

Exploring the Bottom-End of Recycling Value-Chains:

A Case Study of Waste Pickers in eThekweni Municipality.

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ABSTRACT

The bottom-end of global economic value-chains represents some of the harshest working conditions in the world. The aim of this dissertation is to study the bottom-end of recycling value-chains in eThekweni Municipality, focussing specifically on waste pickers, in order to illuminate the role that waste pickers play in the city, and the nature of interactions between them (as part of the informal economy) and formal aspects of the economy. The dissertation finds that waste pickers in eThekweni Municipality make positive contributions to society and should receive more recognition for their efforts. It argues that South Africa does not have a dual economy, but rather one diverse economy which consists of formal and informal activities. These activities sometimes overlap, interact with, and conflict with one another. Given the persistence and growth of the informal sector throughout the global economy, governments and society need to shift their perception and understanding of the informal economy. The informal economy should be perceived as part of the overall economy, and as a positive phenomenon which contributes significantly towards poverty reduction and GDP growth. With this change in perception, the benefits of supporting the informal sector are highlighted, allowing governments to implement measures in the right spaces of the economy to create positive social economic development.

1 INTRODUCTION

Waste pickers form an important link in the value-chains of recycling in many cities throughout the world. Operating at the bottom-end of economic value-chains, waste pickers make important, often unrecognised contributions to society. The aim of this thesis is to study the waste pickers, otherwise known as informal waste collectors, who operate in eThekweni Municipality, in order to reveal the nature of economic activity at the bottom-end of large value-chains. More specifically, the study aims to investigate the socio-economic conditions waste pickers operate within, as well as the social and economic role they play in the city. In doing so, the study will critique the idea of the South African economy as a ‘dual economy’ in which the formal sector is separated from the informal sector. Exploring the bottom-end of the value-chains of recycling will reveal the nature of the complex relationships between formal and informal spheres of the economy, allowing the researcher to investigate whether the South African economy does indeed mirror that of a dual economy. It will also illuminate the merits of supporting and integrating waste pickers into the formal waste management process in eThekweni Municipality. This introductory section provides a contextual background while introducing and outlining the objectives of the study.

1.1 The context of the study

1.1.1 The informal sector and its place in the South African economy

Working in the informal sector is often described as lawless, chaotic and illegal. However, this is not necessarily the case. The informal sector should not be perceived as a haven for illegal activity, but rather as an important livelihood strategy for millions of people (Wilson et al., 2009). At a global level, the recycling industry has developed a large informal sector which many people are unaware of. In developing countries, as well as some developed countries, scavenging for valuable recyclables in waste streams is one of the core informal livelihood strategies. Klundert (1995:10) describes the informal sector of recycling as

“motivated by the need for subsistence activities and survival; performing activities because of their potential to generate income or produce needed goods; using resources too marginal to attract competition from the formal sector; beneath the

notice of most decision makers in municipal government, except as an embarrassing nuisance”.

In 1973 Hart defined the informal sector by differentiating between those who are ‘wage earners’ and those who are ‘self-employed’ (Kekana, 2003). In other words, the informal sector is characterised by income generation through personal ingenuity or devices, while the formal sector is characterised by written ‘contracts’ and monthly ‘salaries’. This definition does not cover the breadth and depth of what the informal sector means, however it does provide a base from which the two concepts can be further debated. The modern definition of the informal sector is contentious and confusing (Kekana, 2003), the formal sector itself is characterised by millions of self-employed individuals, while the informal sector contains individuals earning consistent salaries, even if they might not have an official contract. According to Skinner et al. (2006:3) the most quoted definition of the informal sector comes from the International Labour Organisations Kenya Report (1972:6) in which informal activities are defined as ‘a way of doing things’, characterised by: “ease of entry; reliance on indigenous resources; family ownership of enterprises; small scale of operation; labour intensive and adapted technology; skill acquired outside of the formal school system; unregulated and competitive markets”.

There is a well-established body of literature on the informal sector. However, there is a limited body of literature which interrogates the connections and relations between the informal and the formal sector and the various interventions and practices which could be implemented in order to strengthen the connection between the two. This study does not develop a completely new concept around informal/formal sector relations but adds the case of eThekweni Municipality recycling to the literature. It provides a unique theoretical approach to the issue of informal-formal relationships in cities. The topic is addressed by exploring the nature, role, and involvement of the informal sector in the value-chains of eThekweni Municipality’s recycling sector. Gaining a firmer understanding of the waste pickers operating in eThekweni Municipality and how they interact with the formal systems in place will reveal the nature of the interactions and relations between the formal and informal spheres, as well as illuminating what measures could be implemented to assist the informal sector and to enhance the relationship between the two. It must be emphasised that the focus of the study is on the bottom end of the recycling value-chain (specifically waste pickers) and is therefore not a value-chain analysis. The study therefore does not provide a

full critique or analysis of the entire extent of the recycling value-chain because the focus is on the relationships, complexities and issues at the bottom-end.

1.1.2 Waste pickers

Informal waste collectors (waste pickers) are often shunned and marginalised because they are seen as ‘scavengers’. However, global attitudes towards waste pickers are changing as their work becomes increasingly recognised for the positive impacts it has on the environment and economy. In fact, some developing countries with very limited formal waste services experience higher recycling rates than some developed countries because of the effectiveness of their informal sector. Wilson et al. (2006) argue that the informal sector has a multitude of other benefits for the city beyond the mere increase in recycle rate. A large informal waste collection sector decreases costs for the local municipality service by taking over a large part of the collection process, it increases the competitiveness of local manufacturing firms by reducing the cost of inputs through supplying local inputs, it decreases the carbon footprint because most waste is collected and transported by foot or by cart (thus avoiding the use of vehicles), and it serves as a means for sustainable income. Waste pickers therefore form an important link in the value-chains of recycling industries in many cities.

A study by Mclean (2000) provides a profile of waste pickers in eThekweni Municipality. It shows that most waste pickers are extremely poor, varying between extreme poverty and transient poverty. What is worse, is that they are particularly vulnerable to market fluctuations, as their livelihoods depend on how much they can earn from the sale of recyclables. If the price of one or more of the materials suddenly plummets for an extended period of time, the implications are dire. Viljoen (2014) recently conducted a nation-wide study on waste pickers entitled ‘The Social and Economic Conditions of Street Waste Pickers in South Africa’ and found that on a national level, “street waste pickers are poor in terms of their lack of necessities to function as a person, to live well, and to participate in their community as a valued member” (Viljoen, 2014:338).

Viljoen (2014) and Mclean (2000) both identify that waste picking in South Africa is done as a survival strategy and most pickers are not even aware of the positive impact it has on the environment. To this end, theories of poverty will be analysed in Chapter 3, as this literature provides the framework through which waste pickers position and role in society can be

understood and interpreted. As discussed above, poverty is the major driver of informal waste picking and it is therefore important to understand waste picking within this framework. The dissertation will discuss different ways of defining and determining poverty such as the various poverty lines and other money-metric mechanisms, as well as investigate the nuances of urban poverty in relation to rural poverty.

Drawing on the socio-economic context of waste pickers in relation to urban poverty, the dissertation investigates potential options to support waste pickers for their benefit, as well as broader society. Women in Informal Employment (WIEGO), as well as the Global Alliance for Incinerator Alternatives (GAIA) have published many case studies where waste pickers have been successfully integrated into the formal waste collection systems of cities. This dissertation will draw significantly from the literature and practices of these organisations in order to illustrate the potential benefits of integration. Significant findings from authors such as Dias (2007), Chikarmane (2012), and Martinez (2013) show that in order for the informal sector to grow extensively it needs to be supported and fostered by the local municipality. An informal sector left unsupported is less likely to achieve successful integration as seen in the cases of Pune, Belo Horizonte and Bogota. However, imposing external systems onto an already existing informal system can have negative consequences. It is important to work with waste pickers and find strategies that support the already-existing frameworks within which they operate.

The aim of this dissertation is to study the bottom-end of recycling value-chains in eThekweni Municipality, focussing specifically on waste pickers, in order to illuminate the role that waste pickers play in the city, and the nature of interactions between them (informal) and formal aspects of the economy. In doing so, the dissertation will provide an argument as to whether society should change its perception of the informal sector and whether waste pickers should in fact be supported, integrated and recognised in the economy. This will be done by studying the socio-economic conditions of waste pickers in eThekweni Municipality, analysing their contribution within the recycling value-chains, and unpacking the nature of formal/informal interactions at the bottom of the value-chain. This dissertation adds to the literature in South Africa which studies waste pickers, but is unique in that it not only details the socio-economic conditions within which waste pickers live and work, but draws on the example of waste pickers in eThekweni Municipality to gain an understanding of the nature of the bottom-end of value-chains and the relationship/entanglement between formal and informal spheres of economic activity in these spaces.

1.2 Main research questions and objectives

1. What role do waste pickers play in increasing the amount of materials being recycled in eThekweni Municipality?
2. What role does waste picking play in sustaining livelihoods and reducing poverty?
3. What types of challenges do waste pickers in eThekweni Municipality face?
4. Should waste pickers be assisted by the municipality, and if so, what support should be provided?
5. What tensions exist between the formal and informal sectors of the economy at the bottom-end of recycling value-chains?
6. What measures could be implemented to remove tensions and improve collaboration between the formal and informal sectors?
7. What does waste picking in eThekweni Municipality reveal about the nature of the economy? Are the formal and informal economies completely separated from one another, in a ‘dualism’, or do they contain properties of interconnectedness, a ‘relational dialectic’?

1.3 Methodology

The data that this study analyses was collected by Urban-Econ for the purpose of conducting a value-chain analysis for seven major recyclable materials (paper, cardboard, metals, e-waste, tyres, plastic, glass). I was one of the primary researchers on the Urban-Econ project and hence my dissertation has emerged from this research. The process of data collection involved both quantitative and qualitative methods. Because the informal sector was identified as a major part of the various recycling value-chains, a survey of waste pickers was conducted in order to understand the complexities of this part of the value-chain, and the role it plays in the broader value-chain. As such, the idea for this dissertation emerged through exposure to the informal side of recycling in eThekweni Municipality. The primary research undertaken by Urban-Econ for the purpose of the value-chain analysis will be utilised for this dissertation as it speaks directly to the objectives.

In addition to the survey, key interviews were arranged with major role players within each of the seven value-chains. Data collected from these interviews was recorded in written format and electronically. Findings from these interviews which are relevant to this dissertation will be used to address the various objectives. Finally – as I was involved in the collection of the

data at Urban-Econ, this thesis will draw on observations/ethnographic data which were observed during the process of data collection and interaction. As such, this study draws on secondary data which is both qualitative and quantitative in nature in order to address the above-mentioned objectives, themes and goals.

1.4 Structure of the report

The dissertation begins by reviewing literature pertaining to theories of the economy – specifically the relationship between the formal and informal economy. The concept of a relational dialectic is explored and applied, at a theoretical level, to the global and South African economy in order to argue that linkages exist between these two elements which are generally not recognised. The chapter draws on this theory to argue against the idea that South Africa’s economy is ‘dual’ in nature, consisting of a first and second economy, which are structurally disconnected from one another. Chapters 2 and 3 present the literature review which provides the theoretical framing of this dissertation. Chapter 3 defines and explores the characteristics of waste pickers, and provides a theoretical analysis of poverty in order to contextualise the socio-economic conditions under which waste pickers live. Chapter 4 outlines the context and background of the study area (eThekweni Municipality), while Chapter 5 provides a detailed account of the methodology which was employed by the researcher. Chapter 6 presents and analyses the results and findings of the research in order to answer the main questions and objectives of the dissertation.

2 THE NATURE OF THE ECONOMY AND THE RELATIONSHIP BETWEEN THE FORMAL AND INFORMAL SECTOR

2.1 Introduction

The informal sector is described by Kekana (1993) as being ‘highly contentious’ and difficult to define due its multifaceted nature. As such, there is lack of understanding of the role and place of the informal sector within the overall economy. The continued growth of the informal economy is identified by Chen (2007) as the reason for its re-emergence as a major issue in global economics. Moreover, the nature of the informal economy and its relation to the formal economy is being challenged. In 2003, Thabo Mbeki described South Africa as having a ‘dual economy’ which consists of the ‘first economy’ and ‘second economy’ (Skinner et al., 2006). The second economy is noted as being small scale and contributing little to overall GDP. It is perceived as a side-product of industrialisation and development which will fall away as modernisation and industrialisation proceed. However, this dissertation critiques the idea that the South African economy consists of these two separate economies which operate independently from one another. It argues that perceiving the economy from a ‘dualistic’ perspective is an over-simplification because it ignores the many connections and interactions *between* the two economies. Drawing on the theoretical framework of relational dialectics, it can be argued that there are strong connections and entanglements between the two spheres of the economy. This chapter therefore interrogates the concept of relational dialectics in the environment before applying the same logic to the economy. This provides a theoretical framework from which the following chapter – which deals directly with waste pickers, can be explored.

2.2 The disconnect between humans and nature

Marx described the relationship between humans and nature to be a relational dialectic, as these ‘two sides of the same coin’ constantly interact with and change each another. Humans and nature are perceived as one system, rather than two separate systems which act on each other in various ways. As humans interact with nature, society changes and so too does nature. This dynamic relationship between humans and nature is described as the

“metabolism between man and nature” (Linton and Budds, 2013:4). Marx noted that the metabolism between humans and nature was being ruptured due to industrialisation and the capitalist expansion agenda. Foster (1999) went on to coin the term ‘metabolic rift’ which more accurately describes the concept which Marx was originally interrogating. More specifically, the rift refers to ‘breaks’ in the relationship between humans and nature. Due to the nature of modern cities, humanity effectively alienated itself from the land which produced the items being consumed in cities. Marx focused on the fact that soil which was being used to create consumables was not able to return back to the ground due to the complexity of modern capitalist cities. This created a rift between humans and nature in that the natural process of give and take was hindered (Foster, 1999).

Many theorists argue that Marx’s work was interpreted from a dualistic perspective and this in itself does as much damage as the ‘metabolic rifts’ themselves. Marx’s original conception of the idea depicts a system in which humans and nature are part of the same system, but capitalism is causing rifts within this system. Analyses of the concept, however, tend to emphasise a rift between two *separate* entities and focus on the negative impact that humanity *imposes* on the environment. This, according to Moore (2014) is an inadequate means for analysing the complexities of humanity’s interactions with nature. Departing from a dualistic perspective, there is a tendency to focus on disruption and separation instead of conflict, re-configuration and unity. The environment is viewed as “*humanity-and-nature*” instead of “*humanity-in-nature*” (Moore, 2014:3). This phrase accurately highlights the problem with metabolic rift analysis and dualistic approaches.

Some theorists have attempted to apply this framework of ‘*humanity-in-nature*’ to specific processes in the environment. Linton and Budds (2013) use a relational dialectic approach to describe human interactions with water and to advance the concept of the hydro-social cycle. According to Linton and Budds (2013:4)

“understanding things as related internally means that the properties that constitute them emerge as a function of their relations with other things and phenomena. It implies a shift from thinking of relations between things – such as the impact of humans on water quality – to the relations constituting things”.

The hydro-social cycle views water as an agent that actively shapes and changes humanity and the environment, rather than just a resource which needs to be managed efficiently in order to extend its usefulness. To further explore this concept, Linton and Budds (2013)

reflect on Wittfogel's description of the relational dialectic between large-scale irrigation systems and centralized state power in ancient societies. They describe how elites in societies were able to entrench their positions of power by impacting on the hydraulic environment of these societies, thus changing the society and changing its relationship with water, which ultimately changed the environment. Water and society from this perspective are seen as constantly re-shaping each other and changing the living environment. This dissertation will explore the applicability of Linton and Budds' (2013) argument in the case of the economy, by investigating the ways which the informal sector and formal sector are relationally linked, focusing on how changes in the formal economy can impact the informal economy and vice-versa, therefore illuminating aspects of a relational dialectic, rather than a dualism.

This chapter argues that perceiving the environment-society relationship from a dualistic perspective is problematic and can undermine genuine efforts to induce positive change. Moreover, it is further argued that even the economy itself should not be viewed from a dualistic perspective but from a relational dialectic. The economy is a complex and vastly intertwined entity with multiple actors – and this is particularly evident in recycling value-chains. Recycling value-chains tend to consist of multiple components involving the informal economy as well as the formal economy (these concepts will be clarified in the following section). There is a tendency in society to view these concepts separately. However this thesis will show that a relational dialectic can be a far more accurate depiction of the economy than a 'dual' approach. The two sectors often compliment each other, but can also generate conflict – mirroring aspects of a relational dialectic.

Cock (2007) uses Marx's framework to explain how capitalism has caused society to become alienated from nature. This alienation stems from the fact that the labour process and the end-product have become disconnected. The complex technological processes which drive the existence of modern cities hide the reality of the intimate relationship between society and the environment, leading to a situation where citizens are unaware of this relationship and are therefore disconnected from nature. This concept is particularly relevant in the case of waste disposal and recycling, because the process of disposing waste is not necessarily undertaken by the waste generator. Households which generate large amounts of waste may be completely ignorant as to how that waste eventually gets disposed of or recycled. Core societal functions have become so compartmentalized and 'contained' that the simple process of returning used resources back to the earth is a process which many people do not fully comprehend. This concept which Cock (2007) describes, is important for this dissertation

because the ‘disconnect’ between man and nature is linked to the scant understanding of processes which are inherent in recycling value-chains, particularly the existence and importance of waste pickers in this process. As such, the role and significance of these actors is poorly understood and undervalued.

Humanity’s disconnection from nature is typified by global industries such as recycling. This thesis argues that the logic of the ‘metabolic rift’ can be applied in the case of waste management and recycling. From a dualistic perspective, the separation of the formal economy from the informal suggests that the lengthy process by which recyclable materials end up in factories or as another product does not involve any interaction between the two spheres due to them being distinct from each other. As such, there is a fundamental failure to recognise the *role* of the informal sector (waste pickers) in contributing to the core functioning of a city. This is worsened by the fact that large value-chains have so many different points that, as described by Cock (2007), it is impossible for the citizen to see the process by which materials are actually recycled. However, perceiving the economy as a relational dialectic, just as the environment-society should be perceived, reveals the true nature of the process of recycling which typically involves both spheres. To further extend the argument that the economy should not be perceived dualistically, Polyani’s ‘double movement’ is explored in the following section.

2.2.1 Polyani’s double movement and the connectedness of the economy

Carton (2014) provides an interesting critique of Polyani’s concept of the ‘double movement’ in the context of carbon emissions trading and other similar market based techniques which supposedly curb fossil fuel dependency. This argument further exemplifies the dangers associated with simplifying the economy by perceiving or constructing it dualistically. Polyani’s ‘double movement’ refers to a process in which the market and humanity are in a constant struggle. The market attempts to detach itself from the environment by making people *part* of the market and essentially commodifying people and nature. However, society reacts to this pressure by re-embedding morals and humanity into the market through “implementations which reflect societal values, hence the ‘double-movement’” (Carton, 2014:1004). An example of this is the carbon emissions limitations and trading mechanism mentioned above. It is widely argued that market mechanisms to protect the environment are

inherently bound to fail because they are based within a socio-economic system which is built upon expansion and exploitation of the environment. It is therefore pointless to implement mechanisms within the current socio-economic system to protect the environment. A change in the dominant form of social reproduction would be required in order to effect any meaningful change in the environment - anything else is deemed to fail. There is extensive research to support this argument, however Carton (2014) argues that by perceiving society and nature as two separate forms, it is easy to ignore the dire implications that any change on one of the two entities would have on the other.

Instead, the 'double movement' should be seen from a relational dialectical perspective. From this perspective, the relations between society and nature are so intertwined that any sudden change to the society will have impacts on the environment, which will in-turn have impacts on society. For example "the airline industry is a significant emitter of greenhouse gases that is also worth \$618 billion annually, transports almost three billion passengers, and employs millions of workers" (Carton, 2014:1012). Many millions more depend on it for their livelihoods, including workers in the tourism industry, airport infrastructure, and logistics. Any drastic measure to dismantle this high-carbon industry in the name of environmental protection would have major social and political implications (Carton, 2014). According to Carton (2014) these market mechanisms aimed at curbing fossil fuel usage are therefore a necessary step in gradually changing the relations between society and nature (the environment). Any drastic change to the environment would have large consequences because society and nature are part of the same system and must therefore absorb shocks together. Carbon trading mechanisms reflect the fact that society and the market are 'coconstituted' (Carton, 2014).

This 'coconstitution' which Carton refers to can be applied in explaining the relationship between the formal and informal spheres of the economy, as this thesis will show. More specifically, in the case of large global value-chains where the informal and formal sectors operate, any implementation or shock must be absorbed by both spheres of the economy. As such, the two are highly intertwined despite being different forms of economic activity, thus representing a relational dialectic. Perceiving the economy from a dualistic perspective suggests that the sectors absorb shocks independently of each other, or that a change to one will not affect the other. This concept will be further interrogated by analysing the findings of the interviews conducted by Urban-Econ and which form part of this research. The following

section further defines the concept of the economy as a relational dialectic by analysing how tension between two parts of the same entity can be a driver of change.

