

**THE SOCIO-ECONOMIC ROLE OF BUY-BACK CENTRES IN THE WASTE
RECYCLING CHAIN IN PRETORIA AND BLOEMFONTEIN (SOUTH AFRICA) -
A COMPARATIVE CASE STUDY**

K Viljoen & R Schenck

K Viljoen: Department of Economics and Econometrics, University of Johannesburg
R. Schenck, Department of Social Work, University of South Africa (UNISA),

Introduction

The official unemployment rate in South Africa stands at around 24 percent and the expanded unemployment rate is around 35 percent (StatsSA, 2011). The continuous increase in unemployment and associated poverty rates necessitated the South African government to magnify its employment creating efforts and initiatives. The introduction of the R9Billion Jobs Fund to enhance the initiatives of making 2011 a year of job creation and the recent employment creation dialogues serves as examples of the urgency to prioritise the creation of employment in all sectors of the economy (National Treasury, 2011:1). The Department of Trade and Industry (DTI) identified significant opportunities for job creation in the recycling industry. However, more research is needed to better understand the industry and its operations (Goldblatt, 2009:18).

A recent study by the HSRC also identified the collection and sorting of waste for recycling as a major source of job creation (Lowitt, 2008:12). As Goldblatt (2009:33) noted “Employment opportunities are concentrated within the collection and sorting phases of recycling. Informal recycling activities such as „waste-picking on landfills” also referred to as scavenging or reclaiming and street waste pickers are also part of these phases. Any recyclable materials need to be collected before it can be recycled. Recycling refers to the processing of recyclable products into an end-product that can be used in the manufacturing of other articles for consumption (Plastic Federation of South Africa, 2010:5).

The activities in the collection and sorting phases are more labour intensive and for that reason a potential source of job creation. The first draft of the National Waste Management Strategy also emphasize that sustainable job creation with regard to the recovery, reuse and recycling of waste will be promoted (Department of Environmental Affairs, 2010:33).

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“Many unemployed people in the informal sector rely on the collection and sale of recyclables to earn a basic wage” (Department of Environmental Affairs and Tourism of South Africa, undated:22). According to the General Household Survey of 2009, almost 1.6 percent of households in South Africa derive an income through selling recyclables (StatsSA, 2009:32). In Gauteng, 60 percent of these households experience hunger on a regular basis which points to the fact that these households collect recyclables to sell as a result of their extreme poverty (HSRC, 2010:46). The study by the HSRC found that approximately 6000 individuals in the city of Tshwane also known as Pretoria depend on some form of waste picking for their livelihood (HSRC, 2010:46).

Informal sector activities like waste reclaiming and street waste picking is a well known phenomenon in the collection and sorting phases of the recycling of waste products. Informal sector activities in the recycling sector stems from poverty which, in most developing countries, forces the poor to make the most of the resources available to them. Given their very low incomes, these activities provide them with re-usable and salable materials (Medina, 1997:5).

Waste reclaiming and waste picking is also an important alternative for those who cannot find employment elsewhere (Taylor, 1999; Fiehn and Ball, 2005). For them, waste picking becomes a survival strategy (Masocha, 2006). They make a living from the recyclables they recover from the waste stream and trade it for cash. It is therefore understandable that waste pickers in Cape Town refer to their work as “skarreling”, “grab grab”, “mining” and “minza” (Benson and Vanqa-Mgijima (2010). The term “Minza” means “trying to survive”, and that is what most of the informal waste collectors try to do.

The current debate in the recycling industry is whether the informal recycling activities should be formalized or not. There is evidence showing that waste recycling strategies that exclude the informal sector, are counterproductive (Wilson, Velis and Cheeseman, 2006:1). The benefits of the informal sector in the recycling industry should therefore not be underestimated. As Blaauw (2010:6) stated “...it is now accepted that the formal and informal sectors will coexist, and are very much interlinked in subtle and intricate ways. It is therefore essential to find ways in which informal collectors can be successfully incorporated

into the formal waste management system in a socially and environmentally desirable manner (Medina, 1997:2).

Buy-back centres are the link between recycling companies and the informal sector activities at the lower end of the recycling chain, and therefore fulfil a crucial role in the waste recycling industry in South Africa.

To fully understand the impact that the recycling industry can have on job creation, and to make informed policy decisions concerning the recycling industry, one needs to assess the role and socio-economic contribution of all role players in the industry. The importance of an investigation into the role of and the impact of buy-back centres in the recycling industry were identified as an important aspect that will provide policy makers with a more complete picture of the waste recycling industry.

