practices. However, before my tracing and identifying commenced, I sought to find the actors, both human and non-human, that are intricately involved in the shaping and forming of waste reuse practices.

The three main components of my fieldwork period were all carried out in Pretoria East, specifically on Hatherley Landfill and along the four main avenues mentioned earlier. The landfill and street fieldwork components of this study spanned a period of approximately one year, from June 2020 to August 2021, with the landfill section having a five-month duration (June–October 2020) and the street section covering a period of ten months (November 2020–August 2021). I conducted fieldwork on a weekly basis, but also experienced some interruptions such as municipal worker strikes and heavy rain during the summer season. On the landfill I conducted a total of 13 site visits and on the street a total of 18. The fieldwork mainly consisted of participant observation, where I incorporated informal methodology (Letkemann, 2004), a concept I discuss later in greater detail. However, I also conducted three

semi-structured interviews on the landfill, and seven structured interviews during the street component of my fieldwork phase.

3.3.1 Sampling

In my investigation to identify the actors involved in waste reuse practices, I made use of what is known as chain referral or network sampling, which is a form of nonprobability sampling (Bernard, 2006). Since the waste reuse streams have not been studied and no similar research has been conducted in the City of Tshwane, I employed the snowball or respondent-driven sampling method. This entailed establishing relations of trust with key participants, and through these relations I followed up on the references and suggestions they made. The leads were built up through social networks of the urban waste precariat until I reached a level of saturation through data triangulation. Practically this consisted of field visits where I walked around on the landfill, and walked up and down the streets, firstly mapping by shorthand sketches and photos the places where waste reuse practices were situated. Secondly, I returned to these places to engage with the waste reuse practitioners about their practices, asking specifically how they go about salvaging materials; which material so focus on; what their process of material transformation entails; and where the material is taken after processing.

My research phase spent on Hatherley Landfill entailed identifying the actors involved in waste reuse practices relating to e-waste and construction waste streams, and this constituent of the urban waste precariat formed a small number compared to those performing recycling practices. The urban waste precariat operating on Hatherley Landfill formed a transient population, as some individuals would follow irregular patterns of visiting the landfill. My aim of establishing a list or database of the urban waste precariat operating here was stifled during my interaction with the vigilante group Boko Haram, who controlled urban waste precariat access to the site. During my interaction with the group's leadership, they denied me access to this information, and I therefore resorted to forming estimations based on photographs and video footage. The daily total of the urban waste precariat operating on the landfill ranged from 100 to 150. The urban waste precariat focusing on brick salvaging made up about 10% of this number. I conducted participant observation and semi-structured interviews with a group of eleven urban waste precariat focusing on bricks. Very

few of the urban waste precariat specifically focused their work on e-waste, and typically this would be only one of many materials that they salvage to sell for income. For this waste stream I conducted participant observation and semi-structured interviews with two e-waste buyers operating on the landfill. These sessions included interactions with the e-waste salvagers whom they were buying from.

For the fieldwork component focusing on street waste reuse, I conducted participant observation and semi-structured interviews mainly with two waste crafters. I met these two crafters on Lynnwood Avenue on my first day conducting research here and from our interactions these crafters directed me to several other crafters performing waste reuse in proximity to their workspace. The engagements with these additional street waste crafters amounted to eight semi-structured interviews and four oral histories.

3.3.2 Finding the actors

Prior to this research project, I had already spent a considerable amount of time on the landfills of Pretoria East in the City of Tshwane. This was done in the capacity of a researcher conducting fieldwork for my Master's degree in Anthropology, a background which cultivated an ethnographic inclination in my approach (Reyneke, 2016), but also as a resident of this urban area, at times transporting my own personal waste materials to the landfill. It was during these initial research activities that I became aware of the distinction between recycling practices focused on paper and packaging, and reuse practices utilising construction, organic and electronic waste. However, exploring this distinction stretched beyond the scope of these initial studies, and I therefore developed the current research project around an examination of the waste reuse practices observed, specifically examining them in terms of the value-production processes that they constitute. For this component of my fieldwork, I focused on the actors in terms of social aspects such as race, class, gender and nationality. In terms of the non-human actors, I considered waste material categorisations.

There are phenomenological aspects of the daily practices of the urban waste precariat in urban spaces which cannot be understood by following the positivist paradigm typically adopted in quantitative studies. The main research question of this project entailed the investigation of waste reuse practices as existing forms of circularity outside of state and

market-based initiatives, which required the non-quantifiable evaluation of socio-cultural dynamics. This further entailed handling reuse practices as value-production processes that do not follow capitalism's logic of value, measured in quantified minimal cost and maximum profit. However, this does not refute the possibility that a quantitative study could be conducted, or that such a study could certainly make a valuable contribution. This, however, is not what the current study aimed to achieve. Rather, I sought to identify the socio-cultural significance of waste reuse practices which included economic aspects but remained limited to the way in which it aided the urban waste precariat to establish livelihoods in this highly contested urban space of Pretoria East.

In view of these facts, the largest component of my research consisted of participant observation with the aim of "complete participation, in which researchers intensively interact with other participants and might even get to participate in and perform the very activity they are studying" (Durant, 1997:99). Parallel to the attempt at complete participation, I incorporated what Letkemann (2004) calls informal methodology. Letkemann describes this as an important methodology that,

> can provide contextual and behavioural knowledge that interviewing often cannot do. 'Hanging around' as informal methodology may not be systematically rigorous, but over time it facilitates analysis that makes sense out of gross categorisations.
>
> (Letkemann, 2004:245)

As the method suggests, I spent most of my time in fieldwork "hanging around" with the urban waste precariat while they disassembled and transformed waste materials to produce new things of value. I had already observed numerous areas along the previously mentioned streets and on the landfill where these actions are performed. Once I communicated my intentions and received consent from the research participants, the period of "hanging around" commenced. I found this informal methodology to be appropriate for conducting research within public urban spaces. It enabled me to capture the social organisation of the urban waste precariat and the multi-layered dynamics that construct their everyday events, processes and actions. Data captured from this method allowed me to situate these practices within their immediate suburban context and the larger region in my analysis. The landfill as well as the street are public spaces which generate high intensity of constant flux and flow,

and for this reason an informal methodology was needed, especially during this early phase of fieldwork, in order to gain some insight into the daily spatial rhythms and patterns, as I sought to find the actors of the study.

A unique aspect that is captured in connection to the specific waste reuse practices that I interrogated for this study was a distinction made on the level of ethnicity and nationality. In the ethnographic sections that follow, the reader will become aware of the fact that the actors entangled with the reuse practices of transforming waste materials in the specific waste streams I explored are all male Zimbabwean foreign nationals. This, however, does not mean that waste reuse practices are exclusively performed by Zimbabwean males, as South Africans certainly perform such practices in other forms. But, in my specific sample area, only Zimbabwean males were present. Therefore, the ethnographic sections also portray the lines and flows of humans across national borders, uncovering the cultural skills and practices in circulation and enmeshed with waste reuse within the City of Tshwane. Specifically, the research participants whom I engaged with on the landfill all formed part of a group of the urban waste precariat who originally worked on Garskloof Landfill. This landfill was closed in 2013, and the group then moved to Hatherley Landfill to continue in their reuse practices. The majority of this group are also Zimbabwean men who participated in previous research which I conducted.

3.3.3 Tracing circuits

From my initial engagement with waste reuse practitioners, I identified the different types of waste materials that they salvage, disassemble and transform into new commodities. In these practices, the urban waste precariat salvage from three main waste streams, namely construction and demolition, organic and electronic waste. My point of departure in this fieldwork component was to trace waste materials used in reuse circuits from their entanglement with the urban waste precariat back to their previous commodity phase and production process. From here, I conducted semi-structured interviews with reuse practitioners from each waste stream to establish the biographical trajectory of the waste materials from production and consumption to the point of discard, salvage and transformation. The tracing activities entailed semi-structured interviews with scrap-metal buyers, scrapyard managers, tree fellers, rubble removers and demolition service agents.

Information obtained through these engagements allowed me to become aware of the meshwork that comprise waste reuse practices; the constellation of processes stored in and outside the objects; and the spatial nodes that overlap and entangle to produce the urban space. The concepts of meshwork, constellation and nodes have been discussed at length in previous chapters.

My research questions evolved as the observation process progressed. The questions I posed to waste crafters guided them to engage with their own position and skill in ways they had not done before. The ethnographic approach was ideal for the specific focus on the waste crafters' skill; as I immersed myself in and responded (Ingold, 2017) to the crafting processes, the crafters taught me about their skill, and this process also shaped the way they view their skill. For instance, in my discussion of the research project and its aims, I conveyed the ideas of reuse of second-hand or discarded materials and the potential environmental benefit related to this practice.

I incorporated the method of critical ethnography in my tracing of reuse circuits. This method, as Hart (2016) also notes, enabled me to develop vantage points, to become aware of the nodes that overlap and intersect spatially and materially but also conceptually through the meshwork that is reuse practices. On the landfill, for example, this constituted electronic, construction and organic waste streams as well as human movement, within the city but also across international borders. This study does not focus on imperial power per se, but power nonetheless in various forms and its relation to waste reuse practices. For this component, the adopted ethnographic method expanded to include Hart's approach.

3.3.4 Points of transition: Finding skill in the meshwork

My method in this fieldwork segment entailed observation of the value-production processes related to points of material transition within the waste reuse circuit. I placed specific focus on the points of *disassembly* and *transformation*, with an emphasis on the human skill involved in these points. I discussed in the previous chapter how I conceptualised waste reuse practices as constellations. In Chapter 2, I elaborated that my use of the term is not limited to the waste material's capacity to store the historical processes that constitute it, but that I include the human skill involved in reuse practices as part of the constellation. Through the

ethnographic accounts portrayed in the substantive chapters, I show how human skills form multi-layered palimpsests that are “re-grown” through observation, memory and imitation, typically in the context of interactions between kin. Engaging with reuse practitioners through semi-structured interviews while observing their skill, seen as palimpsests, allowed me to identify the practices as cultural traditional skillsets in constant flux and always entangled with its material medium.

In this segment, I was unfortunately unable to achieve complete participation due to time constraints of my fieldwork sessions. This would have been ideal since I could subjectively follow in the process of learning or growing the reuse skill. However, observation and semi-structured interviews nonetheless gave me access to valuable data which allowed me to analyse waste reuse practices as value-production processes alternative to capitalist production.

3.3.5 Archival research on the history of reuse and remake in Tshwane

The study entailed reconstruction of a history of remake and reuse in the City of Tshwane. The National Archives of South Africa served as a rich source of historical data not yet officially published in academic literature. For the specific research questions related to historical accounts of waste reuse and remake, I made use of archival data as well as oral histories captured from fieldwork with experienced urban waste precariat. Life-history data serve as a rich source and method of data collection, but collecting it requires long periods spent with participants before a level of trust is gained for participants to share potentially sensitive information.

3.3.6 Limitations of study

As mentioned, the study consisted of a multi-sited ethnography (Marcus, 1995) which investigated waste reuse practices performed on the landfill and the streets of Pretoria East. I was able to map out the activities of all waste reuse practitioners within these spaces and engage with a considerable number of individuals performing various practices. However, the study was not conducted without some limitations, and I make mention of them here.

My fieldwork on the landfill mostly entailed walks where I reacquainted myself with some of the urban waste precariat whom I met during previous research projects.[6] However, since 2019 a vigilante group known as Boko Haram had infiltrated the landfill and gradually took control of all recycling operations on the landfill. I explore this point in more detail in Chapter 5. Given this fact, a noticeably different social dynamic had been formed on the landfill and my interactions with the urban waste precariat felt more restrained, and most were quite reluctant to engage in conversation other than brief greetings and rudimental questions about my reasons for visiting. This proved to be challenging in terms of the research questions I sought to investigate. I therefore acquired the assistance of the municipal landfill manager, who escorted me on a tour of the site, in the hope that this might garner some familiarity with the urban waste precariat. However, it was only when I decided to change my attire to that of one more closely resembling an "official researcher", sporting an overall and carrying my clipboard in hand, that participants responded more openly to my presence and questions.

Lastly, the study entailed the tracing of waste materials' flow, but also included the flow of humans and human skill related to waste reuse practices. Through my interaction with waste crafters, they brought to my awareness the fact that they draw on traditional skillsets currently practised in two arts and craft hubs in Zimbabwe. I was unable to travel to these hubs during my fieldwork period due to time constraints. Such an investigation could serve as a valuable addition to data collection for this study.

3.3.7 Ethical considerations

I visited the dumpsite on different days of the week and at different times of the day in order to gain insight into the routine and various rhythms of the site. As I have explained, semi-structured interviews formed a fundamental part of my research methods and I personally asked for the consent of all participants interviewed, both formally and informally. The research did not involve the participation of any individual under the age of 18. In anticipation of possible conflict situations that might have erupted either between the urban

[6] Research conducted prior to the current study was done for my Master's degree and spanned the period 2013–2016.

waste precariat, or between them and visitors to the landfill, especially regarding the ownership and reclaiming of waste, I made the Anthropology Southern Africa's code of ethics my guide, however I did not encounter any such situations (Anon, 2004). I applied for ethical clearance from Wits University's Research Ethics Committee, and I did not commence my fieldwork before this was granted. While conducting fieldwork, I offered participants an information sheet and an informed consent form which included contact details for myself and my supervisor. I ensured that these documents I prepared complied with all requirements of the ethics certificate. I further prepared a verbal information statement and verbal consent in anticipation of the urban waste precariat who might not be literate, but all the participants were able to read and offer their consent. Lastly, I did not need to translate any of this information as all the participants were able to converse in English or Afrikaans.

Chapter 4: The urban waste precariat: Space contestations and counter-narratives in the "post-apartheid" city

4.1 Introduction

Within the global neoliberal context, the socio-economic divide between the wealthy and the poor is ever increasing (Hart et al., 2010; Hickel, 2018), and South Africa is a prime example of this global phenomenon as it consistently ranks as the most unequal country in the world (Horn, 2020; World Inequality Database, 2021). Nowhere is this reality more starkly evident than in the metropoles of the country, where affluent residential suburbs and high-end shopping malls often border on poor informal settlements (Horn, 2021). The country's administrative capital, the City of Tshwane, constitutes such an unequal urban space and the wealthy eastern node of the city, known as Pretoria East (which includes affluent suburbs such as Waterkloof, Mooikloof and Woodhill), forms the spatial context of this chapter. Pretoria East is characterised by wealthy security estates, corporate office blocks and some of Africa's largest shopping malls (Landman, 2016). In contrast to these affluent structures and other symbols of conspicuous consumption, the area also houses numerous pockets of poor informal settlements where the urban waste precariat live and work from (Horn, 2020).

Over the course of the last eight years, I have conducted research on waste revaluation processes that unfold daily in the City of Tshwane. The actors who shape these processes include those who seek to revive dead commodities by handling and transforming them to be re-inserted into the commodity flows of the city and beyond, and, in this way, they forge a livelihood from the ruins of capitalism. These individuals constitute what I have termed the urban waste precariat, and I discussed the development of this social categorisation in Chapter 1. In the current chapter I firstly, define and discuss the concept by analysing urban subjectivities related to collecting and transforming waste from the city's landfills, its crowded street corners and some of its most densely populated informal settlements. Secondly, I show how the urban waste precariat contest and produce space, both historically and present by salvaging from the urban commons and forming intricate socio-economic relations of exchange.

The discussion of the urban waste precariat contributes to literature on precarity and the precariat in two ways. Firstly, by offering a historical account of Pretoria East through the colonial and apartheid era, I side with scholars who critique Standing's lack of acknowledgement of differences between the experiences of individuals in precarious realities in the Global North and the Global South (Breman, 2013; Munck, 2013; Scully, 2016).The history of precarity produced under colonial rule needs to be accounted for and linked to its current form in the neoliberal era. I contribute to these arguments by showing how waste material transformations and revaluations allow the urban waste precariat to gain a foothold in this highly contested neoliberal context in the Global South.

The second point relates to the second aim of this chapter which shows how the urban waste precariat contests and produce space. Increased urban migration in the post-apartheid era, coinciding with a then newly formed democratic state's embrace of neoliberal economic policy and market approaches, played a significant role in the shaping of the current urban reality of South Africa (Bénit-Gbaffou et al., 2012; Horn, 2020). This historical process forms a textbook example of Smith's (1984) theory of uneven development which argues that the flow of capital necessarily creates unequal spaces and had a significant effect on the social and infrastructural shaping of the post-apartheid urban reality (Badenhorst, 2002). In my contribution to this literature, I portray the position of the urban waste precariat against this historical backdrop by emphasising the waste material exchanges between the precariat and wealthy residents, which has enabled the urban waste precariat to access and remake this historically segregated space, thus showing how the urbans waste precariat's reuse practices contest capitalism's form of urban spatial production. The concept, urban waste precariat, thus allows me to draw a linkage between the construction of high-end strip malls that form nodal points of capitalist accumulation and processes that forcefully displace waste crafters who have occupied and produced these spaces over an extensive period, prior to these recent private property developments. The state and private property owners initiate these removals, while the relation based on waste material exchanges is strategically neglected in state and media representation.

Thus, in this historical context, the current chapter situates the establishment, forced removal and court-ordered resettlement of informal settlements populated by the urban waste

precariat, named Plastic View and Castle Gate craft market, located amongst the wealthiest suburbs in the City of Tshwane. The chapter explores what I argue to be processes of space contestations (Massey, 1994) within a post-apartheid neoliberal urban context, whereby the urban waste precariat is further pushed to the socio-economic margins, yet shows resilience by relocating and occupying new spaces after being forcibly removed by the state and private property developers.

I analyse these processes through the concepts of urban commons and enclosures, which formed part of early writings in classical economics and the rise of capitalism, but were given renewed analytical relevance by contemporary neo-Marxist scholars (De Angelis, 2007; Gidwani, 2013; Hardt & Negri, 2000; Harvey, 2004; Hickel, 2018; O'Hare, 2022; Samson, 2015). Through a detailed historical perspective ranging from the early twentieth century up to the present day, the chapter illustrates how enclosures occurred historically through processes of segregation, the implementation of apartheid and the emergence of capitalist and present-day neoliberal markets, by drawing primarily from South African works (Pithouse, 2014). I contribute to these arguments on urban spatial contestations, commons and enclosures by incorporating theoretical strains of assemblage and neo-Maussian theory (Graeber, 2001; Ingold, 2000; Tsing, 2015) discussed at length in the theoretical framework section of Chapter 2. The incorporation of these two theories allows me to emphasise creative human action and the dynamic existing relationship between humans and non-humans, here waste materials, as key to the value-production process, rather than placing a singular focus on labour as production process.

The ethnographic data of this study and the referenced literature capture historical accounts of the processes which have shaped the unequal urban space of Pretoria East and continue to do so in intensified measures today. Through the case study of Plastic View and Castle Gate, the chapter shows how these spaces were and continue to be highly contested as the poor seek to forge an income, albeit a precarious one, in the face of profit-driven private property developers and state entities. Through ethnographic accounts, newspaper articles and archival data, the chapter illustrates how the pliability of waste objects offers an opportunity for the urban waste precariat to gain a foothold in this contentious space. In addition, by critically analysing and debunking the term "vagrant", used in reference to the urban waste

precariat, the chapter offers a counter-narrative, tracing the presence of the urban poor within this space back to almost a century. To conclude the second aim of this chapter of illustrating the urban waste precariat's space contestation and production I argue that new forms of enclosures enacted by the state and private property developers are cutting off the urban waste precariat from income streams they have inventively opened for themselves. These actions, however, do not prove definitive to the urban waste precariat's positionality, as they show resilience by drawing on their unique entanglement with this urban space and the waste materials circulating here.

4.2 Plastic View and Castle Gate

It is a cold and windy winter's day, as I walk through the streets of the Plastic View informal settlement to conduct an interview with Donald Banda, one of the settlement's executive committee leaders. The streets are unpaved, and my shoes turn a rusty tangerine-brown from the powdery dust emitted by my footsteps. In front of the main gate entrance, large heaps of green, blue and clear plastic bottles are kept, separated by rudimentary shade-cloth fences, and a few men and women are busy flattening these bottles and placing them in large white woven plastic bags to be sold to recycling companies. The houses in Plastic View are tightly stacked and most are built wall-to-wall, to the point that I have difficulty distinguishing some from those adjacent to it. No space is wasted here, and this reflects a need to be closely situated to the economic opportunities this urban space has to offer. Most of these shanty structures were erected making use of salvaged waste materials such as plastic sheets, wooden pallets and beer caps inserted beneath nail-heads to keep plastic sheet covering in place. These structures stand in contrast to the 106 box-shaped wooden structures that make up a small portion of the settlement. These smaller structures were constructed following a High Court case ruling in favour of the first urban waste precariat residing here in the early 2000s, and the state was court ordered to re-erect the Plastic View residents' structures demolished in 2006 (to be discussed in more detail further on). My efforts to locate Donald by asking a few residents prove unsuccessful, so I decide to contact him via cell phone. Donald picks up after a few rings and tells me to meet him in the parking lot in front of the church.



Figure 2: Top-down image of Plastic View settlement (Google Earth)

4.2.1 Plastic View daily life

At the time of our interview, Donald was working as a security guard during the day at the Dutch Reformed Church which Plastic View borders on. We had our conversation on the church grounds, a property which holds a mega 7000-seat auditorium and a parking area to accommodate such a large number of attendants. In our discussion, Donald explained that he and most residents of Plastic View reside here mainly to be close to their place of income generation, but that they do not see this as "home". Donald explained, "Most of the people here, I would say about 50%, are recyclers. Others perform piece work as gardeners or domestic workers, and some work as security guards. And it is true, even the first people staying here were recycling." Donald conveyed that, in the early years, about ten years ago, the number of people living in Plastic View was no more than 200–400, but in recent years the settlement has expanded significantly. He explained that this increase is mostly due to immigration of foreign nationals from neighbouring states of Zimbabwe, Mozambique and Lesotho, desperately seeking improved opportunities to make a living and hopefully support their families back home.

Demographically, the settlement does not only consist of a male population and there are also woman and children living here, and some men even migrated with their whole family

(Mashika, 2019). Donald explained that he was not living in Plastic View when the City of Tshwane Metro Police evicted the people staying here in 2006 but moved into the settlement shortly after. However, he mentioned that many of the first Plastic View residents were still living here, at the time of our interview. The interview with Donald relayed an informative representation of the ways in which Plastic View residents were generating an income and offered insight into the general demographic. What follows is an account of the settlement situated at the Castle Gate property development. This account offers further insight into the ways the urban waste precariat generate an income.

4.2.2 Waste crafters at Castle Gate

Solomon Mahlangu Drive (or the M10) stretches from central Mamelodi, a former black designated township, in the north to Centurion, a former white Afrikaans working-class suburb, on Tshwane's south-eastern outskirts. It cuts through Pretoria East's centre and is one of the most heavily trafficked avenues in the city. It was along this avenue that I conducted research in 2015 with a group of waste crafters, their business situated along Solomon Mahlangu Drive in a section stretching about one kilometre and which forms the base of a triangle with two of the country's major freeways, the N1 and the R21. This section of road is decorated by an assortment of wooden benches, dog kennels, wire crafts of all shapes and sizes, garden partitioning and paintings, with the crafters and sellers busily working on their next piece or eagerly awaiting their next customer. Here the urban waste precariat craft and sell their artefacts by displaying them on both sides of this busy avenue. The group of crafters initially worked and salvaged their materials from Garstkloof Landfill, the only municipal landfill in the area. These materials mostly consist of wood used in construction, wooden pallets used for package transportation and metal wires. However, the municipality closed the landfill in 2013 after it exceeded its limits and because the municipality constantly received complaints from residents about the unregulated presence of the urban waste precariat operating on the site (Reyneke, 2016). The crafters relocated their business to this space on Solomon Mahlangu Drive after the closure and began to make and sell their products here. Here the crafters apply innovative skill in the making of these artefacts as they handle, deconstruct, alter and transform the wood and metal utilising rudimentary tools such as a hammer and pliers.

At the time of their relocation, other crafters and street traders had already set up shop along this section of the road, and therefore the Garstkloof crafters could navigate the space with relative ease since they were acquainted with most of these street traders and could join in with a somewhat established informal street market. It is important to mention here that most of the street traders were residents of Plastic View and were also Zimbabwean migrants, a fact I learned through one of the crafters, a man named Onesimo.

The three craftsman I conducted fieldwork with during research for my Master's degree were all Zimbabwean, and Onesimo, Kossam and Renias migrated to the City of Tshwane from the same local town of Masvingo, which is in the southern region of the country. For accommodation, they rented a backroom in one of the nearby suburban areas, and, although not staying in Plastic View, they were well acquainted with Plastic View residents as most of the crafters located along the road resided there. Onesimo, Kossam and Renias worked together as business partners to construct their crafts and furniture from wooden pallets salvaged in the area or bought from drivers of delivery vehicles. Over a timespan of about a decade, they had formed an informal business that is able to provide them with a meagre but consistent income. To protect this livelihood, they ensured that their papers were always in order. Onesimo explained that they are forced to travel back to Zimbabwe every thirty days, because the migration office grants a maximum 30-day visa. Onesimo conveyed that they do not always have the money to travel all the way back to Zimbabwe, so at times they renew their visas in Lesotho or Eswatini, which proves a more viable option. They cannot afford to lose a day of work because they operate under extreme economic circumstances, and they could easily get arrested by the police who do their rounds among the crafters on an almost daily basis. Therefore, Onesimo explained, they unwaveringly perform all the necessary requirements to ensure avoidance of any unnecessary police interrogation.

4.2.3 Plastic View: History of settling in

The development of Plastic View unfolded with the gradual settling of a community of the urban waste precariat in an open field across from the high-end Woodlands Boulevard shopping mall, which Landman notes "is marketed as 'The Fashion Capital' of Pretoria, reflecting its target market and focus, as well as social status" (2016:34). The urban waste precariat, as Plastic View resident Donald conveyed earlier, chose this specific area due to its

proximity to accessible discarded waste materials and an array of income opportunities. This gradual settling occurred during the early 2000s, as a small number of poor black South Africans and foreign nationals started generating an income through the reclaiming, recycling and reusing of waste materials. These waste materials were produced and discarded by wealthy residents, large private businesses and property developments in the affluent, predominantly white suburbs of Pretoria East. The urban waste precariat erected temporary housing structures using plastic materials which they salvaged from nearby construction sites, and in this way the settlement obtained the unofficial name of "Plastic View". De Vos (2014) notes that it is mostly outsiders who refer to the settlement as Plastic View, which he states lends negative connotations to it. He uses the name Woodlane Village, which is also the name used by charitable organisations such as the Dutch Reformed Church and Tswelopele Non-profit. However, in my fieldwork with the urban waste precariat of Pretoria East, Plastic View was the name generally used, and I kept eliciting confused reactions from research participants when mentioning the name Woodlane Village. This points to the fact that the use of the name Woodlane Village seems to have been imposed by outsider entities and residents themselves did not put the name into use. I therefore use the name Plastic View here.