2.2.2 Conflict in a relational dialectic

Change through contradiction is a fundamental tenet of dialectics (Brincat, 2010). The entanglement of the two spheres operating within the same space ultimately drives change, or the potential to induce change. Brincat (2010:4) argues that “stated simply, dialectics holds that change results from the internal dynamism of society, from the interactions between human beings that leads, inevitably, to inter-societal tension and the potential sublation of these contradictions to different — though not necessarily ‘higher’ — forms”. Brincat (2010) further argues that dialectics should be differentiated from determinism because change is not a necessary ultimatum. Rather, it is the tensions that exist between the interacting forces that encapsulate the meaning of dialectics, because any society could simply opt to accept the status quo in spite of the clear contradictions. This research aims to explore the tensions at the bottom-end of the recycling value-chains in eThekweni Municipality in order to reveal the nature of the dialectics. Exploring the informal and formal waste management systems in the city of Durban allows the researcher to uncover the dynamics of the relationship between the two which may involve the conflict which Brincat (2013) refers to. This can ultimately provide direction towards the positive change which needs to occur to allow cohesive interaction between the two spheres. As such, for the purpose of this thesis, relational dialectics means the interconnectedness of two spheres which should be perceived as one entity rather than two. This interconnectedness can present itself in various forms, such as mutually benefitting relationships, or conflicts/tensions which can create positive change.

Braun (2008:669) argues that the economy is often taken to be an already constituted

“structural unity that only subsequently comes into contact with a recalcitrant non-human nature, rather than, as some may have it, a realm constituted from the outset through a set of practices – including the ‘performances’ of non-humans – and thus neither a bounded region of being, nor one which has an original form prior to its entanglement with things”.

Similarly, the economy is, from the outset, constituted of all the formal *and* informal activities which act within the overall global market. It is equally problematic to view the economy from a dualistic perspective, as it is to view society and its relationship with nature

in this way. The following section discusses the informal economy in more detail by defining it, and also showing that perceiving the economy as a relational dialectic can have positive impacts on development and socio-economic change.

2.3 The informal economy

The informal sector, more recently termed the ‘informal economy’ is a highly contested subject. It has become particularly relevant for governments in the 21st century, most notably those governing developing countries. One of the most significant definitions of the informal sector was coined by Hart in 1973 (cited in Kekana, 1993:38), who argued that the informal sector is characterised by ‘non-wage earners’, or people who are ‘self-employed’. In other words, the informal sector is characterised by individuals whose income is not dependant on a wage salary, while the formal sector is characterised by official contracts. While this definition serves as a useful starting point, it is an oversimplification and does not fully encapsulate the meaning of the informal sector.

2.3.1 Defining the informal economy

The modern definition of the informal sector/economy is highly contentious and confusing (Kekana, 1993). The formal sector itself is characterised by millions of self-employed individuals, while the informal sector has people earning consistent salaries, even if they might not have an official contract. Moreover, the two sectors commonly overlap and/or interact with each other, blurring the boundary between the two. Skinner et al. (2006) describes three major schools of thought which seek to explain the concept of the informal economy and its relation to the formal economy. The dualist school sees the informal economy as a separate economy which exists as a result of poverty. Secondly, structuralists argue that the informal economy exists to the benefit the large formal enterprises by providing cheap labour and cheap inputs. According to this view, the formal economy is dependent on the informal economy in order to maximise growth and profit opportunities. Thirdly, the legalist view of the informal economy is that it provides an opportunity to reduce costs by not having to abide by rules and regulations. In other words the informal economy is free from government intervention or other controlling measures. This also refers to illegal activity. According to Skinner et al. (2006:3) the most quoted definition of the informal sector comes from the International Labour Organisations Kenya Report (1972:6) in which informal activities are defined as ‘a way of doing things’, characterised by:

“ease of entry; reliance of indigenous resources; family ownership of enterprises; small scale of operation; labour intensive and adapted technology; skill acquired outside of the formal school system; unregulated and competitive markets”.

This thesis concurs with Skinner et al. (2006) that the simplest way to think of the informal economy is to see it as all those economic activities and transactions that are not registered and are therefore unregulated. However, it is ultimately difficult to arrive at an all-encompassing definition of the informal sector because of its heterogeneity (Kekana, 1993). Many of the activities associated with informality often become legalised over time, and many people engage in a myriad of activities some of which are informal while others are not. Some businesses may operate in both the formal and informal sectors, making it difficult to conceptualise which sector they belong to/should be associated with, and many businesses exhibit characteristics that Skinner et al. (2006) attributes to informal activities, yet they are registered formal businesses. Placing the informal economy in context provides insight into how its definition

2.3.2 The context the informal economy's existence

Kekana (1993) explains that when industrialisation and modernization replaces a subsistence economy, many people migrate into urban areas in search of work opportunities, creating a situation where an economy is unable to grow quickly enough to accommodate the influx of people into urban areas. As a result, there will be large numbers of unemployed people in cities and this leads to the growth of the informal economy. From an evolutionist perspective the informal economy is understood to be a step in the capitalist societies' development process. It is therefore assumed that the informal economy is a temporary consequence of development and will eventually fall away as the population is absorbed by the formal sector (Kekana, 1993). However, this explanation is inadequate because rather than disintegrating, informal economies are growing. According to Schneider (2002:1), in developing countries the informal sector accounted for as much as “41% of total GNI in the year 2000, 38% in transition countries and 18% in OECD countries”. While the informal sector is more prevalent in developing countries, it still features in developed countries as well. In Africa in particular, the informal economy accounts for 42% of the total economy, and 29% of the South African economy. If informal economies are in fact growing rather than disintegrating, then the idea that the economy is ‘dualistic’ in nature is problematic.

It is uncertain why the informal sector persists and grows, but there are many theories seeking to explain the phenomenon. From one perspective, the informal economy persists because many countries have failed to grow adequately enough to absorb the excess supply of labour created by urbanisation. Some countries have developed along capital-intensive growth paths which have also failed to provide job opportunities (sometimes referred to as jobless growth) and others have grown such that only 'high-skill' jobs have been created (Carr and Chen, 2001).

From another perspective, globalisation is seen as the fundamental cause behind the persistence of the informal economy. Carr and Chen (2001) argue that globalisation weakens the bargaining power of labour and competitiveness of micro-enterprises whilst strengthening the power of large firms that are able to move at will. Undermining the power of micro-enterprises and labour means that people become vulnerable due to a lack of job security and are forced to use the informal sector as a means of security. Schneider (2002) finds a significant relationship between the level of taxation and the level of informality, as well as the level of general government regulation requirements for formal businesses and informality. According to Schneider (2002) the increase in tax and social security burdens is one of the main reasons for the growth of the informal sector. As it becomes relatively more expensive to engage in the formal sector as a result of taxation, there is a decrease in incentive to work in formal businesses and an increased incentive to earn money informally where there are no taxation costs. The same effect occurs if government regulations in the formal economy become stricter. If it becomes more difficult to enter or operate within the formal economy, people choose to operate informally.

It is argued that all of the above factors contribute to the continuation of the informal economy, and the combinations of factors which drive the informal economy are relatively unique to each country. For example, in the case of South Africa, the main driving factor may be that the country has not had sufficient economic growth to sustain the level of urbanisation and increased number of job seekers that recent years have brought. However, at a global level, the exploitation of workers results in an increased level of vulnerability and joblessness which has forced many into informal activity in South Africa. Hence the factors that support the growth of the informal economy are both global and local. This dissertation interrogates the nature of the informal economy and its relationship with the formal economy by studying waste pickers in eThekweni Municipality at the bottom of global recycling value-chains. As mentioned above, the informal sector is growing, and hence is therefore an important issue

for governments, particularly in developing countries. The manner in which governments perceive, construct and respond to the informal sector will shape policies they produce which will impact on the achievement of the country's overall developmental goals. In South Africa, many economic development policies have been targeted at the wrong 'spaces' in the economy, yielding less than desirable results. This is investigated further in the next section

2.3.3 The informal economy in South Africa

Skinner et al. (2006) interrogate the concept of the informal sector in the South African context. A major issue identified by Skinner et al. (2006) is that in South Africa the informal economy is seen as a separate entity to the formal economy and therefore receives inadequate or insufficient support. Former president Thabo Mbeki in 2003 described South Africa as consisting of a 'first economy' and 'second economy'. He states that the second economy is

“characterised by underdevelopment, contributes little to GDP, contains a big percentage of our population, incorporates the poorest of our rural and urban poor, is structurally disconnected from both the first and the global economy and is incapable of self-generated growth and development” (Skinner et al., 2006:1).

However, Skinner et al. (2006) show that the second economy in South Africa is much larger than perceived, and is in fact inherently linked to the first economy because the latter relies on the former for inputs. As such, the idea that the second economy is structurally disconnected from the first economy and global economy is not true. This argument is reinforced by Chen (2007) who explains that the informal economy acts as a feeder into the formal economy and should be seen as the 'base' of the global economy, thereby being an important part of the overall modern economy, rather than a separate entity. This thesis supports Chen's (2007) argument that the informal economy is certainly not structurally disconnected from the first economy. However, it is problematic to perceive the informal economy as the 'base' of the global economy because this assumes hierarchical divisions. Despite the fact that informal activity tends to dominate the bottom-end of value-chains, this does not mean that all informal activity operates as a feeder to the formal sector, or that the informal economy should be perceived as the 'lesser' part of the overall structure of the economy, because perceiving it as such leads to a negative perception (which leads to a lack of targeted support).

While it is difficult to ascertain whether a second economy characterised by low incomes and large populations is *necessary* in a utopian version of global capitalism, it certainly has become part of the fundamental structure of the *modern* global economy. It therefore should not be perceived as something that will go away and hence does not need attention. As such, it is important for governments to embrace the informal economy and provide the necessary support structures to aid those who operate within it. This thesis aims to investigate the merit of the above argument, taking note of the complex role waste pickers (informal sector) play in economic value-chains.

Skinner et al. (2006) draw on the work of Nel and Rogerson (2007), amongst others, to show that policies implemented by government have been targeted at the formal sector and therefore have not benefited the people who need them, nor those developments that could benefit the South African economy the most. It is argued here that the South African government's idea that the small business sector is the 'panacea for South Africa's employment and growth problems' is the reason for this problem. According to Nel and Rogerson (2007) the *Ntsika Enterprise Promotion Agency*, whose purpose it is to assist SMMEs in growth and competitiveness in the global market, has little to no relevance for the informal sector, while the *Khula Enterprise Finance Facility*, which is a mechanism set up to essentially provide extra incentive for banks to approve loans to small businesses, does not help informal workers because banks often require formal documents and procedures which informal workers are unable to produce. Nel and Rogerson (2007:9) argue that DTI funding allocations for SMMEs have "inevitably favoured and been biased heavily towards support for established small and medium enterprises (often white owned) rather than emerging micro-enterprises and the informal economy". Although Ntsika and Khula eventually merged to form Seda, the example of the two failures serves as a testament to indirectly targeted policies. The failure to provide assistance to those that need it most may be a result of the lack of willingness to accept the second economy as a fundamental part of the South African economy and therefore a lack of implemented measures which directly target support for the informal economy.

2.4 Conclusion

This chapter critiques the idea that the economy should be viewed dualistically. The relationship between humans and the environment, and the argument that there exists a relational dialectical between the two, is explored and applied. This theory is then applied in

the case of the economy, where it is argued that the economy can be viewed as a relational dialectic (between formal and informal) because it shares many characteristics of interconnectedness. The chapter then explores this idea in more detail by discussing the informal economy as a concept. It shows that the informal economy is a phenomenon which is not temporary in the context of global economics, but rather a permanent and growing element of the overall economy. This section therefore argues that perceiving the economy as ‘dual’ in nature does not accurately describe the true nature of the economy. Perceiving the informal economy as permanent, beneficial, and frequently linked/entrenched with the formal sector is not only more accurate, but also allows policy makers to target the correct sectors of the economy in order to obtain the desired results. Since this dissertation studies waste pickers at the bottom of value-chains in order to test the merit of the above argument, it is necessary to define and explore waste pickers and their socio-economic context.

3 WASTE PICKERS IN THE CONTEXT OF RECYCLING VALUE CHAINS: OPTIONS FOR INTEGRATION AND SUPPORT

3.1 Introduction

Since the 1970s, the world has experienced a significant growth of interdependence between nations through the flows of goods, services and financial capital. This period has been termed ‘the age of globalisation’ as it is characterised by the integration of nation economies into a global economy through trade liberalisation and the opening up of markets. Globalisation has seen an increase in the scale and frequency of global value chains. According to Nadvi (2004:1) “a key feature of globalisation is the increasingly complex networks of global suppliers who produce in dispersed locations to the exacting demands of global lead firms”. As such, the process of producing a final good and selling it on the market has become lengthier, more complex, and involves multiple steps. Globalisation is one of the major reasons for the persistence and growth of the informal economy in modern society, and this dissertation argues that a fundamental aspect of globalisation is the emergence and existence of complex value chains.

The bottom-end of recycling value-chains is where waste pickers operate and is therefore important to understand their characteristics and socio-economic context. The purpose of this chapter is to illustrate how waste pickers can be integrated and supported successfully at the bottom-end of recycling value-chains in order to benefit both the waste pickers and society. The chapter first starts by exploring global value-chains and recycling value-chains in order to contextualize the socio-economic position of waste pickers. Secondly waste pickers are defined and some examples where integration between formal and informal spheres of recycling/waste management has succeeded are analysed. Finally, the chapter explores theories of poverty, and the poverty that waste pickers exist within, in order to justify state intervention and show the role that the municipalities play in assisting waste pickers.

3.2 Globalisation and value-chains

3.2.1 Global value-chain analysis and concepts

It is first important to explore the concept of global value-chains because waste pickers operate and play a role within these economic conditions. The prominence of value-chain analysis arose through the work of Michael Porter who identified the value-chain as a potential driver of industrial upgrading (Morrison et al., 2006). By focusing on the value-chain as the ‘unit of analysis’ it is possible to engage with interesting questions about power, governance and the dynamics of chains (Kaplinsky, 2001).

According to Kaplinsky (2000) value-chain analysis can be broken into three major categories: ‘rent’, ‘governance’, and ‘systemic efficiency’. The dynamics of each of these categories within the value-chain have impact on the development of value-chains as well as the spread of economic gains. The term ‘rent’ is generally referred to as the amount of money paid to a landlord by a temporary occupier of a portion of land owned by the former. However, the term ‘economic rent’ refers to the phenomenon which is a result of market inefficiency in which a good or service is overpriced (Kaplinsky, 2000). This market inefficiency can arise as a result of multiple factors but is often linked a lack of competition within the value-chain leading to the dominance of certain players. This results in winners and losers, and is considered bad for equality as well as economic development within chains. As such, the analysis of value-chains is important because of vast impact that value-chains have on economic development.

Value-chain ‘governance’ refers to the actors and/or players involved in the value-chain who dictate the responsibilities of firms within value-chains. Generally, firms with more power tend to govern aspects within the value-chains such as what and how their suppliers source or produce their products (Kaplinsky, 2000). The following shows examples of governance within value-chains.

Table 1: Value-chain governance structure

	Excersised by parties internal to the chain	Excersised by parties external to chain
Legislative governance	<ul style="list-style-type: none">• Setting standards for suppliers in relation to on-time deliveries, frequency of deliveries and quality	<ul style="list-style-type: none">• Environmental standards child• labour standards
Judicial governance	<ul style="list-style-type: none">• Monitoring the performance of suppliers in meeting those	<ul style="list-style-type: none">• Monitoring of labour standards by NGOs

	Excersised by parties internal to the chain	Excersised by parties external to chain
	standards	<ul style="list-style-type: none"> • Specialised firms monitoring conformance to ISO standards
Executive governance	<ul style="list-style-type: none"> • Supply chain management assisting suppliers to meet these standards • producer associations assisting members to meet these standards 	<ul style="list-style-type: none"> • Specialised service providers • Government industrial policy support

Source: Kaplinsky (2000)

Systemic efficiency refers to the efficiency of the entire 'system' rather than just the individual firm. It suggests that it is in the interests of firms to upgrade the efficiency of the entire value-chain within which they operate (which involved other firms) rather than just their own responsibilities because this decreases costs and increases competitiveness, driving growth and development (Kaplinsky, 2000).

These three concepts are linked because the economic rent, governance structure and overall efficiency of the value-chain impact on the growth, development, and international competitiveness of the value-chain. Moreover, they impact on job creation and socio-economic development within the countries of the firms involved. These concepts are important for this study because the study analyses the bottom of the recycling value-chains in eThekweni Municipality and investigates the relative efficiency of the interactions within this space focusing on the relationship between the formal and informal sectors. Using the above as a general background, the following sub-section analyses the impact of globalisation and value-chains on the bottom-end of value-chains. However, because the study focuses mainly on waste pickers, it investigates the impacts on the *workers* within these chains rather than the system itself.

3.2.2 Globalisation, value-chains and workers

The costs and benefits of globalisation on both people and the environment have been intensely debated. Neoliberal theory argues that under globalisation, the world has experienced a reduction in poverty and inequality for the first time in over 200 years (Wade, 2003). However, this position has received strong opposition from the argument that neoliberal theory and globalisation has raised global inequality and poverty over the last 40 years (Mills, 2009). Zang (2003) shows that global inequalities have increased as a result of unequal or haphazard development, and Nayyar (2003) shows that global disparities in income have increased as a result of globalisation. While the purpose of this dissertation is

not to debate the relationship between globalisation and poverty, it is a useful means for understanding the situation and context of waste pickers within the global economy.

Global value-chain networks mirror that of recycling value-chains in many ways, as these value-chains involve multiple actors and steps before becoming a final good. Because each waste value-chain differs depending on the type of recyclable material, not all waste value-chains are the same and some might not exhibit the same level of integration into the global economy as others. However, in all cases, waste pickers find themselves at the very bottom of these value-chains, in a 'price-taking' position. As such, impacts on the global market for recyclables have impacts on the waste pickers at the bottom. While economic value-chains have been present long before the emergence of globalisation, it can be argued that globalisation has led to an increase in complex value-chains and has changed the nature of work at the bottom-end of value-chains (Nadvi, 2009). Globalisation is therefore inherently linked with the existence of formal and informal work at the bottom of large scale value-chains. The link that waste pickers have with the global economy is evident, as they form an important part of complex value-chains by providing material input. They are therefore not inherently disconnected from the formal sector.

Nadvi (2009) finds that engagement in global markets through global value-chains can have significant employment and income gains. Export garment production produced 1.6 million new jobs in Bangladesh, while employment in Vietnam's garment industry rose by "132 per cent between 1990 and 1999" and Kenya's export horticulture generated roughly "100 000 jobs as a direct result of integration into global value-chains" (Nadvi, 2009:5-6). However, the majority of income benefits accrue to specific points within the value-chain, particularly in the middle-upper region – while the bottom end does not benefit as much. Despite the gains in employment and income, global value-chains incentivise the casualization of labour and a shift from permanent contracts to temporary or informal working conditions. The casualization of labour allows firms to respond appropriately to changes in the market which has negative consequences for workers. Work becomes "more unstable in nature, leaving workers vulnerable to sudden shifts in employment demand. It also reduces the level of social protection enjoyed by workers" (Nadvi, 2009:7).

It is therefore, more often than not, profitable to shift towards informal employment because without formal employment contracts, companies can terminate payments to their informal

workers whenever they choose. For example, Barrientos and Barrientos (2002:3) describe informal work in horticulture as characterised by:

“high levels of insecurity of employment, low and variable wage levels often based on piece rates; annual periods of out of season unemployment, and the risk of poverty arising from the low levels of remuneration and variability of earnings in out of season employment; lack of many or all of the employment benefits available to permanent workers; general health risks arising out of the use of pesticides and fungicides along with the intensity of physical labour; reproductive health issues arise, ranging from access to sanitary facilities in the fields, to the potentially harmful effects of chemicals on the reproductive cycle of women workers and the noted incidence of malformed children born to fruit workers; minimal cover for disability and old age beyond limited state benefits; absence of labour organisations and poor knowledge of rights and entitlements”.

Informal work, particularly at the bottom of complex value-chains, represents a position of extreme vulnerability and hardship. This thesis argues that, given the role waste pickers play in the recycling industry, there should be support from government for these workers. Effort should be made to support and nurture the existence of informal work in recycling value-chains because it has positive social-economic consequences for the city, and because it is necessary in order to reduce vulnerability of the workers.

Although Nadvi (2009) finds integration into global value-chains to have a positive impact on income and employment – this may not be the case overall, as the gains from globalisation are often unevenly distributed. Some countries or sectors might benefit at the expense of others – meaning that job creation in one country may lead to job losses in another (Zang and Zang, 2003). Many authors, such as Wade (2003) and Nayyar (2003), show that global disparities in income have increased as a result of globalisation. As such, this thesis argues that globalisation has not increased employment opportunities globally due to the uneven and unequal distribution of said opportunities. However, as Nadvi (2009) explains, it contributes to the continuation of the informal sector and has had an impact on the nature of work at the bottom end of global value-chains.