Previous research

Previous research on recycling in South Africa focuses on people who reclaim dumpsites and landfill sites with little research on the other informal sector activities such as “street waste pickers”. The role and socio-economic contribution of buy-back centres in this chain has been neglected in literature therefore constitutes a largely un-researched phenomenon. No previous research has been done on this topic.

Aim of the study

The purpose of this paper is to explore the role and socio-economic contribution of buy-back centres, in terms of their linkage and relationship with the bottom end of the waste recycling chain namely the individual street waste pickers. The case study covers two cities in South Africa, with different geographic locations, namely Pretoria and Bloemfontein. These two cities were decided upon for this study, due to their differing proximities to the recycling companies, as well as the fact that one city is much larger while the other city is much smaller.

The aim of the study is to:

- analyse the institutional profile of the buy-back centres in the two geographical areas under study.

- Discuss the role and impact of buy-back centres in the social and economic environment of the street waste pickers.
- Explain the relationship that exists between buy-back centres and recycling companies.

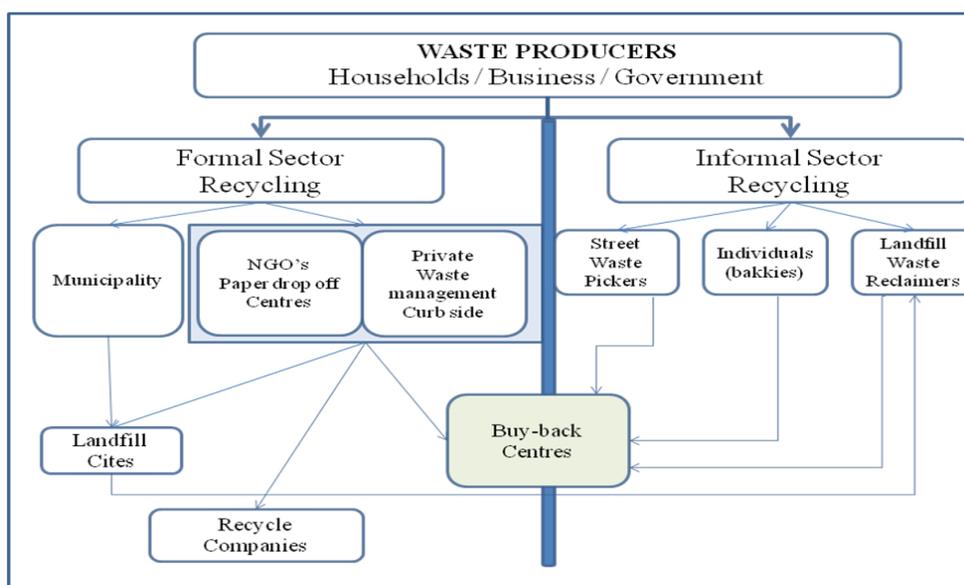
Literature review

There are several stakeholders involved in the recycling chain namely the producers of waste namely the households, businesses and government. Waste from these sources is either collected through formal or informal sector activities.

Formal sector activities include waste management by municipalities, NGO's and private waste management companies. Waste collected by municipalities usually end up at the landfill sites. Some of the waste collected by private waste management companies also lands up at the landfill sites, but a great number are sold to buy-back centres or directly to recycling companies. Waste collected by NGO's are also either sold to buy-back centres or directly to recycling companies.

Informal sector activities include waste collection by reclaimers at landfill sites and street waste pickers who sell their waste to buy-back centres. Figure 1 illustrates a general overview of the waste recycling industry.

Figure 1: General overview of the waste recycling industry.



Source: Adopted and adjusted (Department of Environmental Affairs and Tourism of South Africa, undated:7).

The recycling companies are the upper end of the recycling chain. Recycling companies process the recyclable waste into a form that is readily usable by a manufacturer or end-use market where the recyclable waste is converted into materials or other consumption products (Department of Environmental Affairs and Tourism of South Africa, undated:7). This study deals with the buy-back centres which link the formal and informal sector activities of this industry.

From the illustration of the recycling activities above, it is clear that the buy-back centres plays a crucial role in linking the formal and informal sector activities in the recycling industry. Many opportunities exist for buy-back centres to make money buying waste paper from waste collectors (“Mondi”, 1999:43).

Buy-back centres

A buy back centre is a depot where individual waste collectors, reclaimers and street waste pickers can sell their recyclable waste. As such, there is a close interaction between the buy-back centres and the informal waste collectors as most of them visit the buy-back centres on a daily basis.