The following two phrases were taken from the court case "Tswelopele vs City of Tshwane" (2007) and substantiate Donald's earlier statement that the first residents of Plastic View were indeed the urban waste precariat.

- "The pieces of plastic and other waste materials they (the urban waste precariat) had salvaged from surrounding building sites to construct their homes were put to the torch."
- "Instead, they (City of Tshwane Metro Police) said, the occupiers left "voluntarily", leaving their waste materials behind to be cleared."

(Tswelopele vs City of Tshwane, 2007)

Soon after the settling of the urban waste precariat in Pretoria East, they encountered resistance from local homeowner associations, and the 2006 case of "Tswelopele vs City of Tshwane" heard in South Africa's High Court of Appeal (case 303/2006) offers a textbook example of the contentious nature of the waste precariat's presence here. The below excerpt is the first paragraph in the case between Tswelopele Non-profit Organisation and The City of Tshwane.

> In the early hours of Friday morning 31 March 2006, about one hundred persons were evicted from their homes on a vacant piece of land in the Pretoria suburb of Garsfontein. Officials from three governmental agencies in a joint operation expelled them from the rudimentary shelters they had erected. The pieces of plastic and other waste materials they had salvaged from surrounding building sites to construct their homes were put to the torch. Many of their belongings were destroyed. Sixteen immigrants without South African documentation were arrested and later deported.
>
> (Tswelopele vs City of Tshwane, 2007)

4.2.4 Waste material exchanges

Most of the Plastic View residents who were evicted in 2006 were making a living through reclaiming and recycling waste materials salvaged from various points in Pretoria East. To this day, more than 50% of the Plastic View residents continue to generate an income through the reclaiming, recycling and remaking of waste materials (Interview with Donald Banda, 20 October 2017). Their reclaiming, recycling and remaking actions vary from selling recyclable paper and packaging materials to refurbishing and transforming construction waste materials into crafts sold on kerbsides. The waste materials are collected from construction sites, industrial companies and suburban residents' rubbish bins.

In a group discussion with several of the Plastic View urban waste precariat who collect and sell recyclables, they relayed their weekly process to me, explaining that they move through Pretoria East as the municipal collection shifts day to day. On Mondays they rest, since no municipal collection occurs in this area. One urban waste precariat statement conveyed some resistance from the public to their work: "Our main challenge is with security guards at flat blocks and security estates, they harass us when we go through the dustbins. We also like to rest at the garage (fuel station) get water and use the toilet, but sometimes they chase us away" (Group interview with Plastic View urban waste precariat, 8 May 2019).

Restricted access to residential areas and its waste have also been noted by other researchers conducting studies in these suburbs (Landman, 2016; Makina & Lawhon, 2022). Apart from these acts of everyday exclusion from their source of income and other public and private spaces, other more direct actions have been taken by homeowner associations to remove

Plastic View residents from Pretoria East. Several of these associations joined in this cause and took legal action to open a case against the City of Tshwane to have Plastic View and its residents removed from this urban space (Bothma, 2014; Visser, 2014). Although the presence of the urban waste precariat in Pretoria East is not always welcomed by some, they have also received a certain measure of care and support in their work and general livelihoods from others (Brand, 2014; De Vos, 2014; Mashika, 2019). Two entities, Tswelopelo Non-profit and members of the Dutch Reformed Church (which borders on Plastic View), have mobilised several actions in support of their lives and work here. I discuss these below.

Through the salvage and transformative actions of the urban waste precariat, the pieces of waste materials forming part of Pretoria East suburban residents' direct (such as tree cut-offs from tree felling) or indirect (such as wooden pallets used for construction material transport) consumption stream are circulated back into the same urban space of Pretoria East through the purchase of a craft piece or outdoor furniture, made and sold by the urban waste precariat. In the absence of these waste reuse practices and their practitioners, the materials are destined for formal waste management locations such as landfills. In this way, the urban waste precariat contribute to waste-to-landfill diversion. However, these craft buyers are generally oblivious to this fact, since they are removed from the waste material processes after the waste is discarded. It is thus the practice and privilege of the private property owners or "waste-makers" to be separated from their sanitary and household waste (Moore, 2009; Packard, 1960; Reno, 2016). In a way, continuous consumption requires the proper alienation of some commodities (not just their depletion) before new commodities can be purchased. Consumerism necessitates waste-makers' complete alienation from commodities to the point that they are removed from commodities in production and post-consumption processes (Moore, 2009). They are removed from both the birth and death of commodities (Graeber, 2012).

This "right to dispose" stands in stark contrast to the circumstances of the urban waste precariat, who live within and make a living from waste, a point also noted by Reno (2016) regarding waste work and workers. This social dynamic created by commodity production and consumption and waste discard, and the social dynamic of waste-makers versus waste workers, was explored at length by Reno (2016) in his book *Waste Away*. Reno conducted his

study on a landfill in Detroit, MI in the USA and emphasises the ignorance regarding the existing metabolism as waste-makers create waste processes and are themselves sustained by the same processes and waste workers. I point to the same dynamic here. The urban waste precariat's situation is in some respects the opposite of alienation or disposal of waste. They handle, inspect, smell and transform dead or deemed to be valueless objects. They do not separate themselves from waste but are intricately entangled with it, at times to their own detriment, as the following section illustrates.

4.2.5 "We are living and sleeping in highly flammable stuff": Plastic View and private property owners and tenants

The academic literature produced on Plastic View has mostly focused on the relationship between the state, the poor and private property owners, writing about notions of belonging and public hostility towards foreign nationals (Brand, 2014; De Vos, 2014; Mashika, 2019; Nyamwanza & Dzingirai, 2019). However, the exchange of waste materials between property owners and the urban waste precariat forms an existing relation between these social groupings that developed from the inception of the first urban waste precariat's settling in Pretoria East up to the present day, and this material circuit of relation has been overlooked in academic literature and media representation of Plastic View settlement and its social context. This paucity is surprising, since the fact that early residents of Plastic View were reclaiming waste and continue to do so today were both confirmed by the 2006 High Court proceedings and my interview with Donald Banda.

Media representation have followed in this trope, and this mostly consists of newspaper articles published by a local paper called *Pretoria Record* about the relationship between Plastic View and its surrounding suburban residents. The archive of this paper shows articles written over a timespan of about a decade, and I place these under four themes, namely: 1) devastating community-wide fires (Maromo, 2021a; Sadike, 2021; Tlhabye, 2021); 2) legal action taken by homeowners to have Plastic View removed (Bothma, 2014; Visser, 2014); eulogies to deceased Plastic View leaders (Sibiya, 2019, 2022); and violent and illicit activities of Plastic View residents (Chawane, 2017; Maromo, 2021b; Nthite, 2019; Sibiya, 2021a; Venter, 2012).

Articles published in the early 2010s captured the plight of private property owners and the actions they were taking to remove the settlement from their doorstep. A lawyer appointed by homeowners' associations explained, "My clients understand that a formal, planned and policed settlement is better than an informal, unmanaged squatter camp. They want the municipality to finally take charge and start the formalising process" (Visser, 2014). This was stated as an expression of the need for access control to limit the expansion of the settlement. Homeowners were also given voice in these articles, with one stating,

> We are thinking of selling our property before it loses more value because of Plastic View ... just the other day, we saw some men emerge from a nearby shopping centre pushing a wheelbarrow filled with beer crates straight to Plastic View. They are running *shebeens*[7] there."
>
> (Nthite, 2019)

The state's eventual solution to the plight of the homeowners was to allocate land for low-cost housing to move the settlement. As one article reported,

> Residential estates in the area had put pressure on the council to find a permanent solution and to evict the squatters. But common ground was found this week, when by agreement it was decided that formal low-cost housing for those who qualified, was the solution.
>
> (Venter, 2012)

However, this relocation was still in the process of materialising at the time of writing.

My aim with analysing these articles is not to discredit or to challenge the precarious circumstances within which the residents of Plastic View have been living over nearly two decades, nor to downplay the violent and illicit incidents that have been linked to some Plastic View residents. I simply point to the absence in these reports of the material relation formed through waste exchanges between the urban waste precariat and other social actors within Pretoria East.

[7] The word shebeen is a colloquial term used in most of South Africa to refer to informal, typically unlicensed, beer taverns.

Further, I aim to show that not only are Plastic View urban waste precariat performing recycling practices, but that waste crafters and other waste reuse practitioners also reside here. Recently, the urban waste precariat have been receiving recognition for their contribution to the country's waste management in a significant way. The CSIR estimates that, in 2015, 80–90% of paper and packaging was recovered by informal waste pickers, and that informal waste pickers saved municipalities between R309.2 million and R748.8 million in landfill airspace in 2014 (Godfrey et al., 2016). The waste precariat are therefore vital workers and handlers of waste materials, living in repurposed waste materials which have been cast aside as worthless dead commodities. However, the reuse of waste materials for informal housing by no means allows for ideal living conditions.

During my interview with Donald Banda (Plastic View committee member, 20 October 2017), he stated that, "This is not a movie my friend, we are living and sleeping in highly flammable stuff every day." This statement captured my mind and took me back to earlier that morning, walking through Plastic View's streets, observing the plastic-covered wooden structures. I imagined a fire breaking out and how rapidly it would spread because of these flammable materials. The statement was quite elucidating, raising my awareness to the hazardous aspects of these freely available materials used to construct houses. Donald then elaborated, mentioning the high occurrence of community-wide fires that have devasted Plastic View over the past few years. These fires typically occur in winter when residents make use of paraffin stoves for space heating (Maromo, 2021a). The year prior to our interview in 2017, a fire broke out that demolished about three hundred shacks and killed five people. In 2021, yet another fire erupted during the morning hours of 18 July. The cause of the fire was unclear, but it was assumed to have been ignited by a paraffin stove, as had been the case in most of these tragic fires (Sadike, 2021). This was exactly a year to the day following two major fire breakouts which were separated by only a few days. Volunteers from the Dutch Reformed church adjacent to the settlement have shown great support during these distressing times, and the state also provided support in the form of care packages on numerous occasions. However, as stated by a Plastic View resident during an interview, "although they were grateful for the assistance they were receiving from the nearby church and the city, they were dismayed that they had to rebuild using plastic yet again" (Tlhabye, 2021). This frustrated comment was a response to the fact that Plastic View residents are

awaiting the commencement of a relocation process to formal housing (De Vos, 2014). This is a court-ordered requirement which the city is responsible for but has failed to execute for more than a decade after the ruling.

4.2.6 Community policing forum meeting

In October 2017, I was contacted by a member of GarsCom Community Organisation, Carol van Niekerk, who was informed of my previous work with the urban waste precariat by a friend and wanted me to offer advice on their waste recycling initiative, specifically how they were to engage with urban waste precariat operating within their suburb of Garsfontein, situated in Pretoria East. For this reason, she invited me to attend a meeting held between the wider area's community policing forums (CPFs), representatives from homeowners' associations, Executive Committee leaders from Plastic View and City of Tshwane police officials. The meeting took place on 12 October 2017, at the colossal Moreleta Dutch Reformed Church's boardroom. As previously mentioned, this large church is situated directly opposite the Plastic View settlement (see Figure 3). About thirty people attended the meeting, with the CPF members and Plastic View leaders gathering around a large boardroom table while the police officials stood at the front of the room. The meeting was facilitated by the two police officials, who were both based at the local Garsfontein Police Station. One of the police officials, a warrant officer named Henriette Gouws led most of the discussion. Whenever a question was addressed to the Plastic View residents, one of the leaders, Benjamin Sithole, a short expressive man of about 50 years of age, stood up to speak on their behalf.



Figure 3: Image showing the Dutch Reformed Church to the left, adjacent to Plastic View settlement to the right (Google Earth)

Officer Gouws stated that the aim of the meeting was to address allegations that Plastic View residents were disturbing the peace, breaking into properties and engaging in illicit trades inside their vicinity. The police officials and CPF members were consulting the Plastic View residents about how they could possibly go about eradicating these elements from the area demarcated under their jurisdiction. The establishment of the Plastic View Executive Committee was initiated by Tswelopelo, a non-profit organisation founded by two former missionaries resident in Pretoria East, to serve the Plastic View residents and to represent their interests and needs in negotiations with outsider entities (De Vos, 2014). This is an important body corporate, since the existence of Plastic View is in constant contention to be removed, and only a handful of individuals and entities are eager to consult the residents directly, making a joint effort to come up with solutions.

The warrant officer mentioned that numerous meetings of this nature had been held in the past, but that this time round she wanted the group to formulate possible solutions to the challenges they faced. After these introductory statements, Benjamin stood up to voice the challenges they were facing as Plastic View residents: “Almost every month a truck arrives at

night in Plastic View, filled with a lot of people. You wake up in the morning asking yourself who are all these new faces. And also, I don't have peace of mind to speak freely here, because I often see police who are supposed to protect us taking bribes inside Plastic View. We are not working together currently." Officer Gouws replied that it would be very helpful if they could identify these police officers so that she could take the matter further. From here on, the uncontrolled influx of new residents to Plastic View dominated the meeting. It became clear to me that this aspect was experienced by the Plastic View leadership as the key driver behind the challenges they were facing. Officer Gouws adamantly continued to steer the meeting back to "practical solutions" to this problem. Benjamin replied they are afraid to report such incidents because they are not protected and may place themselves in harm's way. But all attendees agreed that they needed to tighten their grip on the access control to the settlement, which was centred at the main gate of the demarcation by a single private security guard.

The combination of Officer Gouws's insistence on practical solutions, Benjamin's constant detailing of the complexity of the problematic situation and the CPF representatives constantly keeping an eye on their wristwatches made reaching consensus seem far from materialising. The different groups in attendance were, in reality, far removed from each other in their daily reality, and it seemed like a formidable task to solve such daunting issues in an hour or two, due to this lack of understanding. As stated by Officer Gouws, the aim of the meeting was to find solutions toward an orderly and crime-free future, but the meeting and statements made also constitute discursive practices of remote governance from the outside. I do not doubt the sincerity of all involved to improve the living conditions for both Plastic View residents and surrounding suburban property owners and tenants. However, the discussions in the meeting served as an example of the typical narrative that has been portrayed in the media and research around the Plastic View settlement, without any recognition of the contribution that is made through the urban waste precariat's creative and innovative actions of reclaiming, transforming and selling waste materials. The focus is thus on policing the residents rather than enhancing their contributions.

As noted above, to date, property owners and the urban waste precariat have related to each other on two levels, namely, through community policing and waste material exchanges. The

level of community policing has enjoyed excessive attention in media representation to the point that knowledge of this relationship extends beyond the borders of the area in question. However, the opposite is true of the relation on the level of waste material exchanges. On this level, the potential exists to improve the work and livelihoods of the urban waste precariat if, firstly, property owners are made aware of this relation and, secondly, if they are encouraged to find ways of making the urban waste precariat's work more accepted and efficient. To deepen my portrayal of the urban waste precariat's entanglement with waste material transformations and market exchanges, in the following section I offer an account of the second case study, that of an informal craft market established primarily by waste crafters and other street traders.

4.2.7 Castle Gate market forced removal

The crafters' relative successful relocation of their work and business to the recently established market space of Castle Gate was to be short lived, as the private property which their kerbside workspace bordered on was earmarked for a multi-billion Rand, mixed-use precinct in 2016 (Atterbury Property Holdings, 2016). This property had no lack of complexity in terms of its historical significance in this post-apartheid city, as it is owned by the Erasmus Trust. The Erasmus family have owned the property for seven generations, and it forms part of one of two farms they acquired in the mid-nineteenth century (Atterbury Property Holdings, 2016). The two farms were named Waterkloof and Garsfontein, and this is the same Garsfontein farm which will be discussed in the next section in relation to histories of so-called "black spots" situated in white areas during the apartheid era (Malan, 1996). The property in question was to be developed as a joint venture between the Atterbury Property Fund (APF) and the Carl Erasmus Trust, and would entail shopping centres, leisure facilities, office space and housing. Construction for this development started in 2020; however, in the few years preceding this development, the presence of the urban waste precariat increased significantly on the kerbside bordering the property, to the point that an informal recycling depot began to emerge (Ndlazi, 2020). The increase of the urban waste precariat presence in this area led to numerous complaints lodged by residents and business owners, stating that crime had increased with the emergence of the depot (Ndlazi, 2020). This was also seen as a threatening obstacle in the way of this impending, opulent property development.

Thus, through collective effort from local authorities, the urban waste precariat was ordered to relocate their work and materials. The unfolding of these events carries no small significance as it follows similar historical patterns of urban commons and enclosures which I indicate in the following historical accounts.



Figure 4: Image taken from the property development group Atterbury's website. The red section shows the area demarcated for development.

4.3 Back to the start: Commons and enclosures

4.3.1 Europe

During the mid-nineteenth century, in a religiously divided German territory, a young Karl Marx wrote his first of many politically charged articles for the *Rheinische Zeitung*, a newspaper based in catholic-dominated Cologne, in which he began to assemble and apply his theory of dialectical materialism. During this period Marx advocated freedom of the press as a medium for advancing socialist principles. He used this approach to formulate a critique of the Rhineland Diet's class-based legislation which negatively impacted common citizens but worked in favour of private landowners (Sprigge, 1941). In late October 1842, Marx

published this thought-provoking piece on the contrasting material interests of private landowners and the peasant class. The situation he addressed was in relation to the offence of "timber and firewood lifting" from private lands (Sprigge, 1941:32). At the time, these offences summoned the services of more than half of the police in the Rhineland. This period would historically become known as the beginning of the "enclosure of the commons", as the state and private landowners sought to have these actions of the poor rendered as criminal offences.

Hickel (2018) dates the beginning of enclosures in England back to the fifteenth century, when wealthy nobles commenced the process of gradually converting their land into sheep pasture to increase their profits in wool production. This entailed the systematic removal of peasants from these lands, which was meet with great resistance since it violated a long-standing tradition, as captured in the *1217 Charter of the Forest Act*, of protection against such ruthless actions (Hickel, 2018). Both these historical accounts capture processes of the gradual removal of poor populations from land and access to commons essential to their livelihoods.

4.3.2 Pretoria East, a century ago

Move forward a few decades in time and space to the early twentieth century and what was then named the city of Pretoria, and quite similar situations began to arise. Pretoria was given its name by white Afrikaners who, after years of military advances, aided by the baRolong and Griqua, drove black Ndebele populations from the land and settled as farmers in the region during the mid-nineteenth century (Shillington, 2005). In the early decades of the twentieth century, "successive white governments of the Union of South Africa passed a series of laws which imposed a system of racial segregation in the country" (Shillington, 2005:364). At this time, Pretoria was characterised by a small business centre with surrounding farms towards the east and southern regions, owned and managed by white Afrikaners. As an expression for the need of closely situated black labour, Malan (1996) notes that the farm Garsfontein was one of a few situated on the eastern border of the expanding town, which was requested to be established as black and coloured "townships"[8] in 1922, but the request was turned down by the National Department of Native Affairs in 1928 (Malan, 1996). The reason for the denial

[8] Township is a colloquial term historically and currently used to refer to informal settlements in South Africa.

of this request was that numerous white landowners had lodged complaints, opposing the suggestion to turn a section of the farm into a black informal settlement. Malan specifically here mentions a complaint from a Mr J. Debbes addressed to the Secretary of Native Affairs which stated that the location would "devalue his farm" and, in addition, that "blacks were walking across his farm and also stole wood" from it (1996:79).

This serves as an informative illustration of the anxieties that white residents fostered in the run-up toward the apartheid era, especially regarding the potential unregulated influx of black populations to urban areas. However, at the same time these white residents were well aware of their need for a closely situated black labour force. Therefore, the 1922 Stallard Commission and the 1923 Native (Urban Areas) Act were established to address both these issues simultaneously by granting black individuals access to urban areas to administer to white needs, but only as temporary sojourners (Ballard, 2004a). In this manner, the act already regulated black urban influx control in this period prior to the implementation of the apartheid regime after 1948.

Similar to the previously mentioned European historical accounts, processes of enclosure of the commons are described. However, in the South African context, these processes are executed not only along class lines but also racial ones (Pithouse, 2014). Almost a century later, after having gone through major socio-political transitions, from the dismantling of apartheid and upsurge in urban sprawl, coupled with the phenomenon of white flight, the city of Tshwane had noticeably changed both demographically and infrastructurally (Christopher, 1994). However, numerous aspects remained unchanged; the case of Plastic View and Castle Gate serves to illustrate this point. In order to bring additional nuance to the depiction of these processes, the following section presents a detailed spatial history of the urban area known today as Pretoria East.

4.4 A spatial history of Pretoria East and the removal of "black spots"

4.4.1 Introduction

In the spatial history presented in this section, I trace the same pattern and socio-political dynamics that are described in the aforementioned processes of enclosures. In the City of Tshwane, this first occurred in the early twentieth century, and I present these historical

events to illustrate how these patterns of enclosure are repeated. Thus, there is a long history of white residents of Pretoria East demanding the eviction of black people whom they accuse of crime, which correlates with the newspaper articles presented earlier. These facts serve to show how the recent forced removals of Plastic View and Castle Gate were not isolated cases, but the perpetuation of discriminatory processes based on race and class.

In the period prior to the onset of democracy in South Africa, the City of Tshwane (named Pretoria at the time) represented a model apartheid city layout (Badenhorst, 2002; Horn, 2020). The city's spatial arrangement was characterised by a predominantly white central business district, starkly segregated residential areas demarcated for each of the four racial groupings, which was then also intentionally separated by industrial buffer zones demarcating wealthy white areas from poorer black zones given relatively lower status. The non-white areas were situated on the urban periphery, but in proximity to their place of employment (Badenhorst, 1999; Horn, 2020). This spatial arrangement was executed at the hand of the Afrikaner nationalist state in a gradual but violent fashion, disrupting existing socio-cultural systems and livelihoods, as the following sections clearly indicate.

4.4.2 White farms and "black spots"

During the first few decades of the twentieth century, the city of Pretoria constituted a relatively small town hosting a central business core surrounded by a few suburban areas. The suburban areas were situated and spread outwards toward the northern and south-eastern parts of the developing urban area (Horn, 2020). A number of large farms were situated towards the south-eastern periphery and over the following few decades these properties would be developed by private property developers into large sprawling suburban areas, currently clustered under the name Pretoria East (Badenhorst, 2002). Most of these suburbs kept the names of the former farms through their transformation process and continue to do so to this day (Malan, 1996). Examples of these are the south-eastern suburbs of Waterkloof, Garsfontein, Elardus Park and Irene. Within the socio-political context of racial segregation and apartheid, these suburbs were first developed exclusively for white residents; however, these racially defined patterns continue to be reproduced even in post-apartheid South Africa (Hamann & Horn, 2014; Horn, 2020).

Historical accounts are often dominated by major historical events, which has the outcome of overshadowing the enduring mundane processes that play a much more prominent role in the shaping of nations, societies, spaces or cultures (Wolf, 1982). In this sense, the Natives Land Act of 1913 is largely seen as the most pivotal step towards the shaping of segregated urban spaces by the National Union government in the early twentieth century, which commenced the large-scale forced removal of black populations into reserves. However, Malan (1996) argues that an aspect often overlooked in this period was the fact that several black landowners kept their title deeds to their land and were not immediately forcibly relocated to reserves. This allowed for a number of black settlements to remain in white areas which, as time passed, were later referred to as "black spots" by the public authorities (Malan, 1996; Gerhart & Glaser, 2010; Skelcher, 2003).

The farm Garsfontein, discussed earlier as an example of an enclosure of the urban commons, was one of the properties which housed such a so-called black spot. Malan (1996) makes reference to a few delineated areas on the farms located in the east of Pretoria requested by certain local residents in 1921 to be demarcated as black and coloured townships. Garsfontein was one of these farms, but the Native Affairs Department turned down the request to appease other residents who were opposed to black settlements within their vicinity. However, the state was well aware of the need for a closely situated labour force, and therefore opted instead for a policy of black urban influx control through the 1922 Stallard Commission and the establishment of black designated townships (Horn, 2021; Lemon, 2021; Maylam, 1995).

It was during the 1940s that the term "black spot" started gaining greater recognition and focus, as this phenomenon was seen as an anomaly to the Afrikaner nationalist ideology and agenda (Gerhart & Glaser, 2010; Horn, 2021). As the National Party government began to prepare the ground for the implementation of apartheid, their leniency towards black spots dissipated. Moving back to Pretoria East, Horn (1998) notes that the Garsfontein farm was listed for retaining undefined locations on private property in June 1913, and up until the 1940s the city council were lenient towards black spots in white urban areas. However, some form of surveillance was practised, as public authorities used health scares as a mechanism of control in the period prior to apartheid (Ballard, 2004a). These legislative bills included the

1919 Public Health Act, the 1923 Native (Urban Areas) Act and the 1934 Slums Act (Ballard, 2004a). The era of tolerance toward black spots came to a complete end through the passing of the Group Areas Act in 1950 (Carruthers, 2000; Horn, 1998, 2020). The city established the townships Atteridgeville, Vlakfontein (later named Mamelodi), Klipfontein and Thembisa in order to relocate the black residents it had forcibly removed from white urban areas (Horn, 1998). I emphasise these historical events and actions taken by the apartheid government to illustrate the fact that the recent intentions to remove the urban waste precariat from Pretoria East are not isolated and novel cases, but rather the perpetuation of historically produced racially discriminating patterns often enacted to appease disgruntled wealthy minorities.

This historical account seeks to illustrate how, a century ago, white property owners resisted the "encroachment" of black settlements onto their land by accusing black people of thievery and devaluing their property. Like in many other cities in apartheid-era South Africa, the removal of black spots from so-called white urban areas in Tshwane was carried out gradually enough to follow through with the implementation of the act but also in the hope of not meeting significant resistance from black residents (Carruthers, 2000). The process of spatial segregation based on racial distinction also entailed the gradual defining of spatial arrangement according to class distinction. This is shown in the complaints submitted by white residents regarding their fears that the establishment of black settlements would devalue their property, which posed as a justification for enclosures.