Due to the profitable nature of shifting towards informal employment relations in a globalized economy, it can be argued that the informal sector will continue to grow as it links in with value-chains. Barrientos and Barrientos (2002) show that while informal work at the

bottom-end of global value-chains is characterised by high levels of vulnerability, it is an important source of employment and income creation. Because the informal sector is clearly growing and is a fundamental aspect of a globalised economy, it is important to embrace the informal sector and support those who operate within these spaces in order to reduce poverty and vulnerability and create better living/work environments. The following section defines waste pickers and explores examples where waste pickers were successfully supported in order to benefit the city and the waste pickers. Figure 1 is a generic value-chain for recyclables in eThekweni Municipality. It shows the position of waste pickers within the chain as the ‘primary collector’ at the very bottom.

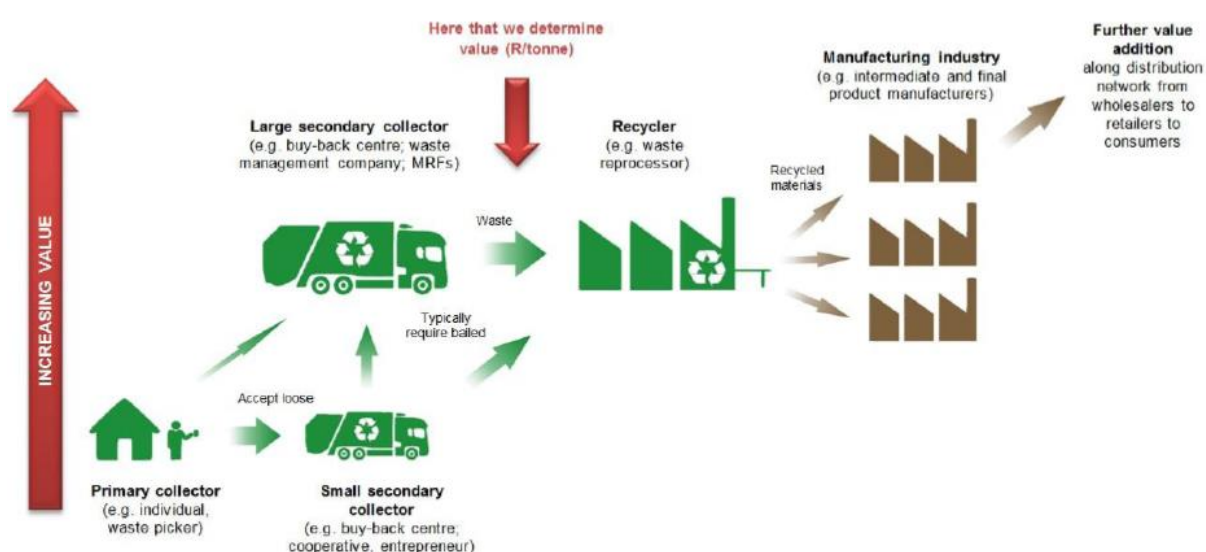


Figure 1: Typical recycling value-chain in eThekweni.

Source: Urban-Econ (2014)

3.3 Waste pickers

Waste pickers form an important link in the value-chain of recycling in many cities. They perform primary collection activity and sell gathered material to middle-men who then sell the material to recycling companies and manufacturers. In some cases, “up to 2% of a developing country’s population consists of waste pickers” (Medina, 2005:2). Informal collectors typically achieve recycle rates of around 20-50% (Wilson, 2009), however in Cairo the informal waste collection community known as the *zabaleen* are responsible for an estimated 80% recycle rate – one of the highest in the world.

It is first important to distinguish between the various different forms of waste picking. According to Wilson et al. (2006) there are landfill pickers and street pickers. Landfill pickers make a living by searching through municipal landfills and recovering recyclables that have value and can be sold. This type of waste picking is banned in many countries due to the serious health issues associated with the activity. However, where it is not banned, landfills are a major source of recyclables because municipal waste management systems (particularly in developing countries) often prioritise waste removal over recycling and therefore dispose of large amounts of valuable material. Street waste pickers move around cities and urban areas collecting recyclables in whatever way possible. They often have relationships with home or shop owners and receive waste on a regular basis. They also look through waste bags placed outside homes for municipal collections, municipal bins, and other waste sites to find materials of value. Waste pickers usually travel by foot or by donkey cart. Access to a cart for transportation greatly assists them because it allows for the transportation of greater amounts of materials, however many pickers simply carry items on their head or carry small loads frequently.

Due to the nature of this work (scavenging through waste) waste pickers hold the lowest social status in society and are associated with “dirt, disease, squalor” and perceived as a “nuisance, a symbol of backwardness, and even as criminals” (Medina, 2000:8). In the 1980’s and 1990’s Colombian parliamentary groups murdered many waste pickers in the name of ‘social cleansing’. For many years waste pickers were held in extremely low regard by citizens of Bogota. According to Medina (2000) this hatred was powerfully illustrated in 1992 when 40 corpses of waste pickers were found at a local university. Waste pickers were perceived as ‘disposable’ due their extremely low status. As such, their bodies were used for organ transplants and medical study during the social cleansing. In Bogota, the perception of waste pickers has changed significantly over time, however this example is used to illustrate the low status that waste pickers have globally.

3.3.1 Role and impact of waste pickers for society

It is a misperception that waste pickers are criminals or nuisances. Gunsilius (2012) argues that waste pickers perform a valuable role in society and support environmental sustainability. Waste pickers reduce the amount of waste in landfills; reduce the city’s collection costs; reduce demand for raw materials and therefore reduce global CO₂ emissions; provide economic input to value-chains; and earn an income to support families.

These benefits fall broadly within three main categories: economic, social and environmental. Waste pickers contribute to the reduction of greenhouse gases by reducing demand for virgin materials, they contribute towards the GDP of the city within which they operate because they provide inputs for the manufacturing industry and the various recycling value-chains, and they perform a vital social function of decreasing waste to landfill (Gunsilius, 2012). Unfortunately, a lack in understanding of the role waste pickers are playing leads to their unfavourable position in society. In linking with Chapter 2, this thesis argues that the disconnect between humans and nature has led to a poor understanding of the processes which cities undergo in order to return materials to the ground (or recycle them). As such, the role of the informal sector in complex processes of recycling is under-valued, leading to the idea that the economy is ‘dual’ in nature. This assumption is incorrect, as the informal sector is often linked with the formal, playing important roles in the economy. The next section explores examples where the informal waste collectors have particularly high impact in their respective cities, and where they have been successfully integrated into the formal waste management system.

3.3.1.1 Cairo and the zabaleen

Neamatalla (1998) and Kuppinger (2013) explore the role of the *zabaleen* in Cairo - a name which otherwise means ‘garbage collector’. The *zabaleen* are a group of people/community which operates in certain sections of Cairo as an informal waste collection service provider. They use donkey-carts to travel around the city and pick up waste from residences. The waste is brought back to their homes and from there it is sorted, value-added and sold. Importantly, the *zabaleen* keep and breed pigs and the organic waste they collect is effectively recycled because it is fed to the pigs. The *zabaleen* do not service the entirety of Cairo, but they service particular streets and areas where they have relationships with shop owners, house owners etc. They collect the waste free of charge because they make money from finding recyclables within the waste. However, they live in extremely unhealthy environments, are exposed to a multitude of diseases on a daily basis, and earn scant recognition for their contributions towards the environment and the city.

In 2002, an effort was made to ‘modernise’ Cairo’s waste management system resulting in privatisation of waste management services. This venture proved to be a failure, because the private contractor could not service many areas of Cairo due to the small, winding streets which the *zabaleen* typically serviced. Additionally, there was no incentive to recycle the

collected waste because the contract was for waste collection services. As such, the formal system did not achieve the same recycling rates as the *zabaleen* were able to, and left many areas un-serviced due to their inaccessibility.

In 2009 the *zabaleen* pigs were blamed for the swine flu epidemic being experienced in the area resulting in the widespread culling of all *zabaleen* pigs. These pigs were a specific breed unique to the *zabaleen* and therefore easily identifiable. This was a major blow to the *zabaleen*'s ability to generate income as these pigs were eventually sold to butcheries once fattened sufficiently. For the city, culling the pigs had the adverse effect of increasing the amount of organic waste in the city and the costs associated with removing it (Kuppinger, 2013).

3.3.1.2 The city of Pune' and the SWaCH cooperative

The city of Pune', the ninth largest city in India, also benefited significantly from the efforts and role of waste pickers. In 2005, Pune' Municipality Corporation (PMC) only serviced 7% of households with door-to-door collection (Chikarmane, 2012). The main service provided by the municipality was the collection of waste from public bins and not from the households themselves. The recyclables in the public bins created incentive for waste collectors to retrieve recyclables by searching through these hazardous bins littered with decaying organic waste, glass shards, and other harmful substances. Pune's waste management system was ineffective and undesirable from the perspective of residents as well as waste pickers.

Because of the nature of the work waste pickers in Pune' undertook, they were prescribed very low positions in society and were often subject to abuse. In addition, women waste pickers suffered sexual harassment (particularly from policemen). In response to the harsh conditions experienced, women waste pickers formed "Kagad Kach Patra Kashtakari Panchayat (KKPKP), a union of female waste pickers which aimed to fight against social, economic, cultural and political exclusion. The main motivation of the group was to achieve greater social justice" (Tangri, 2012:3). In 2007 KKPKP formed the cooperative Solid Waste Collection and Handling (SWaCH). The aim of SWaCH was to guarantee members access to recyclable material, to improve their working conditions and earnings, and to transform the status of the occupation from scavenging to service provision" (Tangri, 2012). By 2014, SWaCH was servicing more than 400 000 households in Pune' (swachcoop.com, 21/08/2014). Essentially, SWaCH provides a waste collection service for households in

response to the lack of service from the municipality. Members of the cooperative collect waste from households, bring the collected waste back to sheds and shared facilities, and then sort the materials. Recyclables are sold and waste is disposed into the municipal bins which are then collected by the municipality. KKPKP and SWaCH play an important role in not only the recycling rate, but the overall waste management system in Pune'. Tangri (2012) argues that the city saves as much as US \$2.8 million annually as a result of passing on collection services to SWaCH.

3.3.1.3 Belo Horizonte

Similarly, Belo Horizonte saw the formation of workers unions for waste pickers as a result of poor conditions associated with this occupation. Efforts in Belo Horizonte focused around rights – specifically ownership of waste, which is fundamental to the operation of waste pickers. In 1990, the waste pickers association ASMARE was founded which helped waste pickers gain rights to the recyclables in Belo Horizonte (Gerdes and Gunsilius, 2010). Other cooperatives formed during this period, and it is argued that the formation of cooperatives was vital to the gains achieved by waste pickers during these periods (Dias, 2011). In response to the formation of cooperatives and rising interest in waste picker activities, the Municipal Waste and Citizenship Forum of Belo Horizonte (FNCL BH) formed as a segment of the National Waste and Citizenship Forum (FNCL) which was launched with the objectives of “eradication of child and adolescent labour at open dumps; eradication of open dumps; recovery of degraded areas and implementation of sanitary landfills. The FNLC also undertook promotion of partnerships between local governments and catadores’ in recycling programmes” (Dias, 2011:2). FNCL BH served as a link between waste pickers (catadores’) and the municipality, providing a platform upon which waste picker issues could be communicated to the municipality.

The municipality in Belo Horizonte recovers its recyclables through three main mechanisms: the drop-off system, curb-side separated collection of recyclables in residential areas, and door-to-door collection from non-residential facilities. The drop-off system and curb side system involves different coloured municipal bins throughout the city which are meant for different types of recyclable material. The municipality collects these bins and transports them to waste picker cooperative warehouses, after which the materials are sorted and sold (Dias, 2011). Door-to door collection is performed by waste pickers, who walk by foot or

make use of carts to collect recyclables from households and transport them back to their respective warehouses.

In Belo Horizonte, waste pickers are involved in the collection of recyclables, the processing of the material and the sale of the material to manufacturers or exporters. As such, they play a major role in the city's efforts to reduce waste to landfill and to recycle. In Belo Horizonte, inclusion of recycling in the waste management system lowers the city's carbon-footprint, increases efficiency through lower costs and greater recovery, and importantly creates jobs. According to Dias (2011:8) "the city successfully regulated informal recycling and also addressed the social issues of the urban poor. It gave many catadores the opportunity to move from the streets into warehouses".

3.3.1.4 Delhi

Hayami et al. (2004) investigates waste pickers and waste collectors in Delhi with respect to the role they play in cost-savings for the local municipality as well as their positive impact on the environment. In this study, waste 'pickers' and waste 'collectors' are differentiated from one another in that the former scavenges for waste, whereas the latter collects it from households and other establishments. However, in eThekweni Municipality, as in many other cities, these two spheres of waste collection become mixed and as a result the term waste picker is applied to any individual who performs either or both of those roles. Hayami et al. (2004), in their study on Delhi, attempt to quantify the total savings that accrue to the local municipality as a result of the activities of waste pickers and collectors. Findings suggest that as much as Rs¹752 million is saved annually as a result of the collection services performed by waste pickers which would otherwise need to be performed by the municipality². This figure was calculated by the cost to municipality per tonne of waste collected and disposed of, measured against the tonnes collected by waste pickers. While the municipality might not have otherwise collected every piece of waste collected by waste pickers in the year, it is still indicative of the potential savings that are accrued as a result of waste picking activities. Furthermore, waste collected by pickers is recycled rather than disposed of, which has positive implications for society and the environment. The following section builds on the previous two by contextualizing the livelihoods of waste pickers in the context of poverty, and providing an argument that they should be supported by municipalities.

¹ Rupees

² This equates to roughly 150 million rand

3.4 The socio-economic context of waste pickers: urban poverty

The elimination of poverty is a major global concern and is particularly important for developing countries. One of the United Nations Millennium Development Goals was to halve poverty by the year 2015 (Laderchi et al., 2003). While the need for eliminating poverty is widely accepted, a mutual understanding of *what* poverty is or *how* poverty should be defined is often absent. As afore-mentioned, waste pickers are a group of people operating in an extremely harsh socio-economic environment. As such, poverty is a major factor and waste picking is used as a means for avoiding chronic poverty. The previous sections described the relationship between development and informal work at the bottom end of global value-chains, after which waste pickers were described within this context. It is argued that work at the bottom end of recycling value-chains has the potential to be nurtured into work which is more ‘decent’ and has benefits for society. This can be done by supporting and aiding waste pickers.

Broadly speaking, approaches to defining poverty can be split into two separate groups: economic and anthropological (Masika, 1997). Sen’s approach is an anthropological, non-monetary approach to defining poverty, while the World Bank uses monetary measures to assess poverty. Each approach has distinct advantages and disadvantages. The focus of this section is not to interrogate these differences, but to describe their positives and negatives and draw on each approach in order to place waste pickers within the context of poverty, as this is a central issue in their lives.

3.4.1 Measures of poverty

The World Bank’s monetary measure of poverty is the most commonly used measure. The approach is based on specifying ‘poverty lines’ which are essentially thresholds of daily income which are used to determine whether or not a person is in poverty. Frequently used measures include the one dollar and two dollar per day measure, but many countries adopt their own poverty lines. Measuring poverty in this way is useful because it provides a standardized measure and incorporates the concept of ‘utility maximising behaviour’ which asserts that individuals will spend their money in such a way that personal utility is maximised (Laderchi et al., 2003). As such, delineating the importance of certain goods over

others when determining poverty is somewhat alleviated because the expenditure of consumers reflects their values. A certain level of income is therefore necessary in determining whether individuals are able to afford some combination of basic needs. Laderchi et al. (2003) points out a major problem with the monetary approach in that it focuses on the achievements of the individual and fails to recognise the sharing of resources within households. An individual's income might be worth a lot less or more than the goods it can purchase when information pertaining to the distribution of that income amongst household members is not accounted for. Despite this, this thesis argues that the monetary measure is still a reliable measure of poverty due to its applicability across different contexts and the fact that it provides quantifiable measures of poverty which are easy to implement.

Sen states that utility maximisation is not an optimal means for measuring poverty and suggests an alternative, the "capabilities approach, where 'basic capabilities' are the ability to satisfy certain crucially important functionings up to certain minimally adequate levels" (Laderchi et al., 2003:14). The capabilities approach moves away from monetary approaches toward a non-monetary means for assessing poverty. Rather than focusing on one's income and therefore potential utility, the capabilities approach focuses on the freedom of individuals to live valued lives. As such, it accounts for the subjective context of each individual in determining whether or not that individual is classified to be in poverty or not, taking into account a multitude of factors appropriate to each situation. Such an approach, while probably more accurate, is time consuming and difficult to administer. This dissertation will use the monetary measure of poverty to assess the levels of poverty experienced by waste pickers in eThekweni Municipality because there was not enough time during the study to employ a capabilities approach. However, there is strong quantitative data which can be utilised to this end. Drawing on this, the researcher can assess the role that waste picking plays in alleviating poverty, and the further role it can play in doing same with support from external factors.

3.4.2 Rural versus urban poverty

The nature of poverty in South Africa is described by Aliber (2003) as being dependant on race, age and geographical location. Firstly, people living in rural areas are more vulnerable and more likely to be poor because, unlike other developing countries, rates of subsistence agriculture in South Africa are low. Usually poor rural households resort to farming in order to make ends meet, but in South Africa the rural poor are land-deprived and the little land that

they do have is of poor quality (Aliber, 2003). As such, when conditions are tough, rural South Africans quickly fall into chronic poverty. Secondly, female-headed households are more likely to be chronically poor because the men in the family migrate to urban areas in search of work and the women are left in the rural areas (Aliber, 2003).

It is this rapid urbanisation in the search of employment that presents a huge challenge to cities and governance. Often, there are simply not enough jobs to absorb the rapid migration into cities and this leads to a large number of ‘urban poor’. According to Mitlin and Satterthwaite (2013) urban areas in the global south are home to two fifths of the world’s total population and three quarters of the world’s urban population. Furthermore, roughly one third of these people live in slums, vulnerable to disease, violence, crime etc. (Beall and Fox, 2006). This shows the significance of urbanisation in the developing world and the extent to which it has changed the dynamics of society. Previously, most of the world’s population were concentrated in developed countries.

‘Urban poverty’ is the result of the inability to sustainably employ the population living in a city. There is much debate regarding the definition of urban poverty. Beall and Fox (2006:7) note that a key difference between urban and rural poverty is the primary reliance on the “monetised economy in urban environments”. As such, a disruption in the income flow of the primary bread winner will have a huge impact on a family’s ability to fulfil basic needs. In rural areas, there are other options to fall back on should money be unavailable. In urban centres one cannot use land to fulfil basic needs. However, urban poverty is equally difficult to define as is poverty itself, and therefore should not be perceived dualistically from rural poverty. According to Wratten (1995:20) “a strong case can be made for treating the urban–rural divide as a continuum rather than as a rigid dichotomy”. Firstly, urban areas differ vastly from one another and cannot be viewed as a homogenous entity. Also, there are no specific criteria to discern whether a settlement is rural or urban. While the nature of urban poverty differs from rural poverty in some regards, the structural reasons behind their existence are often the same, such as “social constructed constraints to opportunities, and macroeconomic policies/terms of trade” (Masika, 1997:3). As such, conceptualizing urban poverty in relation to rural poverty is difficult. Despite it being problematic to perceive rural and urban poverty dualistically, there are elements of poverty which lend themselves to urban situations and it is therefore useful to distinguish the elements of urban poverty.

3.4.3 Waste picking for survival

Waste picking is used as a means for alleviating urban poverty. Because waste picking happens within cities, it is linked with urban poverty rather than rural poverty. This is the primary reason for making the distinction between the two for the purpose of this dissertation. According to Beall and Fox (2006:7) key characteristics of urban poverty are similar to those experienced at the bottom end of value-chains:

“Reliance on monetary economy; reliance on the informal sector; inadequate housing; insecurity of tenure; lack of access to basic services; vulnerability to disease; environmental hazards; social fragmentation; exposure to violence and crime; increasing experience of warfare and terrorism”.

The urban poor are far more likely to encounter conflict with city authorities. It is unfortunate that the most vulnerable people are often the least protected by the city. Indeed,

“many poor people experience the state in negative ways – as an oppressive bureaucracy which attempts to regulate their activities without understanding their needs or as corrupt policemen, demanding money in order to turn a blind eye to illicit income-generating activities such as brewing or prostitution– rather than as servants of the public” (Wratten, 1995:24).

The urban poor are also hit the hardest by crime and violence. While crime and inequality is often linked, particularly when rich people live in close proximity to poor people, it is still ultimately the poor people who are the most vulnerable to this crime and violence because they lack safety measures and protection (Wratten, 1995). In the previous section, members of SWaCH described how they were often subject to harassment from authorities such as policemen. This shows that waste pickers are essentially victims of urban poverty.