4.4.3 Urban spatial transformation and hindered desegregation in the white suburbs

Writing in 2002, Badenhorst compares the City of Tshwane to other cities within the global context, noting that it evidently followed a typical modernist Le Corbusierian model in its block grid design. The author notes that this was true up until the 1970s, but then a clear departure from this model is witnessed (Badenhorst, 2002). In the years that followed, the city's residential areas were expanded towards the north and south-eastern periphery, as the farms discussed earlier were gradually bought out and developed into residential suburbs by private property developers (Badenhorst, 2002; Malan, 1996). These transformations in the cityscape were significantly characterised by starkly segregated spaces as the developments

catered exclusively for a growing white urban population. In fact, designated white and black urban areas were placed under complete separate municipalities (Horn, 2021). These socio-political transformations also meant that black townships were further pushed to the margins of the city and its black labour class forced to travel even further in their daily commute (Badenhorst, 2002; Horn, 2020). This reality sheds some light on the eager attempts by the urban waste precariat to settle in urban space of dense economic activity, such as Pretoria East. During an interview Ruth Hall similarly argued that the poor historically dispossessed class is not simply making a case to own land; they are advocating for well-situated land close to functioning public services and their workspace (Van der Merwe, 2018).

During the 1980s, the majority black population, sequestered to townships, increased their political protest action and civil disobedience against the white minority apartheid regime. Their political action drew the attention of Western nations, and after a prolonged state of emergency, 1985 became known as the year of foreign capital flight from South Africa, causing the country's currency to fall by a third of its value (Shillington, 2005). These events were seminal to the eventual dismantling of apartheid, which also entailed relaxed black urban influx controls through measures such as Section 10 in 1985; however, the public authorities in Pretoria remained resolute compared to other cities in the country, and black urban influx occurred here at a slower pace (Lemon, 2021). During the early post-apartheid era, black families thus began to migrate to the city centre where they could position themselves closer to their workspace (Christopher, 1994). These urban transformations had the knock-on effect of white households taking part in city-to-suburb movement (Lemon, 2021). Christopher (1994) notes that the phenomenon of white city-to-suburb migration or "white flight" is often a response to infrastructure degradation and socio-economic changes, but is also mostly triggered and exacerbated by emphasised media coverage of crimes occurring in city centres. The movement of white flight would have significant implications for the future development of Pretoria East, the geographical context of this study.

The relocation of white middle-class households to Tswhane's eastern suburbs also meant that an elite consumer cluster were moving their purchasing power along with them. This urban transformation led to the infrastructural normalisation of shopping malls and golf estate property developments, which I have shown to be in contention to the presence of the

urban waste precariat. In 1979, a large OK Hyperama[9] retail development was constructed. Badenhorst (2002) marks this development as a pivotal moment in the economic shifts of the city, as a sprawling suburban periphery disintegrated from the central business district to become economically independent thereof. Badenhorst (2002) applies Garreau's (1991) concept of "edge cities" to describe the transformations that Pretoria East was undergoing at the time. Garreau (1991) argues that the process of edge city formation occurs in three waves, namely: the development of residential suburbs as a result of urban sprawl, the movement of the marketplace to suburban development and, lastly, the movement of the workplace in proximity to the suburban residence. Using these concepts, Badenhorst (2002) argues that the urban area of Pretoria East could be described as an evolving edge city following the socio-economic phenomenon of white flight towards the eastern region of the city. These processes occurred in what is generally accepted as the global neoliberal era (1980s and 1990s) typically defined in two ways, privatisation of public services and increased market alignment to attract direct foreign investment (Harvey, 2004).

I have mentioned earlier how the socio-spatial legacies of the apartheid era still dominate the eastern suburban area of the city. Utilising census data, Hamann and Horn (2014) and Horn (2020) demonstrate that a large part of the city remains racially segregated and that it is being re-segregated according to class. They create three different categories which flow along a spectrum of progressivity in terms of racial integration, namely disconnected-continuity, connected-continuity and discontinuity. They conclude that Tshwane falls in the category of disconnected-continuity, the least progressive of the three. Within this category is described the urban scenario of gated communities, which hints at segregation especially based on class brackets. They describe the category of disconnected-continuity as "hindered desegregation", and Plastic View falls within this area, which denotes that white property owners in this area have succeeded in resegregating themselves in gated communities. As I have noted earlier, the presence of the mostly black urban waste precariat in their midst poses a threat to their property values and their symbolic value systems.

[9] Later to be developed into what is today known as Menlyn Park, one of the largest shopping malls in Africa.

Accumulation by dispossession is a means of accumulation other than capitalist production (Harvey, 2004). As in the case of the Castle Walk precinct, private property developers secure land to set up infrastructure and processes which could potentially rake in profit. In the process, they forcibly remove crafters and recyclers who have been in the space for an extensive period. This process illustrates Smith's (1984) theory of uneven development where profit driven capitalists transform urban space to produce capital at the exclusion and expense of the urban poor. At the time of initiating their profit-driven endeavour, the urban waste precariat had already established a waste reuse and recycling market in a section of this land for their own value-production purposes, albeit not functioning solely on a capitalist mode of production, an argument I introduce more thoroughly in the following chapter. Through collective efforts from journalists, local business owners and local public authorities, private property developers mobilised for the exclusion of the urban waste precariat from this space. This constitutes an example of what is argued to be a process of enclosure, based on a continuation of colonial and apartheid segregation.

The case of Plastic View forms a slightly different scenario, where the urban waste precariat's presence is unwanted by property owners who call on the assistance of the state authorities to intervene. But what both Plastic View and Castle Gate have in common is the fact that processes of enclosure occur whereby the urban waste precariat is excluded from wealthy, "capital heavy" spaces. It is therefore the socio-spatial legacies of apartheid that are still perpetuated today that need to be addressed. However, what we are witnessing through the cases discussed in this chapter is that, contrary to this progressive suggestion, the market and state are finding new forms of further exclusion in what is supposed to be a post-apartheid city.

4.5 Counter-narrative accounts of Plastic View residents

Media coverage of land contestations between private property owners and the urban waste precariat in Pretoria East have included terms such as "squatters" and "vagrants" to refer to individuals who occupy vacant spaces to separate, sort, store and transform their waste materials and also to erect temporary structures for accommodation (Bothma, 2014; Moatshe, 2019; Venter, 2012; Visser, 2014). These individuals form part of what I have thus

far termed the urban waste precariat. In their use of the derogatory terms mentioned above, these media accounts serve to portray the urban waste precariat as temporal sojourners within these urban spaces with no claims of legitimate belonging. This further enforces a capitalist discourse which upholds private property ownership as the only legitimate access and belonging to this space. It also creates the perception that the urban waste precariat's presence within this space is a recent one, which further denounces any claim to the space they might aim to uphold. I will not be discussing any matters pertaining to the legality of the urban waste precariat's occupation of these vacant spaces, as what I aim to do instead is offer a counter-narrative to the ones presented by the media.

When asking two street waste crafters, Eddy and Innocent, why they chose to set up their craft stall in a particular space along Lynnwood Avenue, their response was simple: "We found other people here who were making crafts for many years before we came, so we decided to join them." As I placed specific focus on two case studies discussed earlier to trace the history of the urban waste precariat in Pretoria East, here I expand that history to focus on the history of waste crafters and the establishment of an informal market along the main avenues of Pretoria East. The following sections illustrate how this history entailed a contested process which coincided with continuous state policing and harassment.

In our discussion of their initial workspace establishment, Innocent shared some facts he was told by his uncle. His uncle explained that, in the past, it used to be much more difficult to sell crafts by the roadside. He specifically mentioned that it was harder during the time that former president Thabo Mbeki[10] was in power between 1999 and 2008. He added that "police were stricter, and you couldn't just set up your little stall and sell things next to the road like we're all doing today." Innocent explained that his uncle and other early crafters used to put their crafts next to the road and hide in the bush at a distance to remain out of sight of police or anyone who might harass them. They only came out and made themselves visible when a potential customer stopped to ask about a piece. These were some of the strategies that crafters employed to establish a livelihood and occupy space in this contentious wealthy area.

[10] Thabo Mbeki was the second democratically elected president of South Africa between 1999 and 2008.

The police were not the only force seeking to remove the waste crafters from the suburbs, but an alliance exists between suburban property owners and their local police force. This alliance typically takes an official shape in CPFs where residential members meet with police officials who are assigned to their area on a regular basis. I discussed earlier how, in the case of Plastic View, rather than seeking to remove the urban waste precariat, CPFs and police officials had in fact combined forces in an effort to remove crime from their area. An interview conducted with the chairperson of one such CPF known as GarsCom, situated within Pretoria East, enabled me to gain some understanding of private property owners' perception regarding the street waste crafters. Below follows an account of chairperson Carol van Niekerk's recollection of the movement of waste crafters into the Pretoria-East area (Interview with Carol van Niekerk – 12 Feb 2021).

> *You know what, I started with GarsCom 22 years ago, and at that time we weren't aware of any such things [crafters selling by the roadside] in this area. No no, and we had much stronger and stricter ward councillors. In those days if they passed someone sitting on the street, they would interrogate them. I think it still spilled over from the previous government's rule[11] and so on, but as the years progressed it all became more relaxed. We were really surprised when we saw the first time someone was allowed to just start selling tables and benches next to the street. And even now, same as twenty years ago, as soon as residents find someone starting to sell things in a new spot they contact me immediately, even if it's just a tree feller.*[12]

Both accounts, my conversation with Carol and Innocent's uncle's description, capture similar processes around the same period regarding the gradual change in policing of street traders such as waste crafters in Pretoria East from the early 2000s onwards. These historical facts were even further substantiated in two interviews I conducted with crafters who were pointed out by other crafters as the first to begin selling their crafts along the main avenues of Pretoria East.

[11] Referring to the white minority government during the apartheid era.

[12] Tree fellers offer their service to trim overgrown trees. They typically operate informally, displaying their services on street corners.

Godfrey has been in the craft business for a long time and had been making crafts before he immigrated to South Africa. However, while he was still residing in Harare, this was not his main source of income but only a hobby offering secondary income. He explained that he had been occupying and selling from the space where we met in Garsfontein Road since 2012, and before that his stall was set up on Atterbury Road, opposite the mega-sized Menlyn Park shopping centre, mentioned earlier. Godfrey was forced to relocate his business when the city expanded this main avenue, making it wider to ease the flow of traffic and therefore closing of the sidewalk area he had been occupying. The other interview was conducted with a crafter named MacDonald. In our interview, MacDonald confirmed that he was indeed part of the first group of crafters to set up their stall and workspace in Lynnwood Road. In fact, he explained that they were three men who started out in the early 2000s and that prior to Lynnwood they were selling in Garsfontein Road, where his friend Godfrey is still stationed to this day (this is also where I had met Godfrey).

Pierre: So, Eddie and Innocent told me that you were the first person to start selling your crafts in that section of Lynnwood Road. Is that true? Or was there somebody before you?

MacDonald: At Lynnwood it was me, but even in Garsfontein. Most of the people in Lynnwood, we are a family. Even at Garsfontein I was one of the first and the other guys came here through me, they are still there today. I just moved since it's close to where I am staying now.

Pierre: OK, so you were first in Garsfontein and then moved to Lynnwood?

MacDonald: Actually, in Garsfontein, we came at the same time, Godfrey, me and Ben, but out of all those people, I'm sure, I was the only one managing to make stuff for myself. The rest were buying from other artists, you understand. They were traders not artists.

Here MacDonald confirms the fact that they were three Zimbabwean men who established the street craft market in the early 2000s. It is around the same time that the Plastic View settlement was established, and the forced removal followed in 2006. In my interview with

Donald Banda, we discussed his history in Plastic View, but also his history in Pretoria East in general. Donald explained that he had been working in the area on and off over the last thirty years or so. His family currently resides in Mamelodi, and he stays in Plastic View during the week while he works as a security guard. Donald explained that his father worked at Wingate Park Golf Club where he caddied for the golf club members during the week but mostly on the weekends. Donald mentioned that he also performed this work as a young man. The information was confirmed by De Vos's (2014) account of Donald Banda's life history.

In a riveting study of perceptions around home and belonging, De Vos (2014) captures the narratives of some of the Plastic View residents in the period following their re-settlement. These accounts allow one to gain an in-depth understanding of the histories and memories that some of the Plastic View residents hold regarding the urban space with which they actively are entangled on a daily basis. In these narratives, three men reminisce about how their fathers worked at the Wingate Park golf course over weekends, and a man named Benjamin Sithole (introduced earlier) specifically recalls working on the farms and tending to cattle before the farms were sold and transformed into suburban residential zones (De Vos, 2014).

It must be mentioned that not all Plastic View residents were born in Pretoria East and can lay claim to the land in this manner. But the reality of these life stories does well to paint a different picture of the presence of the urban waste precariat among the continuous development of new security estates and high-end shopping centres. Through their everyday actions of salvage and material transformation the urban waste precariat produces urban space by establishing informal craft markets that stand in contention with capitalist driven processes which has only sought to exclude and remove them from this wealthy urban space. This serves to illustrate how urban space is socially produced through configurations of social relations and everyday exchanges as the urban waste precariat forge livelihoods for themselves in this contested space (Massey, 1994; Smith, 1984).

4.6 Conclusion

This chapter was structured around two key aims. Firstly, to define and discuss the concept urban waste precariat. Secondly, I aimed to show how the urban waste precariat contests and

produces urban space. Regarding the first aim I applied the concept of the urban waste precariat as a socio-economic category under which I place waste reuse and recycling practitioners. Through the ethnographic data presented, I illustrated the similarities in the lived experiences of different individuals of the urban waste precariat, specifically their relation to private property owners in Pretoria East and City of Tshwane public authorities. This was done through the depiction of two cases, Plastic View and Castle Gate. Here I discuss two points of relation existing between the urban waste precariat and private property owners. Firstly, a point of relation exists around waste material exchanges, where the urban waste precariat salvage, transform and sell waste materials discarded by the property owners. The property owners also constitute the buyers of reused materials in the form of crafts and outdoor furniture, and in this way some materials are circulated back into Pretoria East. Secondly, through the establishment of CPFs, the two groups have joined in efforts to curb crime incidents in this area. Here I argue that the point of relation of policing and surveillance is emphasised in media representation over the other point of relation, waste material exchanges. This has the effect of stigmatising the urban waste precariat and misrepresents their presence in and contribution to this urban space, as, counter-productively, a link is made between their presence and incidents of crime. To problematise these portrayals, I offered a critical historical account of Pretoria East and its transformations during segregation, apartheid and post-apartheid. In doing so, I drew on recent scholarship to show that the socio-spatial legacies of apartheid persist and are reproduced in the contemporary context, and that white residents and the state exercise similar strategies to remove the black urban poor from these urban spaces. By employing the concepts of commons and enclosures, I argue that this process constitutes new forms of urban enclosures, but importantly the ethnographic data illustrates how the urban waste precariat contests these enclosures and, in their contestation, they produce an urban space alternative to a capitalist one.

Lastly, I hint at the practices of the urban waste precariat as value-production processes other than capitalist; however, this point is presented in greater detail in the following chapter. Gidwani (2008) argues that capital constantly aims to assert itself as the superior form of value production, and the chapter portrays the actions of wealthy suburban residents, private business owners and property developers as reactionary to the threat of having their value system disrupted by the presence of the urban waste precariat. One of the strategies

employed to do so is to represent the waste precariat as out of place in this socio-spatial context. Through the ethnographic accounts portrayed, I have sought to provide a counter-narrative to these strategies in order to discredit such harmful discursive practices.

Chapter 5: Points of transition: Deconstructive creation and urbanism from capitalist ruins

5.1 Introduction

In the previous chapter, I elaborated on the social categorisation I term the urban waste precariat, highlighting that it is made up of individuals who practice both waste recycling and waste reuse practices. Further, I highlighted their history and contentious socio-political standing within the urban area known as Pretoria East. My attention now turns specifically to the waste reuse practices of this group, and in my analysis, I show how these practices are constituted by social and material phenomena, in situations or "meshwork" of circuits that are not rooted in capitalist forms of production, although materially the practices draw from discarded ruins of capitalist production or waste. I argue that a value production process I call deconstructive creation occurs through the constellation of socially situated agents or waste crafters. These crafters draw on skilled practices in their entanglement with salvaged, discarded materials from highly contested urban spaces to produce value.

As I traced these circuits of waste reuse, particular points emerged where materials are transformed that enable the circuit's circularity. In the current chapter, I focus in on these points of transition to analyse the skills of disassembly and crafting that are applied in these transformations and their entanglement with processes and actors that move waste materials bound for reuse into the suburban space of Pretoria East. From these ethnographic findings, I formulate a second line of argument for this chapter, which is that craft making is also space making. A strong theme in this argument is the relation between traditional craft making, with its cultural-historical roots in Zimbabwean arts and craft hubs, and waste reuse practices that are currently producing social space in the suburban homes and gardens of Pretoria East (Lefebvre, 1974). By applying Hart's (2016) relational comparison I show how the production of the urban space Pretoria East cannot be understood without a long history of traditional craft making in Zimbabwean artist hubs and configurations of dynamic social relations (Massey, 1994; Smith 1984). Whereas the following chapter, Chapter 6, will focus on the multiplicity of circuits that entangle to form the reuse practices, in the current chapter I place specific points of transition under the magnifying glass to acquaint the reader with the skill of the waste reuse practitioners. However, these points are not portrayed in complete isolation

from the processes that constitute them, as that would fundamentally contradict the developed theoretical framework of the study, which perceives social and material phenomena as entanglements.

To develop these arguments, I draw on ethnographic data gathered in participant observation and interviews while conducting fieldwork with the urban waste precariat. The fieldwork entailed the circuits traced on both the landfill and the street. In each circuit, I identified six re-occurring points which I present and analyse in the chapter. The points are discard, salvage, disassembly, transformation, exchange and use or display. Following the presentation of each in a brief ethnographic description, the points of disassembly and transformation are further analysed and elaborated on in order to substantiate the innovative concept of deconstructive creation and its application to waste reuse practices. Deconstructive creation constitutes a value-production process alternative to capitalist production and is unique to waste reuse practices. Contrary to capitalist production, the deconstructive creation process allows for de-alienation and de-fragmentation to occur as the crafter deconstructs dead commodities and transforms it. The ethnographic data and interviews reveal how the waste crafters developed their skill through kinship structures and cultural traditions. Lastly, the data show how the waste reuse practices on the street produce space in the form of informal street markets and suburban garden beautification.

5.2 Points in a circuit

5.2.1 Discard

Both electronic and construction waste materials are discarded on the public landfill of Hatherley Landfill and used in waste reuse practices. Construction rubble is typically transported and discarded on the landfill by demolition companies contracted to take apart buildings and other infrastructure that are no longer in use or need to be removed to make space for new property developments. On Hatherley Landfill, construction and demolition waste is dumped in its own designated area but is also, as is common practice on municipal landfills, used for compacting over each new layer of domestic waste (Department of Environmental Affairs, 2018). Electronic waste has a unique trajectory into the landfill, as this cluster of waste consists of materials that are replaced by improved models of these devices fulfilling the same role more efficiently. The national *State of Waste Report* (2018) notes

"higher levels of disposable income, urbanisation and industrialisation, falling prices, people having multiple devices, growth of cloud services or data centres, and short replacement cycles" as prominent factors driving the increase in this waste stream. However, a decreased amount of this waste stream ends up on the landfill since most valuable items are taken to repair shops or designated drop-off centres (Department of Environmental Affairs, 2018; Lawhon, 2013). The e-waste that does end up on the landfill are mostly found in the rubbish piles of domestic households and corporate companies. The discarding of materials used in street reuse practices follow a slightly different flow.

Metal wires used by waste crafters in craft making are typically bought directly from metal recycling companies or scrapyards, as they are commonly called. These wires are mostly used in cables and fences and are transported to the scrapyard when they are taken down by farmers or demolition companies. The metal recycling company where research participant Eddy normally buys his wires from is one of the largest metal recycling companies in South Africa, NN Metals, and numerous smaller scrap-metal yards transport their material to be sold here (interview with Jaco Verster – 19 Feb 2021). Waste crafters visit the scrapyard to procure wire for less than half the price they would spend on new wire. Second-hand pallets are bought by waste crafters from delivery vehicle drivers working for construction material companies. These wooden pallets are used to deliver building materials for a number of cycles before they reach the end of their corporate life cycle. At this point, the pallets are sold to waste crafters. Jacaranda tree stumps used to carve wooden crafts follow a similar circuit as the wooden pallets. Businesses that perform gardening and tree-felling services discard these tree stumps at the crafters' workspace next to the road. This saves tree-felling companies the effort and additional cost of transporting them to landfills typically situated on the outskirts of the city (Interview with rubble removal employee – 21 April 2022).

5.2.2 Salvage

The act of salvaging is a common practice on the landfill, since not only materials destined for reuse are salvaged by the urban waste precariat, but also paper and packaging materials retrieved for recycling purposes. Salvaging bricks from building rubble entails a much more labour-intensive process, considering the weight of the material. The urban waste precariat focusing on bricks often negotiate with machine operators to move bricks and valuable rubble

found in recently dumped piles to their working space for a small fee. However, their usual modus operandi entails the transport of salvaged bricks by wheelbarrow and foot. Electronic waste materials are picked from domestic waste piles and at times from commercial discard. Some of these discarded electronic materials are still operational and therefore the urban waste precariat performing this form of salvage compete to get their hands on the devices before or immediately after they are dumped. For this reason, some anticipate vehicles carrying such materials and will jump onto them to secure these valuable items before others. This is a hazardous form of salvage and is often prohibited by municipal officials. But smaller devices such as cell phones also find their way to the main dumping areas, discarded by residents and companies in domestic waste streams, since the City of Tshwane requires no separation at source. The e-waste items are collected and sold by the urban waste precariat, usually while focusing primarily on other recyclable materials.

Metal wires and wooden pallets follow a material circuit that does not constitute salvaging from an urban waste common, but waste crafters obtain these materials through negotiation and money is exchanged. Crafters intercept both these materials otherwise destined for recycling or landfill discard for reuse. A similar point could be made in terms of the tree stumps; however, the tree stumps are not bought by crafters but usually simply received free of charge, which technically renders their operating space a point of salvage, in addition to transformation and sale.

5.2.3 Disassembly

The research produced on the afterlives of waste materials is immense and a large component of this body of work has focused on disassembly, destruction or deconstruction (Chalfin, 2019; Gregson et al., 2010; Herod et al., 2014; Lepawsky, 2015; Reddy, 2013; Tong et al., 2015). However, most of these scholars have focused on disassembly of e-waste, and therefore adding the streams of construction and demolition and wooden pallets contributes new insights. Each of the five materials discussed here undergoes a form of deconstruction at the hands of the urban waste precariat at some point in its reuse circuit.

Like the salvaging of bricks, disassembling bricks requires labour-intensive actions where the urban waste precariat chip away at residue cement left over from previous use. At times, it

requires breaking the bricks apart using a hard rock or hammer. Electronic waste materials require more finesse, seeing that there are certain pieces, such as circuit boards, that need to be preserved for re-sell. This will be discussed in more detail in Chapter 6, where I explain how disassembling actions require a similar complexity to the production process, seeing that each product is made up of many different kinds of materials, each destined for a different waste flow or recycling stream. Certain devices such as cell phones and calculators are discarded by consumers even when still in working condition, and these devices are often salvaged for direct use or resale. Wire used in craft making undergoes a form of deconstruction before it reaches the hands of the crafter. This is performed by demolition companies or even farm labourers taking down fences to be replaced. Once it reaches the crafter's workspace, it undergoes untangling, later to be tangled and looped into new patterns in the form of crafts. Pallet deconstruction is performed completely by crafters, and this process also needs to be delicately done to ensure that the wooden planks can be reused. The process involves removing nails using a hammer and pliers. Disassembly forms part of tree-stump carving to a lesser extent, as only the tree bark is removed before the carving process is performed. These circuits, especially at the point of disassembly, require labour in the form of reuse skill acquired by the urban waste precariat over extended iterative periods. This is a fact often overlooked in the study of the transience or "on-goingness" of waste materials, as Herod et al. (2014) have noted.

5.2.4 Transformation

Transformation entails the key point in the circuit which distinguishes reuse practices from recycling practices. Recycling practices also undergo transformation, but recyclable materials are transformed back into the same raw material status before being reshaped back into a similar form and use. Transformation in recycling circuits is typically executed in a formalised established waste stream. In contrast, waste reuse circuits, at least the ones analysed in this study, undergo transformation at the hand of waste crafters in informal processes, which requires a certain measure of creativity or innovation. The waste reuse circuits traced on the landfill do not go through the point of transformation. Electronic waste devices are taken apart and the different aggregates are re-sold. The same applies to second-hand bricks which, once taken apart and cleared of residue cement, are placed on display to be sold again. However, the materials that are moved to the streets are transformed by the crafters applying

their skill into various things of value both utilitarian and aesthetic. This skill applied in these transformative processes will be discussed in the following section.

5.2.5 Exchange

E-waste is salvaged and disassembled on the landfill by the urban waste precariat. Some urban waste precariat place specific focus on this single waste type, while other urban waste precariat who focus on paper and packaging sometimes find e-waste items mixed in with domestic waste. A member of the urban waste precariat named Abraham mentioned, "Sometimes others find electronics like phones in the waste, and they bring it to me because they know I am focusing on this kind of thing." Abraham sells his disassembled e-waste on the landfill to a scale operator, who then sells it to refurbishers further up the value chain. The prices are negotiated on the spot. For cell phone circuit boards, he pays about R20 per kilogram; for computer circuit boards he pays between R12 and R25, depending on the size; and for radio circuit boards he only pays R7 per kilogram. "The bricks we sell here on the landfill are good for laying out a driveway or pavement in your house or garden," explained Benny, a brick urban waste precariat. Some of these bricks have lost their perfect rectangular shape, hence the name *mampara* bricks is used. It is mostly landscaping companies or suburban residents who purchase these bricks from the landfill; however, some of the bricks that end up on the landfill are perfectly shaped and some buyers also use it in house construction, as Benny explained. Goods like crafts and outdoor furniture made from pallets, wire and tree stumps are sold from the informal markets established along the main avenues that cut through Pretoria East. There is significance in the positioning of this market in Lynnwood Avenue, as it is in close proximity to numerous nurseries and other garden accessories stores (I discuss this in more detail in Chapter 6). Therefore, the majority of clients the waste crafters sell to are suburban gardeners and homemakers. Each material undergoes some form of exchange for another thing of value, and this is where the material does not change in material form but only in value. In almost every exchange, the reused waste material is traded for money. This constitutes what Marx refers to as the commodity-money-commodity (C-M-C) exchange (Marx, 1906), which he argues is the opposite of a capitalist circuit of exchange.