According to Beall and Fox (2006) the urban poor are often involved in the informal economy. A previous section took note of the various different meanings the ‘informal economy’ can take, however for the urban poor engagement with the informal economy is a means for survival. Waste picking is an example of an activity undertaken by urban poor to mitigate poverty and provide for basic needs. Vulnerability to disease is also significant for the urban poor. Living in densely populated informal settlements with poor access to services increases the overall number of sick people and the passing-on of disease. Furthermore, the environmental conditions in which informal settlements are situated are often bad. This puts inhabitants at risk of hazardous chemicals and other externalities such as landslides or floods.

This increases the loadings on the urban poor, who struggle to address the multiple challenges urban poverty brings.

Hayami et al. (2004) show that the urban poor, in this case waste pickers and waste collectors, have the potential to make important contributions to society, which in turn can lead to improvements in their quality of life, if these contributions are valued. As such, this study agrees with Hayami et al. (2004) that providing support infrastructure for waste pickers can further strengthen the positive role they have on the economy, society and environment, while simultaneously providing assistance in combating urban poverty.

3.5 Highlighting the importance of good governance

The importance of supporting waste pickers in a bid to reduce urban poverty and benefit the city has been illuminated thus far. Kingdon and Knight (2001) show that unemployed people in South Africa are significantly more dissatisfied with their lives than people who are employed in the informal sector or work in the informal sector, showing that unemployment in South Africa is not a choice. Moreover, one of the major reasons for the large unemployment rate in South Africa is due to the difficulty associated with working in the informal sector in South Africa, and the barriers to entry. Good governance plays a large role in facilitating or providing the conditions for informal work to flourish, especially when it is linked with the formal sector. This sub-section analyses examples where good governance has allowed for the strategic integration between formal and informal spheres, resulting in decreased unemployment.

It is important to identify the key reasons for successful integration in the previously identified case studies, as this assists government in understanding how to succeed at a local level. According to Esty (2006:1497) “governance means different things in different contexts, but the concept generally relates to group decision making to address shared problems”. Good governance is therefore an important issue for governments as decision making at the top-end will have an impact on the ground. The establishment of cooperatives and the development of the proposed role of these cooperatives would not have been the same or even possible without active intervention from municipal and formal authorities. It is important to uncover the supporting structures provided by government in order to reveal the reasons behind the success of the various initiatives.

In Belo Horizonte, it was initially the church which brought together waste pickers and helped form organisations. The efforts of the church resulted in the formation of the FNCL BH, other forums, and cooperatives of waste pickers such as ASMARE (one of the main cooperatives which worked with the local municipality to assist in its recycling schemes). After its formation, ASMARE eventually became the preferred partner of the municipality in terms of management of recyclables collected through the various mechanisms discussed previously, and this was done through a formal agreement between the municipality and ASMARE. The city provided infrastructure such as: containers and recycling warehouses where the catadores could sort materials; subsidies for administrative expenses; and vehicles with which to collect recyclables. ASMARE had the responsibility of managing the warehouses; sorting, valuing and sale of recyclables; and providing information to the city on the production of recyclables.

The municipality also implemented bylaws to aid the efforts of waste pickers. Significantly, in 2001 waste pickers became formally recognized in Brazil as ‘catador de material reciclável’ (collector of recyclables) (Dias, 2011) – giving them a formal name and a ‘real’ occupation within society. This can be perceived as a significant action from the municipality in transforming the image of waste pickers within Belo Horizonte. The municipality also provided support to waste pickers using horse-carts (carreiros), by providing free vaccinations for horses and by supplying cards to the collectors (Dias, 2011). In some cases, horse-carts were being used to transport construction and demolition waste. Formalizing this process has significantly reduced the amount of illegal dumping. Dias (2011) estimates that 134 illegal construction waste dumping sites were present in 1994. Efforts to incentivise and legalise the recycling of demolition and construction waste has had a positive impact on the environment and helped support livelihoods.

The Belo Horizonte municipality implemented unique strategies to create a system in which the formal and informal recycling systems of the city could complement each other, rather than work against or alongside one another. The municipality recognised the potential to utilise the newly formed cooperatives by integrating them into the formal recycling system, and in doing so, reduced costs, and addressed issues of urban poverty.

Pune’ Municipality (PMC) played an integral role in assisting the development of the waste picker cooperative SWaCH. In response to pressure from KKPKP, the municipality started paying health insurance premiums to members of the organisation. In 2003, a calculated

3.5million (US\$) in health insurance premiums was to be paid annually to KKPKP in recognition of its environmental and financial contribution to the city of Pune' (Tangri, 2012). PMC also implemented bylaws giving waste priority to women cooperatives which was an important step in changing rights to recyclables in the city. A fee for collection of recyclables was also authorized providing an extra income for cooperatives other than the money obtained from sale of recyclables (Chikarmane, 2012). Residents were required by law to pay for the collection services of the SWaCH cooperative – if they did not pay, they did not receive a service.

Significantly, PMC played an important role in legitimising waste picking as an occupation in Pune' and changing the activity from 'scavenging' to 'service provision'. The provision of identity cards in 1995 to signify one's occupation as a waste picker provided security, recognition and purpose (Tangri, 2012). This was a huge step in dignifying the work of waste pickers, instilling a sense of pride and purpose. Waste pickers are particularly pleased to receive the positive feedback and respect that they deserve from residents and every-day citizens who are genuinely grateful for the job that SWaCH members do (Tangri, 2012).

The Pune' municipality ultimately benefited from supporting SWaCH and KKPKP because the money lost from paying health insurance premiums and providing infrastructure would otherwise have been spent on waste collection services. In addition, many livelihoods benefitted from the process both economically and socially.

In Cairo, the municipality kept a generally negative disposition towards the *zabaleen* for long periods of time. As mentioned above, the municipality ordered the culling of all *zabaleen* pigs in 2009. While the official reason for their culling was because they were blamed for the swine flu epidemic, it is widely argued that the real reason was related to city-wide hatred for *zabaleen* because of their lifestyles, the manner in which they lived and the fact that they were a Christian community within a predominantly Muslim city. The municipality's further efforts to suppress the *zabaleen* are typified by attempts to modernise the waste management system in 2002. The attitude of the people of Cairo and the municipality exemplify the negative connotations associated with waste pickers. Yet it is clear that they provide a valuable service to cities, a service which in some cases cannot be done as effectively by formal companies. Despite the efforts to suppress the *zabaleen* community, they are still able to operate because of personal relationships with certain households or streets (Kuppinger, 2013).

It should be noted that the purpose of this section is not to drive an argument for cooperatives, but to highlight specific cases in which the cities were able to find a solution which integrates the informal system of waste pickers into the formal system so that both parties benefit. These examples are not necessarily applicable to eThekweni Municipality and this will be further interrogated in proceeding chapters. This dissertation argues in line with Wilson et al. (2006) that it is ironic for a municipality to attempt to progress towards recycling and away from waste disposal while shutting down the informal sector (which is already an efficient system of recycling).

3.6 Conclusion

This chapter argues that there is a link between the bottom-end of value-chains, urban poverty, and the informal sector. Waste picking is an activity which represents the coming together of these factors and it is therefore important to understand how waste pickers can be assisted because they represent a portion of the population which operates in extremely harsh socio-economic conditions, and supporting waste pickers is a means for committing to global goals of poverty reduction as well as employment creation. Where the activity of waste pickers becomes unique is in its positive contribution towards environmental sustainability because recycling has a multitude of positive impacts such as a reduction in the amount of waste that is dumped in landfills and an indirect decrease in demand for fossil fuels. The chapter argues that, given the clear positive benefits associated with waste picking as an activity, and the fact that waste pickers can and have been incorporated successfully into formal recycling systems in other cities, it is in the interest of eThekweni Municipality to investigate the potential to do the same. The next chapter, Chapter 4, provides the background to the study area (eThekweni Municipality) in order to provide the context for the study.

4 BACKGROUND TO THE STUDY AREA: ETHEKWINI MUNICIPALITY

4.1 Introduction

The purpose of this chapter is to provide a description and analysis of the location of the study, eThekweni Municipality (otherwise known as Durban). Providing a background description of the study area will create the necessary context from which the data can be analysed. The chapter begins by analysing eThekweni Municipality within the context of South Africa and KwaZulu-Natal, and then looks specifically at the demographics and socio-economic characteristics of the area. Unique characteristics of the area, such as economic and spatial inequality as a result of the apartheid regime are also analysed in order to provide a more in-depth and nuanced understanding, and the characteristics of each of the surveyed areas are also described in order to showcase the differences and similarities between them. Finally, the section provides a description of the waste management and recycling systems in eThekweni Municipality in order to provide a background to recycling and waste management in the city.

4.2 Demographic analysis

eThekweni Municipality is located on the east coast of South Africa in the province of KwaZulu-Natal. KwaZulu-Natal is one of South Africa's nine provinces, and eThekweni Municipality is one of the eleven district municipalities in KwaZulu-Natal. Covering approximately 2 297km² and with a population of 3 442 361, eThekweni Municipality is the economic hub of the KwaZulu-Natal (KZN) province.

eThekweni Municipality (Durban) is the largest port and city on the east coast of Africa. It is therefore one of South Africa's most important urban economic nodes. The eThekweni Municipality boasts a world-class manufacturing sector and forms a vital link between the regional economies of Pietermaritzburg and Richards Bay (eThekweni Spatial Development Framework, 2014/15). It also has a well-established administrative centre, and provides 10% of all employment opportunities in South Africa. The following figure is a breakdown of eThekweni Municipality's economy in terms of GVA contribution.

Table 2: Percentage contribution of sector to eThekwini Municipality GVA

Community Services	Agriculture	Mining	Manufacturing	Electricity	Construction	Trade	Transport	Finance
17%	1%	0%	22%	2%	3%	16%	16%	23%

Source: Quantec (2016)

The finance sector is the biggest portion of the economy, closely followed by manufacturing and community services. In the context of a developing country, eThekwini Municipality is a relatively well-developed city. According to census data (2011) the total population in KwaZulu-Natal is 10 267 301 and the total population in eThekwini Municipality is 3 442 361, meaning that 34% of KwaZulu-Natal's total population resides in eThekwini Municipality. eThekwini Municipality is therefore not only the main economic node, but it is also the main population node in the province, highlighting its significance within the local context.

From a demographic perspective, the 2011 Census shows that 65% of the labour force is employed, 28% is unemployed and 7% are discouraged people no longer seeking employment. The unemployment rate is lower than that of the broader KZN area, but is still high. In terms of age distribution, 37% of the population is between the ages 0-29, 38% is between the ages 30-49 and 15% are above 50. The most common home first language is isiZulu (63%) and the second most common is English (26.7%). With Afrikaans accounting for only 1.7% of first home languages, it is clear that the eThekwini municipal area's main languages are isiZulu and English (Posel, 2015).

When comparing incomes, it becomes clear that eThekwini Municipality is a relatively wealthier area than other municipalities in the province, but it is also more unequal. A larger portion of the households in eThekwini Municipality earn more than R76 800 per month when compared to KZN. This shows the difference in relative wealth between eThekwini Municipality and broader KZN.

Table 3: Household incomes in Kwazulu-Natal Province and eThekweni Municipality

Area	R0 -9 600	R9 601 - 76 800	R76 801 - 614 400	R614 401 +
KwaZulu-Natal	29%	51%	18%	2%
eThekweni Municipality	27%	45%	25%	3%

Source: Census (2011)

However, despite being relatively developed within the context of developing countries, and within the context of the broader KZN province, eThekweni Municipality still faces a number of challenges. According to the eThekweni Spatial Development Framework (2014/15:76) the municipality faces four major concerns: “persistently high unemployment; 41.8% of population subject to conditions associated with poverty; need for greater diversity in the economy; declining resource base and the impacts of climate change”.

4.3 Inequality in eThekweni Municipality

eThekweni Municipality is characterised by spatially fragmented development meaning that some areas are significantly more developed and wealthy than others, and some receive less service provision than others. eThekweni Municipality is therefore characterised by pockets of development as well as spaces of underdevelopment. The high levels of unemployment and poverty coupled with inequality lead to high levels of crime and violence. According to Vermeulen (2004) the residential geography of eThekweni Municipality reflects high levels of spatial inequality. Areas of wealth are separated geographically from areas of poverty, creating clear class barriers between areas. Former white areas (during the apartheid era) have now become the upper class areas in which wealthy individuals live, and these areas are still dominated mostly by white people, despite the fact that the segregation acts are no longer in place. The following figure from Vermeulen (2004) shows how the racial distribution within wealthy areas of eThekweni Municipality (Durban) has changed since the ending of apartheid.

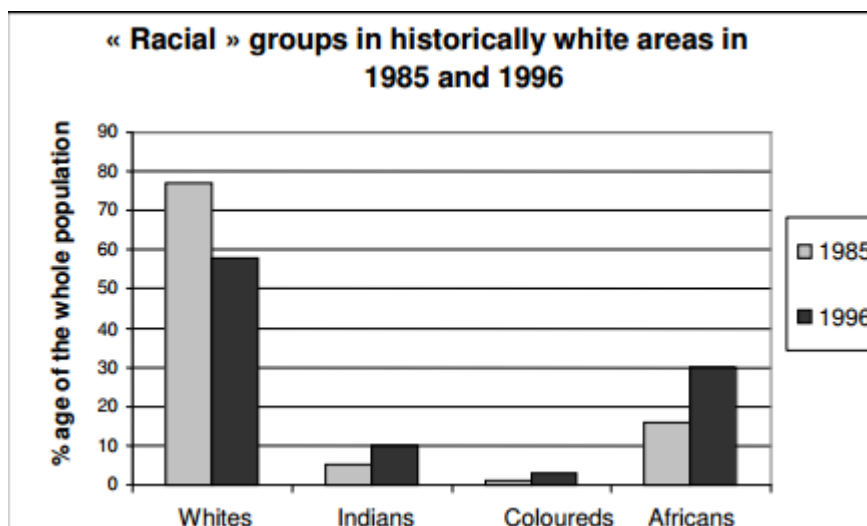


Figure 2: Change in racial representation in former white areas in eThekweni Municipality.

Source: Vermeulen (2004)

Sutherland and Lewis (2012) show that the spatial inequalities and differences in eThekweni Municipality have led to a unique system of service provision. Water provision is provided using different technologies based on the residential location in relation to the Urban Development Line. For example, residents within the main urban centres and development nodes of eThekweni Municipality receive full pressure water services and bulk wastewater treatment, whereas those on the rural periphery and those living in informal settlements receive water through communal taps, ground tanks and other means. According to Sutherland and Lewis (2012:2) this differentiated approach to service delivery is as a result of

“under-development of townships and ex-homeland areas during apartheid; the steep topography of the periphery; the lack of planning for bulk infrastructure; the high cost of providing services to the periphery; the limitation of water-borne sewerage to the urban edge; significant environmental constraints, such as a shortage of water in the city and the steep terrain; and fiscal constraints”.

Service provision in terms of waste removal and recycling is similarly unequal. Schiermeyer (2011) finds that the southern and outer areas of eThekweni Municipality receive scant recycling services due to their isolated location and the cost associated with servicing them. As such, large quantities of recyclable materials from these areas end up in the city's landfills.

4.4 Recycling and waste management in eThekweni Municipality

Durban Cleansing and Solid Waste (DSW) is the municipal department in eThekweni which is responsible for waste management, waste removal services and recycling services. The main method of waste removal is the 'black bag' which households deposit most of their waste into. These bags are collected by DSW and transferred to landfills. The black bag system covers most of eThekweni's municipal area. There are also public bins located throughout the municipality which DSW collects. Recycling services, while not absent, are not as developed as waste removal services. eThekweni Municipality should not be perceived as a city with poor waste management services, but rather as a city with efficient waste management services which rival those of developed countries. However, recycling services are not as advanced as waste management and need to develop extensively.

4.4.1 Curbside collection

The Orange Bag scheme is part of a two-bag system, which is a separation at source mechanism for residential and commercial areas in eThekweni. Currently, only paper, cardboard and plastics are collected from the curbside. DSW has however stated that a new clear bag for metal and glass is being piloted for roll-out across the city.

Orange bags are collected by independent companies who have been contracted by DSW to undertake collection services. However, these companies are not paid by DSW or funded in any way. Rather, the buyback centres across eThekweni Municipality pay them for the collected recyclables. Buyback centres sell the orange bags to Mpact (a subsidiary of Mondi) at a rate of R700 per tonne. Mpact then sorts the waste, pays for the disposal of the contaminated waste (which usually accounts for 30% of total materials), processes and bales the recyclable material, and transports it to the Mondi mill. The mill pays Mpact R1 400 per tonne, which covers Mpact's overheads. This process is the key recycling value-chain for paper and cardboard and also the primary curbside household recycling service which the eThekweni Municipality is involved with. Aside from the orange bag, there is a green bag which residents can deposit 'green waste' into.

It is clear that options for recycling are available to households through curbside collection, however it is not as extensive as it could be, especially when compared with the most

efficient formal recycling systems in the world. A major issue is that there are no penalties associated with non-compliance. Recycling is purely optional in eThekweni Municipality, which means that residents have little incentive, other than their own personal environmental concerns, to recycle their household waste. For example, in Adelaide, the government incentivises recycling through a ‘pay-per-tonne’ mechanism, in which residents pay a service fee based on the amount of waste they deposit. This incentivises households to recycle material so as to reduce costs (Waste Management Action Plan, 2011). In addition, the source separation mechanism in Adelaide accounts for most recyclable materials, including glass, cans etc.

Notwithstanding the above-mentioned, it is important to recognize the role that households play in the success of curbside recycling programs. Abbu (2006) conducted a study on consumer attitudes towards curbside recycling in eThekweni Municipality and found that the attitude of consumers is a major problem in the city – suggesting that there is lack of intent from consumers to actively recycle or take part in recycling programmes. The study suggests “education, awareness programmes and legislation are all required to ensure that the benefits associated with curbside recycling are achieved”. (Abbu, 2006:4).

Despite the negatives associated with a Curbside recycling programme which is not operating to its potential as a result of various factors, the opportunity for waste pickers to fill the gap created by this inefficiency is apparent. As such, waste pickers collect recyclables from households, general bins and black bags and in doing-so, greatly reduce the quantity of recyclable material in landfills.

4.4.2 Buyback centres, drop-off centres and recycling agents

In addition to curbside collection services, DSW provides multiple buyback and drop-off centres throughout the municipality. Residents can sell or drop-off their recyclable material at these locations if they wish to. For informal collectors, buyback centres are a primary source of income, as the collectors sell their materials to the buyback centres. Most households simply drop their materials off, as the profit associated with selling them is marginal, and most are recycling due to environmental concern. For businesses, companies, and the private sector, there are private waste management companies which charge a service fee for the collection and disposal of waste, as well as the transportation of recyclable materials to

buyback centres and drop-off centres. Waste management companies are a very important agent for disposal and recycling, as a large portion of waste comes from the private sector.

4.4.3 Generic value-chain description

The following diagram is a broad description of recycling value-chains in eThekwin Municipality based on the information uncovered throughout the process of the value-chain analysis undertaken by Urban-Econ and the researcher.

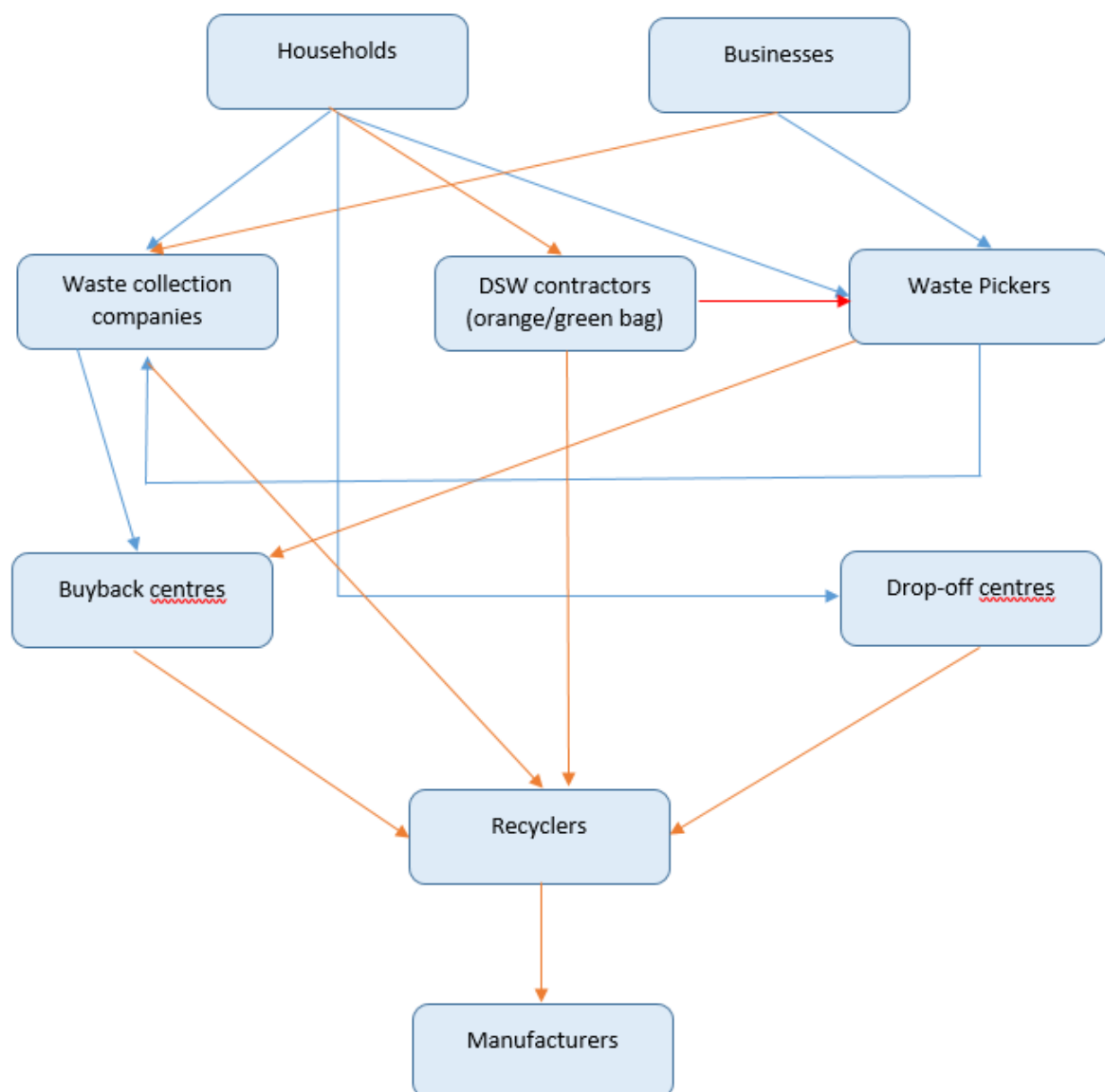


Figure 3: Generic recycling value-chain for eThekwin

Source: Urban-Econ and Researcher (2014)

The top of the diagram is the beginning of the value-chain represented by households and businesses who generate waste. The following part of the process involves waste collection which is done by private companies, waste pickers or DSW contractors. The next part of the value-chain is the ‘recycling’ part in which companies actually change the composition of the waste (break it down etc.) and then send it to manufacturers who use it to produce new products. The manufacturers could be local or external, meaning that recyclers either export the waste or sell it locally. Orange arrows show the *predominant* or most common direction in which waste goes after reaching the relevant party. For example, waste pickers usually deliver waste directly to buyback centres, but also deliver to waste management companies, who then predominantly deliver directly to recyclers. The red arrow between waste pickers and DSW contractors shows the reported ‘stealing’ which waste pickers commit (in order to obtain orange bag recyclables).

Due to the complexities involved in value-chains and the fact that this dissertation is more concerned with the role of *waste pickers* within the value-chains, a more detailed description is not required. The above is to be used as a contextualisation tool for understanding the position of waste pickers within eThekweni Municipality recycling value-chains, and to understand the employment opportunities which are created through informal work from a visual perspective, underlining Kingdon’s and Knight’s (2001) argument that informal work creates employment opportunities within the value-chain.

4.5 Conclusion

eThekweni Municipality is a city which is characterised by contrasts. It is a well-developed city in the context of a relatively poor province, and is a major economic node within South Africa. It boasts the busiest port on the African continent and has an advanced manufacturing and services sector. However, unemployment and poverty rates are high, leading to high levels of inequality. Waste management in eThekweni Municipality is a well-established process, but recycling is still relatively underdeveloped. There is a need for more advanced curbside collection throughout the city, and more participation from households through a change in attitude. Given the high levels of poverty and unemployment, as well as a formal recycling system is not achieving its full potential, waste pickers play a vital role in alleviating poverty and contributing towards recycling for the eThekweni Municipality. The dissertation aims to highlight the importance of waste pickers for the city. The following

section will detail the methodology employed by Urban-Econ and the researcher in gathering the data in order to achieve the goals of the dissertation.

5 METHODOLOGY

5.1 Introduction

The purpose of this section is to outline the method which was implemented over the process of the project in order to arrive at various findings and conclusions. This dissertation analyses secondary data, but the method in which the primary data was collected will be explained in order to better contextualize the data that is being analysed. It is also necessary to investigate the merits and demerits of the methodology implemented to gain an understanding of the strengths as well as limitations of the research.

5.2 Collection of data

The data that this study makes use of was collected by Urban-Econ for the eThekwin Municipality Recycling Value-chain Analysis. The purpose was to conduct a value-chain analysis for seven major recyclable materials (paper, cardboard, metals, e-waste, tyres, plastic, glass). The process of data collection involved both quantitative and qualitative approaches, including surveys and semi-structured face-to-face interviews. Because the informal sector was identified as a major part of the various recycling value-chains, a survey was conducted in order to understand the complexities of this part of the value-chain, and the role it plays in the broader value-chains. The findings of this survey are utilised in this study as they speak directly to the objectives of this dissertation. Urban-Econ also conducted a survey of buyback centres and drop-off centres in eThekwin Municipality, and data from this survey is utilised where appropriate. In addition to the surveys, key semi-structured interviews were arranged with major role-players within each of the seven value-chains and within the recycling space in the city. Data collected from these interviews were recorded in written format, having been transcribed from the interviews. Findings from these interviews will be used to address the various objectives of the study. I was involved in all these elements of the research process as I was part of the Urban-Econ team that conducted this study. Since I was involved in the collection of the data at Urban-Econ this study therefore draws on ethnographic data which were observed during the process of data collection and interaction. As such, this study draws on primary and secondary data, which is both qualitative and quantitative in nature, and also uses ethnographic data collected by the researcher during the primary research process.

5.3 Research paradigm

Quantitative data falls in the category of the positivist research paradigm, as it collects data and seeks to objectively make sense of that data without the researcher being personally involved (May, 2001). Similar to a scientist trying to explain the behaviour of molecules in their reaction to heat, a researcher using the positivist approach objectively addressing data would explain phenomena using numerical findings and observations (May, 2001). A positivist research paper would typically look to exclude the researchers influence on results because this would only skew the data. Positivism, which is embedded in traditional science and ‘logical empiricism’ adopts a specifically scientific approach to research. According to Lee (1991: 343) positivism “maintains that the methods of natural science constitute the only legitimate methods for use in social science”. Lee (1991) further suggests that this outlook is naïve because qualitative research can be used alongside quantitative to great effect.

On the contrary, qualitative research adopts an interpretivist paradigm. Rather than seeking to objectively observe data, the qualitative researcher gets personally involved in the research process, becoming ‘immersed’ (Firestone, 1987). A qualitative researcher is more concerned with understanding phenomenon through participation in the phenomenon itself, thereby gaining a more nuanced understanding. The interpretive approach to research asserts that the natural sciences are inadequate to the study of social reality. According to Lee (1991: 347) the interpretive approach holds that “people, and the physical and social artifacts that they create, are fundamentally different from the physical reality examined by natural science”. Therefore simply observing physical realities is not enough to understand the process in its entirety.

According to Bavelas (1995) a main difference between quantitative and qualitative research is that the former adopts the methodology of ‘hypothesis-testing’, whereas the latter is more exploratory in nature. The strength of hypothesis testing is that a clear objective which will be proven or disproven is set out by the researcher. However the drawback is that it is limited to the definition of the hypothesis, whereas qualitative, exploratory research has the space to shift based on the outcomes of the research and is therefore less restricted. Recognising that both methods have limitations, a mixed methods approach aims to neutralize this by drawing from both methods. As such, mixed methods approaches to research have become much more popular in recent years (Bryman, 2006). However, there is unease among authors about the ways in which mixed-methods approaches can be implemented, and whether this has an

effect on the research (Bryman, 2006). These issues pertain to the prioritisation of data, such as which data is collected or analysed first, and how the data is integrated. It is also sometimes difficult to assess whether the research is exploratory or hypothetic in nature. For the purpose of this thesis, qualitative data is used to enhance the understanding of the issues revealed by the quantitative data and to provide a nuanced analysis of the issues which the quantitative data could not reveal. The complexity of the research question required qualitative data in addition to quantitative data in order for the critical issues to be fully explored.

5.4 Research design

It is important to state that the researcher draws on secondary data which was collected by Urban-Econ for the purpose of analysing eThekweni Municipality's recycling value-chains. However, the researcher was employed at Urban-Econ during this time and was therefore intimately involved in the undertaking of the primary research. This gives the researcher a far richer understanding and interpretation of the secondary data being analysed, even though it was not collected specifically for this dissertation. The researcher was part of a team which created the surveys, and was the primary facilitator of the buyback/drop-off centre survey, as well as the waste pickers survey.

As mentioned above, Urban-Econ collected data pertaining to eThekweni Municipality's recycling value-chains using a mixed methods approach. Surveys were rolled out to collect numerical data, and semi-structured face-to-face interviews were conducted with major industry players and stakeholders. Waste pickers and buyback-centres were targeted with surveys, while recycling companies and industry experts were targeted for face-to-face interviews. Overall, 153 waste pickers were surveyed, 10 buyback centres were surveyed and a number of interviews were conducted. The researcher's work differs from Urban-Econ's as the latter used the data to complete a value-chain analysis where-as the former used the data to analyse the role of waste pickers within the value-chain more specifically, and in more depth. The researcher therefore deals with different conceptual issues and provides a unique analysis.

5.4.1 Surveys

Ten buyback centres were surveyed in order to understand the volume of recyclables moving through them, as well as the prices received, and where the centres were getting most of their materials from. All known buyback centres (between 10-15 in total) and drop-off centres in eThekweni Municipality were targeted for surveys and 10 agreed to participate in the study. Buyback and drop-off centres in the following areas were surveyed:

Table 4: List of buyback/drop-off centres surveyed

Area	
North Coast Road	Kwa Mashu
Lorne Street	Marianhill
Brook Street	Kloof
Escom Road	Hillcrest
Queensmead	Westville Civic Centre

The purpose of the informal collector survey was to gain in-depth knowledge of the prices waste pickers were receiving, the volumes they collect, their livelihoods, and the contribution waste picking makes in terms of supporting livelihoods within eThekweni Municipality. Because there is no official list of waste pickers in eThekweni Municipality, the research team employed cluster sampling, as cluster sampling can be used when there is no way to identify individuals to be sampled through random sampling (Bernard, 2006). According to Bernard (2006) cluster sampling is also convenient in that it reduces travel time between reaching survey respondents, and makes it easier to find suitable candidates. Asiye eTafuleni (a non-profit organisation which helps urban informal workers) assisted Urban-Econ by providing the research team with a list of locations which are well-known trading spots for recyclable materials. The research team went to the suggested locations and surveyed roughly 50 waste pickers per location. The following locations, which are described as areas or specific streets, were surveyed:

Table 5: Locations targeted for waste picker surveys

Area	
Dr Goonam Street	Overport Centre
Monty Naicker Street	Avondale Road
Mahadma Ghandi	Springfield Park and Intersite Avenue

Umbilo Road	Hammersdale Industrial
Buro Crescent, Felix Dlamini Road	Jeffels Road, Isipingo
Glenwood Area (Multiple Roads)	Pinetown Area
St Thomas Road, Berea	

Cluster sampling was an effective means for determining the sample for the survey because it made finding waste pickers much easier and greatly increased the efficiency of the process. It may also have ultimately increased the total sample size. Due to time-constraints of the project, it was necessary to complete the survey process relatively quickly. In addition, surveying waste pickers at cluster points where they engage in trading provided an opportunity to talk with them because they were often taking a break at these locations (as opposed to collecting or carrying loads). This meant that collectors were more likely to have the time to engage in a lengthy survey. However, some of the locations visited did not have a representative mix of the true waste picker population. For example, in Isipingo, waste pickers were almost exclusively metal collectors because there was a major scrap dealer nearby. As such, all pickers surveyed in Isipingo were metal collectors, leading to an overrepresentation of metal collectors in the sample. However, the researchers visited enough diverse locations to attain a varied, and relatively representative sample.

The various locations surveyed can be broadly split into three categories: Suburbs, the eThekweni Municipality CBD, and industrial areas. Many of the surveys were undertaken within the CBD area of eThekweni Municipality. Dr Goonam Street, Monty Naicker Street and Mahadma Ghandi are streets within the CBD. The CBD is a vibrant trading area, and it produces large amounts of waste. According to Popke and Ballard (2004) cities in South Africa have changed vastly since the end of apartheid. The removal of spatial boundaries based on race has changed the nature of economic activity and demographic make-up of eThekweni Municipality's CBD. Street trading, informal trading, and other informal economic activities have become much more prevalent, leading to a stark change in the socio-economic nature of the CBD (Popke and Ballard, 2004). What was once characterised by rigidity and order has transformed into a much more chaotic or flexible city. As a result of the influx of informality into the CBD, many formal businesses have, and continue to move out of the CBD and relocate further north. The general trend in eThekweni Municipality still

continues, whereby formal businesses are developing and relocating in the northern parts of eThekweni Municipality, and moving away from the CBD.

Within the CBD, many waste pickers have relationships with business and shop owners in the CBD, and collect their recyclables on a daily basis. The individuals who have been collecting in the CBD for a long time are well-known, and generally have very specific customers (waste providers). There is also a lot of haphazard waste collection due to the large quantities of waste in the city. In addition, because of the multiple trading points in the city, many waste pickers collect waste in the suburbs and walk down to the CBD to sell the waste. The CBD is therefore an important informal trading zone and is a particularly active area for waste picking and the trading of recyclables material.

Other areas, such as Avondale Road, St Thomas Road, and the Glenwood are located east of the CBD (but close enough for waste pickers to walk to the CBD from these areas). These are middle-upper-class suburbs. Waste pickers operate in these areas because they produce high volumes of waste and they are in close proximity to the CBD. Since the CBD is a major trading point, it is possible for traders to collect in these suburbs and then carry the waste to a trading point in, or close to, the CBD.

The other type of area surveyed was industrial areas. Industrial zones produce large amounts of waste and are highly desirable areas for waste pickers. However, due to their isolated locations with regards to trading zones, it is sometimes difficult for waste pickers to sell their waste on the day of collection. In many of these areas, such as Springfield Park and Intersite Avenue, waste pickers store their collected materials in specific locations and sell large loads at a time. Due to the major scrap collection company in Isipingo, waste pickers often wait for days in the area in order to trade collected metals. The industrial areas therefore attract large numbers of waste pickers due to their demand *and* supply of recyclable materials. The following map shows the various areas surveyed by Urban-Econ and the researcher.

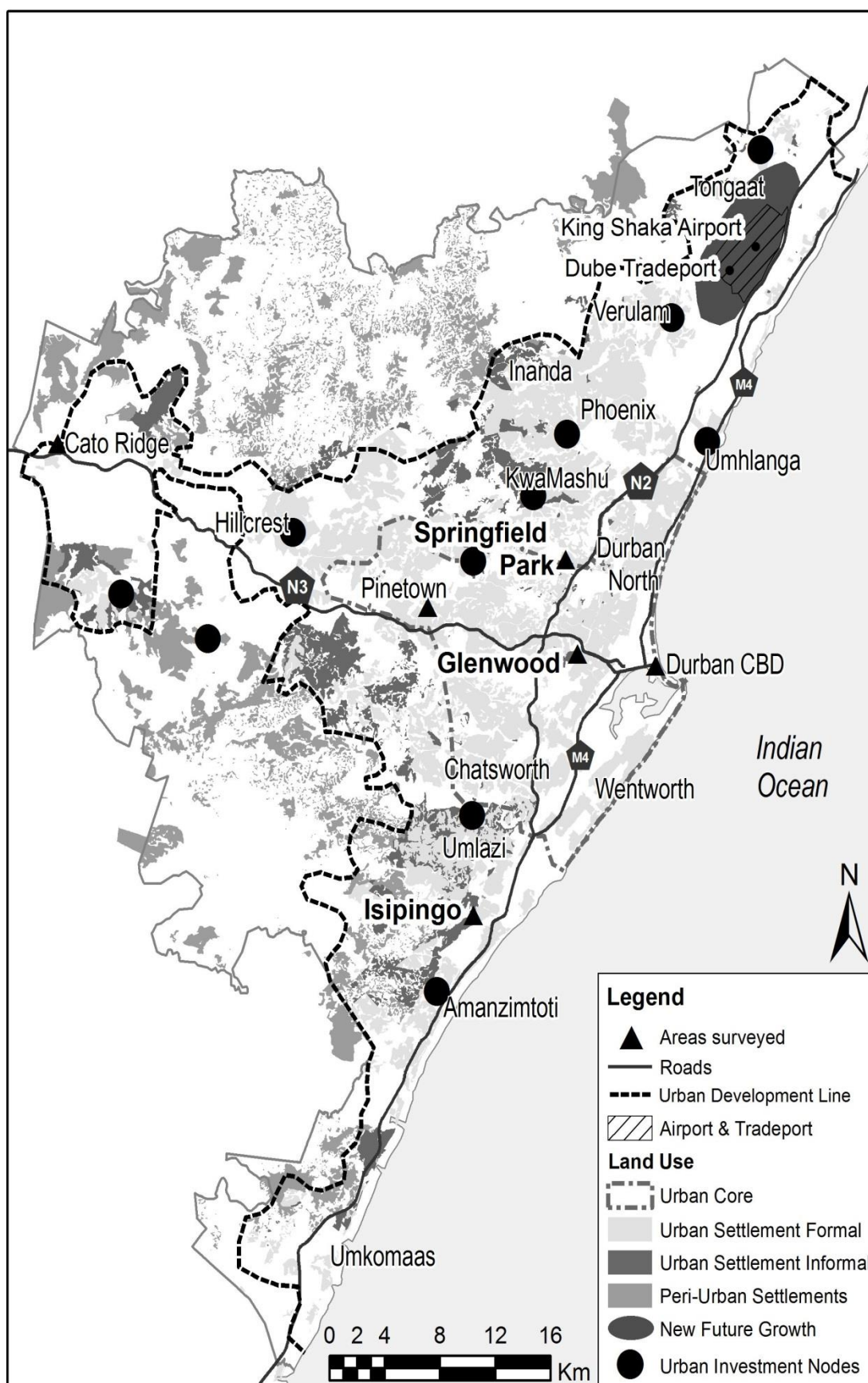


Figure 4: Map showing areas surveyed

5.4.2 Semi-structured interviews

The following is a list of in-depth interviews which this dissertation makes use of. Urban-Econ and the researcher conducted other interviews in addition to list below, but only the interviews which this dissertation draws from are listed, as not all interviews conducted for the purpose of the value-chain analysis were specifically relevant for this dissertation.

Table 6: List of semi-structured interviews taken

List of respondents	Employment	Date Interviewed
Respondent One	Owner of electronic recycling company in eThekweni Municipality	2015/01/23
Respondent Two	Manager at national packaging firm	2015/01/19
Respondent Three	Manager at company which acts as service provider for Mondi	2015/01/24
Respondent Four	Owner of largest scrap metal company in KwaZulu-Natal	2015/01/13
Respondent Five	Member of South African Metals Recycling Association	2015/02/04
Respondent Six	DSW Employee	2015/02/25

The interviews were conducted ‘face-to-face’, and were semi-structured interviews based on a few main questions. The goal of the interviews was for the interviewees to reveal, amongst other things, major challenges in the various value-chains which the eThekweni Municipality should address. The interviewees were all asked to elaborate on their perceptions of waste pickers, what role they felt waste pickers were playing in their respective value-chain and how waste pickers could be assisted.

It should be noted that not all interviews undertaken by Urban-Econ for the value-chain analysis will be utilised for the purpose of this dissertation because some of them do not speak directly to the objectives of this dissertation. In the analysis, the researcher makes use of the informal collector survey predominantly, while using qualitative data to enhance, provide nuance, and provide clarification, and more deal with the research objective more acutely. The collected survey data was analysed using Microsoft Excel.

5.5 Data analysis

The data from the 153 waste picker surveys and 10 buyback centre surveys were captured into excel spread-sheets. All questions were listed and each waste picker's answer to each question was recorded. The researcher was then able to analyse the responses per question in order to uncover trends and statistics related to each question. Answers to questions were categorised numerically whereby the number '1' or '0' was applied to the cell where appropriate. For example, if the respondent was male, the number '1' was inserted into the 'Male' column, and a '0' was entered into the female column. The researcher was then able to count the number of males versus females. For questions with more than two possible answers, the number '1' was entered into the appropriate cell depending on the answer provided. The use of numbers allowed the researcher to count and provide statistical analysis to each question.

Some survey questions required the respondent to provide a personal answer or explanation. These responses were written down into their respective cells. The researcher used the 'countif' formula as well as other formulas to analyse the frequency of certain responses based on set of criteria to provide more nuanced results. Since there were only 153 respondents, the researcher was also able to look through each individual response to pick up unique answers.