5.2.6 Use or display

Goods from the two reuse circuits that weave through the landfill circuits are typically directly used for a similar purpose as its previous commodity form; for example, the salvaged bricks and e-waste circuit boards are used in construction and refurbishing. Crafts, however, are transformed into something different, and most are typically placed in suburban gardens or homes, either on display, giving the item an aesthetic value, or for functionality, such as flowerbeds and outdoor garden furniture.

These are the only products of waste reuse practices related to the urban waste precariat that I came across in my tracing of the waste categories of construction and demolition, organic and electronic waste situated in Hatherley Landfill and the main avenues of Pretoria East.

5.3 Deconstructive creation: Notes on the possibility of alternative value production outside of capitalism

5.3.1 Introduction

As previously mentioned, although salvaged bricks and e-waste are taken through a point of deconstruction, these materials are not transformed into something completely different from their prior use. These materials are simply deconstructed and the constituent parts sold from the landfill for direct use or, in the case of e-waste, for valorisation further upwards in the formal value chain. The material circuits positioned on the street, however, do go through a process of transformation into a new thing of value, and are sold from the street craft market. The table below offers an indication of the different points within each material circuit, and illustrates which of the points directly involve actions performed by the urban waste precariat.

Table 1: Different points in waste material circuits

	Prior	***Urban waste precariat***	***Post***
Bricks	*Deconstruction*	*Deconstruction* *Exchange*	*Exchange* *Reuse*
E-waste	*Discard*	*Salvage* *Deconstruction*	*Exchange* *Reuse*

		Exchange	
Wooden pallets	*Discard* *Exchange*	*Deconstruction* *Transformation*	*Exchange* *Use (display)*
Metal wires	*Deconstruction* *Exchange*	*Salvage* *Exchange* *Transformation*	*Exchange* *Use (display)*
Tree felling off-cuts	*Deconstruction* *Discard*	*Deconstruction* *Transformation*	*Exchange* *Use (display)*

I term this production process where the urban waste precariat perform deconstructive and transformative actions *deconstructive creation*. It is this value-production process which distinguishes waste reuse practices from waste recycling practices, where materials are transformed into a different commodity from their initial form. By comparison, in recycling, materials are salvaged and sold to be re-inserted into existing recycling circuits, generally to be used in the same or similar commodity form. Recycling markets constantly need to compete against virgin materials and the costs involved to produce these. The established recycling processes are formalised industrial circuits, and therefore producing recycled raw product at competitive prices can be challenging, such as when the price of crude oil drops and therefore the cost of virgin material plastic production also decreases. This is not the case in waste reuse circuits.

Waste reuse practices are therefore influenced less by market fluctuations than in formalised capitalist circuits, and this fact opens up the potential for alternative value to be produced outside of capitalist determinations. Numerous writers have theorised the relationship between informal economies and capitalist markets through an inside/outside lens (Gibson-Graham, 2006; Inverardi-Ferri, 2017; Samson, 2015; Sanyal & Bhattacharyya, 2009; Tsing, 2015), and in this they develop concepts to describe this relation. In the following section I discuss some of these concepts and how they differ from deconstructive creation.

Tsing defines salvage accumulation as,

> the process through which lead firms amass capital without controlling the conditions under which commodities are produced. Salvage is not an ornament on ordinary capitalist processes; it is a feature of how capitalism works.
>
> (Tsing, 2015:63).

Tsing describes the process of salvage accumulation as precapitalist, as she states that it occurs simultaneously inside and outside capitalism. Deconstructive creation, although drawing on salvaging actions, diverges from salvage accumulation in the fact that it occurs post-capitalist production and consumption, and here the material enters a liminal phase where its future trajectory is yet to be determined. In this way, it is also different from Marx's (1906) "gifts of nature" and might rather be understood as salvage from the urban commons (Gidwani, 2013; O'Hare, 2022) Gidwani (2013) argues that landfills serves as urban commons, but also, that salvage from landfill commons often serve to subsidise and supplement capitalist accumulation. This fact holds true for e-waste salvage, but not for brick salvaging. While the urban waste precariat salvage bricks from the landfill commons they form what I term a subsidiary and care economy (a point discussed in depth in section 5.5) and this aligns with O'Hare's (2022) work which illustrates how the urban poor salvage waste from the commons to form care giving economies The urban waste precariat steps in, at the point of discard. The urban waste precariat perform salvage and disassembly and, in the reuse circuit of e-waste, salvage accumulation from the commons does occur, as extracted materials are sold and re-inserted into capitalist circuits further up the value chain. However, deconstructive creation is performed at the points of deconstruction, as the labour of the urban waste precariat adds value to this chain.

The e-waste circuit thus resembles Chalfin's (2019) concept of excess value, which, as previously explained, is released in the process of destruction, but this destruction is not limited to the actions of the urban waste precariat. Chalfin explains that this form of value emerges in the dialectic of precarity, where the failures of capitalist flow, through heightened consumption and breakdown, open the possibility for precarious livelihoods (2019:508). Like Tsing, Chalfin describes this process within the context of late capitalism and, although the possibility of a precarious livelihood is identified, it is depicted as being thoroughly in dialectic relation with "structural overdetermination and radical insecurity" (2019:500) of late capitalism.

Gibson-Graham suggests the potential for alternative value to emerge from spaces and configurations outside capitalism, but in their concept development this requires intentional remaking of economies in alternative terms (2006:xi). Deconstructive creation in reuse practice does not represent an intentional alternative or remaking of the economy, but rather is practiced as a "making-do" approach from a precarious position when left outside of formal market employment. For their remaking, Gibson-Graham suggests turning to counter-discourses from alternative traditions of economic thought. One such alternative tradition can be found in Graeber's (2001) analysis of Mauss's (1966) study of gift economies. Graeber argues that, contrary to the Marxist belief that an expanding capitalist market will subdue every aspect of human and natural life under its law of value, within capitalism itself a gift economy is, and will probably always be, practised. My concept of deconstructive creation carries a similar thrust in its drawing on subsidiary and care economies and everyday communism (Graeber, 2010). This aspect also aligns with distributive labour, which Isenhour and Reno describe as being "just as much about the movement as resources as it is the construction of moral, human or peopled economies" (2019:4).

I am certainly not the first to write about destructive or deconstructive actions and their relation to value and processes of production. The term deconstructive creation builds on other conceptualisations of production processes, specifically Schumpeter's (1950) creative destruction and Gordillo's (2014) destructive production. Both these terms conceptualise production processes within capitalism, whilst deconstructive creation describes a production process which occurs outside of capitalist production and is applied to waste forming the "ruins of capitalism" (Gordillo, 2014; Tsing, 2015) in its creation of new things of value. Schumpeter's (1950) term specifically refers to the way new innovations and technologies replace outdated ones, the destruction therefore referring to this disruption. He relates the creative destructive characteristic embedded in capitalism as the driving force behind economic growth and deems it a necessary aspect of the process of progress (Schumpeter, 1950). Gordillo is critical of this phrase and argues that pointing to the innovative side of capitalism obscures its intrinsic violence, potentially de-politicising it especially along it history/legacy of colonial expansion. He prefers to use the term destructive production since "it captures the twofold movement of production and destruction without recoding

destruction as creative" (Gordillo, 2014:81). I agree with Gordillo on this point; however, this study analyses the production process from the aftermath of capitalism's destructive production, therefore that which is produced from the ruins or waste left by capitalism, when the material's future trajectory and state are yet to be determined.

As noted above, scholars have considered the possibility for alternative value to emerge from the ruins caused by capitalist expansion (Crocker & Chiveralls, 2018; Edensor, 2005; Tsing, 2015). As in these scholars' work, the current study forms an example of such an emergence, specifically the potential for alternative value production from urban waste reuse practices. The act of deconstruction relates to the disassembly of discarded materials. Here the urban waste precariat evaluate and handle the material and imagine its future potential as commodity. The act that follows deconstruction is creation. Actions of creation occur at the point of transformation and entail the socio-cultural process of skilled craft making. I use the term "creation" rather than production, since I divert from typical terms used to describe production in capitalism. "Creation" allows me to broaden this perspective to include actions outside of capitalist production and value determinations. It is through the deconstructive creative actions of the waste precariat that alternative value production emerges, in constellation with skill and material form. This I elaborate on below.

5.3.2 Theory: Negative dialectics, constellation, skill and ruin

In *Negative Dialectics*, Adorno (1973) aimed to rid the dialectic approach of its teleological tendencies, for which he blames Hegel. Not only does he adopt a Marxist dialectic in analysing and critiquing capitalism, but he applies this to the whole of human history, debunking especially the view of modernity and industrialisation as exceptional and progressive. Adorno drew most of his negative dialects from Benjamin's (Benjamin & Tiedemann, 1999) concept of "constellation", particularly its potential to counter the fetishization of objects (Gordillo, 2014:20). Gordillo explains Benjamin's concept as follows:

> Constellations point to processes that are stored in objects but that are also outside of them: an outside that is multicentered and has a plastic, elusive form, for constellations have no clear boundaries and superimpose on each other, forming palimpsests.
>
> (Gordillo, 2014:20)

Benjamin argued that the passing of time did not bring progress but fragmentation, such as the fragmentation of an object from the processes that constitute or produced it (Benjamin & Tiedemann, 1999). There are thus clear similarities between Adorno and Benjamin in their negation of progress and negative dialectics. I argue that, through de-fragmentation, waste reuse practice conjures an awareness of the material and social constellation, as the discarded material is handled and taken apart, the layers of its production brought to light and its future re-imagined through bio-social transformation. For instance, by deconstructing the whole discarded electronic device, the e-waste urban waste precariat gain insight into the multiple materials that constituted its working and re-evaluate its potential future trajectory and value piece by piece. Through this re-evaluation, the constellation is revealed, its negative dialectic is untangled as the material form is skilfully placed in motion, firstly, and, secondly, conjures value that is not only economic but also cultural, aesthetic and spatial. Thereby, in my adoption of the concept of constellation I stand in agreement with Chalfin (2019) and Tsing's (2015) conceptualisation of the waste reuse process being simultaneously inside and outside capitalism; however, I argue that the value that is produced stands outside of capitalism when it is not re-inserted into capitalist commodity circuits such as the wire and wooden pallet crafts.

5.3.3 Constellation and skill

Gordillo incorporates the concept constellation in his own work in the following suggestion:

> I propose to add disruption and debris to this perspective [constellations], to show that spatial constellations are made up not only of inhabited places but also of the nodes of rubble they are enmeshed with. And nodes of rubble are part of constellations because they are far from being dead matter.
>
> (Gordillo, 2014:20)

Gordillo (2014) emphasises two aspects related to constellation. First, that constellations are spatially understood as the material stores process inside but also outside of it. Secondly, he points to the relation between human and non-human materiality and uses the term "enmeshed" to describe their entanglement.

The waste material in reuse practices is to be understood in the same way, through the lens of constellation, and here I build on the notion to include the human skill involved in waste reuse practices. My understanding of skill is drawn from Ingold's theorisation. As Ingold notes:

> Skills are not transmitted from generation to generation but are regrown in each, incorporated into the modus operandi of the developing human organism through training and experience in the performance of particular tasks.
>
> (Ingold, 2000:5)

In Ingold's definition of skill, which is the skilled practices of socially situated agents, things are not made but grown. He compares craft-producing practices to that of a farmer growing their herd or crops, in the same way crafters draw on bio-social processes which "grew" skilled practices, and hereby the artefacts of these processes had in fact "come to life", to use Ingold's terminology. What Ingold calls becoming or coming to life refers to things being in constant flux and motion, and an awareness of the processes that constitute a thing point to the growing or emergence thereof, as opposed to manufacturing or making or producing. This is in fact a process akin to that of an artist rather than an engineer. But here Ingold finds the socio-historical separation between art and technology to be at the centre of the problematic way skill is perceived in so-called modern society:

> Instead of assuming that technical operations are, by their very nature, mechanical, I argue ... that the machine is an outcome of the historical development of the forces of production accompanying the growth of industrial capitalism. In this development the relations between workers, tools and raw material have been transformed, such as to replace subject-centred skills with objective principles of mechanical functioning. It is to these principles that the modern concept of technology refers. I show how the emergence of this concept was bound up with the rise of a mechanistic cosmology that separated design from construction and reduced skilled making to 'merely technical' execution. Thus, whereas in the artisan's handling of his tools, the movements of their working points are guided by his own perception, the motions of the machine, and any tools attached to it are pre-determined.
>
> (Ingold, 2000:289)

Ingold's distinction between production in industrial capitalism and skilled making is the exact difference that arises between aims towards a circular economy in capitalist production and

existing circular practices, which I term outside-circularity, in the form of waste reuse practices. What I mean by this is that, in most established capitalist material circuits, the trajectory of commodities is predetermined, whereas in the waste reuse circuits the urban waste precariat find new ways of use for discarded materials. To summarise, then, I view discarded waste materials as ruins in constellation which, through skilled waste reuse practices, are de-fragmented to create value processes in the form of deconstructive creation. These practices have unique cultural and spatial implications within Pretoria East and the wider City of Tshwane region.

5.4 The skill: Landfill and street

In the previous section I briefly discussed what each point in the line of material flow entails. In this section, I focus on two specific points, namely disassembly and transformation. These constitute points in the line of flow, where deconstructive creation as an alternative form of value production emerges through the skill of the crafter. The crafts are reused further in the construction of new devices, infrastructure and garden ornaments. In the latter settings they produce space in the beautification of the suburban house and garden. The ethnography further illustrates how transformation occurs after the craft is made, when it is placed in circulation and becomes a gift in a corporate setting, for example. Lastly, I illustrate the ways in which this form of value creation constitutes outside-circularity and the inverse of capitalist value production.

5.4.1 The landfill (deconstructive creation)

This section places specific emphasis on waste reuse skills applied on the landfill, how they are developed, how they emerged on the landfill and how they are positioned within a constellation with ruin in the form of waste materials.

5.4.1.1 Bricks

Brick salvaging on Hatherley Landfill is generally performed by a small group of Zimbabwean men. My fieldwork participants for this waste stream consisted of a group of five men who moved their work from Garskloof Landfill to Hatherley Landfill in 2013 when the former site was closed. During one of my last conversations with one of the brick urban waste precariat,

Clive[13], I decided to move our discussion toward a topic not discussed before, to find out why I often find Zimbabwean men performing brick salvaging, since this practice is quite labour intensive. After posing my questions to Clive, he took a moment to reflect, but then explained,

> *I am used to working hard to make a living and I've been doing so from a young age. Even while still living in Zimbabwe this was the way I operated, having to ride on my bicycle for long distances to work. I've been doing brick recycling for thirteen years now and I have lived in South Africa for sixteen years.*

The participant migrated from Zimbabwe to South Africa, where he found other men performing brick salvaging and decided to join them. I asked why he does brick reclaiming and not paper and packaging. He explained, "No, it is too crowded there, I prefer working here selling bricks". This raises two important points: Clive's preference for the working conditions associated with brick salvaging, but also that the informal sector is less active in this waste cluster compared to paper and packaging. Clive further explained that brick salvaging enables him to work on his own terms and avoid conflict. As we discuss these points I notice in his facial expression and his hand gestures that he takes pride in the fact that he has managed to eke out a livelihood for himself in another country over this period.

5.4.1.2 E-waste on landfill: Assembly line to disassembly circle

As noted above, electronic waste is the only waste stream I investigated that is disassembled to be reused or recycled in much the same way it was used before. This waste streams also illustrates the continuity between recyclers and reuse practitioners as individuals who mainly focus their work on paper and packaging materials at times also salvage e-waste from the dumped piles and sell these to e-waste buyers to be deconstructed stripped and re-sold. E-waste urban waste precariat deconstruct and strip discarded devices of valuable metal parts and circuit boards which they then sell in similar fashion to that of paper and packaging waste materials. This is done directly from the landfill, after which the materials are then inserted into established recycling and refurbishment circuits. What sets the e-waste apart from paper and packaging, however, is the process of deconstruction. The process at the point of disassembly represents the inverse of the capitalist market. In this section, I want to take this idea further, to show its significance as an alternative process of value creation.

[13] Clive is a pseudonym. The participant chose to remain anonymous.

Manufacturing assembly lines in factories where most electronic devices are produced represent a linear line with numerous individuals' and machines' assistance making partial contributions to the overall manufacturing of each device (Correia et al., 2018). This is where Marx (1906) argues a form of alienation occurs, as the hands that produce the commodity are removed from the holistic process. Additionally, contemporary manufacturing lines produce commodities characterised by planned obsolescence, as devices constantly get upgraded and newer, more advanced models replace their outdated counterparts.

My observations on the landfill focusing on e-waste reuse practices captured the opposite of capitalist manufacturing lines. Firstly, e-waste disassembly is practiced in a circle formation by a single urban waste precariat, dismantling a device. E-waste urban waste precariat salvage materials from newly dumped heaps or directly from the back of vehicles entering the site. Thereafter they take the materials to their workspace, and this is where the deconstruction begins. As the urban waste precariat disassemble the parts by hand, they are placed in small heaps surrounding the reclaimer to form a circle. The urban waste precariat perform it this way since it takes some time to dismantle the parts and it can be a tedious process when working through numerous discarded devices, especially when extracting electronic circuit boards to be sold and reused in new devices. These circles resemble a symbolic conception of circularity, where the linear dead end of a valueless waste material is introduced into a circle and used again. Through the deconstructive actions of the e-waste urban waste precariat, the materials are translated from linearity to circularity. This also represents the point at which the urban waste precariat gain a hold on the device as a whole and not just some of its parts, as in the factory assemblage line.



Figure 5: Disassembled electronic waste placed in small piles forming a circle

5.4.2 The street

Moving on to the street, the following section entails ethnographic thick description (Geertz, 1973) accounts of the waste reuse practices situated along the streets of Pretoria East, in which I describe and analyse the skill applied in these practices through the points of disassembly and transformation.

5.4.2.1 Wire

It is mid-morning and vehicles are lined up bumper to bumper in the section of Lynnwood Road where waste crafters and other street traders make and sell their goods. These traffic congestions are quite common in this location, since most of this main avenue that dissects Pretoria East consists of doubles lanes in both directions, except for this particular section which have single lanes. As I arrive at Eddy and Innocent's workspace next to Lynnwood Avenue, I notice that Eddy is sitting on the opposite side of the road. This is the same Eddy and Innocent, experienced metal wire and wooden pallet crafters, briefly mentioned in Chapter 4. It is quite strange that Eddy is working on the other side of the road since it is much

more exposed to the sun than the southern side and has no tree shade to shelter from the ferocious summer sunlight. I decided to cross over and meet up with him. Upon my arrival, I notice he is busy working on a sitting-human-figure piece, woven together by an entanglement of wire (shown in Figure 6). The dense tapestry of intersecting wire catches my eye, and I find myself staring at it, completely forgetting to greet Eddy. It takes me a few seconds to realise this, at which point we exchange greetings and immediately start to discuss his new piece.



Figure 6: Wire craft sold on Lynnwood Avenue

As our discussion unfolds, Eddy begins to explain his process and the particular steps he follows: “I firstly construct the frame of the figure that I want to create. After this I fill out the ‘body’ of the piece”. For this second step, Eddy follows a looping technique by continuously twisting the wire around the frame. As Eddy explains the process, I begin to distinguish the thicker wire which he uses to make up the frame of the piece from a thinner type of wire to flesh out the body, looping it layer after layer around the frame. Eddy makes use of a pair of pliers and a hammer, which he skilfully applies to craft the piece, but he mentions, “I prefer

to use my hands for twisting the wire around the frame, but the wire for the frame is too thick, for this I need the pliers". Eddy further explains, "My uncle taught me how to make these wire crafts, back in Zimbabwe when I was still a teenager. I learned this craft making by watching him and then I tried to do it myself." Eddy's uncle was a craft maker, and this, Eddy explained, is quite a common way of generating an income in the area of Chitungwisa in Zimbabwe, where Eddy grew up.

Eddy finished working on the piece and got up to go and buy lunch for him and Innocent. The figure that emerged through Eddy's looping together of the wires was quite striking to me and it drew me to reflect on it for a moment. A man sitting deep in thought, with his hair seemingly blowing in the wind. The form and the continuous looping of wire gave the figure a transient effect, as if sketched in pencil on paper, possibly symbolising the figure's thoughts escaping from an uncertain reality. I went over to Eddy when he returned with their lunch. I asked him about the piece, and what he thought it symbolises. But Eddy, an introverted man sitting with his cap lowered to his eyeline, simply said it was "a man thinking really hard." Innocent jokingly added, "He is thinking about how to make money."



Figure 7: Wire crafter Eddy on Lynnwood Avenue

While they sat together, enjoying their lunch break, we continued our conversation about Eddy's craft-making technique. He added that he had also "figured it out" by himself. He explained that it is his own style. After constructing the frame with thick wire, he follows this frame with one strand that he loops, as it weaves around the frame, to form a consistent pattern. This is a thinner wire that he uses to flesh out the body of the frame. The conclusion of our conversation was that, although Eddy initially acquired some technique from observing and mimicking his uncle, he later developed his own style in wire crafting.

5.4.2.2 Wooden pallets

Innocent is a young man in his mid-twenties who always welcomed a conversation about his work. Innocent acquires second-hand pallets from drivers doing deliveries for construction material suppliers and pays them a small fee (R20 per pallet) to drop these off at his working spot. He then disassembles the pallets to use in the construction of dog kennels, tables, chairs, gardening crates and picket fences. This is not a simple deconstructive process, as the pieces that are taken apart need to be used again, and therefore damage to the wooden planks needs to be avoided. Innocent at times also reuses the nails retrieved from the disassembled pallets.

As we sit down at his working space next to Lynnwood Avenue and talk about the first several years after he completed his secondary education, Innocent reflects on his first few attempts at establishing a career and the odd piece jobs he did at the time while still based in Harare, Zimbabwe. He explained that the work he did for most of this period was installation of wooden deck floors for houses and other buildings. But he soon realised this work was not earning him enough of an income and, fuelled by hearing other success stories of friends and family finding better opportunities in South Africa, he decided to follow suit.

Innocent explained that he found employment rather quickly through a family friend who informed him of an opportunity to work for a garden services company mainly operating in the suburban areas of Pretoria East. During this time, Innocent got an opportunity to make garden partitioning with the help of a friend. A property owner in the Pretoria East suburbs needed a large amount of the garden partitioning and Innocent's friend, working for the property owner at the time, could not construct it all by himself. This was a large order and

from it they both made a considerable amount of money over just one weekend. The opportunity sparked some optimism in Innocent, and he decided to leave his employment at the garden services company to make and sell garden partitioning and other wooden products made from pallets along the main roads of Pretoria East. Innocent explained to me that it was both the experience he gained from building wooden deck floors and the promise of freedom to work under his own terms and conditions which drove him to take up the business of wood crafting. This is a skill he developed over the past few years and it had now become his main source of income.

5.4.2.3 Jacaranda wood carvings

Further up the road from Eddy and Innocent were situated a group of crafters who carved wooden pieces into ornaments. They obtained these pieces of wood through an arrangement with tree fellers. In a conversation with a crafter named Tynashe, a middle-aged Zimbabwean man, he explained that everyone working with him at this spot is Zimbabwean and that they came from the same city of Masvingo, which is also the reason why they were working together. Like Eddy, the wire crafter, Tynashe was taught the skill of wood carving by his uncle when he was a young boy. He explained that they mostly use Jacaranda wood (*Jacaranda mimosifolia*), "because it is soft, and it does not crack when it dries out like other wood types." He took me to the spot where they were busy making new crafts, carving away at the wooden tree stumps. One of the wood crafters was busy carving a large piece which looked to be taking the shape of a bunny. It was approaching Easter time, and they hoped to sell a few pieces during this holiday season by playing on the Easter theme. I noticed the tool he used was shaped like a hoe (showed in Figure 8). The crafter explained that he had made this tool himself, and in addition to this hoe he uses chisels in his craft making.



Figure 8: A wood crafter holding his self-made crafting tool

Two main themes surfaced through these interactions with the waste crafters, which I explore further and theoretically analyse. Firstly, two crafters identified their uncles as the person who taught them the craft-making skill when they were growing up in Zimbabwe. They apply these skills in their craft making, hereby pointing to cultural practices passed on in a family context. Both street and landfill urban waste precariat mentioned that they joined established reuse practices when they started working. Thus, they were not the first to perform this kind of work in these spaces. However, in section 5.5 I trace the crafters' narrative to the first waste crafters to perform reuse practices along the streets of Pretoria East. Secondly, aspects emerged related to waste reuse practices that oppose typical capitalist production principles. These aspects are production of value through disassembly of discarded materials; the occurrence of de-alienation as crafts are bought directly from crafters in the space of production; and crafters choosing to perform waste reuse practices to work under their own terms and conditions. This last aspect related to autonomy imbedded in the urban waste precariat's informal work is also noted by Millar (2014, 2018). These aspects all point to

questions around value, and in the following section I re-engage with the literature on waste and value to further develop the concept of deconstructive creation.

5.4.3 From creative destruction to deconstructive creation

The tracing of waste reuse circuits has revealed points of transition that enable materials to move from a linear trajectory to circularity in terms of use. In this I have traced the circuits from both the landfill and the streets, each of which portrays unique movement, exchanges and human skill applied to them. However, the points of transition illustrated that some generalisations could be made. On the landfill, the tedious and demanding labour of the urban waste precariat in their deconstruction of bricks and e-waste forms the key point that transitions the materials into its potential for commodity candidacy and circularity. E-waste is deconstructed in a circle by a single individual taking a device apart to extract and delineate the different valuable materials. The deconstructive process of the urban waste precariat represents a process of de-fragmentation where, contrary to alienation in capitalist assembly lines, one individual gains a hold on the whole device with its constituent parts, and determines its future trajectory in circularity. Deconstruction in the brick waste stream is slightly different in the fact that only one type of material is extracted by the urban waste precariat. The transformation of these two materials, bricks and e-waste, occurs in deconstruction and does not entail the reshaping into a commodity of a completely different kind, such as the waste circuits occurring on the street. In both these waste circuits the urban waste precariat draws from the urban commons on the landfill (Gidwani, 2013; O'Hare, 2022) unlike the other waste streams I discuss where a subsidiary and care economy circulates waste material through exchanges.

The materials utilised in street waste reuse practices each carry quite unique characteristics in the points of transition (salvage, deconstruction and transformation). Metal wire undergoes a process of deconstruction before it is salvaged by the waste crafter. As noted earlier, demolition companies and farmers take down and extract infrastructure that contains wire and, if not directly reused, these are typically taken to metal recyclers. In Chapter 6, I further discuss this unique exchange between a large metal recycling company and waste crafters, where, although money forms part of the exchange to obtain the wire, it is not based solely on profit-making intentions but also on care and distribution (Ferguson, 2015; Isenhour

& Reno, 2019). Similar to the way some bricks are salvaged, pallets are obtained by waste crafters who have formed a relationship with employees of formal businesses, and here also draw on distributive labour or the subsidiary and care economy. Similarly, when tree off-cuts are exchanged between tree fellers and wood crafters, this is often based on arrangements between individuals who share common nationality as Zimbabwean migrants.