As mentioned above, data from the semi-structured interviews were recorded in written formatted and transferred to an electronic format, or were recorded in written (electronic format) during the interview. The researcher either used a tablet to record responses or used a pen and paper. The researcher analysed this data by noting any important, critical or interesting information provided by the respondent which illuminated some of the major themes and goals of the dissertation. Due to the nature of semi-structured interviews, the researcher sometimes gained more insights during the interview process itself as the written

data was not always as revealing as the conversation that was held. Many respondents were passionate about certain issues which the written data was unable to capture, thus highlighting the importance of certain issues over others.

During the process of undertaking the surveys, the researcher observed interactions between formal and informal aspects of the economy and also engaged in informal discussions with nearby interested parties – many of whom were personally involved with waste pickers for various reasons. The ethnographic data were important because they greatly enhanced the researchers understanding of the phenomenon by involving him directly.

5.6 Limitations

As a result of the use of cluster sampling, and the fact that specific areas were targeted due to the high volume of waste pickers operating in the area, certain populations of waste pickers are overrepresented. For example, Isipingo was suggested as an important area to survey, but the area is dominated by metal waste pickers, which resulted in the survey having a disproportionately large amount of metal waste pickers. In addition to this, no areas in the northern parts of eThekweni Municipality were surveyed. Despite these limitations, efforts were made to gain insights from a diversity of respondents to ensure some degree of confidence in the data.

6 RESULTS ANALYSIS:

6.1 Introduction

This chapter analyses the quantitative and qualitative data that was gathered in order to investigate the complex relationships between the formal and informal spheres of the economy, and to assess the status-quo of waste pickers in eThekweni. Analysis of the data will reveal the levels of integration between the formal and informal spheres of the economy in order to critique the idea of a ‘dual economy’ in South Africa. The levels of poverty experienced by waste pickers is documented here to support the assessment of the need for support and the type of support that could be provided to waste pickers. This will aid government in understanding the role waste pickers are playing at the bottom-end of recycling value-chains in eThekweni Municipality and the type of support required for aiding and integrating the waste pickers in to the economy of the city. As stated in the methodology, the researcher was involved in the collection of data at Urban-Econ and is therefore able to draw on ethnographic data as well as the survey results.

6.2 The demography of waste pickers in eThekweni Municipality

A total of 153 waste pickers completed the survey. Of the 153 interviewed, 9 people did not know their age and therefore did not provide an answer to the question. Of the 144 who answered, the maximum recorded age was 76 and the minimum was 19. The average age of the collectors surveyed was 38, with the median also being 38. The majority of respondents are between the ages of 26-50, while 20% are aged between 51-75 and 18% between 0-25. Only one respondent is aged over 75. It is clear that most waste pickers in eThekweni Municipality are young and middle aged adults.

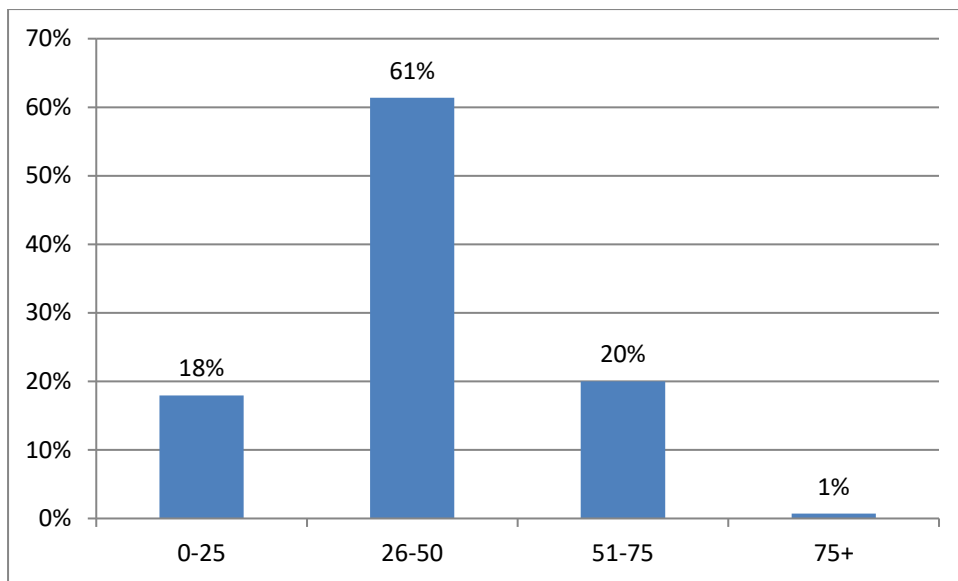


Figure 5: Age distribution of collectors

Source: Urban-Econ Survey (2014)

It is unsurprising that most waste pickers surveyed (61%) are between the ages of 26-50 because this is the age when people are expected to provide for their families. In addition, the high energy requirements associated with the activity of collecting and transporting waste means that it is difficult for older people to engage in this activity. Despite this, it is not uncommon for people over the age of 60 to be engaged in the activity. During the research process, the researcher noted that most of the older waste pickers had been waste picking for a very long time (at least 10 years). For these people, waste picking had become a way of life because of the length of time they have been engaged in this form of work. As such, the activity is as much a daily routine, as it is a livelihood supporter. However, given that waste picking is a physically demanding activity, the inclusion of older people reveals the high level of poverty and lack of opportunities for 'decent' employment in the city.

The researcher also noticed that most of the older waste pickers have strong relationships with their 'clients'. In other words, older waste pickers have relationships with specific shop and business owners who they know in person, and always collect waste from those people on a regular basis. Contrastingly, younger waste pickers are more likely to scavenge and retrieve what is lying around or what they can find. Since the youngest recorded picker is 19, it is evident that teenagers are not frequently engaged in waste picking.

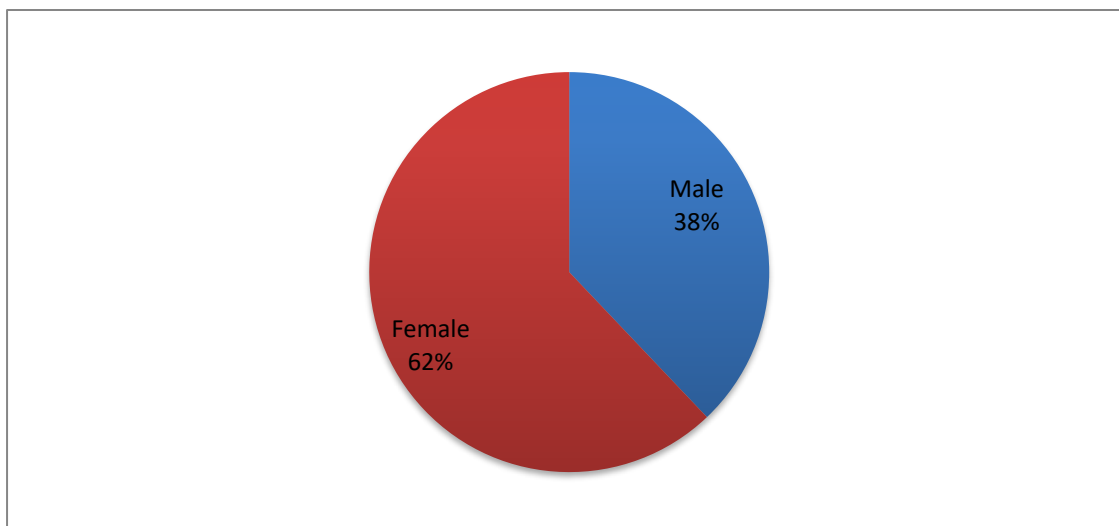


Figure 6: Gender of waste pickers

Source: Urban-Econ Survey (2014)

The majority of waste pickers surveyed were female (62%). According to Chen (2001) women are over-represented in the informal sector. The majority of economically active women in developing countries are engaged in the informal sector. In certain countries, such as Chad and Mali, the informal sector accounts for over “95 percent of women workers outside agriculture” Chen (2001:2). Posel (2015:23) states that, in South Africa, more than “40% of households were female-headed in 2011”. In 2011, only 31 percent of all children in South Africa lived in a household where the father was also resident (Posel, 2015). Although female-headed households are less common in major metropolitan areas, due to the effect of migration from rural areas in urban areas, South Africa still experiences relatively high levels of female-headed households, and a large percentage of households do not have resident fathers. The fact that most of the survey respondents were female confirms Chen’s (2001) argument that woman are overrepresented in the informal sector. The fact that woman are frequently household-heads in South Africa highlights their role in supporting families.

Of the waste pickers surveyed 90% are South African and 10% are from other African countries. While undertaking the survey, the researcher noticed that a surprisingly large number of individuals were not South African citizens, but were in fact from other countries, such as Mozambique. Posel (2005) and Rogerson (1999) argue that since 1994, migration into South Africa, especially illegal migration, has increased substantially.

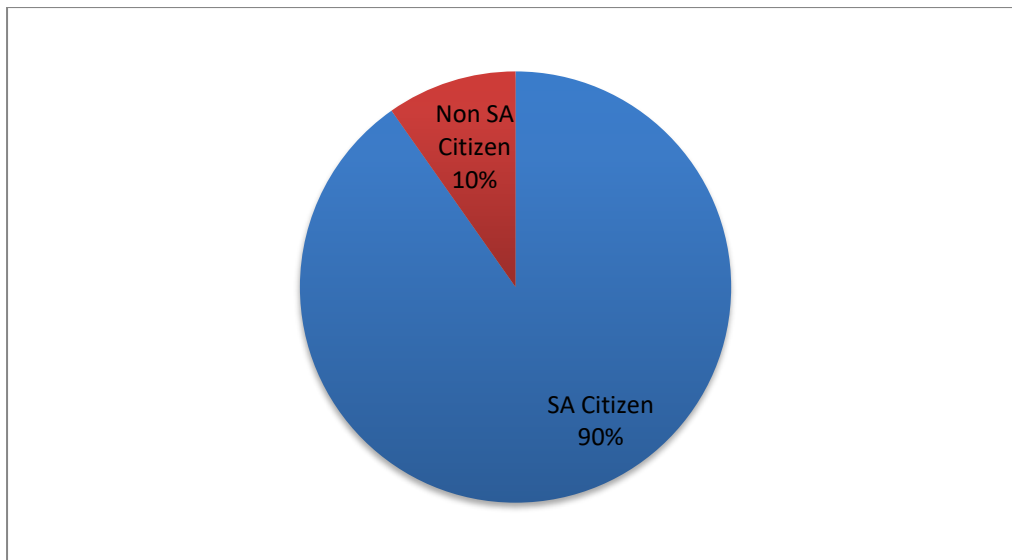


Figure 7: Nationality

Source: Urban-Econ Survey (2014)

The data therefore suggests that many immigrants from other African countries are unable to find work in South Africa and are forced into waste picking as a means of survival. In the CBD area, the waste pickers were familiar with each other and many of them were friends. The researcher noticed very little conflict between the waste pickers themselves, suggesting low levels of xenophobia between waste pickers. In terms of home language spoken, 71% of respondents speak isiZulu, 21% speak isiXhosa and 4% speak Swahili. Home languages spoken are represented in the following figure.

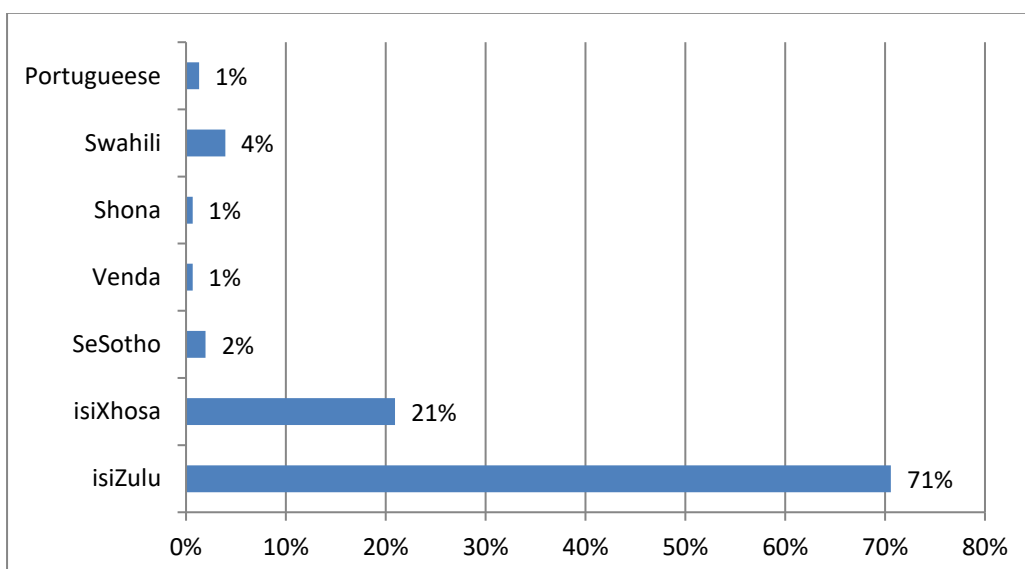


Figure 8: Home language spoken

Source: Urban-Econ Survey (2014)

All 153 respondents answered the question on home language. It was noted that while isiZulu and isiXhosa were the main languages spoken, there were also some respondents who could not speak either of these languages, or had a very limited understanding of these languages. The next most significant language after isiZulu and isiXhosa is Swahili. Many of those speaking Swahili and Portuguese are not of South Africa nationality – which is why they had limited understanding of isiZulu. This reinforces the argument that immigration into South Africa from other African countries is common and many immigrants have to find work through informal activities such as waste picking.

The survey recorded education levels among waste pickers. Of the 136 who responded to the question, the majority (46%) have at least secondary school education, but not higher education. As much as 10% of the respondents indicated that they have some form of higher/tertiary education. It is surprising that individuals with higher education are forced into waste picking as a means for survival. The education levels of waste pickers reveal the challenge of those that complete secondary education finding ‘decent employment’ in South Africa. However, almost one fifth waste pickers (18%) reported having no formal education.

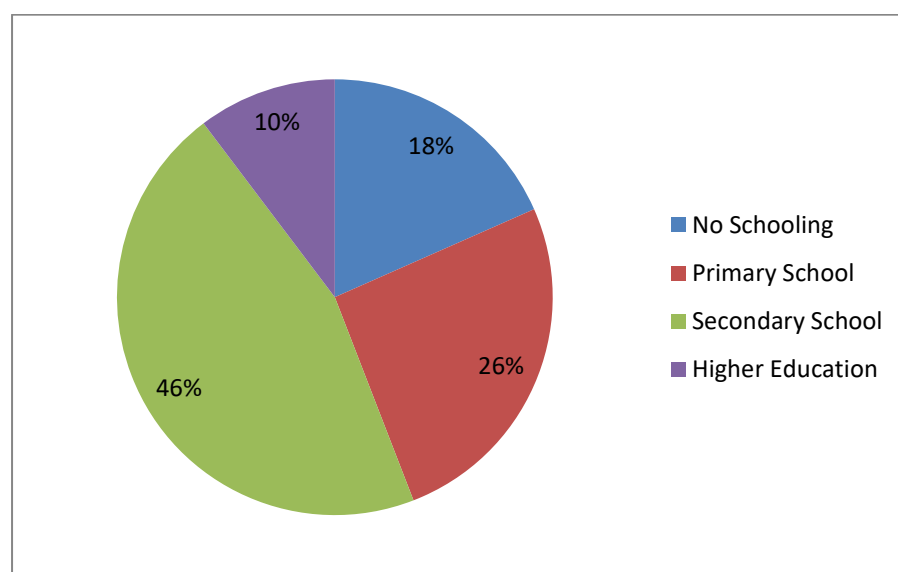


Figure 9: Waste picker education levels

Source: Urban-Econ Survey (2014)

The size of the formal economy and its inability to provide ‘decent’ employment for all South Africans means that many people are forced into the informal sector in order to survive. One respondent, who is a metal collector, told the researcher that she has a teachers degree, but the money she would earn from teaching is lower than what she earns by selling scrap metal.

This shows how valuable the metal recycling industry is, but also highlights the lack of decent pay in the formal sector.

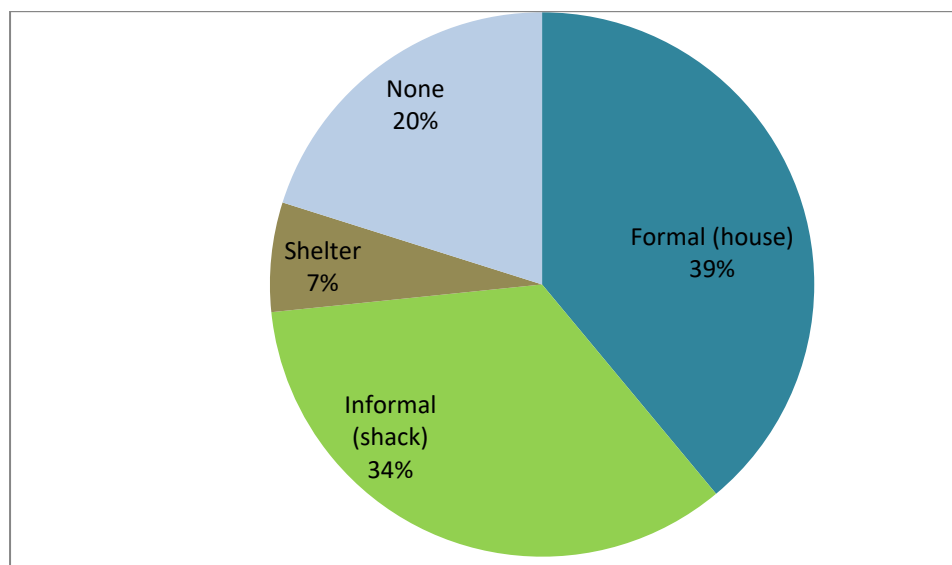


Figure 10: Primary collector household type

Source: Urban-Econ Survey (2014)

Most collectors (39%) live in a formal house, while 34% live in a shack and 20% have no house. The fact that 20% have no house shows the extreme poverty and vulnerability that many of these waste pickers are living in. However, 39% do have a formal house, which means they are able to use waste picking, along with other activities and the income from other household-earners in order to survive.

6.3 Waste picking as a means for survival

Medina (2000) and Gunsillius (2012) argue that waste picking is a vital livelihood strategy for the urban poor. The results of the survey undertaken by the researcher and Urban-Econ confirm this argument.

6.3.1 Period spent waste picking

Of those surveyed, most waste pickers had been engaged in the activity for a relatively short period of time. The vast majority (63%) have been collecting for 0-3 years, while 14% have been collecting for 4-6 years. However, there is still a significant amount of individuals who have been collecting for more than 10 years – indicating that waste picking in eThekweni Municipality is a permanent livelihood strategy for some individuals. However it can be

argued that for most, waste picking is used as a temporary survival strategy in order to provide food and basic necessities because most respondents have not been engaged in the activity for extended periods of time.

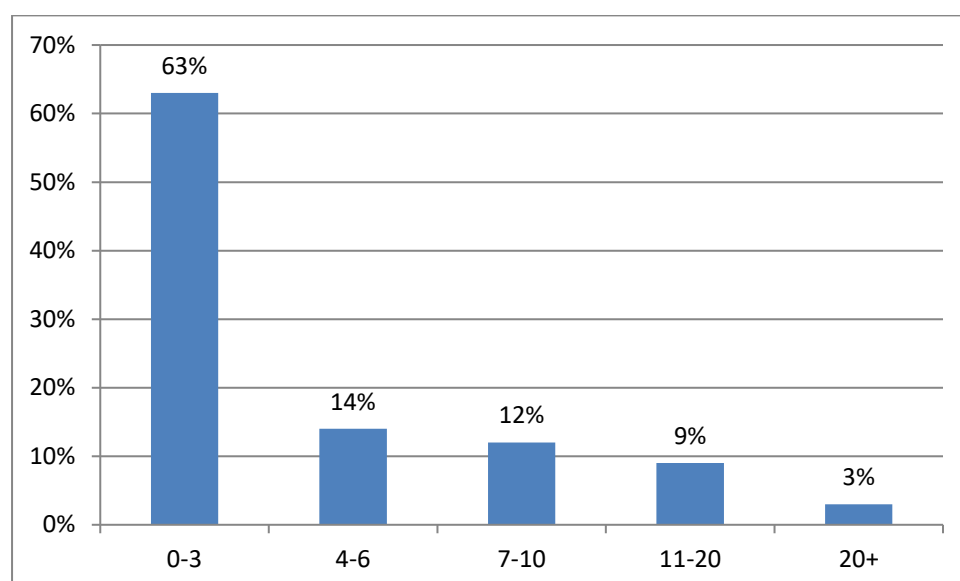


Figure 11: Number of years in waste picking

Source: Urban-Econ Survey (2014)

From informal discussions with waste pickers, some indicated to the researcher that they revert to waste picking as a coping strategy when they are otherwise unable to meet basic needs. For example, if they lose their job, or no one in their family is currently employed, they will use waste picking as a temporary survival measure. In this way, waste picking plays the role of reducing chronic poverty, confirming Beall and Fox's (2006) argument that the urban poor engage in the informal economy as a survival strategy.

6.3.2 Expenditure patterns

Waste pickers were asked what their top three expenses are, and the individual conducting the survey wrote down three expenses. Some waste pickers did not provide three expenses, but provided one or two. A total of 353 'expenses' were recorded and of these, 41% are food, 21% are clothes, and 15% are children. The figure shows waste pickers predominantly use their money on things which help them to survive and sustain livelihoods. Interestingly, alcohol, cigarettes and 'whoonga' were mentioned fairly frequently as a core expense.

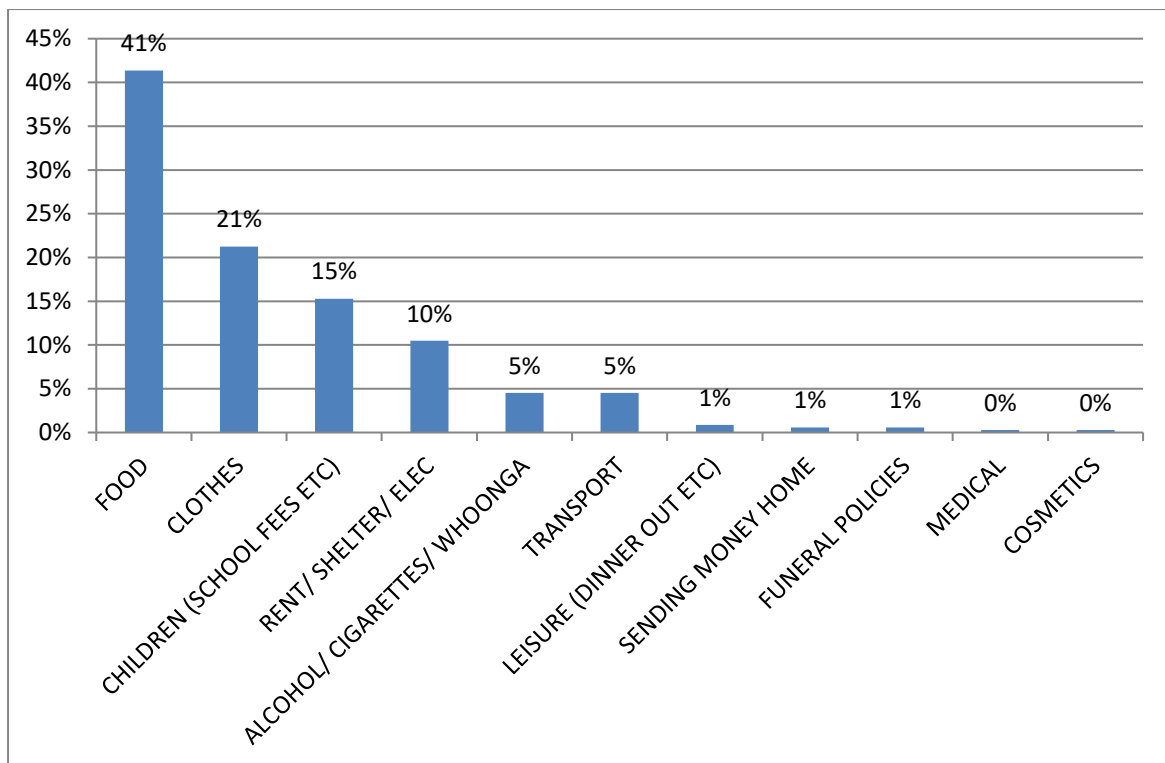


Figure 12: Top expenses

Source: Urban-Econ Survey (2014)

While the surveys were undertaken, the researcher observed that younger boys, typically between 19-30 and operating within the eThekweni Municipality CBD were often on a drug which they referred to as ‘whoonga’, and their main expenses were more frequently focused around obtaining money to buy food and drugs – as opposed to feeding families or sending children to school. There is a serious problem, particularly among young adults in the CBD, of drug addiction and drug abuse. While it is understandable that their circumstances are trying and they might employ whatever coping measure they desire – the seriousness of the issue should not be trivialised as it is linked closely with urban poverty. Some of these individuals also mentioned ‘women’ as an expense, noting that they like to spend their money on sex workers. Waste pickers operating within the CBD are often younger and exhibit expenditure patterns similar to what is described above. Many of them do not have extensive family networks and therefore spend their money more selfishly than other waste pickers.

Contrastingly, women are more likely to spend their money on their families rather than themselves. Of those who mentioned ‘whoonga’, ‘cigarettes’ or ‘alcohol’ among their top expenses, none of these were women. However, this is not to say that men did not spend their money on their families – but rather that men were more likely than women to spend the

money on themselves. Overall, men are still more likely to spend their money on clothes, children, or food rather than drugs. This shows that waste picking is used primarily as a livelihood strategy in order to support families. However, it also reveals the dark side of urban poverty such as drug abuse. Providing support programmes to rehabilitate drug addicts might be necessary.

6.3.3 Average income and poverty levels

Respondents were asked how much money they earn on a good day compared with a bad day. It was decided that a monetary measure of poverty would be used because of the standard and amount of quantitative data available being greater than that of qualitative data. As such, while the monetary measure has limitations, it is the most appropriate for this dissertation. In calculating average daily income for waste pickers, those who indicated that they do not collect and sell on a daily basis, such as many of the metals waste pickers, will be excluded from the sample because their answers indicated the amount they earn per *batch sold* rather than *per day*. Because the other collectors actually collect and sell on a daily basis, their information is more useful when trying to understand how much money waste pickers earn per day on average. According to this, average earnings on a good day are R223.73, while average earnings on a bad day are R76.25. The following table describes this data in more detail.

Table 7: Waste pickers average earnings

Earnings (Rands)	Good day	Bad Day
Daily Earnings	137.19	48.31
Monthly Earnings	4 115.73	1 449.40
Earnings Per Person	1 028.93	362.35

Source: Urban-Econ Survey (2014)

In order to calculate whether an individual is in poverty or not, one needs to account for the number of people the individual is responsible for. As such, this model takes the monthly earnings of waste pickers and divides it by the number of people per household in order to achieve an accurate ‘per person’ indication of monthly income. For example, if a waste pickers earns R500 per day, but has 10 family members for which he or she is responsible for, that is only R50 per day net (assuming that each member of the household receives an equal share of the money). Average earnings per person were calculated by dividing monthly earnings by the average household size. Average household size was calculated to be 4

(average number of dependents (3) + 1). This model assumes that waste pickers spend their money equally on each individual, meaning each individual earns R1 028.93 per month if every day during that month was a ‘good day’. The model does not account for the total household income because it does not factor in the other *sources* of income households might have. However, since 80% of the respondents indicated waste picking as the primary source of income for them, this calculation is still very useful for understanding how much money waste picking contributes towards a household and towards individuals.

According to Statistics South Africa (2014) the monetary poverty line in South Africa is R416 per person (<http://www.statssa.gov.za/wp-content/uploads/2014/07/Fieldworker-Low-Res-June-2014.pdf>) [Accessed on: 26/01/2016]. According to this, waste picking is clearly enough to lift a person out of poverty. Each individual in a household will earn R1 028.93 from waste picking during a good month, however in a particularly bad month, where the individual earns a ‘bad day’s’ wage every day, each individual in their household will only earn R362.35 per month. In such a case, these individuals fall below the national poverty line. Realistically, each month will likely consist of some good and some bad days, with each person earning something in between the two extremes, as well as other sources of income such as social grants.

Waste picking therefore acts as a vital source of income for people in eThekweni Municipality by pushing them out of poverty or at least helping them cope with poverty. Without this extra source of income, many would fall into chronic poverty and would not be able to buy food or send their children to school. Huysman (1994) shows that in India, women of lower castes use waste picking as means to meet their child-rearing responsibilities. The data shows that in eThekweni Municipality waste picking is used similarly, for survival and child-rearing.

Table 8: Number of dependents

NUMBER OF DEPENDENTS	FREQUENCY	PERCENTAGE
0	35	22.3%
1	9	5.9%
2	20	13.1%
3	28	18.3%
4	22	14.4%
5	10	6.5%
6	12	7.8%

7	6	3.9%
8	4	2.6%
9	1	0.7%
10	5	3.3%
14	1	0.7%

Source: Urban-Econ Survey (2014)

Over one in five of the respondents (22.8%) said they have 0 dependents, 18% said they have 3 dependents, and an overall 58.1% have *at least* 3 dependents, with 7.8% having 6 dependents. One respondent has as many as 14 dependents. In total, 490 people are dependent on the surveyed waste pickers in some form. The household may have more earners, but the interviewee plays a vital role in the livelihood of their family. According to the data, the average waste picker in eThekweni Municipality has 3.2 dependents. As such, on average, 4 livelihoods are supported per waste picker.

Table 9: Primary income

PRIMARY INCOME		
YES	122	80%
NO	28	18%
NO ANSWER	3	2%

Source: Urban-Econ Survey (2014)

Table 8 shows that 80% of respondents stated that waste picking is their primary income, while 18% noted that it is not. This shows that most waste pickers use waste picking as a primary livelihood supporter, while some are simply using it as extra income in addition to their primary activity. However, the vast majority (80%) are dependent on waste picking as the primary source of income.

Waste picking is not always the only occupation of waste pickers. The activity is used as a livelihood supporter but it compliments or is complimented by other income generating activities. The following table details some of the other activities waste pickers in eThekweni Municipality employ to make ends meet.

Respondents were asked to mention their other sources of income besides waste picking. The most significant alternative source of income is social grants (53.1%) followed by sales (25%), while 15.6% mentioned gardening, domestic work, car guard, or street sweeper as an alternative source of income. Respondents are mostly engaged in small-scale commodity

scales. One respondent said he sells chargers, headphones and lighters, while another said he sells fruit juice. Others said they sell food (chips and snacks etc.).

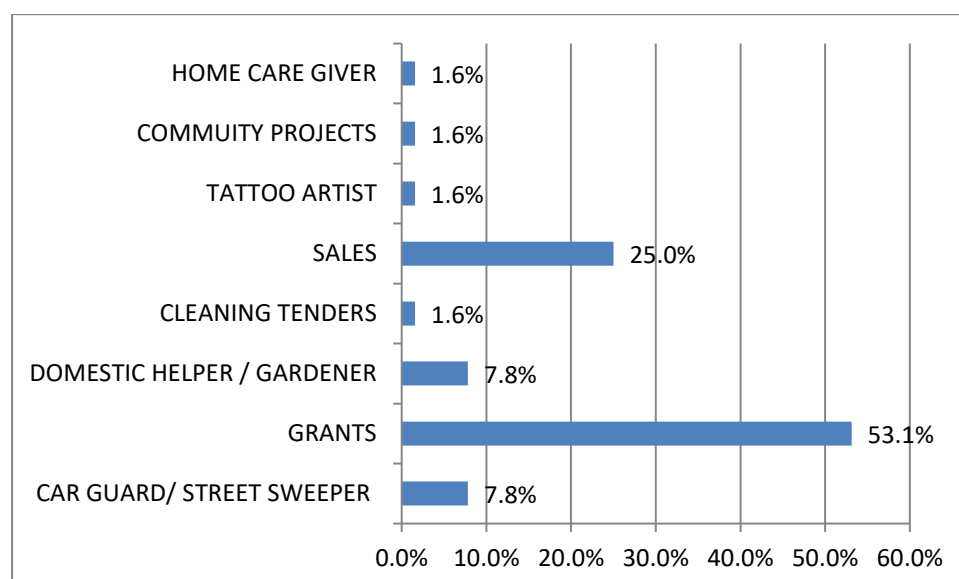


Figure 13: Other income activities

Source: Urban-Econ Survey (2014)

Question 1.5.7 asked if there were other income earners in their households. Table 9 below presents the results.

Table 10: Other income earner

OTHER INCOME EARNER	FREQUENCY	
YES	19	12.4%
NO	132	86.3%
NO ANSWER	2	1.3%

Source: Urban-Econ Survey (2014)

86.3% noted that there are no other income earners in their household, while 12.4% said there are. This shows that in the vast majority of cases, waste pickers are the only source of income for their households. In order to provide a livelihood for themselves and their families, waste picking is the core income activity and it is complimented by other small-scale activities such as domestic work and commodity sales. Social grants are also vital forms of additional income.

The importance of waste picking as a livelihood strategy for many households in eThekweni Municipality is typified by the fact that 86.3% of respondents noted that they are the only income earners in their respective households, and 80% of respondents rely on waste picking

as the primary form of income for the family. Beall and Fox (2006) state that engagement in the informal economy is used for survival, and the data confirms that waste pickers in eThekweni Municipality engage in the informal recycling value-chains in order to survive.

6.3.4 Conclusion

The results of the analysis on income support the argument of Langenhoven and Dyssel (2007) as well as Beall and Fox (2006) that people engaged in waste picking are doing so in order to primarily raise family income. Although poverty calculations did not take alternative source of income into account, the data shows that only 12% of respondents had other income earners in their family. It is important that cities understand that waste picking is a main coping mechanism against urban poverty. While undertaking the research, during an informal conversation with the researcher, a waste picker said that he would rather pick waste around the city than beg or steal. This indicates that waste picking is not only an important poverty coping mechanism, but also an alternative to *crime*. As such, the activity needs to be supported by municipalities. According to Adama (2014) the scant recognition waste pickers receive, and the failure of the state to attempt formalization of informal waste collection reinforces the vulnerability experienced by these individuals.

6.4 Main challenges

Collectors face a number of challenges on a daily basis which the survey aimed to capture. Respondents were asked to list and explain what their major challenges are –from which a few major themes emerged. These are discussed below

6.4.1 Conflict with authority

The most significantly noted challenge is ‘conflict with authority’. Police harassment was specified 43 times, while municipal harassment was specified 6 times. Respondents said that the formal ‘orange bag’ collectors perceive them as competition or thieves. Collectors who operate the Glenwood and Morningside suburbs said that they are often threatened by orange bag collectors because the waste pickers go through orange bags to take items of value such as cardboard and plastic. This devalues the overall value of the orange bag and it also devalues the role of the formal waste management system. During discussion between the researcher and informal collectors, one of the respondents said that the orange bag collectors

feel it is their right to collect the orange bag so waste pickers must not tamper with it. The group of collectors who operate these areas mentioned that they used to take materials from the orange bag but have stopped since they were threatened. They now take directly from households or from the black bag. The following image shows the said group of collectors stacking and sorting their collected materials – a truck will later come past and purchase the materials. On the other side of the road an orange bag collector vehicle can be seen. Respondents noted that even though they have stopped tampering with orange bags, the orange bag workers do not like them and still harass or threaten them at times. The truck did not engage with the collectors while the researchers were conducting surveys.



Plate 1: Waste picker sorting location in Berea: collectors note heavy harassment from formal waste management system.

Source: Urban-Econ (2014)

Tangri (2012) mentioned police harassment as a major concern for waste pickers in Pune’ – one which was eventually overcome through the establishment of Kagad Kach Patra Kashtakari Panchayat (KKPKP), a union of female waste pickers which aimed to fight against social, economic, cultural and political exclusion. In eThekweni Municipality, waste pickers are sometimes perceived as criminals and as such, they conflict with authorities.

Police harassment is often related to their whereabouts and specifically where they sort and sell their gathered materials.

During the process of undertaking the survey, the researcher had informal conversations with shop owners along the streets. Shop owners mentioned that the presence of waste pickers next to their shops has a negative impact on business because it impacts on customers. In particular, on Prince Edward Road, the vehicles which buy the materials from waste pickers parked on the side of the road in front of shops, blocking the view to the stores from the road. They stay there for long periods of time while waste pickers come and go (they essentially set up store). As mentioned earlier, many waste pickers in the CBD are often high on some form of narcotics and therefore also have a negative impact on business for the surrounding shops because people do not want to do business in close proximity to these individuals. One particular shop owner, who owns a jewellery store, says that he has to call the police daily to forcefully remove the vehicles and the waste pickers because they are parked illegally and are engaging in trade outside of specified zones. The shop owner noted a sales drop of 90% as a result of the informal trading. While this figure may be an exaggeration, the conflict between the formal and informal spheres is typified by this example. The police then remove the traders from the vicinity, forcing them to operate elsewhere. It is problematic that no clear solution to this problem exists. There is on-going conflict between formal business and informal trade. The issue is that no clear spaces or zones have been delineated for informal recycling trade, so these zones develop naturally or informally (such as the site outside the jewellery store) in less than desirable locations.

Brincat (2010) describes the entanglement between two spheres as being a fundamental of dialectics. From the data, particularly ethnographic, it is clear that tensions exist between the informal and formal economies. Observations suggest that a relational dialectical exists in the entanglements and tensions between shop owners and waste collection services. In the above-mentioned example, the trading locations between waste pickers and transporters causes tensions between business owners along the street and the waste pickers, because the shop owners feel that the trading has a negative impact on their business. Brincat (2010) suggests that “stated simply, dialectics holds that change results from the internal dynamism of society, from the interactions between human beings that leads, inevitably, to inter-societal tension and the potential sublation of these contradictions to different — though not necessarily ‘higher’ — forms”.

Plate 2 depicts the above-described scenario in which a secondary cardboard collector is parked in front of stores in the CBD.



Plate 2: Informal collectors selling to middle-man in ethekwin Municipality CBD: truck is parked in-front of various shops, blocking business

Source: Urban-Econ (2014)

In the described example, there is an opportunity for the city to find a solution to the problem which is being described. I would argue that designated ‘trading zones’ need to be delineated whereby traders can engage *without* adversely affecting the business of local shops. This would entail some degree of formalization of the informal trading mechanisms and integration into the overall waste management system of the city.

6.4.2 Lack of working space

The second most frequently mentioned challenge is that of space, and this challenge is clearly linked with the previous issue. Prince Edward Road is an extreme example of the challenge of space. Waste pickers require space to sort, stack and organise their collected materials so that they can sell in bulk. Unfortunately, there is limited space available . According to

Medina (2000:8) waste pickers hold the lowest social status in society and are associated with “dirt, disease, squalor” and perceived as a “nuisance, a symbol of backwardness, and even as criminals”. As such, they are not provided with working space because their work is essentially not formally recognised. Without any demarcated space, collectors must make a decision on where to operate.

Not only do waste pickers need space to sort and stack, but they need reliable selling locations. For example, the collectors who operate in the Glenwood area have specific selling locations each day. The secondary collectors operating vehicles drive around the area and collect from them at these locations. In the CBD the secondary collectors stop at particular locations which collectors are familiar with, and so collectors take their recyclables to one of these common locations. It is easier for one vehicle to move around and collect from common locations than for collectors to have to sell at fixed locations. These spaces and trading mechanisms have developed naturally as a result of their informality. Unfortunately, this entire system is in conflict with the formal spaces within which it operates – resulting in the need for demarcated spaces which formally recognise the trading activities being undertaken. As such, respondents noted that a lack of space to sort and stack, as well as a lack of space within which to trade without being harassed or frowned upon is a major challenge. According to Respondent One (2015/01/23) the lack of space for recycling is not a problem only experienced by waste pickers. The broader region suffers from a lack of space, specifically sorting space. The city needs to set up communal sorting areas for recyclers to use (Respondent One, 2015/01/23)

6.4.3 Lack of recognition

The final theme emerging from the survey is lack of recognition that waste pickers receive for their work. This problem is well-documented in the literature. Gunsilius (2012) explains that despite the contribution waste pickers make towards the sustainability of cities, they earn scant recognition for it. Respondents noted that residents and shop owners harass them as they are viewed as a nuisance or as criminals. The researcher noted that most respondents were aware of the positive impacts of recycling and the positive role that they play within the system of recycling. It is a serious problem that people are not aware of the positive work that waste pickers are doing in the city. One survey respondent mentioned that she would like some a uniform or shirt so that she is recognisable as a worker and not as a criminal. Many other respondents shared a similar vision. Respondent Two (2015/01/19) noted that informal

collectors need to be provided with “land, training, machinery and other support” in order to maximise their productivity. The respondent argued that waste pickers provide large amounts of material into value-chains, and have the potential to be integrated more intimately into the value-chains. Respondent Three (2015/01/24) said that there needs to be more support for informal collectors, especially through the provision of reflector jackets or shirts to provide recognition. Respondent Two also suggested that recycling interventions need to be targeted at rural areas in eThekweni Municipality as well, not just affluent areas, and perceptions of recycling in rural areas needs to change – because recycling as an occupation is frowned upon in rural areas, and there is generally very little motivation in these areas to engage in recycling. While changing perceptions is difficult and requires education and influence, providing targeted recycling interventions in these areas might be easier. Respondent Two (2015/01/19) therefore highlights the inconsistent service provision throughout eThekweni which Schiermeyer (2011) explores. It should be noted that Durban is, generally speaking, a city with excellent service provision – however opportunity for improvement, specifically related to recycling, are illuminated through the findings of respondents.