In street reuse practices, the waste crafters apply their creative skill to transform waste materials into something completely different from their former commodity phase and use. The metal wire and tree off-cuts are transformed by the hands of the crafter, who draws on traditional skill, which the urban waste precariat conveyed was initially obtained through their own cultural and kinship structures. Kinship networks and waste reuse skill here carry some commonality. In the same way that the urban waste precariat obtained their skill in Zimbabwe through affinal relations, and were adapted or re-grown in South Africa, existing kinship networks are also re-established and adapted through existing blood ties, marriage and affinal relations (Graeber, 2001; Mauss, 1966). In his study of Zimbabwean migrant farm labourers on the South African border farms, Bolt (2015) notes the significant role that kinship networks play in the ways farm labourers are recruited and employed. This influenced kinship network formations across the border and between the border farms. However, Bolt (2015) defines kinship based on blood ties and marriage, whereas the current study defines kinship in broader terms to include affinal relations.

In the transformation of the wooden pallets, we witness a combination of deconstruction, similar to the e-waste urban waste precariat, but this is followed by alterations and re-assemblage into a new commodity, to be sold on the street market. These waste streams entangled with reuse processes constitute deconstructive creation, which forms a constellation (Benjamin & Tiedemann, 1999; Gordillo, 2014), in the way I explain at length in section 5.3. Differing from Benjamin and Tiedemann (1999) and Gordillo (2014), who define constellations as the processes stored in the object, I conceptualise constellation to be an entanglement of the material and human skill to form outside-circularity and deconstructive creation. In the same way that the waste material is in constant process of becoming (as opposed to a static conception of material), the skill of the crafter is also in constant development and adapts to the availability of material and the socio-spatial and geographical

position of the crafter, as well as creative inspiration, in some cases. The following section elaborates more on waste craft skill as a fluid and adaptive practice.

5.5 A history of craft making in Pretoria East: Craft making is space making

In Chapter 4 I compiled a counter-narrative to add much-needed nuance to the dominant narrative of the presence of the urban waste precariat in Pretoria East as they are portrayed in local media. In addition, this counter-narrative was aimed at discrediting the discursive practices of private property owners to have the urban waste precariat removed from the area. These counter-narratives introduced some of the first waste crafters to have established the street craft market along the main avenues of this suburban area. In this section, I revisit these accounts as the crafters trace the cultivation of their crafting skill back to arts and craft hubs where cultural production through traditional skill have been practised for an extensive period.

5.5.1 Skill holds history and space

The skill applied in the craft-making process can be compared to Ingold's (2007) earlier distinction between wayfaring and transport, where the organism transporting from point to point already imagines in the mind the journey that is to be taken and wayfaring is left out of the equation. Ingold describes this process as point-to-point connections:

> They enable the prospective traveller to assemble a route-plan, in the form of a chain of connections and thereby virtually to reach his destination even before setting out. As a cognitive artefact or assembly, the plan pre-exists its enactment 'on the ground'.
>
> (Ingold, 2007:86)

In my own analysis of the processes that constitute waste reuse practices, I perceived the creative transformation of waste materials into crafts to be aligned with the assemblage theory approach, particularly Ingold's concept wayfaring, which is based on improvisation and an in-placed-ness of the human organism.

The waste crafters I conducted fieldwork with, situated among the main streets of Pretoria East, mainly learned their craft through familial engagement, but these engagements were also significantly placed geographically. What surfaced in my interactions with some of the street waste crafters was that they all spent most of their formative years in one of the arts

and craft hubs situated in and around the city of Harare, Zimbabwe. Eddy, the metal wire crafter, identified his uncle as the key person in his upbringing who taught him the skill of metal wire craft making. But importantly, Eddy also explained that he grew up in a town called Chitungwiza, a place where arts and crafts skills form a prominent part of the culture and economy. These same aspects arose from my conversations with the crafters MacDonald and Godfrey, who were among some of the first to trade their goods along the streets of Pretoria East in the early 2000s.

In Garsfontein Road I interviewed Godfrey, who had been making and displaying miscellaneous crafts along this street for many years. Godfrey was born and raised in the Harare region of Zimbabwe. Like Eddy, he explained that his crafting skill is something he learned from his family and is part of his culture. Godfrey described this skill-developing process as having a deep connection to a large craft market called Borrowdale Art Market, south of Harare. Here many of his family members displayed and sold their crafts. Eddy and MacDonald hail from this same region south of Harare, as the following excerpt from an interview portrays.

Pierre: Did you know Eddy before you moved to South Africa?

MacDonald: No, we just met here. Like, where Eddy grew up, those were the oldest townships in Harare where you could find most of the artist sculpturing and so forth. Chitungwiza and Mbare. Those are the oldest townships that you could find all kinds of art. And, how I got involved into art was ... I grew up in Glenview, Mbare. That's right, I learned my art skills in Mbare. We had like a theatre centre there, where they taught you how to draw and make paintings, stone carving, wood carving, also metal sculpturing, you know, all those kinds of things, yeah. Even in Masvingo, so you had most wood carving artist and iron artists mostly in Masvingo. But, this theatre was in Mbare. There in Beatrice Road cottages, it's obviously near the main road. This Beatrice Rd theatre is like a place where people are taught, and tourists even pay for those paintings and all kinds of art sculptures. We even had customers from overseas, you understand, buying and shipping in containers. You see, they give you orders for a lot. So, it got to a point that the market was no longer good, actually it was bad. You

know because of the situation in Zimbabwe. We went on sanctions, and you know the whole thing with Mugabe. You see, it chased lots of tourists you understand.

Macdonald explained further that it was mostly due to the drying up of the tourist-based economy in Zimbabwe that he decided to relocate his work and eventually his whole family to South Africa, after being exposed to the harsh reality of the crisis in Zimbabwe. Here MacDonald added that, "We were taught by those guys who had a lot of experience, now there are only a few of them who are left", alluding to the economic crisis as discouraging the tradition of craft making and its proliferation. However, MacDonald mentioned that there is a re-emergence among the younger generation to take up this tradition again, both in Zimbabwe and among Zimbabwean migrants living in South Africa.

MacDonald recalls how the area known as Mbare, a suburb of Harare, had an art theatre where he developed the skill to create arts and crafts, and some archival literature points to this fact that in the 1980s the Arts and Drama Department of the University of Zimbabwe initiated a project in the hostel of Mbare to teach theatre, arts and crafts skills as a form of upliftment (Kavanagh, 1990). In a similar context, Eddy grew up in an area where wire and bead crafting was in common practice, and he developed the skill through observing his uncle in his work. This town where Eddy grew up is called Chitungwiza. From these two hubs, a thriving arts and crafts market emerged, and, as MacDonald states, they were even filling up containers shipped to be sold abroad. But after sanctions were imposed on Zimbabwe this market soon died out, severing the flow of cultural commodities through a globally connected market. This is one of the key factors which drove MacDonald, Eddy and Innocent to migrate to South Africa in search of better opportunities. Through their migration to the City of Tshwane and the formation of waste reuse practices, their skill entangled with discarded waste material to form palimpsests of deconstructive creations and of waste-skill constellations.

5.5.2 Open-ended socio-material relationships

The previous sections relayed ethnographic engagement which showed the crafters' skill, in Ingold's (2000) terms, as a bio-social entanglement that is grown in connection with the immediate environment, both material and social. In the following section, I expand the

analysis to include crafters' entanglement in new kinship networks based on affinal relations and drawing on acts of everyday communism. I further use the ethnographic data to show how waste reuse practices contribute to the production of urban space both on the street, by establishing craft markets, and in the suburban house, as waste crafts and furniture are placed into use.

MacDonald explained in our interview that he did not know Eddy before they migrated to South Africa. Eddy and Innocent mentioned that they decided to locate their craft and furniture stall among the other crafters in Lynnwood Avenue, as they found this existing market when they arrived. However, Eddy later informed me of another layer to their choice of locating their workspace on Lynnwood Avenue. Eddy explained that his sister married into MacDonald's direct family after they had already migrated to South Africa. In this way, a new social network formed between them as Zimbabwean migrants, once they had crossed the national border to establish a different livelihood in a new country. In this way, new kinship structures formed based on direct familial ties but also newly formed non-familial ties or affinal relations (Graeber, 2001). The following account offers an example thereof.

During one of our conversations, I asked Eddy and Innocent why they choose to work together. I wanted to understand what their main points of relation were, to gain some insight into the possible mutual benefits there might be in working together. They replied that they come from the same place. I assumed by this they meant the exact same town, but they explained they were simply referring to their shared Zimbabwean nationality. They did not know each other before migrating to South Africa. Eddy and Innocent are, in a sense, business partners. They regularly pool money together to purchase lunch from a nearby supermarket, and when one of them is unable to be present at their workspace, the other sells their crafts in their absence. In doing so, they uphold a general sentiment of looking out for each other. This sentiment extends beyond only Eddy and Innocent's relationship. More than once, I arrived at their workspace to find they were absent, but that their craft-stall neighbour was selling their pieces for them on that day. What I learned from my interactions with Eddy and Innocent was that they and most of the crafters who set up shop along Lynnwood Road function on terms and acts of everyday communism, which, Graeber (2010, 2011) argues,

> can only be understood in ... examining everyday practice at every level of human life to see where the classic communistic principle of 'from each according to their abilities, to each according to their needs' is actually applied. As an expectation of mutual aid, communism in this sense can be seen as the foundation of all human sociality anywhere; as a principle of co-operation, it emerges spontaneously in times of crisis; as solidarity, it underlies almost all relations of social trust.
>
> (Graeber, 2010:199)

Everyday communism as a basis for social functioning and reproduction aptly describes the way that waste reuse crafters in Pretoria East form structures of solidarity in times of crisis and economic hardship. These structures function on the constant exchange of favours, money, food and assistance. These exchanges are not always kept account of (except when large amounts of money are loaned), but generally the basis of the exchange occurs on open-ended understandings. Thus, illustrating Graeber's point,

> individuals are bound together by such open-ended obligations, whether (as in the case of relations between affines) one-sided, or whether (as nowadays between husband and wife), both parties have equal rights to call on the other.
>
> (Graeber, 2001:159)

The following ethnographic section further illustrates this concept.

Another, somewhat separated craft market was set up on an intersection in Pretoria East, in an area that receives less traffic compared to the other sites studied. This business is situated on a corner of an intersection, and for the past twenty years that I have lived in the City of Tshwane it has always been there. The display of crafts here gives the impression of a permanent gallery, and walking through the pieces is quite mesmerising, as some of the iron-plated statues stand about three metres tall. Patrick, one of the artists, explained that of the metal pieces only the baobab wire trees are really made from second-hand or scrap materials. The other large statues are all made from newly pressed iron sheets. In addition to the metal art and craft pieces, there are also wooden dog kennels, garden benches and tables, and salvaged tree stumps. We talked about the displayed tree stumps, which Patrick indicated were brought there by a friend who clears out properties for development. They saw some

artistic value in them, stripped the bark, turned them upside down, gave them a layer of varnish and put them on display.

Patrick explained that for them craft making is a cultural practice which gets passed on from generation to generation. This passing on also occurs between friends and partners as new individuals join in their business. He mentioned that, “This is a family business.” Pointing at two men sitting underneath a shade netting, he added, “These are my blood brothers, we share the same mother.” This points to an existing kinship network that is re-established in a foreign country and which also transforms to extend to other Zimbabweans who join in the business of craft making and selling who do not necessarily share in the direct familial ties.

Patrick is both an artist and a broker, as he manages four craft stalls, and he is based in Johannesburg. He suggested that I pay a visit to a small market where he also sells crafts in Bryanston, Johannesburg. It is situated on the corner of William Nicol Drive (now Winnie Mandela Drive) and Main Road, opposite the Nicolway Bryanston shopping centre. He explained that in this space they are allowed to sell crafts and it is the opposite of their experiences here in Pretoria East, seeing that they are officially allowed to sell their goods there and are not exposed to police harassment. (This market is displayed in Figure 9 below.)

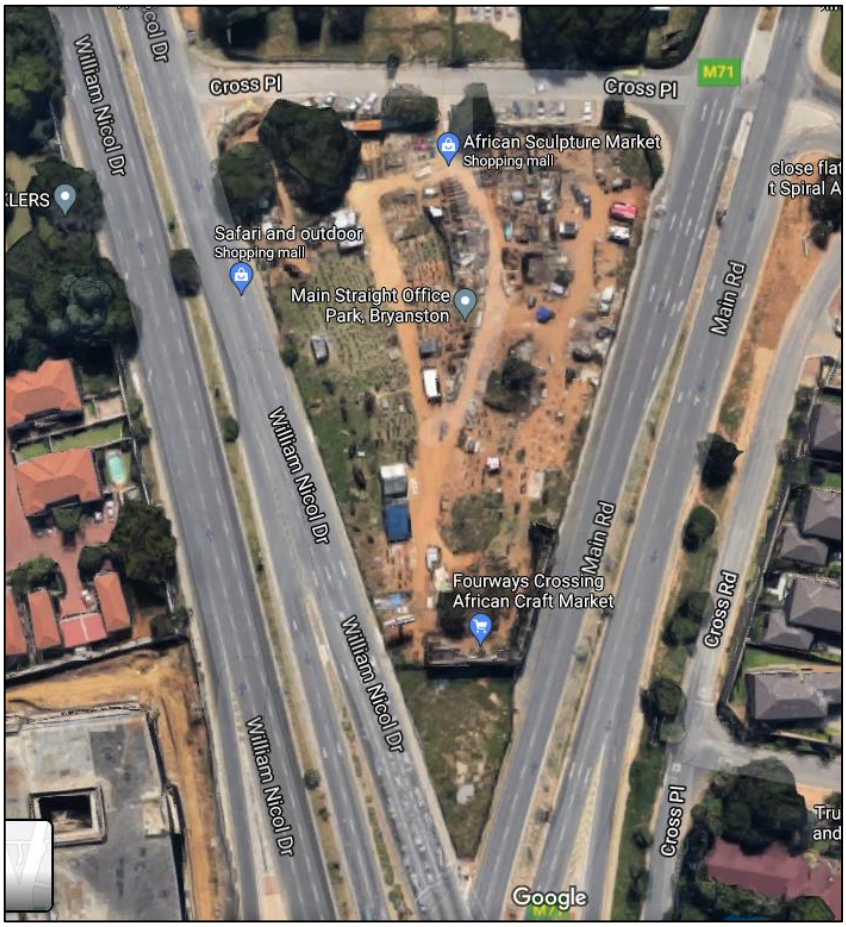


Figure 9: Image of the market in Johannesburg where crafters are allowed to sell their crafts (Google Earth)

5.5.3 Place making

As I discuss in detail in Chapter 2, new materialist approaches have recently gained popularity as a theoretical approach among scholars in the social sciences (Fox & Alldred, 2015). I briefly discussed some of these scholars and their work in Chapter 2 and Chapter 3 (Ingold, 2007, 2010; Reno, 2014, 2018; Tsing, 2015). As discussed in Chapter 3, these approaches have become increasingly popular as scholars explore the relationship between the human and non-human worlds, especially as it relates to climate change. The current chapter incorporates some of these works, particularly Ingold's (2000) concept of skill and Tsing's (2015)'s notion of life (urbanism) from the ruins of capitalism, and aims to make a contribution to studies on social production of space by adopting an assemblage theory approach. In the urban node of Pretoria East waste crafters are intricately entangled with waste materials and through their deconstructive and transformative actions they establish informal craft markets which allows for the circulation of these materials into suburban

houses. In this way they have over an extensive period produced an integral part of this urban space through a configuration of skill, social relations and material exchanges (Massey, 1994; Smith, 1984).

While some writers have emphasised the benefits of autonomy in waste work (Millar, 2014, 2018), others have highlighted the precarious conditions and socio-economic context (Chalfin, 2019; Viljoen, 2014). Working within the informal economy or simply being self-employed has its benefits, such as working on your own terms and in your own time, but it by no means constitutes a consistently safe and carefree life (Birkbeck, 1987; Chalfin, 2019; Gregson & Crang, 2010). For instance, a theme that regularly surfaced in my conversations with street crafters Eddy and Innocent was their constant exposure to police harassment. Eddy and Innocent were relaying recent accounts of their run-ins with the police and comparing these to experiences in the initial stages of working on Lynnwood Road. On one occasion, I arrived to meet Innocent and immediately noticed the number of crafts on display had decreased significantly. Innocent explained that police officials had confiscated most of their crafts the previous day, and he showed me the official fine that was issued to him. This led him to relay the account of his uncle, which I mention in Chapter 4, who sold crafts during a time of strict policing by police and property owners, and recounted how they initially remained out of sight from the general public and only displayed their goods along the roadside.

Innocent explained that other, more recent strategies included placing garden partitioning (one of the items Innocent makes and sells) in front of their workspace to be less overt in their operation. However, it seems over time police officials have become aware of this strategy as they would sometimes only confiscate the partitioning and nothing else, Innocent explained. I also spoke to Godfrey, the crafter situated on Garsfontein Road, about some of the challenges he faces, and he also mentioned regular police harassment, as well as city development in the form of the widening of roads, which threatens their workspace. Godfrey expressed the need for a permanent space where crafters could sell their pieces. I mentioned the fact that such a development might entail officially registering his business and possibly being taxed or demanding registration fees. Godfrey's simple response was that the benefits outweighed the cost.

Concerning the making of crafts (as described above) and their exchange for money, the buyer typically engages the crafter within the same space where the crafting takes place. At the point of exchange, the buyer has a face-to-face interaction with the maker of the craft, and this allows for de-alienation. What is significant is the fact that most of these sites serve as the space in which the artefacts are formed as well as sold. This enables the craft buyer to observe the actual production process and gain a deeper understanding of the materials used in the process, which serves as a form of demystification of the production process.

The fact that some property owners and police officials held meetings with the urban waste precariat indicates a certain measure of acceptance and acknowledgement that they are part of the same urban community. This is also a point that emerged from my interview with CPF chairperson Carol. As I offer an introduction to my research and discuss some of the crafts made from discarded materials, Carol points to a figurine placed on the floor next to her and says with an excited smile, “Like this one?” She points to a small wire baobab tree made by one of the waste crafters from reused materials. Like this conversation, the ethnographic data captured in this chapter serve to illustrate how crafts which are the products of waste reuse practices become an intrinsic part of suburban life, placed and used in the homes of suburban residents. Carol did not hold an absolutist sentiment about the presence of waste crafters in the area, her only request was that it needed to be regulated. Her concern was for the safety of the general community, which in her view included street traders. She suggested that the necessary infrastructure could be set up to accommodate these traders and cater to their basic needs. A conversation with Godfrey, an experienced crafter, illustrated that this is indeed a primary need of the crafters, which could possibly be resolved. Godfrey mentioned that such a process might force them to formalisation, but also mentioned that, “the benefit simply outweighed the cost” (Interview with Godfrey – 25 Feb 2021). This shows that not only did the urban waste precariat produce space by establishing an informal craft market along the streets of Pretoria East but that these actions also entangled them with materials flow into suburban homes to allow for a certain measure of acceptance as mentioned above.

5.6 Conclusion

The relationship between waste crafters, discarded materials and suburban property owners and tenants of Pretoria East has over the span of approximately two decades become entangled to such an extent that, from my own observation, I have noticed waste crafts in almost every home displayed behind heavily guarded security walls. However, viewing this process spatio-historically or, as Hart (2006) suggests, through relational comparison, we cannot conceive of this spatial production without taking account of a long history of craft making with its roots in the arts and crafts hubs of Zimbabwe. Through economic crises and migration, these skilled practices are re-grown in a new urban geography. In this way, the urban waste precariat have gradually forged a livelihood for themselves in a highly contested space that initially had no place for them. By transforming waste materials into crafts, the waste crafters have created a market that allows for direct sales to craft buyers. The buyer has direct contact with the crafters in negotiation. At times, relationships are formed where the same clients return. In these instances, the crafts become inalienable objects extending the crafter's personhood into the suburban garden or house, a private living space.

In this chapter, I have argued that deconstructive creation occurs through the constellation of socially situated agents who draw on skilled practices and their entanglement with salvaged, discarded materials from highly contested urban spaces to produce value outside of current state and capitalist market endeavours. This type of value-production process carries with it a de-alienating or defragmentation factor, and, in that sense, it is counter to what modernity and capitalism do. Space is socially produced and occurs relationally by drawing on connections as opposed to one entity or actor's intent or design (such as a city planner or architect). In this study, the space of Pretoria East is produced through the establishment of a street craft market and the movement of these goods by socially situated agents who draw on skilled practices and exchanges to be displayed and used in the suburban house. The skilled practices emerged through a history of craft making in Zimbabwe and re-emerged among waste reuse practitioners positioned in a different area, Pretoria East. We cannot understand either the kerbside or the suburban gardens and homes of Pretoria East without understanding this history of craft in Zimbabwe or its relation to tourism and Zimbabwe's economic crisis.

To summarise, this chapter continues and expands on the main argument carried through the thesis that a form of circularity occurs in waste reuse practices outside state and market-based recognition and support, a process I term outside-circularity. At times, within circuits of outside-circularity, a coupling occurs with value-production process alternative to capitalism, termed deconstructive creation. This coupling does not occur in every waste stream, as in the case of the e-waste reuse circuit where materials are inserted back into the capitalist commodity flow, further up the value chain. Thus, waste crafters utilise their skill and crafts emerge to form a bio-social entanglement between the waste crafter, the circuit of material flow which they draw from, and discarded waste material cast as capitalist ruins. This is what I define as a waste reuse practice constellation, and value is produced from it in the form of urbanism or life from the ruins of capitalism.

Chapter 6: Tracing circuits: Outside-circularity in meshwork and constellation

6.1 Introduction

In the previous chapter I presented the concept of deconstructive creation as a value-production process by describing points of transition in the circulation of waste materials in reuse practices. The reuse practice circuits of the urban waste precariat form the focus of the current chapter, and here I build on the concept of outside-circularity, which I introduced in Chapter 1. I trace the material circuits, both human and non-human, that entangle to form existing waste reuse practices and, in addition, I show how these entanglements include a unique relation to the state and formal markets of the City of Tshwane. By tracing these circuits through the conceptual lens of meshwork (Ingold, 2007, 2010), I depict waste reuse practices as a value-production process practised outside of state and formal market initiatives and support. Additionally, through presentation of ethnographic data, I build the argument that the circuits constitute material flows that are not rooted in capitalist forms of value production but rather a subsidiary and care economy. For this I trace these circuits both on the landfill and the street. On the landfill, I follow circuits related to construction and e-waste and, on the street, I follow organic waste, metal wire and wooden pallets.

Scholars have noted the contradictory fundamental principles between capitalism and sustainability or circularity, and to build this argument they highlight how these contrasting value production principles play out within current capitalist circuits (Hickel & Kallis, 2019; Valenzuela & Böhm, 2017). I form my own critique by presenting ethnographic data to show how circular practices outside of state-based and formal market approaches function on non-capitalist principles. Graeber (2011) specifically points to the fact that capitalism emerges from a peculiar alliance between state bureaucrats and the holders of capital. I agree with this statement and therefore assert that the transition to a circular economy would entail not only a reform of state policy, but also of this alliance in which capitalist ideals of placing maximising profit above sustainability will have to be abandoned in order to transition towards a circular economy. I identify and analyse current waste reuse practices, exploring their potential to inform and assist in efforts for this transitioning. Here the reader might assume that I portray these waste reuse practices as a “silver bullet” for challenges related to

sustainability and climate change. However, I work critically with the findings by also pointing to the unsustainable and problematic aspects related to some of these reuse practices; as Tsing (2015) points out, non-capitalist processes can at times also exploit labour and natural resources. Similarly, Inverardi-Ferri (2017) notes that enclosures and dispossession occur even in informal, non-capitalist economies and spaces.

In this chapter I further developed the concept of outside-circularity. There are two key aspects of outside-circularity that form the crux of the argument made in this chapter, namely:

1. Waste reuse practices of the urban waste precariat constitute circuits of value production in outside-circularity (apart from e-waste reuse and certain direct use practices).
2. A subsidiary and care economy emerges in exchanges between buyers, sellers and the urban waste precariat in their waste reuse practices.

Tracing the circuits of waste material flow might conjure the approach suggested by Appadurai (1986) in his book *The Social Life of Things*. However, as I critically discussed in Chapter 2, rather than isolating exchange as the point of value creation or following the total trajectory of the commodity, I trace the key processes or circuits of human and non-human entanglement that form the waste reuse practices in this study. In tracing these key circuits that constitute waste reuse practices, the approach incorporates labour theory of value, but does not cast human labour as the fundamental aspect in value production but rather as one of many circuits that entangle to form the waste reuse practice.

6.2 The landfill: Hatherley's circuits

Hatherley Landfill is situated adjacent to Mamelodi (the former designated black township described in Chapter 4) on its northern border and on its western border a more recent extension of Mamelodi named Nellmapius, established in the late apartheid era (Horn, 2021). A central avenue, Solomon Mahlangu Drive, connects these former townships to more affluent, historically white suburbs in the south-eastern region of Pretoria East (discussed in Chapter 4). This avenue is named after the struggle leader Solomon Mahlangu, who was born and raised in Mamelodi. As noted in Chapter 3, I previously conducted research on Hatherley

Landfill from 2014–2015, and upon returning to the same space in 2020 I noticed numerous changes which had transpired since my last visit. A significant number of small scrapyards or mini buy-back centres, fed by the movement of discarded material from the landfill, had been established along this roadside, bordering on Nellmapius. These had not been here nearly five years earlier, and it testifies to a growing informal market connected to the reclaiming and recycling of discarded waste materials. At the turn-off from Solomon Mahlangu Drive stood a larger group of men, opportunistically awaiting vehicles carrying valuable waste loads to rummage through before they are dumped on the landfill. There are other significant changes along this road. In the space of about four years, new residential developments have been established around the landfill. These sections mainly consist of less formally built structures. Horn (2021) notes the increase of such informal settlements across the city, particularly adjacent to townships. The road that previously led to the cemetery bordering the landfill has now become the main road leading into a newly established residential area. This present reality is in stark contrast with the memories I have of my previous visits to the site. I also notice that the heaps of dirt which prevented illegal dumping alongside this entrance road have been removed, and a truck and tractor-loaded backhoe are busy removing some illegally dumped heaps.

Many of these changes point to the fact that the landfill itself does not consist of starkly defined borders which strictly regulate the flow of humans and waste materials across a perceived boundary. Rather, the landfill constitutes a node where circuits of waste materials in motion gather briefly, and then spill over and across perceived borders of the site when waste materials are recycled, reused and re-sold. This reality, and the processes it encapsulates, bears stark resemblance to Gregson et al.'s (2010) study of end-of-life ship breaking in Bangladesh, where materials salvaged and disassembled are revalorised and flow into markets on land to show "assemblages, ontological conjunctures of stuff, materials, brought together and held together, but also coming apart and wrenched asunder" (2010:853). In the sections below, the flow of waste materials across the perceived border of the landfill illustrates what is meant by the theoretical concept of meshwork and how it is socially and materially produced.

6.2.1 Bricks (and other building materials) become new homes

Construction and demolition waste is a prominent solid waste stream making a significant material contribution to South Africa's landfills (Department of Environmental Affairs, 2018:25). This category of waste material is still largely unrecycled in South Africa even though various alternative treatments exist, such as crushing demolished materials to be used as aggregate in concrete for new construction projects. The South African State of Waste Report states:

> Taking into account the general composition of the construction and demolition waste stream, and the extent to which each material is realistically being recycled in South Africa, it is estimated that 52% or 2.3 million tonnes of construction and demolition waste was reused, recycled or recovered in 2017.
>
> (Department of Environmental Affairs, 2018:25)

However, this is likely a gross underestimation, and there are several reuse practices exercised on the landfill related to this type of waste which are not yet recognised and rigorously quantified (Von Blottnitz et al., 2022). One prominent form of this is the salvaging and valorisation of discarded bricks by urban waste precariat from construction waste on the landfill. These bricks are typically salvaged or extracted from building-demolition processes in the construction sector, and sending these materials to municipal landfills to be used for compacting and layering of the landfill surface is current standard practice (Department of Environmental Affairs, 2018). This use carries some immediate value; however, the reuse of construction materials can be optimised to the point where it is used again in infrastructure, rather than being buried in the ground in landfilling. Another form of this reuse is salvaging other building materials such as wooden doors, window frames and glass. However, most of the usable materials, apart from concrete and cemented bricks, are typically salvaged by demolition companies before the waste is taken to landfill (Interview with Jaco Verster – 16 July 2021).

Nevertheless, a certain amount of these materials still make their way to the landfill, which the urban waste precariat then salvage, often for direct use in construction of their own homes. For example, Benny and Samuel, two construction and demolition urban waste precariat, salvage miscellaneous construction materials and are part of the group of construction waste urban waste precariat who participated in previous research I conducted

when they were working on Garskloof Landfill. That site closed in 2013, after which they re-established their work at Hatherley Landfill. Samuel reclaims large glass pieces, takes them home and then cuts them into smaller pieces that are usable or re-sellable. Samuel explained that he has managed to erect a house very close to the southern border of the landfill that is "better than the *mkukus*[14] you find here on the landfill", primarily by using building materials that he managed to salvage from the landfill. This bears some significance as it shows the landfill as a nodal point or woven meshwork of circuits with porous borders, spilling over into its surrounding spaces, by connecting to other nodes forming material infrastructure such as residential spaces in the shape of houses. The landfill conceived of in this way illustrates Massey's (1994) concept of space-time which is a configuration of social relations where the spatiality is seen as an inherently dynamic simultaneity (1994:3).

The main income stream for construction and demolition urban waste precariat consists of brick salvaging and sale directly from the landfill. The processing and sale of these bricks occur at two separate places. The chipping away at residue cement is done as close as possible to the point of discard, and hereafter the bricks are placed on display as close to the main entrance as possible (as depicted in Figure 10). At the point of display, I engaged with two brick urban waste precariat leisurely sitting on some of their stacks of bricks having a relaxed conversation. One man, wearing a wide-brimmed hat and a scarf covering his ears and neck, responds to my greeting with an accepting nod of the head. His name is Clive. I ask whether they work alone, and Clive mentions, "We are a group of six men working together." While saying this, he points at the other men around them, identifying the group. Clive explains, "We are all from Elardus Park, we remember you from those days [the former Garskloof Landfill]. I have been doing this work with the bricks for 13 years and I have been living in South Africa for 16 years now." Clive migrated to South Africa from Zimbabwe and found other men doing brick reclaiming and decided to join them. I introduced Clive earlier when he explained his reason for performing brick salvage rather than paper and packaging salvage, saying that it was too crowded at the dumping area (landfill face).

[14] A term used for small temporary accommodation structures.

Clive's remark is sensible, given the fact that more than half of the waste taken to landfill in South Africa consists of organic and construction and demolition waste, and scholars have noted that the informal sector is less active in these clusters compared to paper and packaging (Oelofse & Strydom, 2010; Von Blottnitz et al., 2022). The brick urban waste precariat further explain that they sell the bricks for R1.50 per brick, but they only sell them in stacks of 500 and 1 000. There are currently about half a dozen of these stacks of 500s and 1000s which they have managed to accumulate, and, as we speak, other brick urban waste precariat are busy transporting more to the selling point, adding to the number. During weekdays, they mostly salvage and process the bricks, but it is over the weekends that they make most of their sales.



Figure 10: Stacks of reclaimed bricks on Hatherley Landfill

Thus, the tracing of this circuit of material flow entangled with reuse practice begins in the demolition process of infrastructure. As building structures lose their value or need to make way for new property developments, demolition forms a significant part of the process. Often it is scrap-metal companies who attain these demolition contracts, and their main goal is to extract the metal embedded within the infrastructure. Once the metal and other materials

ideal for direct reuse are retrieved, the residue is taken to the landfill, as Jaco Verster, manager of a large metal recycling company, conveyed in an interview:

> *Yes, we demolish everything on site even though we only want the steel, so we get teams to go in and break down the whole structure, everything apart from the steel goes to the dumpsite.*
>
> (Interview with Jaco Verster, NN Metals – 16 July 2021)

Additionally, Jaco explained that they also sell reusable building materials (like frames and doors) directly to smaller clients:

> *I tell you NN Metals have built more houses than the ANC.[15] Meaning from all the building materials that we have sold to the smaller clients who come here to purchase it for the houses they build for themselves.*
>
> (Interview with Jaco Verster - 16 July 2021)

On the landfill, brick urban waste precariat typically go through piles of freshly dumped construction waste and salvage bricks that are loose, as well as those still cemented together from previous use. Brick urban waste precariat use hard rocks or chisels to break apart these clusters of cemented bricks, and then further chip away until all residue cement is removed. Hereafter, the urban waste precariat move their salvaged bricks to a spot on the landfill next to the main exit road from the site to display and attract clients. This is done by making use of wheelbarrows (as shown in Figure 10), a tedious task, as the surface of the landfill is uneven and covered with all kinds of irregularly shaped objects, making this form of transport quite challenging.

However, other transportation methods are also used, as on a few occasions I observed privately contracted yellow machine[16] operators transporting bricks from a recently dumped pile of construction and demolition waste to the space where brick urban waste precariat process these materials. Commenting on this practice, a municipal official explained that

[15] Referring to the ruling party in South Africa since 1994, the African National Congress, and their commitment to build houses for the poor.

[16] Yellow machine is the general term used in the groundworks industry to refer to excavators, bulldozers, backhoes, loaders and dump trucks.

“Nothing is free, on this landfill, as in life.” The recyclers pay the yellow machine operator a fee to bring any discarded bricks to them if he comes across them while operating the machine. This points to transactions occurring between an employed contractor and brick recyclers on a regular basis. The contractor is already earning an income, and therefore the earnings he makes from these small acts are subsidiary. To the brick recyclers, this relationship makes a significant contribution to their labour in time and energy saved. A similar relationship exists between waste crafters, delivery drivers and scrap-metal dealers, as a later section will depict. These exchanges are what I refer to as a subsidiary economy and are instrumental in this practice of outside-circularity. These exchanges also contrast other reuse practices noted by scholars that are disrupted through state encroachment (Corwin, 2018; Reddy, 2013; Tong et al., 2015). This process and these exchanges add additional nuance to assumptions that landfills and the waste they contain serve exclusively as a commons to the urban waste precariat who freely salvage from them in order to eke out a livelihood (Gidwani, 2013; O’Hare, 2022). Although the urban waste precariat do often salvage directly from the landfill commons, what also emerges is that, apart from having access to re-usable waste materials, at times the urban waste precariat draw on relationships of exchange formed with actors who are privately contracted and thus officially employed. However, these private employees act in their own capacity and not as the private capitalist entity that has employed them, placing their hands as individual actors behind the means of production of a capitalist entity for small personal gain to benefit the group of brick urban waste precariat. All these various aspects fuse together to form a complex form of outside-circularity in waste reuse practice.

6.2.2 E-waste

On a sunny winter’s morning during one of my initial fieldwork sessions with e-waste urban waste precariat on the landfill, I observed a group of men working on miscellaneous electronic waste and, after enquiring about their process, a study participant named Abraham described it to me. Abraham first explained that he immigrated to South Africa from Zimbabwe in 2009 and has been working at Hatherley Landfill for seven years. He performed some piece jobs before moving his work to the landfill and claims to be generating a higher income now on the landfill. Abraham explains the process of disassembling electronic waste:

Okay, I first check to see if the device is still in working condition, or if there are any repairs I can do to make it work again, in which case I will sell it either here on the dumpsite or from my home in Mams [short for Mamelodi Township]. If I can't repair it, then I start to take it apart piece by piece, mostly using a screwdriver, but sometimes it is easiest to break it apart by force using my hands, as most of the plastic material is sold for recycling. Then I take out the most valuable parts that can be used again. I divide it between copper wires and circuit boards [shown in Figure 6, Chapter 5].

The e-waste urban waste precariat are able to sell all of these materials directly from the landfill to scale operators for cash. The following section describes my engagement with one of these scale operators.

Situated close to Abraham is another man operating a scale to purchase metals and e-waste from urban waste precariat. His name is Tinei, a middle-aged Zimbabwean man who buys recovered e-waste materials from the urban waste precariat. It is important to emphasise here that the individuals who Tinei purchases e-waste from are not all dedicated e-waste salvagers, but many mainly focus their work in paper and packaging materials and happen to also find e-waste materials in the newly dumped piles. On the landfill, scale operators serve as a relay point where the urban waste precariat bring their materials once they have been salvaged and valuable parts stripped from discarded electronic devices. Tinei purchases these valuable materials from the urban waste precariat and pays them cash in hand. He explains that he mainly concentrates on scrap metal when he buys materials from the urban waste precariat. He also buys *maps* (the term the urban waste precariat use for circuit boards) and sells these to a buyer based in Johannesburg. The metal parts are sold to SA Metal and EnviroMetal, metal-recycling companies situated in the industrial area of Silverton, City of Tshwane. As mentioned, Tinei is Zimbabwean, and he is also part of the former Garskloof group mentioned earlier. He manages the scale and has a storage space for his materials in one of the larger shipping containers on site. These containers are kept quite separate from the main dumping area. Since all buying and selling of waste materials on site are controlled by Boko Haram members, the same is true of the containers.

On another occasion, later in my fieldwork process, I sat in conversation with Tinei on the landfill in his scale-operation space. I ask if it would be possible to meet and possibly interview

his e-waste buyer whom he mentioned is situated in Johannesburg. Tinei takes a moment to reflect and replies that he is unsure, but that he will give the man a call and ask. Tinei phones his contact. Their conversation is in Shona, and I therefore assume the buyer is Zimbabwean as well. After a long conversation he hangs up the phone and simply says, “The company’s name is Codesa,” and that is unfortunately all he can say. From this I conclude that the buyer is deeply suspicious of me and my research and unwilling to share any information.

This leads into a deeper conversation where I attempt to convince Tinei that my intentions are purely to gain an understanding of the flow of e-waste into and from the landfill. I further explain that I aim to show their contribution to waste material diversion from the landfill and therefore to formal waste management. Tinei responds to say he is afraid the government would only force him to officially register his business and, in addition, force him to pay taxes, that is, if they would even allow him, as a foreign national, to register a business in South Africa.

From Tinei’s response I gather that he carries a mistrust of the South African state and is sceptical of how my research might affect him. His mistrust of state intervention is not unfounded, given the negative effects it has had on other e-waste circuits, as numerous scholars have noted (Corwin, 2018; Reddy, 2013; Tong et al., 2015). The livelihood Tinei had formed on the landfill is currently sustainable and viable for him as a foreign national, and he would go out of his way to avoid the encroaching arm of the state. He has already faced resistance from the state in gaining access to the country, dealt with the negative effects of market fluctuations due to the Covid-19 pandemic and, to top it all, a vigilante group has captured operations on the landfill, forcing him to pay a weekly extortion fee. The last thing Tinei would trust at this point is a researcher making promises about improving his work situation. He would rather protect his livelihood, this source of income he has established for himself, than risk it by placing his trust in another stranger. Why would he risk telling me who his e-waste buyer is just to potentially be fined, banned or sent back to Zimbabwe? He sticks to what works and what has treated him kindly.

Over the course of three months of weekly visits to the site, I was unable to establish a trust relationship between us. I was limited to the observations and conversations we had.

Interestingly, a decade ago Lawhon (2013) reported a similar limitation in her research on e-waste recycling practices on landfills in South Africa. However, she mentions reclaimers taking part in a transitioning period in e-waste systems as the key reason. Additionally, she points out that e-waste recycling on landfills did not constitute a prominent waste stream from which reclaimers were generating an income on the landfill, but that most e-waste was collected from electronic repair shops (2013:705). This contrasts with e-waste urban waste precariat on Hatherley Landfill, as numerous individuals were dedicated e-waste recyclers.

Due to the guarded interaction between myself and the landfill urban waste precariat, I decided to visit the two privately owned landfills situated in City of Tshwane in the hope that I would make more progress to trace the flow of electronic waste from the landfill to its next destination.

6.2.2.1 E-waste on Mooiplaats (private landfill)

It is mid-August and conditions are dry and dusty as I make my way to Mooiplaats, a privately owned and managed landfill, situated on the southern outskirts of the City of Tshwane. Here I meet Clive, a scrap-metal buyer who also purchases e-waste from the urban waste precariat. Clive explained that he sells his e-waste to an informal buyer and that he unfortunately does not know where it goes from there. The SA State of Waste Report (Department of Environmental Affairs, 2018) states that it is challenging to estimate the generation and recovery of e-waste materials since the distinction between new and second-hand electronic devices is not always followed according to the requirements of the Basel Convention.[17] This also introduces obstacles in forming estimations on the import and exports of e-waste. Data on sales of new electrical devices are easier to obtain and proxies can be made according to rates of obsolescence (Lawhon, 2013). From my visits to both the municipal and private landfills, my findings clearly point to an active e-waste market, one quite similar in many ways to the paper, packaging and scrap-metal sectors; however, instead of going through a process of recycling, most of these materials can be directly reused after disassembly (Corwin, 2018; Herod et al., 2014). Clive also shared with me the prices he currently offers for e-waste. He

[17] The Basel Convention was signed on 22 March 1989 as a regulatory mechanism to control the transborder movements of hazardous wastes and their disposal.

often buys complete and working but outdated cell phones. The prices are negotiated on the spot. For cell phone circuit boards, he pays about R20 per kilogram. For computer circuit boards, he pays between R12 and R25, depending on the size, and for radios circuit boards he only pays R7 per kilogram. The SA State of Waste Report notes that even though South African companies are committed to processing e-waste materials locally as much as possible, 90% of recovered circuit boards are exported to Europe and Asia (Department of Environmental Affairs, 2018).

The salvage and reuse processes related to e-waste differ from other forms of reuse as the discarded electronic devices that end up on the landfill are highly advanced products of capitalist industrial manufacturing lines. A similar complexity in the disassembly of these materials is therefore required when transforming these items to be used again. Furthermore, as described in section 5.4.1, the e-waste urban waste precariat on the landfill practise disassembly in a circular fashion, which, compared to the Fordism assemblage line, represents its inverse; therefore, reuse practitioners transition the e-waste material from linearity to circularity through their deconstructive actions. This is an aspect unique to salvaging and disassembly of e-waste for reuse. In tracing the circuits of flow, we need to begin at the commodity conception. E-waste is of course a broad category, with an abundance of different technological devices ending up on the landfill. To trace this circuit of flow I single out one particular type of e-waste, the cellular phone.

The “birth” and “afterlife” processes of electronic devices such as cell phones typically occur under precarious social conditions, which are generally obscured from the consumers’ knowledge (Chalfin, 2019; Graeber, 2012; Herod et al., 2014; Standing, 2011; Tong et al., 2015). Standing captures the historical significance of the large-scale emergence of industrial manufacturing plants in the early 2000s in mostly Asian countries, which draw on the labour of a rural peasantry willing to work under extreme conditions for a low wage, compared to labour in other parts of the globe. It is within these geographical spaces that the overwhelming majority of multinational tech companies outsource their manufacturing. A prime example of this is the by-now infamous Foxconn City industrial park in Zhengzhou, China, where many multi-storey buildings are dedicated to the manufacturing of large tech companies like Apple, Dell, HP, Nintendo and Sony (Standing, 2011:28).

Through the salvage, disassembly and re-sell actions of the urban waste precariat, recovered e-waste materials are re-inserted into capitalist commodity markets further up the value chain. In the tracing of materials of this particular reuse practice, I have aimed to point to the coupling of circularity with value production alternative to capitalism. The e-waste circuit does not however, produce value alternative to capitalism but is more representative of Tsing's (2015) "salvage accumulation", where indirect accumulation occurs outside of the private company's control, or as Gidwani (2013) suggests salvage from the landfill commons subsidise and supplement capitalist production. Private companies do not control the conditions under which the value is produced, but they draw on salvage accumulation. What makes e-waste reuse circuits different is not the form of value that is produced, but rather that it opposes the linearity from which it was initially produced. Instead of lines, in outside-circularity disassembly is literally practiced in a circle, as the ethnographic data indicated, and afterward the dis-membered pieces are placed into circuits where it will be used again. The e-waste material thus transitions from linearity to circularity through the waste reuse practices of the urban waste precariat.

6.2.3 Boko Haram and the state

As I enter Hatherley Landfill on my first fieldwork visit for this research project, I notice significantly fewer vehicles and people present around the main gate compared to when I conducted research at the landfill in 2014. As I move into the dumping area, the site also seems more organised than I remember. Some of the changes I noticed were related to the presence of the Boko Haram gang on the landfill, which significantly transformed the social arrangement since my previous work. This fact emerges in the ethnographic sections that follow.

On this first fieldwork visit to Hatherley Landfill, in July 2020, I made the acquaintance of the municipal landfill manager. He introduces himself as Mr Lodwick, but everyone on the landfill refers to him as "Skarra". Our introductions are brief and to the point, and he simply gestures for me to follow, as he will be showing me around on the site. As we walk, I ask about the current state of recycling on site. Upon asking whether there are any urban waste precariat co-operative leaders still present that I could meet, he does not hesitate to inform me, "All

the recycling is controlled by these Boko Haram people." It is startling that a municipal official can inform me that an outside authority has taken control of recycling operations on the landfill. However, this does not come as a surprise to me, since I had been informed about this prior to my research by an urban waste precariat member working at Hatherley. This fact was also brought to light by a newspaper article.

In September 2019, *Pretoria News* published an online article which stated that three of the City of Tshwane's landfills were not operating in compliance with national waste management regulations (Ngobeni, 2019). The article gave an account of interviews with a private landfill contractor, an urban waste precariat member and the Member of Executive Council (MEC) for Economic Development, Agriculture and Environment, Dr Kgosientso Ramokgopa.[18] These accounts served to substantiate the claim that the MEC was making regarding the unmanageable state of the landfills, but especially pointing to Hatherley Landfill. In addition, the private contractor relays information to the journalist that a vigilante group known as Boko Haram had moved into the site and "captured" it. He also complained about the significant amount of machinery and equipment he had lost due to theft and vandalism.

It was with this knowledge that my fieldwork in Hatherley Landfill commenced, and I sought to investigate the extent to which the presence of the vigilante group was influencing or controlling operations on the landfill.

As Mr Lodwick and I walk through the main dumping area, I notice municipal officials allocating different waste materials to designated spots categorised into garden refuse, domestic waste and building rubble. These officials organise the whole site according to these waste categories and the urban waste precariat collect most of the recyclable paper and packaging materials from the domestic waste section, which receives by far the most materials and attracts the most urban waste precariat. Based on the fact that Boko Haram had taken over all recycling activity, I assumed that all private recycling companies had left the site, but numerous containers owned by recycling companies such as Neopack and Consol remained present, indicating the contrary. Through further engagement with the urban waste

[18] Former Mayor of the City of Tshwane.

precariat, I established that private recycling companies continued to place containers on the landfill, but the purchasing of materials from the urban waste precariat is controlled by Boko Haram. The technical operations on the landfill (moving of waste and dirt levels, etc.) are conducted by a private contractor. The operational manager for this private company was walking around the site with a smart tablet and wearing clean and comfortable clothes, in contrast to everyone else working and moving around on the landfill. The typical dress code is overalls, mostly shoddy, worn only for practical purposes to protect and cover against sharp materials and pungent smells. Skarra shows me numerous scales which are operated by independent individuals, but later informs me that they are all managed on behalf of the Boko Haram group.

After this first visit to Hatherley Landfill I was intrigued by the reality that a vigilante group had taken control of the recycling activities. The main reason for my curiosity was that all of this had occurred in plain sight of all the government officials present, and that it was tolerated. However, the landfill caretaker shed some light on the situation.

At the end of one of my site visits, as I was leaving the landfill, I met a man named Jan van der Schyff, the site caretaker (*opsigter*). He has worked there since 2013. At that time, the South African Municipal Workers Union[19] was organising strikes demanding wage increases. I spoke to Jan about this, and he explained that he did not participate. Jan informed me that his main responsibility is to keep the peace and ensure that landfill operations run smoothly. On discussing the Boko Haram group's role on the landfill, he explained that they have an understanding that Boko Haram are supposed to deal with any issues that Jan might be struggling with. Jan mentions that the situation on site has definitely improved since Boko Haram has occupied the space. He mentions that his main point of concern is with reclaimers who jump onto the vehicles from the traffic crossings on the outside, up to the main gate. Jan explains that if he encounters any issues with a particular individual, he points this out to the Boko Haram leaders, and "they have their way of dealing with troublemakers." This illuminated the situation to some extent. Evidently, the municipal officials and Boko Haram

[19] This union forms the largest union of local municipal workers in the country and is affiliated with the Congress of South African Trade Unions (COSATU).

leaders were working together to bring about some organisation on the landfill. However, none of the officials mentioned anything about the extortion fee that the urban waste precariat had to pay the Boko Haram group. This reality left me quite distraught, as no formal regulatory and disciplinary procedures seem to be followed, and I was also uncertain as to how the two entities, the state and Boko Haram, were handling individuals they deemed to be "troublemakers".

On a later occasion, I met a scale operator named Kagiso and asked about the Boko Haram leaders' control over his work. To my surprise, he asks if I want to meet them right now. With subdued excitement I agree, and we make our way over to a group of men standing in a circle next to the tipping face on site. Upon arrival, Kagiso introduces me to the shortest man in the group, whom I assume to be the leader. He is wearing thick sport-style sunglasses and retains a smirking smile as he listens to me explain the focus of my research. They answered my questions about the types of materials that are salvaged for reuse and listed those that are salvaged to their knowledge. While this did not add any new information regarding material flow, what stood out from our conversation is the fact that they control all access to the site in terms of granting access to new urban waste precariat to start working here. They are the gatekeepers giving permission to perform reclaiming. The leader explained that, "In order to work here you need a proper ID [identification document] or passport." They also mentioned that any new recycling company or scale operator must work through them.

A more recent article, published in the *Daily Maverick* in February 2022 (Mothiba, 2022), clarified numerous questions regarding the unscrupulous relationship between municipal authorities and the Boko Haram leadership on the landfill. The article conveyed an account of the ongoing presence of the Boko Haram[20] vigilante group, which originated from a youth business forum based in Mamelodi. According to the article, they initially advocated for inclusion into infrastructure projects and newly emerging local businesses, but the initiative was taken over by individuals who extended their influence to force local businesses, especially those owned by foreign nationals, to pay a "protection fee". The article then further

[20] It is worth mentioning here that this vigilante group named Boko Haram, carries no association with the one operating from Nigeria.

reported that the group succeeded in infiltrating the City of Tshwane's ANC leadership, with a number of current ANC members of parliament giving corroborating accounts. This alarming fact then serves to explain why the prevailing presence of Boko Haram leaders on Hatherley Landfill was not met with any resistance from the municipality.

This socio-political reality depicted above shows one of the factors currently forming the meshwork that is Hatherley Landfill. I was greatly limited in my interaction with Boko Haram members on the landfill due to time constrains in my fieldwork and could not explore and produce an in-depth study on this group. However, I established that Boko Haram's influence mainly pertained to access control and the weekly payment of an extortion fee. This socio-political reality played a significant role in shaping the experience of working conditions on the site, but this does not form the main focus of the ethnographic accounts depicted thus far. Instead, the presence of the vigilante group and its relation to the state on the landfill only serves as one of many processes that entangled to form the meshwork that constitute Hatherley Landfill.

6.2.4 Capitalist and non-capitalist circuits of flow

In terms of the material flow of waste on the landfill, we can conceive of two circuits, capitalist circulation and non-capitalist circulation, as a spectrum of two extremes. Through the ethnography I showed where, at a particular point in motion, the coupling between outside-circularity and alternative value-production processes occurs. Firstly, this then prompts the question: what distinguishes capital from other forms of value?

Marx, in Chapter 4 of *Capital* ("The general formula for capital"), explains this as two different forms of circulation, C-M-C and M-C-M, where C stands for commodity and M for money (Marx, 1906). In the first instance, in what Marx describes as pre-capitalist commerce, C-M-C, a commodity is sold for money to purchase another commodity. In the second, describing capitalist commerce, M-C-M, money is used to purchase a commodity to sell the commodity, transforming back into money. Typically, in C-M-C circulation, the process freely appropriates what Marx calls "gifts of nature". Therefore, no initial capital is needed to produce the commodity, only labour, but here labour is not hired, which is what occurs in M-C-M circulation. The same C-M-C circulation takes place in what Tsing (2015) calls "salvage

accumulation", where capitalism draws on life processes (gifts of nature) that are not under capitalist control, such as the matsutake mushroom foraging process, which she analyses.