6.4.4 Conclusion

The major challenges which waste pickers face are generally issues of conflict between formal and informal spheres. Despite their role in recycling and waste management, waste pickers are not given credit. Modes of operation, particularly the selling points and sorting points, are causing tension and conflict with formal business. This is representative of the tensions experienced in a relational dialectic. I would argue that positive change needs to arise as a result of targeted solutions to these identified problems. A move to formalize and integrate the informal sector into the formal waste management sector, without making it formal in itself, would reduce conflict and allow smoother interactions between formal and informal spheres of the economy.

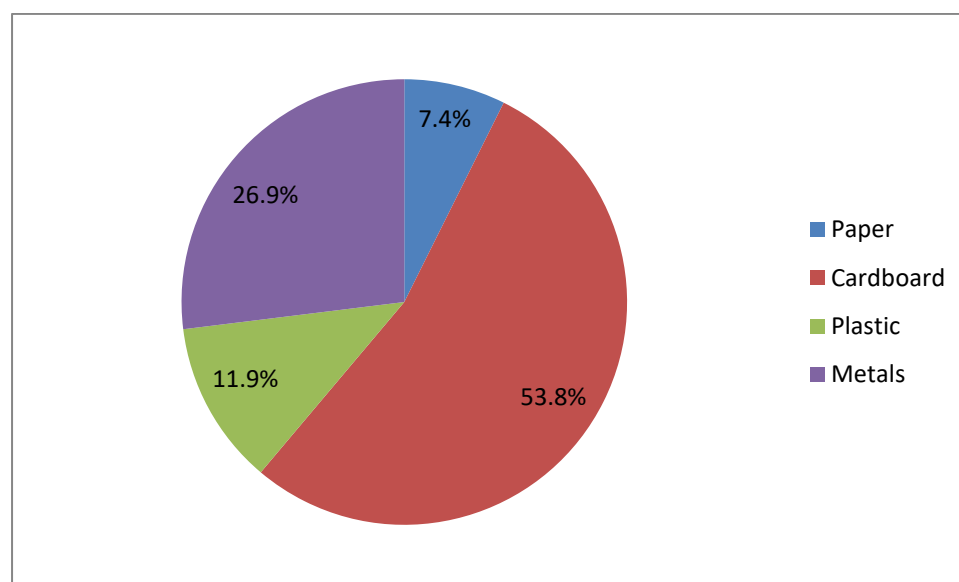
6.5 The role of waste pickers in eThekweni Municipality

Waste pickers play a vital role which is multifaceted in nature. Collecting recyclable materials contributes to the reduction of greenhouse gas, saves costs for the Municipality, and cleans the city.

6.5.1 Volumes of collected material

The survey uncovered total volumes of recyclables collected each day by asking respondents to specify how much material they collect per day. This question is not difficult to answer because collectors are paid by weight and therefore have a good understanding of how many kilograms they collect. Figure 12 provides a breakdown of collected materials.

Figure 14: Materials collected



Source: Urban-Econ Survey (2014)

Table 11: Total collection statistics

Total Surveyed	Total Collected (kgs)	Average Collected Per Day Per Collector (kgs)
153	9013	59

Source: Urban-Econ Survey (2014)

Of the 153 collectors surveyed, a total of 9013kgs of recyclable material is collected on a daily basis according to responses. Of this, 53.8% is cardboard, 26.9% is metals while paper and plastic make up 19.3%. During the survey, the researcher noticed that the vast majority of collectors in eThekweni Municipality predominantly collect cardboard. The reason for this is because cardboard is a ‘sweet-spot’ commodity in terms of its price in relation to the ease with which it can be found. Cardboard is in abundance and it is relatively valuable in terms of its sale price. It is also easy to carry because it can be packed and carried as a head-load. According to the researcher’s observations, cardboard is the dominant commodity by a larger margin than what the survey reveals. Metal is the second most popular material because it fetches such a high price. However, metals are more difficult to obtain than other recyclables such as plastic or cardboard. Plate 3 shows the nature of cardboard collection.



Plate 3: Cardboard collector

Source: Urban-Econ (2014)

Many households would rather sell their scrap metal than deposit it into a black bag or give it away. Respondents noted that plastic and paper do not fetch significant prices and are therefore less desirable than other materials. Collectors will scavenge paper and plastic when it is available but, in general, do not go out of their way to collect these materials. Some materials were not noted here because they are extremely insignificant. For example, glass is excluded because it fetches such a low price that collectors often do not bother with glass. It is also more difficult to sell glass because there are less secondary collectors willing to pick it up from waste pickers due to its low price. Glass holds extremely low value and is therefore only viable to recycle in very high quantities and with technology which can be used to crush and bail it (Respondent Three, 2015/01/24). Because of the high volumes required to make profit off glass, many collectors do not bother picking up glass even if it is available.

According to Wilson et al. (2006) waste pickers are skilled at picking out specifically valuable materials. In other words, they understand the value of various materials and

therefore do not simply pick up whatever they can find. Priority is given to materials which have higher economic value and can be sold for more. Market factors are therefore important in determining what materials waste pickers will collect and which ones they will leave. Because some value chains have a global footprint, international market prices determine the value of materials and the price that secondary dealers are willing to pay waste pickers. This has an impact on the decision waste pickers make in terms of which materials to collect (Wilson et al., 2006).

The role that waste pickers are playing at the bottom-end of recycling value-chains varies based on the commodity and its relative worth, but is ultimately typified by the fact that on average 59 kgs is collected each day *per collector*. This means that in one year each waste picker collects 3068 kgs of recyclable material. According to Baud et al. (2001), despite the large amount of recyclable materials retrieved by waste pickers, and evidence to suggest that positive outcomes arise from the formation of alliances between cities and informal spheres, many cities refuse to establish formal relationships with informal collectors. Respondent Three (2015/01/24), whose company is involved in cardboard collection and paper collection, noted that informal collectors are one of the main sources of material for the company, and said that “only a small handful of primary collectors are criminals and smoke drugs” arguing that the negative perception associated with waste pickers is inaccurate. I would argue that the perceived dualism of the economy and the hesitance to fully *accept* the informal sector as a potentially beneficial part of the working economy leads to this unfortunate outcome. Embracing the economy as a relational dialectic allows the formation of alliances which accrue positive development for multiple parties.

6.5.2 Savings to eThekwin Municipality

According to Gunsilius (2012) waste pickers play a vital part in reducing the city’s collection costs. In Pune, the city saves as much as US \$2.8 million annually as a result of passing on collection services to waste picker cooperative ‘SWaCH’ (Tangri, 2012). Savings to the municipality are not only as a result of lower transportation costs, but also from lower landfill costs. Each tonne of waste (or recyclables) deposited in a landfill has a cost associated with it. According to Respondent Six (2015/02/25) each cubic meter of landfill space costs DSW R300. By calculating the amount of space 59 kgs of waste occupies in the landfill (assuming all materials collected by waste pickers would have otherwise been sent to landfill) it is possible to gain an understanding of the amount of money that is saved per waste picker.

According to the data collected by the survey, waste pickers in eThekweni Municipality collect 59 kgs per day on average, while one tonne of cardboard occupies roughly 6.9 cubic meters of space in a landfill (<http://www.readyrecycles.com/recyclingfacts.htm>). As such, 145 kgs of cardboard occupies one cubic meter of space in a landfill. If 145 kgs of cardboard costs the municipality R300 to keep in a landfill, then 59 kgs would cost R122. According to these calculations, each waste picker saves the city R122 per day. It is interesting that this is significantly more than what many waste pickers earn per day.

While the monetary savings that waste pickers provide to the city is extremely difficult to quantify and a simple calculation as displayed above cannot possibly capture all the various elements, it is useful as a general indication of the potential savings that accrue from diversion of waste from landfill, which is an essential function of waste pickers.

Interviews with buyback and drop-off centre managers in eThekweni Municipality revealed that buyback centres rely predominantly on waste pickers as a source of materials. As mentioned earlier, many waste pickers sell to vehicles at various locations, however there are also a number of fixed locations in eThekweni Municipality which operate as centres which buy recyclables or accept them free of charge. Wealthy households and businesses make use of drop-off centres in order to dispose of extra materials, while waste pickers sell to the buyback centres for money. Many of these buyback centres are therefore reliant on the inflow of materials from informal collectors, highlighting their role and importance in sustaining systems operating at the bottom-end of the value-chain. The Brook Street buyback centre for example, noted that it receives between 90-100% of its recyclables from informal collectors, and 0-10% from business etc.

During an interview with the owner of Atlas Scrap in KwaZulu-Natal, the interview revealed that of the 5000 customers the company engages with every day, roughly 3500 of those are waste pickers, which translates to 70% of all customers. However, this does not mean that 70% of all metals collected come from informal collectors, because collectors can only sell small amounts at a time due to transportation limitations. However, it shows how significant waste pickers are in providing a source of material to scrap metal companies – and highlights their significant role at the bottom-end of this value-chain.

6.5.3 Impact on the environment

Waste pickers in eThekweni Municipality are playing an integral role in the city by contributing to the reduction of greenhouse gas, cost savings to the municipality, cleaning the city and providing much of the raw material inputs required at the bottom-end of many recycling value-chains.. This section showed that each waste picker supports roughly four livelihoods, while potentially saving cities at least R100 per day just through landfill diversion, and provide as much as 59 kgs of waste to secondary collectors per day. Some secondary collectors are almost entirely dependent on waste pickers. This thesis therefore argues that effort must be made to support waste pickers and to change the local perspective of waste pickers from ‘criminals’ or ‘scavengers’ to ‘workers’ or ‘city servants’ in order to accurately reflect their position and contribution. It is only a small portion of respondents who mentioned drugs and alcohol as a major expense, and the researcher’s observations during the implementation of the survey confirm that most collectors use the money to support themselves and their families.

6.5.4 Conclusion

Neadibe (2009) argues that reforms in solid waste management have not given enough consideration to the role and contributions of waste pickers. This section shows that waste pickers in eThekweni Municipality contribute significantly to the functioning of the city by providing large volumes of recyclables, saving the municipality money, and reducing greenhouse gas content in the atmosphere. However, integrating the informal waste collection sector with the formal will further increase benefits to the city by decreasing costs to municipality and reducing urban poverty.

6.6 Relational dialectics in the recycling value-chains

Drawing on previous sections as well as additional information, this section explores the nature of the relationship between the informal sector (waste pickers and secondary collectors) and the formal sector and shows that there is relational dialectic relationship across the value-chain.

During the interview with Respondent Four (2015/01/13), the interviewee explained some of the main issues affecting the metals recycling industry. One of the critical issues is related to a new law pertaining to the export of scrap metal. The law asserts that any scrap metal sale cannot be exported *unless* a willing local buyer in South Africa is *not* available. The aim of

the law is to ensure high quality scrap metal is sent to local foundries instead of exported overseas. In addition, when selling locally, scrap dealers have to sell their scrap at an agreed price which is generally 30% lower than what they could get if they exported. Respondent Four (2015/01/13) explained that these implementations and engagements at the top-end of the value-chain ultimately impact the bottom-end of the value-chain because scrap dealers simply reduce the amount of money paid to collectors per kilogram if they are forced to sell scrap metal at a lower than market price. As such, the impact of an implementation at the top-end is felt immediately at the bottom-end. In order to preserve profits, it is waste pickers who bear the impact of the implementation. Carton (2014:1014) argues that any drastic change to the environment would have large consequences because society and nature are part of the same system and must therefore absorb shocks together, reflecting the fact that the two systems are “coconstituted”. It can be argued that the formal economy and informal economy exhibit elements of ‘coconstitution’ in the same way that society and the environment do. Implementations in the formal sector can have large consequences for the informal sector, and can affect various points along the value-chain. The example of the metals value-chain shows the connected nature of the formal and informal economy.



Plate 4: Metal collectors waiting in line to sell scrap.

Source: Urban-Econ (2014)

It is precisely the importance of the global market for scrap which leads to the creation of so many livelihoods through collection of scrap metal. A drop in demand for metals at the top-end would have consequences all-throughout the value-chain. However, if the supply of scrap metal ceased, a crisis at the top-end would occur. That is why policy-makers have to be extremely careful when intervening in value-chains and attempting to exercise control over markets. The positive intent of the government gazette for metal export is clear, but a lack in clear understanding of the value-chain led to undesirable affects. According to Respondent Five (2015/02/04), South Africa is only able to absorb less than 50% of the total scrap metal generated in the country, necessitating export. However, the implementation of the new law has meant much of the scrap metal does not end up being sold at all translating into a profit loss and ultimately a loss in income for all involved (including waste pickers).

Ethnographic data uncovered over the course of interviewing stakeholders at the top and bottom-end of the various value-chains lead the researchers to a broad understanding that while each material's individual value-chain has nuances, all of them share common traits. For example, in eThekweni Municipality, the informal aspects of recycling largely feature at the bottom-end of the value-chains in the form of collection, pre-processing and transportation – while formal aspects cover all parts of the value-chain but are the major actors at the middle and top-end in terms of processing, manufacturing and exporting. With this understanding in mind, the researcher can make deductions about all recycling value-chains while recognising that there are differences in each.

In order to internalise a change in perception of waste pickers and more broadly, of informal systems operating within recycling value-chains, it is necessary to understand the interconnected nature of the formal and informal spheres. This study argues that a dualistic perception of the economy leads to a negative disposition of the informal sector, so that work which clearly lacks formality is frowned upon by citizens and generally not supported. A negative perception of the informal sector and, more broadly, informal work such as that of waste pickers, leads to conflict and a general lack of targeted measures to assist informal workers. Skinner et al. (2006) show that policies implemented by government have been targeted at the formal sector and therefore have not benefited the people who need it the most and whose development could benefit the South African economy the most. This thesis builds on this idea by arguing that a refusal to internalise the significance, importance, and role of the informal sector leads to ill-targeted policies which do not achieve significant results, such as *Ntsika Enterprise Promotion Agency* and *Khula Enterprise Finance Facility*. Therefore, a

change in perception from viewing the economy dualistically to viewing it as a relational dialectic will help to support and grow the informal sector. It will reduce conflict and give potential for better policy implementation targeted at the correct group of people. The economy itself, particularly in Africa, is a complex web of activities along which both the informal and formal interact, feed off each other, and even depend on one-another.

6.7 Conclusion

The Belo Horizonte municipality implemented unique strategies to create a system in which the formal and informal recycling systems of the city could complement each other, rather than work against or alongside one another. The municipality recognised the potential to utilise the newly formed cooperatives by integrating them into the formal recycling system (Dias, 2011). Pune Municipality played an important role in legitimising waste picking as an occupation in Pune' and changing the activity from 'scavenging' to 'service provision'. The provision of identity cards in 1995 to signify one's occupation as a waste picker provided security, recognition and purpose (Tangri, 2012). This was a huge step in dignifying the work of waste pickers, instilling a sense of pride and purpose. In the examples provided, the respective municipalities responded positively to the autonomous activity of waste picker formations, such as KKPKP in Pune and the National Waste citizenship Forum in Belo Horizonte by supporting their initiatives and working towards integrating waste pickers into the formal system.

This chapter shows that waste pickers are indeed playing a vital role in the functioning of recycling value-chains in the city, while also contributing positively by reducing municipal costs, and reducing greenhouse gas emission. Waste picking in eThekweni Municipality is identified as a key contributor to combatting urban poverty. By researching the bottom end of value-chains the researcher revealed that the nature of the economy is not necessarily dual, as in many cases it mirrors that of a relational dialectic through the interconnectedness and co-constitution of the formal and informal spheres. Despite this, waste pickers receive scant recognition for their contributions to the city, and this is identified as a major concern. This dissertation argues that efforts to integrate waste pickers more formally into the waste management system in eThekweni Municipality would have positive socio-economic ramifications. This may start by a change of mind-set in perceiving the economy as a relational dialectic rather than dual. Internalisation of the mixed nature of the economy and

inter-connectedness of the formal and informal spaces will promote targeted policies which aid development at the grass-roots.

7 CONCLUSION

This section will outline the main findings of the research and address the critical themes, goals and objective identified in the introduction and discussed throughout the thesis.

7.1 The role and impact of waste pickers in eThekweni Municipality

This dissertation shows that waste pickers in eThekweni Municipality play a very important role in the city. They provide a cleaning service by collecting materials which are otherwise littered across the landscape, they provide an environmental service by reducing the amount of materials in landfills, they save the municipality money by reducing collection costs, and they provide input into the GDP of eThekweni Municipality by providing primary inputs into the economy.

The data collected shows that on average, waste pickers collect a significant amount recyclable material per day. This amount showcases the contributions of waste pickers in terms of volumes of recyclables collected. Using the data from interviews, it was possible to uncover how much money each cubic meter of space in the landfills costs DSW. It was calculated that waste pickers, just through reductions to landfill, would save the municipality large amounts of money, highlighting their role in assisting the municipality by reducing costs.

Importantly, the data shows that waste picking in eThekweni Municipality alleviates poverty. Calculations reveal that waste picking provides enough income to push individuals out of poverty. It is not only the waste pickers themselves who benefit from the activity, but their family members and dependants. The data shows that waste picking provides enough income for the waste pickers as well as his/her dependants to fall above the poverty line. While it is understood that other activities supplement waste picking as a source of income, the data indicates waste picking as the predominant form of income for the waste pickers, showing that it helps significantly in providing enough income to support livelihoods. This is an important finding as it shows the extent to which waste picking assist in poverty alleviation.

7.2 Perceiving the economy as an integrated 'relational dialectic' rather than a dualism

Analysis of the survey data, interviews and ethnographic data obtained by the researcher revealed the nature of economic activity and interaction at the bottom-end of recycling value-chains in eThekweni. Findings suggest that the economy is not, as former president Thabo Mbeki suggested, divided into two spheres which are inherently separate from each other. Rather, the first (formal) and second (informal) economies are linked in various ways, displaying aspects of a 'relational dialectic' rather than dualism.

Firstly, waste pickers play a large role in the recycling industry in eThekweni Municipality. This shows that the spheres are interconnected because the formal sector relies on the informal sector for large portions of its material and raw inputs. This finding concurs with Skinner et al. (2006) who suggest that the economy cannot be 'dualistic' if indeed the formal sector relies on the informal sector for inputs.

Secondly, the data reveals that tensions and entanglements exist within the recycling value-chains between the formal and informal economy. Through ethnographic research, the research uncovered tensions in the CBD between shop owners and waste pickers because the shop owners argued that waste pickers hanging around their shops was impacts on customers. These kinds of tensions and entanglements are typical of a relational dialectic, and represent the 'tensions' which can create positive change (Brincat, 2010). The tensions between orange bag collection companies and waste pickers in the suburbs above the CBD are also an example of the tensions and entanglements between formal and informal spheres of the economy. This dissertation shows that the tensions which reveal themselves between formal and informal economic activities are opportunities for positive social economic change.

Thirdly, the interconnectedness or 'coconstitution' which Carton (2014) describes is evident in recycling value-chains. This research has revealed that a decrease in profits for metal scrap dealers and manufacturers at the top-end of value-chains translates into a decrease in profits for waste pickers. The formal and informal sector absorb shocks to the industry together because they are *not* structurally disconnected from one-another.

7.3 Supporting waste pickers through governance

The data reveals that the main challenges facing waste pickers in eThekweni Municipality are the tensions and conflicts with the formal sector, the lack of space with which to sort and stack, and the lack of recognition from society for the work they are doing. Issues facing waste pickers in eThekweni Municipality are therefore not different from those facing waste pickers in other countries. The Pune' Municipality managed to effectively integrate waste pickers into the formal waste management system by providing rights to recyclables, protection from harassment, and space to sort and stack. This had major positive impacts by improving waste management in the city and assisting waste pickers in sustaining their livelihoods. From Pune', Belo Horizonte and Cairo it is clear that waste pickers *can* be successfully integrated into formal waste management and recycling systems. However, in each of these cases, it was not government which made the first move towards this integration, but in fact the unification of waste pickers under worker's unions. Where governments succeeded was in their reaction to the collaboration of waste pickers and the demands made by waste pickers. eThekweni Municipality can learn from this by refraining from implementing any drastic measures to upset the natural status quo of operations unless specific opportunities present themselves, whereby waste pickers collaborate and show what their needs and issues are. However, the research does show that small interventions, such as the provision of formal clothing to recognise the work of waste pickers, and designated space to sort and trade, would be well received.

7.4 Concluding remarks

This dissertation ultimately shows that waste pickers in eThekweni Municipality make positive contributions to society and should receive more support and recognition for their efforts. It also shows that there are inefficiencies within eThekweni Municipality's recycling value-chain which require attention, especially where the informal sector 'clashes' with the formal sector. Perceiving the South African economy as a dual economy is problematic because it fails to recognise the importance of the informal sector in the overall economy as well as the alleviation of poverty. This thesis shows that a change in mind-set is required, so that the economy can be perceived as a relational dialectic, in which different forms of activity operate. By changing the perception of the informal economy, it becomes clear that

targeted support and recognition for this sector is required in order to create positive social economic development in eThekweni Municipality.

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