Waste crafters are positioned within similar salvage-accumulation processes when they transform waste materials into things of value, without investing capital or purchasing labour power. They apply their own labour and skill as a process of salvaging briefly becomes entangled with other capitalist processes, and materials are exchanged and transformed. In some instances, the waste materials are transformed into gifts, and here I analyse the circumstances for gift exchanges. In capitalist production processes there is no pure form thereof which functions on absolute efficiency, exploitation and profit gains. It is the same with gift exchanges. There is no pure altruistic gift exchange. In writing about Mauss's concept of "the gift", that gift and capitalist economies become intertwined in modern-day society, Graeber notes the following.

> Even in modern, capitalist societies things are constantly changing hands without any immediate return or explicit agreement about a future one ... Mauss was not trying to describe how the logic of the marketplace, with its strict distinctions between persons and things, interest and altruism, freedom and obligation, had become the common sense of modern societies. Above all, he was trying to explain the degree to which it had failed to do so.
>
> (Graeber, 2001:161–162)

As mentioned above, I use these two extremes, absolute efficient capitalism and altruistic gift exchanges, as points on a spectrum to reflect the complexity of the urban waste economy. This complexity is given further nuance in the description of the subsidiary and care economy, to disprove assumptions that the urban waste precariat might be salvaging directly from the urban waste commons (Gidwani, 2013). The aim of this chapter is to trace the circuits of waste reuse practices in terms of capitalist and non-capitalist circuits or enmeshment. Here Ingold's (2007) concepts of meshwork and environment without objects are again relevant.

Ingold applies the concept of meshwork in his own way by exploring the possibilities opened up by the perceptual lens he calls environment without objects, which, simply put, denounces the existence of objects with clearly defined borders. Therefore, what would typically be seen

as an object becomes a “thing”, and these things are constituted by a multiplicity of lines that entangle in constant flux and movement or becoming. The concept of meshwork can be applied to the landfill and shows that the space perceived as the landfill with clearly defined borders should rather be viewed as a “thing” with porous borders. As Ingold states, “What is crucial is that we start from the fluid character of the life process wherein boundaries are sustained only thanks to the flow of materials across them” (2010:12). These life processes of things are illustrated by the daily movement of the urban waste precariat in and from the landfill, at times transporting building materials to erect new housing structures, or by selling pieces of dismembered electronic devices to recyclers.

6.3 The street: Pretoria East kerbside

Most of the City of Tshwane’s various urban nodes are connected along winding freeways and double-lane avenues (Horn, 2021). Many of these avenues offer restricted access and mobility for pedestrian use. In many ways, this is symptomatic of the spatial legacies of apartheid that was based on “minimising friction between culturally distant population groups” by separation (Lemon, 2021:1). Many of these spatial separations continue to form part of the contemporary cityscape (Horn, 2021). In Chapter 4 I touched on the way the development of Pretoria East was built on the gains of a privileged elite class taking part in a process of white flight from the city centre (Badenhorst, 2002; Christopher, 1994). Developers catered to the needs of an affluent minority, constructing large-scale security golf estates, gated communities and a consumer market to fit the mould (Horn, 2021; Landman, 2016). It was built with no awareness of the meshwork that constitutes most of its life processes, imposing form onto dead passive matter. The streets are a prime example of this, where lines are designed to connect points by motorised vehicles, and not on foot. However, what is found along the streets of Tshwane, and most of the urban streets of South Africa, is an ever-expanding informal economy (Horn, 2021), entangling to form economic nodes and livelihoods to the urban waste precariat, among others.

6.3.1 Wire

One of the most noticeable reused waste materials traced along the main avenues of Pretoria East is metal wire. Waste crafters salvage and buy second-hand wires from various sources to use in their craft making. Most of these wires are bought from a large metal recycling

company in one of the industrial nodes of the city, Silverton. For most of the tracing in this second-hand metal wire circuit, I depended on a research participant and waste crafter named Eddy. As previously mentioned, Eddy works beside his business partner and friend Innocent in their workspace situated next to one of the three parallel avenues mentioned in Chapter 3, Lynnwood Road. This road hosts the highest concentration of crafts and outdoor furniture compared to the other two. This is logical, since this section also contains a cluster of nurseries and other garden beautification businesses. Innocent exclusively works with wood, particularly wooden pallets, to make furniture, partition boards and picket fences. I discussed Innocent's work in Chapter 5 covering wooden pallet reuse. Eddy and Innocent were the two crafters I consistently found at their workspace next to the road. Other friends and co-workers would join them at times, but it was mostly just Eddy and Innocent. From the wire pieces, Eddy makes baobab-tree shaped crafts formed out of wire, flowers and human figures, which are sometimes painted, to form an aesthetic piece for garden decoration.



Figure 11: Wire crafts on Lynnwood Avenue

Eddy and some fellow crafters typically make use of public transport to the scrap yard, which is about 10 km from where they live in Nellmapius, a suburb bordering on Hatherley Landfill. The scrap-metal yard, NN Metals, is situated on the border between East Lynne and Silverton, an area characterised by large industrial parks and warehouses. Most of the city's recycling

companies are situated in this same area, Silverton. These areas, Silverton, Nellmapius and Hatherley Landfill, are all situated in the same north-eastern node of the city. Eddy explained that the prices they pay for the second-hand wire often changes, but mentioned it has always remained cheaper than purchasing new wire. Interestingly, as with the Easter crafts previously mentioned, these crafters also frequently align the themes of their craft making to public holidays. For example, during the Christmas festive season, Eddy made reindeers and Christmas trees. These crafts are mostly bought by suburban residents passing by and typically end up in their houses or gardens as decorations.

6.3.1.1 Scrap-metal yard (NN Metals)

One Friday, Eddy invited me to accompany him on a visit to the scrap-metal yard to stock up on his wire supply. On the way to the yard, Eddy explained that he will be going home instead of returning to his stall on Lynnwood Road. This is quite unusual for him on a weekday. He had arranged with a few friends to assist him in making some more wire crafts to sell over the weekend, since that is his busiest time, and his stock was low. He does not always have assistants, but since he injured his hand, he needed help. As we enter through the main gate of NN Metals, I am immediately taken aback by the size of the yard and its large-scale operation containing mountains of metal heaps stacked next to each other, creating a sense of endlessness. Most of the main entrance space is taken up by a large weighing bridge, conveying the fact that large quantities of metal frequently move through these gates. I follow Eddy as he starts looking for the loose wire section. He suggests that I speak to the management personnel if I want to know more about the company and its operation, and points me to the yard's management offices, situated in the corner opposite the entrance. The operational management role of the scrap-metal yard is carried out by three white middle-aged men, and I conducted most of my discussion with one of them, Jaco Verster, who is the main site manager.

Jaco explained that most of their metal is used for car manufacturing. They also process e-waste, extracting the precious metals from it, but not all these processes form part of their operations at this particular depot. E-waste, for example, is processed at their plant in a nearby town called Brits, and for this a specific licence needs to be acquired. Here in Silverton, a core part of their business consists of the dismantling of vehicles and construction waste,

especially cars that they buy from insurance companies once client claims are settled. Apart from sourcing metal from written-off vehicles and demolished infrastructure, Jaco also indicated that some metals were sourced from the landfill:

> *Yes, we do sometimes buy from Mamelodi [landfill]. We have a guy at Mamelodi who we buy from. We have left it to them [the urban waste precariat] because we have larger income streams we concentrate on. So, we just have a guy*[21] *there, we showed him the ropes a bit, and helped him to get started. Then he has a little team who sorts the waste, and he then sells it to us.*

The waste crafters' sporadic buying of loose wires did not make up a significant part of their business, as Jaco confirmed:

> *No no no, that is just what we do to help out the larger community. We help the community to help themselves. It is not even one percent of our income. If we are busy with large machinery, we prefer not to have people walking around, but when we are quiet, we are open to that. That is why we are busy setting up a second-hand section. We believe if we keep the community happy then we are happy. If they are unhappy, then they are going to let us know about it.*

Importantly, even though Jaco mentions that they view this as charitable acts from their side, they would not give the metal away freely. This implies that allowing access to the urban waste precariat is not out of pure charity, but neither is it motivated through complete self-interest. It rather falls into a category of mutual benefit:

> *We purchase the wire for R1 per kilo from the public. Then I ask R2 or R3 when selling. This actual current bulk price is 80 cents per kilo. The smelter would give us R1.50. But if you come and buy a little bit for your art or craft then I'll sell it to you for R2.50/kg.*

Jaco explained that the reason for raising the price by such a margin when wire is bought in small amounts is simply to avoid large numbers of small traders arriving at their gates to purchase what is in their terms small amounts at wholesale prices. The core of their income

[21] An independent scrap-metal buyer, not employed by NN Metals.

is made from selling to large industrial smelters. What I want to emphasise here is the fact that the company is not absolutely profit driven in these exchanges. However, they are also not offering free hand-outs. As Jaco explains, they "help the people help themselves", and there are times when the company could in fact run the risk of loss if the urban waste precariat are moving about the site during intense operation periods. Someone could get injured, which would cause all operations to come to a halt.

Jaco's mention of the importance of keeping the community at peace in order to maintain harmony is also important. What Jaco is communicating here is that he is aware of the need for a somewhat reciprocal relationship to exist between them and the wider local community, and that this also safeguards against possible future conflict or anti-social behaviour. This is quite the opposite of the way you would expect a purely profit-driven capitalist company to operate. During the interview, Jaco also spoke of numerous other crafters and artists who, like Eddy, visit the yard to buy materials at a much lower price than virgin materials, to be used in making sculptures, knives and various other arts and craft artefacts. Jaco expressed his fascination with a knife he bought from one of these crafters, made from stainless steel which he bought out of pure adoration of the skill and craftsmanship. These exchanges point to what I have referred to as a subsidiary and care economy in previous sections.

6.3.1.2 Craft buyer: Events manager (Corne)

One particular craft buyer whom I interviewed had quite a unique use for the crafts bought, and deviates somewhat from the other interviewees who mostly displayed them as garden decoration. Corne for an events management company: "We do conferences. That is our bread and butter." Her company hosted two conferences in 2019 where they made use of the waste crafts. One of these was hosted for the South African Veterinary Council. They have a bi-annual meeting with about 400–500 attendants during which they also cater for supply companies to exhibit their pet-related products, medicines, etc. They award three trophies during this conference for the best stalls at the exhibition. For this, she explained, they decided to have some handmade authentic trophies made locally. According to Corne,

> *I came across this guy in Brooklyn [a wealthy suburb in the City of Tshwane], close to the Brooklyn Mall and he does the most beautiful bead work. Wow! Awesome beadwork! I mean I have seen a lot of these, but his crafts really stood out.*

They purchased three animal-shaped figurines, glued each to a piece of granite for a platform and added little plaques to label each award (shown in Figure 12).

The interview with Corne also indicated that, at one particular point in the circuit of metal wires, the craft as commodity was translated into a gift after exchange. Corne stated,

> *When hosting an international conference, we also had some keyholders made that we gave as conference gifts, normally about a 100 or so, to attendees. That works well for the international attendees because it is great for them to receive these African crafts as gifts.*

Corne made a money exchange with the crafter for the keyholders, which was then circulated to international conference attendees as gifts. The point behind giving the keyholders as gifts were to issue these conference attendees with something authentic and handmade to remind them of their visit to Africa, she explained.



Figure 12: Wire crafts transformed to be used as trophies

Corne had carte blanche to source these trophies from any corporate gift manufacturer, but instead she chose to "support" the wire crafters. She explained the reason as

> *none of these crafts are ever the same. They are all unique. It's not a cut, copy and paste situation. And what was nice is that he [the crafter] gave us the choice of which colours*

we wanted to use. So that helped a lot because our theme colours were blue, gold and silver.

Corne mentioned that her company hosted a second event in 2019, and this was for the South African Poultry Association. For this event, they once again acquired the services of the same wire crafter and requested for a large chicken figurine to be made, serving as prize for the best student presentation award. Here Corne gets quite animated about the chicken and mentions that she personally went to collect it and she even gave it a name, "Kerneels, the Chicken". Regarding the payment, Corne explained she paid the crafter more than the asking price:

> We eventually gave him more money than he asked, because I understand what kind of effort goes into making some of these crafts. It a real skill, such a craft! So going forward we will definitely do it again and support these crafters. I don't want, with these corporate gifts, to support the commercial guys.



Figure 13: Images of a wire craft used as a trophy

The circuits that entangle to form the wire reuse meshwork offer an example of circularity outside of a formal capitalist market or state recognition or support. It is not solely driven by actors seeking to maximise profit and material accumulation. In thinking from the craft buyer's perspective, her intention moves away from commercial, mass-produced, generic commodities to unique handmade crafts offering something exceptional in a market and corporate environment entrenched in clinical, profit-maximising capitalism. Additionally, the fact that Corne named the chicken transforms the craft into an inalienable object (Mauss, 1966). It is inalienable from the process and person who created it. This forms a prime example of what I explained in the introduction section of this chapter, that Mauss was not aiming to show how, in modern society, capitalist forms of exchange have completely overtaken a once-flourishing gift economy, but rather how the two types of economies had become enmeshed (Graeber, 2001). In this chapter, I aimed to achieve the same through the ethnographic data of waste reuse practice material circuits of flow, but in addition I show where outside-circularity and value-production processes alternative to capitalism entangle to form a unique form of value. These actions of exchanges illustrate the workings of the subsidiary and care economy I previously described, although in this instance no subsidiary income is made. The craft buyer in the following section shares a similar drive.

6.3.2 Pallets

Much like the metal wire crafts described above, artefacts made from wooden pallets have become ubiquitous to the kerbside markets set along the streets that divide and connect the suburbs of Pretoria East. Crafters disassemble and reconstruct these pallets to transform them into dog kennels, outdoor tables, chairs, gardening crates and picket fences. A significant fact, which I also mentioned earlier, is that all these commodities are made to be displayed or used outdoors, mostly in suburban gardens, which makes the craft market location along the suburban streets quite fitting. This process of material disassembly and transformation strikingly resembles Gregson et al.'s (2010) study of ship breaking in Bangladesh, where materials such as furniture are retrieved and transformed to create a booming second-hand furniture market.

In the current study, the transformed pieces are mostly used outdoors in suburban gardens. However, this section also describes indoor use of the crafts. In tracing this particular circuit

of flow, I spent a considerable amount of time with the crafter named Innocent, whom I introduced in previous sections as Eddy's business partner and friend. Fieldwork sessions with Innocent entailed identifying the material and social circuits that entangle to form these wooden crafts, while also observing his personal process of craft making. Innocent procures the wooden pallets from delivery vehicle drivers employed by building-material companies. For this, Innocent established a working relationship with a number of delivery drivers. Once these drivers complete a delivery, on their return to the warehouse, they stop by Innocent's workspace to sell the pallets as the need arises. Innocent explained, "At the beginning they gave me the pallets for free, but later these drivers began to ask money for the pallets." Innocent typically pays between R15 and R20 per pallet, which is less than half the price for pallets bought from formal second-hand sellers.

During the time that I conducted fieldwork, Innocent was in a financial dry spell and had been struggling to sell his goods. This followed a period of successive nationwide lockdowns during the Covid-19 pandemic, from which his income stream had taken a serious knock. During the festive season of 2020, Innocent made Christmas trees from disassembled pallet planks. These were constructed in a similar design to picket fences but in the shape of pine trees, and evidently sold rather well, as Innocent mentioned that he made R1 200 the previous weekend from selling only these tree-shaped crafts.

The wooden pallets were not the only second-hand materials that Innocent utilised in his craft making. On one occasion, I found him using paint to add a colourful layer to some garden partitioning and benches. He had not sold anything in two weeks and therefore decided to spruce up some of these pieces by adding a layer of white paint to hopefully increase their sale potential. Innocent explained that he had bought the paint from a friend who does piece work as a painter, and this was some leftover paint that his friend received after completing work on a suburban house nearby. Innocent paid the friend R50 for the paint. It is more than just the pallets that are reused in these crafts. These details of relational exchanges highlight the fact that the urban waste precariat do not forge their livelihoods from an urban commons but rather draw on friend and kinship relations to form a subsidiary and care economy. The fact here is that Innocent cannot afford a full bucket of new paint; therefore the leftover paint

bought from his friend is the only way he could acquire it. In this sense, reuse becomes the mindset of precarity.

Most of the commodities produced by the crafters serve as ornaments placed in suburban gardens, some for practical use, others for aesthetic purposes. However, during my fieldwork I came across a piece of furniture that was in fact used indoors. Heleen was in her mid-twenties when I conducted an interview with her, and in the process of relocating from one house to another, but needed a new bed. She had bought a mattress but still needed a base for the bed, and for this she considered engaging the services of a waste crafter to have it custom made using wooden pallets. Her initial idea was simply to buy four second-hand pallets and to place them underneath her mattress. However, her internet search for such a supplier proved unsuccessful, since the online leads only accommodated bulk purchases. She therefore resorted to the urban waste precariat and mentioned that, "I prefer supporting poor street traders rather than well-established companies." This points to a charitable intention in her dealing but also to the gap in the market which the urban waste precariat utilise. During the interview with Heleen, she explained, "I had a bed base which my aunt made available, but I decided I wanted a bed that is lower to the ground. A lower bed creates the feeling of a more spacious room, and simplicity." For this reason, the custom-made bed base made by the crafter was the perfect fit.

6.3.3 Jacaranda tree stumps

The last circuit of waste reuse I traced falls under the category of organic waste. Crafters performing this reuse practice utilise and contribute to the circulation of garden refuse, specifically when tree felling is done in garden upkeep. Also, along Lynnwood Avenue, where Eddy and Innocent are stationed, a group of five wood crafters make and display their handcrafted goods. These crafters make most of their crafts out of Jacaranda tree[22] stumps, which they source from relatives and friends running their own tree-felling businesses. It is quite beneficial for the tree-felling entrepreneurs to deliver their garden refuse, or at least the tree stumps, to the crafters, since the alternative is to transport them to the municipal

[22] The Jacaranda is a common tree found along the streets of the city and has become such a prominent feature to the point that Tshwane is often referred to as Jacaranda City.

landfill, situated about ten kilometres away from these suburbs. Thus, tree fellers save on fuel costs as well as the dumping fees paid per load.

The youngest in this group of crafters is a man named Tynashe, previously mentioned in section 5.4.2.3. As mentioned, Tynashe is Zimbabwean, like his fellow crafters, all of whom come from Masvingo, a city in the southern region of Zimbabwe about 300 kilometres north of the South African border. Jacaranda wood is used because, as Tynashe explains, “It is soft, and it does not crack when it dries out. I have tried using other wood types, but they crack easily.” This circuit of Jacaranda tree stumps forms another example or rendition of a subsidiary and care economy enmeshed with waste reuse practices. This economy is based on sustaining social relations which also have an economic benefit to them. The relations are formed between Zimbabwean migrants who find innovative ways of establishing informal solidarity economies. This aspect was explored in more detail in Chapter 5.



Figure 14: Wooden crafts made from Jacaranda tree off-cuts

The distinction between capitalist and non-capitalist circuits of material flow could be labelled as “circuits for recycling” versus “circuits for reuse”, broadly speaking. In the recycling circuit, waste materials are reclaimed and re-inserted back into capitalist commodity flows, whereas, in the reuse circuits, waste materials are reclaimed, sometimes bought, disassembled and transformed to be sold in an informal market without re-entering a capitalist circuit of commodity circulation.

Gidwani (2008, 2013) makes two arguments about the latter circuit. Firstly, he argues that waste materials at times constitute value production that is not-capital. Secondly, he argues that this alternative form of value creation has the potential to disrupt capitalist forms of value production. Anthropological work on value has also looked at alternative forms of exchanges such as gifts, care and distributive labour (Ferguson, 2015; Graeber, 2001; Isenhour & Reno, 2019; Mauss, 1966). This chapter applied some of these concepts to offer an insightful lens through which to look at reuse circuits. By tracing the key flows of materials that entangle to form reuse practices on both the landfill and the street, the ethnographic sections here showed how alternative value is produced that does not constitute capitalist value.

6.4 Differentiating the urban waste precariat: Capitalist and non-capitalist circuits of flow

In Chapter 1, I noted the distinction between two main types of waste material circuits connected to the urban waste precariat, in terms of their relation to capitalist forms of production and commodity circulation. The two material flows can be categorised as: waste materials salvaged for 1) recycling, and waste materials salvaged for 2) reuse. These two categories are related to specific types of waste materials, with recycling primarily utilising paper and packaging waste materials, and reuse primarily utilising organic, construction and electronic waste materials. The urban waste precariat and the skill they apply are deeply connected to both material flows. However, the distinction made between the two flows of material points to the crux of my main argument, which is that within certain reuse practices a coupling of outside-circularity and value production alternative to capitalism occurs.

An important aspect of these waste reuse practices is that the urban waste precariat draw on traditional cultural skills in the transformation of waste materials. Various studies have been conducted that explore the potential for indigenous knowledge and skill to inform and enable the establishment of a circular economy (Beamer et al., 2021; Gravagnuolo & Varotto, 2021; Kalina et al., 2022; Korsunova et al., 2022; Wuyts & Marin, 2022). However, only one of these studies (Kalina et al., 2022) was conducted on waste reuse. This study follows a similar approach to the one I have adopted in making a case for traditional waste reuse practices as existing forms of circularity; however, Kalina et al.'s (2022) study places its focus on household practices in the domestic space, whereas the current study portrays existing circular practices on a larger scale, in public space as entangled with the urban waste economy and production of urban space. Gregson et al. (2010) conducts their study on end-of-life ship breaking, applying a similar method of assemblage theory; however, they do not relate these processes to existing circular practices.

Although my ethnographic data point to non-capitalist forms of production in the making of reuse artefacts, this does not mean the artefacts are kept outside of any form of economic market circulation. After deconstruction and transformation, the waste reuse artefacts are re-inserted into commodity circulation. On the landfill, e-waste devices are stripped of valuable parts such as metal and circuit boards and sold to scrap-metal dealers. Salvaged bricks are directly sold to customers conducting small-scale construction projects. On the street, waste crafters have established an informal market where salvaged materials are transformed into crafts, outdoor furniture and garden décor and sold to suburban residents. In this way, the urban waste precariat establishes markets on the landfill and the street for commodities of waste reuse.

In most cases, the urban waste precariat do not salvage from the urban commons or without some form of exchange taking place. At times, these include money exchanges, and in others a mutually beneficial exchange without money. In most of the circuits, they are dependent on a subsidiary and care economy. Materials such as wires, pallets and bricks are sold to crafters at low cost by individuals who are already benefitting from stable income streams, such as a delivery driver or landfill machine operator. The money received from the urban waste precariat is therefore subsidiary to their formal income.

In addition, the data point to the theme of care. Information gathered from interviews with buyers of waste crafts communicate a desire to support the urban waste precariat, recognising their precarious position. My development of the concept subsidiary and care economy is akin to the concepts of distributive labour (Ferguson, 2015), care (Isenhour & Reno, 2019; O'Hare, 2022), and everyday communism (Graeber, 2010). However, none of these concepts encapsulates the exchanges that occur between the urban waste precariat and other urban actors to form a unique human economy (Hart et al., 2010). The concept of a subsidiary and care economy is therefore necessary to accurately describe and analyse this unique form of urban waste economy related to waste reuse practices.

My observations on the street and landfill led me to identify circuits of waste material flow that constitute existing forms of circularity. These existing circuits comprise the material component that constitute waste reuse practices, performed by the urban waste precariat. In each material circuit, whether bricks, e-waste, wooden pallets, metal wires or tree off-cuts, the urban waste precariat draw on traditional skills to transform the waste material into movable, sellable and useful things.

On the street, these skillsets involve long-standing traditions of craft making which trace back to recognised arts and craft hubs situated in Chitungwiza and Harare in Zimbabwe, and through migration re-emerge to be practised in the City of Tshwane. On the landfill, existing forms of circularity entail processes of salvage and deconstruction. For instance, my observations on the landfill focusing on e-waste reuse practices captured the opposite of capitalist manufacturing lines. Firstly, e-waste disassembly is practiced in a circle formation by a single urban waste precariat dismantling discarded devices. E-waste urban waste precariat salvage materials from recently dumped heaps or directly from the back of vehicles entering the site. Hereafter, the urban waste precariat move the materials to their working space, and this is where the deconstruction process takes place. As the urban waste precariat disassemble the parts by hand, they are placed in small heaps surrounding themselves to form a circle. The urban waste precariat perform it this way since it takes some time to dismantle the parts, and this can be a tedious process when working through numerous discarded devices.

These circles began to resemble a symbolic conception of circularity, where the linear dead end of valueless waste materials is re-introduced into a circle and used again. This further represents the point at which the urban waste precariat gain hold of the device as a whole and not just some of its parts, as is the case in formal capitalist factory assembly lines. As discussed in section 5.4.1.2, manufacturing assembly lines in factories where most electronic devices are produced represent a linear line, with numerous individuals and machines' assistance making partial contributions to the manufacturing of each device (Correia et al., 2018), which is where Marx argues a form of alienation occurs, as the hands that produce the commodity are removed from the holistic process (Marx, 1906). Additionally, these assembly lines produce commodities characterised by planned obsolescence as devices are continuously upgraded and newer, more advanced models replace their outdated counterparts (Packard, 1960). The comparison between circles of deconstruction in waste reuse practices and industrial manufacturing assemblage lines represents what is meant by a circular and linear economy: the reuse practice gives life to waste material in re-circulation, whereas the industrial assembly line produces commodities of planned obsolescence.

The principle of moving from a linear economy to a circular economy rests on the idea of transforming a linear model, with production as the start point and waste discard as the end point, to a circular model, where materials move through circuits of production and use, either constantly or for as long as the material allows.

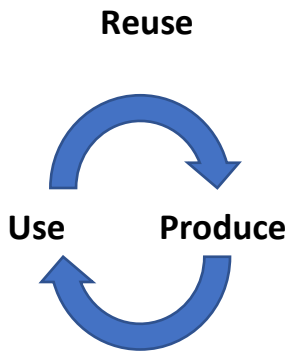


Figure 15: Circular economy model

These two models (linear and circular economy) can be compared to Ingold's binary comparison between two modes of travel, transport and wayfaring, also discussed in section 2.6.2. Ingold draws the comparison between transport and wayfaring to explain his perception of the environment. To briefly reiterate the difference between wayfaring and transport, both can be described as a mode of travel, where transport is a simple point A to point B connection pre-determined by the traveller, whereas wayfaring, its opposite, allows for some improvisation as the organism wanders and entangles with its environment. This allowance for improvisation is key and waste crafters employ this in their craft making as they make do with the materials available to them.

Extant circular practices such as the waste reuse practices in this study form an example of a transition from linearity to circularity, where waste reuse transforms discarded waste materials into valuable things and returns it into commodity circulation. However, these commodities are not inserted into a capitalist market, and therefore do not constitute capitalist commodities, but rather what Tsing (2013) terms gift-commodities. As discussed earlier in this chapter, these gift-commodities are not entangled in purely altruistic gift exchanges, but rather, as Tsing also notes, in exchanges that often include social obligation. The waste reuse practices constitute an entanglement or meshwork (Ingold, 2007; Lefebvre, 1974) with waste material flow, subsidiary and care economy exchanges and skilled actions of waste crafters. Ingold borrows the term meshwork from Lefebvre, and both writers use it to point to the dynamic interconnectedness of contexts. Lefebvre, well known for his concept of "social production of space", points to social practices, spatial configurations and cultural meaning. Ingold broadens the term to focus in on the relation between human and non-human actors, giving agency to supposed dead matter and the way it shapes the human experience.

The spatial implications of his theory are expanded by Ingold's formulation of the dwelling perspective versus the building perspective, which, as discussed in section 2.6.2, distinguish between inhabitation and occupation, thereby relating his perspective to theories of space. In the dwelling perspective, the organism-person immerses themselves into an environment where both entities, the organism and its environment, are continuously coming into being in a regular pattern of life activity (Ingold, 2000:153). By contrast, in the building perspective,

people inhabit a world of socio-cultural phenomena to which form and meaning has already been attached, giving it a static attribute. Ingold states that wayfaring "is neither placeless nor place-bound but place-making" (2007:101), as the life-lines entangle to form meshwork or what he calls an environment without objects. I find Ingold's meshwork concept useful in the analysis of waste reuse practices. However, he views meshwork as an entanglement of lines, which still carry the connotation of linearity. I view the extant circular practices as a convergence of circles forming a meshwork in both Lefebvre's sense (social practices, spatial configurations, cultural meaning) and Ingold's sense (interconnectedness of human and non-human agents).

6.5 Conclusion: Gifts and commodities

The circuits of material flow traced and described above illustrate how waste materials related to reuse practices are partially performed based on the concept of outside-circularity. In these outside-circularity circuits, I have shown how a subsidiary and care economy emerges through socio-economic relations between various actors connected with the urban waste precariat. The subsidiary and care economy is conceptualised from the point of view of the urban waste precariat, where material is procured through private actors who sell it to crafters as subsidiary income. In addition, the data point to care as motivating factor behind many of the craft buyers' market exchanges with waste crafters. This shows that the market does not function purely on capitalist principles, modes of production and commodity circulation. It is therefore not based solely on the extraction of maximum profit through the exploitation of labour, but rather on principles of charity and solidarity. However, it must be noted that nothing is exchanged through pure altruistic intensions, but rather through mutually beneficial exchanges, which points to distributive labour (Ferguson, 2015) and acts of everyday communism (Graeber, 2010).

By tracing the circuits of brick salvaging, we note how bricks move from salvage to disassembly, resell and reuse. After demolition, material which formed part of capitalist commodity flows are recirculated in a non-capitalist market economy, sometimes even direct use value, such as, as depicted in the ethnography, when a man builds his own house by making use of construction materials found on the landfill.

On the landfill, unique social networks are formed related to reuse practice, even between the urban waste precariat and municipal contractors, without which the waste reuse practices would not be possible. In the tracing of e-waste, we find a process fairly similar to the recycling of paper and packaging. However, there is an important difference. The waste materials are disassembled, and excess value (Bataille, 1988; Chalfin, 2019) is produced, which is not the same as recycling. The dismembered pieces are then directly used again. Still, the e-waste materials, such as circuit boards, are mostly re-inserted into well-established capitalist circuits further up the value chain and, other than the reuse circuits I trace here, they are scalable.

The circuits of wire are also briefly inserted into formal capitalist circuits, but there is a unique aspect to this. Scrap-metal yard managers and the urban waste precariat share a socio-economic relationship not based on maximising profit but on a subsidiary and care exchange basis, and this is a non-scalable process. A similar relationship exists between the delivery drivers and wooden pallet crafters. Like the relationship between the brick urban waste precariat and municipal contractors, the delivery drivers and pallet crafters are not dependent on each other. The service offered by the drivers and contractors serves only as a subsidiary income to them, but to the urban waste precariat it is an essential lifeline. The ethnographic data captured in this chapter serve to illustrate the complexity of the waste economy related to reuse. Gregson et al. (2010) point to a similar complex waste economy in their study by applying a "following things" approach which draws on assemblage theory; however, they do not cast waste reuse processes as existing circular practices. The current study therefore contributes to the literature on waste reuse by casting existing reuse practices as forms of outside-circularity producing value not rooted in capitalist production. I hereby point, as suggested by Isenhour and Reno, to "creative labour invested in the resurrection of value" (2019:4).

Chapter 7: Conclusion

7.1 Introduction

Throughout this thesis I have traced the multiplicity of circuits and points that entangle to form the waste reuse practices of the urban waste precariat in Pretoria East in the City of Tshwane, South Africa. I have traced these circuits from the landfill to the street, from the scrap-metal yard to the suburban garden and from the City of Tshwane to Harare, to offer an account of the complexities that constitute the urban waste economy. I made the waste reuse practices of the urban waste precariat my subject of study to analyse the contribution of this social grouping to the urban circular economy and environment. For the analysis of their contribution, I aimed to divert from a parochial focus on economic value and broadened my concept of value to include the production of space and urban life. In addition to focusing on this contribution, the exploration of the reuse practices itself deepens current knowledge of urban waste material flows and the social dynamics of actors intricately enmeshed within the flows of the City of Tshwane. The analysis highlights the complexity of the urban waste economy to offer insight into the role of the market and the state therein, and to explore how these entities shape and are being shaped by waste material circuits, entangled with waste reuse practices. From the ethnographic data, I identified value-production processes in the waste reuse practices which I termed deconstructive creation. These processes utilise waste materials cast as the ruins of capitalism to produce value alternative to capital. Keeping the goal of sustainability and circular economy in sight, the study investigated waste reuse practices as existing forms of circularity that are practised outside of state and formal market recognition and support, and for this the concept outside-circularity was developed.

7.2 Retracing steps: Chapter summaries

Essentially, the tensions that arise in debates around the possibility of circularity within capitalism entail tensions or clashes of over value and value production. The literature reviewed for this study covered three main themes: waste reuse, the relationship between waste and value, and waste as ruins of capitalism. I highlight two aspects that arose from the literature reviewed, and these two insights make new contributions to the way we understand waste reuse. Firstly, in the discussion of studies on waste reuse practices, literature in the second theme conceptualises reuse practices to not only apply to individual

actions but to also include larger socio-political processes, including maintenance and repair to urban infrastructure (Alexander, 2012; Bear, 2012; Doherty, 2019). The authors do not specifically cast these processes as waste reuse practices, as this is an attribution I make, since these practices fit the conceptualisation of reuse as practices where no formal market circuit has been established. This conceptualisation allows for a perspective beyond conventional waste reuse practices solely driven by material necessity or environmental concerns expressed in thrifting practices (Isenhour & Berry, 2020). Secondly, I included a body of work titled "life from capitalist ruins" in the literature review. These writers criticise perspectives that view modernity and capitalism as progressive, and instead point to the destructive characteristic embedded in these historical processes. I applied these writers' arguments and concepts to my own theorisation of value produced by waste reuse practices, which casts new light on livelihoods established from waste material or the ruins of capitalism and neoliberalism.

Engaging with works specifically theorising the relationship between waste and value formed an essential component to this study, and I borrowed from these writers to develop the theoretical framework, particularly a strand I termed "outside-capital-optimistic". The writers that inspired the theoretical approach all have in common the fact that they seek to identify existing alternatives to capitalism in contemporary society (De Angelis, 2007; Gidwani, 2008; Graeber, 2001; Tsing, 2015). The majority of these writers are anthropologists who theoretically position themselves within assemblage and neo-Maussian theory. In the development of the theoretical approach, I included concepts and methods from radical Marxist geographers, and the combinations of these three schools of thought has certainly allowed for an innovative theoretical approach to the analysis of waste reuse practices and an multifaceted conceptualisation of value.

This theoretical framework also informed the method and methodology adopted for this study. The concepts of environment without objects (Ingold, 2000, 2010) and nodes (Hart, 2006, 2016) in particular presented a critical lens to positivist portrayals of urban space and spatial history, as well as of the urban waste economy. The method of tracing circuits revealed the multi-layered constellations that form waste reuse practices, which traced both human and non-human actors to their entanglement on both the street and the landfill.

The tracing expanded beyond the waste reuse practice itself, as I offered an account of the historical development of the area known as Pretoria East and point to the key socio-political aspects that make up this layered palimpsest. In Chapter 4, I set out to achieve two goals. Firstly, I aimed to portray the urban waste precariat as more than an undifferentiated cluster of waste workers reclaiming and selling paper and packaging materials. The chapter therefore situates waste crafters who salvage and transform waste materials into crafts as part of the urban waste precariat. Secondly, I offered a counter-narrative to the one portrayed in the media and articulated by private property owners regarding the transient presence of the urban waste precariat in Pretoria East. This counter-narrative showcased the longstanding history of the urban waste precariat's presence in this urban space, including their social ties to private property owners in terms of waste material flows, transformations and exchanges. Through the ethnographic data presented, the counter-narrative therefore gave account of their established presence in and relationship to this area, and hereby I make a case for their recognition and further integration in this wealthy and contentious urban space.

Through the tracing of waste material circuits, particular points of transformation emerged that are pivotal to the material's circularity. The focus on points of transition reintroduces the relationship between waste and value. The themes captured in the ethnographic sections evoke these value theory discussions, and I draw from them to analyse the ethnographic findings. Ultimately, this study is an investigation of waste reuse practices as a form of value production outside of state and market-driven forces, and consequently it entails a study of value struggles captured in time and space. No space is entirely abstract or apolitical, and thus even the simple act of situating waste reuse practices on the landfill or the street could potentially be in contention with other opposing value systems. Ethnographic data are key to unmasking such opposing forces, as data enable us to move from the praxis of everyday life to the analysis of larger processes (Hart, 2018).

In Chapter 5, I described points of transition within waste reuse circuits and further elaborated on the theoretical implications of two such points of transition, namely deconstruction and transformation. It was in the deconstruction and transformation points that I identified the value process and value itself that emerge from the waste reuse practices.

I argue that these circuits and points are unique to waste reuse practices. I name the value-production process deconstructive creation, and the value that is produced I call life from capitalist ruins. Both these concepts are rooted in values other than capitalism. Deconstructive creation as production process shows the inverse of a capitalist market, where the urban waste precariat deconstruct the discarded device and gain knowledge of the material as a whole, a form of de-alienation or demystification. Value in the form of urban life relates to the livelihood that is established through the meshwork of reuse practices. However, this refers to more than mere material sustenance, as the ethnographic data show the urban waste precariat functioning on principles of everyday communism in open-ended relationships (Graeber, 2010), a form of solidarity as new social networks of kinship are formed between Zimbabweans who migrate to South Africa.

By employing Ingold's (2000) concept of skill, which he defines as the skilled actions of socially situated agents, and by applying Hart's (2018) method of critical ethnography, the chapter shows how space is socially produced in waste reuse constellations, which grows and expands to include street craft market and suburban garden and homes. The ethnographic data depict the history of skill development from arts and craft hubs in Zimbabwe (such as Mbare and Chitungwiza) and through migration its emergence in Pretoria East. Here space is produced relationally, through the connection between Zimbabwean cultural practices, in the form of craft making, and its entanglement with the development of suburban homes and gardens in the wealthy estates of private property owners in Pretoria East.

Chapter 6 builds upon the two aims of Chapter 4 to point to the complexity of circuits enmeshed with waste work and the activities of the urban waste precariat. By tracing the circuits of waste material flow of three waste streams (organic waste, construction waste and e-waste) on both the landfill and the street, the ethnographic data uncover the complexity of the waste economy by differentiating between waste recycling practices and waste reuse practices. However, in this chapter I immerse the reader in the theoretical approach developed. In these ethnographic sections I show that the circuits traced are not rooted in capitalist forms of value production, but rather that they form part of a subsidiary and care economy. I also show that these circuits of flow occur outside of state and formal market recognition and support in the conventional drive to establish a circular economy.

7.3 Main contributions

7.3.1 Urban waste precariat

Precarity has formed a prominent theme in the literature on waste work, especially in research from the Global South (Chalfin, 2019; Fredericks, 2018; Millar, 2014, 2018; Millington & Lawhon, 2018), and specifically in the South African context (Samson, 2016; Schenck et al., 2021). In the introductory chapter, I offered a brief account of the historical use of the term precariat in social science literature as well as the problematics of its application in the context of the Global South, particularly Standing's (2011) use thereof. Thus, I emphasised that my adoption of the term is pragmatic in nature as it aligns with Jorgensen's (2016) suggestion that it be applied as "an analytical tool and as a strategic point of departure for political subjectivities" (2016:962).

By developing and applying the concept of the urban waste precariat, I portrayed the complexity of the urban waste economy and urban waste work to include waste reuse practices, a cluster of waste work and workers that has thus far been underrepresented in the literature on South Africa. Hereby I problematise portrayals of the urban waste precariat as an undifferentiated group exclusively reclaiming and selling paper and packaging materials. I have mentioned earlier that waste reuse practices and practitioners have been recognised in policy such as the *Waste Picker Integration Guideline for South Africa* (DEFF & DSI, 2020); however, they have only recently been included in initiatives such as the University of Johannesburg's PEETS programme which trains the urban waste precariat to repair electronic devices.[23] However, greater awareness needs to be garnered for the fact that these actors are making significant contributions to waste to landfill diversion and the urban waste economy.

7.3.2 Deconstructive creation

The literature review noted writers, placed under the heading "outside-capital-optimistic", who consider the possibility of alternatives to a capitalist system and also pose that such alternatives might already be practised in contemporary society (De Angelis, 2007; Gidwani, 2008; Gibson-Graham, 2006; Graeber, 2001). These perspectives informed my theoretical

[23] See https://www.uj.ac.za/faculties/engineering-the-built-environment/uj-peets/

framework and methodological approach, and here I spliced Ingold's (2000) assemblage theory to incorporate concepts of meshwork and environment without objects. What emerged from the ethnographic data by adopting this approach was a unique constellation (Benjamin & Tiedemann, 1999; Gordillo, 2014) formed by waste material and human skill, as I traced the specific waste material circuits. Looking at waste reuse practices as constellations of waste material and human skill enabled me to trace the movement of humans and non-humans relationally, as, for example, Zimbabwean migrants cultivated craft skill in arts and crafts hubs of Zimbabwe and relocated to the City of Tshwane to establish a street craft market in the suburbs of Pretoria East.

The tracing of waste reuse circuits further surfaced the role of points of transition in circularity, and here two specific points, disassembly and transformation, emerged as pivotal to the value-production process I termed deconstructive creation. The process of deconstructive creation constitutes the inverse of capitalist production as it enables de-alienation and de-fragmentation to occur, where the urban waste precariat gains insight into production processes that formed the commodity as a whole, and additionally the craft buyer is exposed to the production process of reused goods when these are exchanged in direct contact with the waste reuse practitioner.

I term the value that is produced from deconstructive creation processes life from capitalist ruins. This form of value is not rooted in capitalism's law of value, but rather draws on new formations of kinship and functions on principles of everyday communism. This form of value finds expression in two ways: 1) urban life: more than mere material sustenance, but also a form of social solidarity as new kinship structures develop between Zimbabwean migrants; and 2) urban space: in the form of street craft markets and suburban house and garden beautification.

The concept deconstructive creation contributes to debates around the urban waste economy and the relationship between waste and value. Scholars have particularly theorised the relationship between the formal and informal economy (Gidwani, 2015; Inverardi-Ferri, 2017; Samson, 2015; Sanyal, 2007) and the role of distributive labour and care work (Isenhour & Reno, 2019) in the formation of the urban waste economy. Deconstructive creation draws

from the ruins of capitalist production and consumption and, in most of the exchanges that follow the point of transformation, a subsidiary and care economy is established that involves distributive labour (Ferguson, 2015) and acts of everyday communism (Graeber, 2010), at times even gift exchanges (Mauss, 1966), all of which constitute value alternative to capitalism and are not based on self-interested accumulation but rather on mutually beneficial exchange in open-ended relationships.

7.3.3 Outside-circularity

Formal attempts at circular economy establishment contrasts with waste reuse practices that form part of people's everyday lives and are comprised of existing forms of circularity (Isenhour & Reno, 2019; Kalina et al., 2022). By tracing the circuits of waste material flow entangled with waste reuse practices, the study portrayed the meshwork of value production occurring outside of state and formal market recognition and support; it is not rooted in capitalist forms of value production, but rather forms part of a subsidiary and care economy. This is what I termed existing forms of circularity or outside-circularity.

The goal to establish a circular economy is aligned with sustainable development imperatives (Valenzuela & Böhm, 2017; Von Blottnitz et al., 2022). In the global arena, the stark reality is that states are failing to reach their agreed-upon targets on climate mitigation, and most countries failed in their Nationally Determined Contributions, as the following article excerpt explains.

> As their commitments on cutting greenhouse gas emissions were too weak to stay within the 1.5°C limit, they also agreed to return each year to strengthen them, a process known as the ratchet. At Cop27, some countries tried to renege on the 1.5°C goal, and to abolish the ratchet. They failed, but a resolution to cause emissions to peak by 2025 was taken out, to the dismay of many.
>
> (Harvey, 2022)

These targets were set by many nation states during COP21 as part of the 2015 Paris Agreement, and a large number of countries are currently off-track to reach their targets.

7.3.3.1 Global scenario

An unequal and unjust intersectionality exists between global economic inequality and the geographical spaces most significantly affected by climate change (Hickel, 2020b). Whereas countries situated in the Global North make up most of the historical contribution to greenhouse gas (GHG) emissions, the effects thereof are at present mostly experienced by countries situated in the Global South (Hickel, 2020b). Although some gains have been made in attempts at curbing the downward spiral of habitable conditions on Earth, many countries are failing to reach their agreed-upon targets of the 2015 Paris Agreement. Scholars have highlighted the contradiction between sustainability and constant economic growth as a significant reason for this failure.

A major hindrance to reaching these targets has thus been the contradicting goals of achieving sustainability while simultaneously increasing economic growth (Hickel & Kallis, 2019). This places state policymakers in a disconcerting position, as they are forced to stand in opposition to private market forces. However, in the substantive chapters of this thesis I have conveyed the fact that forms of circularity and sustainability already exist outside of these entities' recognition and support. I contribute to debates on the possibility of sustainability within capitalism by showcasing existing practices of circularity which draw on traditional knowledge and cultural skills. The study situates circular practices within their larger local, regional and global contexts to show how two value systems oppose each other in space and cultural contestations. Capitalist production and urbanism from capitalist ruins stand in opposition in terms of their value constructs. I have explained that outside-circularity does not occur completely outside or independent of capitalist circulation, but rather utilises the material ruins left in its wake from constant expansion of capitalist production and excessive consumption. These systems are principally incommensurable, and therefore outside-circularity practices constitute political acts as they contest value systems enforced by those in power. The concept of green growth forms a prime example this fact (Hickel & Kallis, 2019).

In principle, the notion of green growth poses an intrinsic contradiction. In order to accomplish green growth, two things need to happen simultaneously: market expansion through economic growth needs to occur while at the same time GHG emissions need to be

mitigated. Therefore, the aim is to decouple economic growth and carbon emissions. Hickel and Kallis (2019) argue that,

> While absolute decoupling is possible at both national and global scales (and indeed has already been achieved in some regions), and while it is technically possible to decouple in line with the carbon budget for 1.5°C or 2°C, empirical projections show that this is unlikely to be achieved, even under highly optimistic conditions.
>
> (Hickel & Kallis, 2019:15)

Writers instead advocate for the concept of degrowth to be sought. Hickel maps out what this entails by stating,

> Proponents of degrowth are clear that it is specifically high-income countries that need to degrow (or, more specifically, countries that exceed per capita fair-shares of planetary boundaries by a significant margin ...), not the rest of the world.
>
> (Hickel, 2020a:5)

Hickel further elaborates that degrowth entails the just and fair payment for labour and natural resources from developing countries, which would have the knock-on effect of degrowth in the Global North (Hickel, 2020a). This constitutes a high ideal, and wealthy nations would arguably be reluctant to subscribe to such a policy, especially given their historical reputation to exploit and plunder developing nations, but it does pose a possible solution to address both inequality and climate change simultaneously. Given this historical reality, the inspired drive towards the establishment of a circular economy has not been shared by all academics, and recently other scholars and activists have backed the concept of degrowth while also emphasising the contradiction in aiming for economic growth and sustainability simultaneously (Chiengkul, 2018; Demaria et al., 2013).

7.3.3.2 Local scenario

The South African government has voiced its commitment to establishing a circular economy and has initiated numerous actions to set the wheels in motion (Von Blottnitz et al., 2022). However, most of this drive has been focused on solid waste management through reuse and recycling initiatives (Von Blottnitz et al., 2022). Von Blottnitz et al. (2022) conducted a study on the country's economy-wide material flow. The analysis had the aim of developing

indicators to transition towards a circular economy. One of the key findings of the study states:

> This study has shown that circular economy goes well beyond mere recycling of end-of-life materials. Of the 875 Mt materials extracted, only 327 Mt eventually became waste and of these about 221 Mt are extractive wastes with very limited cycling potential, if any. So reuse and recycling can only target 105 Mt, which is 12% of what has been extracted, or 14% of processed materials and 17% of interim outputs. While improved waste management is essential, its reach to increase circularity is limited.
>
> (Von Blottnitz et al., 2022:iv)

Figure 16 is an infographic indicating the main material flows constituting the South African economy.

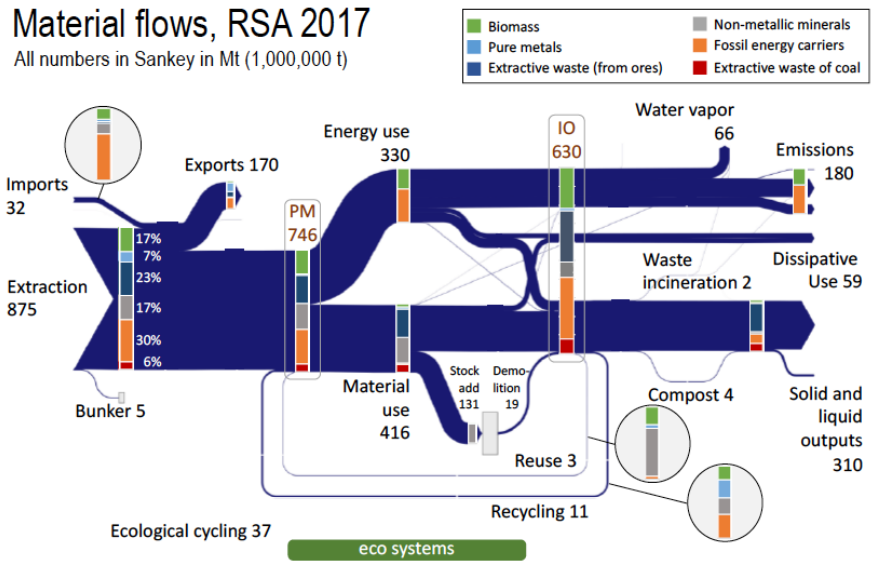


Figure E1: Estimate of material flows in South Africa in 2017. Width of arrows is proportional to flow size. Processed materials (PM) and interim outputs (IO) form the basis for the calculation of circularity indicators.

Figure 16: Estimate of material flows in South Africa in 2017 (Von Blottnitz et al., 2022)

Thus far, attempts by the state to move towards a circular economy have largely targeted solid waste management, as there seems to be a general perception that this sector presents the largest contribution to non-circularity. However, as Von Blottnitz et al. (2022) indicate, this scope will have to be significantly broadened if South Africa is to address the challenges

caused by a linear economy. For this same reason, I do not pose the waste reuse practices forming the focus of this study as the answer to our challenges related to sustainability. The key argument and motivation for this study is to indicate what waste reuse practices demonstrate about the form of our current economy and society in broad terms. The waste reuse practices are situated outside current state and formal market recognition and support, and this is where a form of circularity is practised. In principle, a tension exists between sustainability and a capitalist market, as well as in the fact that, at certain points, the drive for maximum profit and low capital input will compromise the efficacy of intentions to become more sustainable or circular (Hickel & Kallis, 2019; Valenzuela & Böhm, 2017; Velis, 2017).

7.4 Recommendations for future research

Researchers have noted that, in the South African solid waste sector, even though construction and demolition waste forms one of the largest waste to landfill streams, it has largely been overlooked in terms of diversion strategies, particularly regarding the contribution of the informal sector (Department of Environmental Affairs, 2018; Von Blottnitz et al., 2022). Von Blottnitz et al. (2022) acknowledge the involvement of reclaimers in this waste stream and call for further research on this subject. A quantification of this form of waste to landfill diversion would certainly contribute greatly to our understanding of waste reuse practices and the second-hand economy; however, it fell beyond the scope of the current study to conduct quantitative data collection. This could be considered in future research endeavours.

The ethnographic data presented in the substantive chapters of this study indicated the prominent role that spatial contestations play in the establishment of waste craft markets along the streets of wealthy suburbs of Pretoria East, City of Tshwane. The data further highlighted the fact that these waste craft markets have become intricately enmeshed with the houses and gardens of these suburbs. While some organisations such has homeowners' associations have attempted to remove the urban waste precariat from their doorstep, others, such as the church and CPFs, were actively organising and supporting the integration of the urban waste precariat's work and livelihoods within these urban spaces. Further research could entail the exploration of such integration strategies not only in public acceptance but also in spatial integration of formalised settings for craft markets.

Lastly, the study revealed an existing relation between Zimbabwean arts and crafts hubs and waste reuse practices in Pretoria East. The waste crafters of Pretoria East indicated that these hubs are situated in Mbare and Chitungwiza, around the city of Harare, Zimbabwe. Kalina et al. (2022) conducted a study of traditional household practices that constitute waste reuse; however, this was limited to household practices. A similar study traditional craft practices originating from these arts and crafts hubs could contribute to our understanding of waste reuse in significant ways.

Numerous authors have noted how neoliberal market expansion is increasingly leaving an alarming section of the global population outside of formal wage work (Standing, 2011). It is therefore of the utmost importance that the ways in which these individuals are generating an income and forming resilient livelihoods are studied and understood, so as not to disrupt these income streams. The livelihoods of the urban waste precariat, gleaned from the ruins of capitalism, are innovative, fragile and resilient, and must be acknowledged and supported by all means necessary, especially in a world that is increasingly uprooting the lives of the marginalised poor.

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