The buy-back centres in turn, sell these waste products to other larger buy-back centres or to the recycling companies (Waste Management in South Africa, 2011:1). Recycling companies in South Africa include companies like Collect-a-can, Plastic Federation of SA, Glass Recycling, Carlton Paper, Sappi Waste Paper, Nampak Paper Recycling and Mondi Recycling (Waste Management in South Africa, 2011:1). Buy-back centres therefore contribute towards increasing the recycling of waste and to energy generation in South Africa (Davie, 2002:1).

Because the buy-back centres rely heavily on waste collected by individual waste collectors, reclaimers and street waste pickers, the location of their site is very important. The site must be close enough and accessible to the community it is serving. On the other hand, the buy-back centre should not cause any inconvenience to the people or businesses in the immediate vicinity of the buy-back centres (Department of Environmental Affairs and Tourism of South Africa, undated:16). A good location for a buy-back centre to be viable should be close to an industrial and commercial hub where sufficient quantities of recyclables from packaging

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waste can be obtained (Department of Environmental Affairs and Tourism of South Africa, undated:16).

Informal waste collectors

In developing countries, the informal sector plays a significant role in diverting recyclable materials away from waste disposal towards recycling (Sembiring and Nitivattananon, 2010). The informal waste collectors are generally known as ‘scavengers’ but they have many different names, depending on their local language, on the place where they work, and on the waste material they collect (Medina, 1997: 2). People who collect waste on the streets with trolleys, bags or wheelbarrows are referred to street waste pickers. These street waste pickers are also generally referred to by the buy-back centres as “hawkers”. People collecting waste from the dumpsites or landfill sites are usually referred to as scavengers or reclaimers. Informal collectors retrieve recyclables prior to the disposal of the refuse they pick up (Medina, 1997:4).

There are views that all waste collection activities should be formalised by a system where vehicles collect recyclables from street corners. Informal waste collectors, selling their recyclable waste directly to buy-back centres, however, have advantages over such a system. The waste pickers or collectors can sell their waste at any time and as many times during the day as they wishes. It is also less expensive since street waste pickers bring the waste to the buy-back centres at no additional cost to the buy-back centre. The vehicle system furthermore creates problems in the cities as the pavements are already congested with pedestrians. (Department of Environmental Affairs and Tourism of South Africa, undated:17).

Job creating abilities of buy-back centres

Buy-back centres have the ability to create job opportunities at three different levels. Jobs are created within the buy-back centre itself. These jobs include an entrepreneur who start, operate and manage the centre as well as sorters and balers who accept the recyclable waste from the different waste collectors (Department of Environmental Affairs and Tourism of South Africa, undated:17). According to Mr Roelf de Beer of the Western Metropolitan Local Council of Greater Johannesburg, entrepreneurs who want to start a buy-back centre should be encouraged to enter the recycling industry. This will create job opportunities for other individuals to become self-employed, who can earn a reasonable living as hawkers (“Mondi”, 1999:43). In this way, buy-back centres create informal job opportunities at the lower end of

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the recycling chain. These informal job opportunities include street waste pickers who are willing to collect waste from the streets and waste pickers at landfill sites. At the upper end of the chain, it can create jobs at the recycling companies, as more waste are collected and retrieved for recycling.

Recycling companies only buy the waste products they can use from the buy-back centres (Waste Management in South Africa, 2011:1). This ensures that only those waste products that can be put to good use by the recycling companies will be in demand. If consumers are not prepared to buy items made from recycled material, the recycling companies will not buy the waste products and the recycling industry will collapse (Department of Environmental Affairs and Tourism of South Africa, undated:22).

Pricing structure in the recycling industry

The prices of recyclable waste are set by the recycling companies and dictated by demand and supply factors. Each waste product's price is subject to its own supply and demand function dictated by the consumers or end-users of items made from recycled materials (Department of Environmental Affairs and Tourism of South Africa, undated:22). The buy-back centres can negotiate the price they receive for their recyclable waste but it depends on market demand, whether they can supply sufficient volumes, the quality of the sorting and preparation of recyclables as well as the level of contamination (Plastic Federation of South Africa, 2010:5).

The prices that buy-back centres pay to the informal waste collectors on the other hand, differs from one buy-back centre to next depending on the cost structure of each individual buy-back centre.

The cost that buy-back centres have to take into consideration when determining the prices that they can offer informal waste collectors include rent or cost of the premises, workers' salaries, materials and equipment to sort and bale the recyclable waste, electricity and transport or fuel bill. The premises of the buy-back centres can either be funded by the recycling company, the municipality or the entrepreneur or owner of the buy-back centre himself. Other factors that might influence the prices offered for waste includes how well the informal waste collectors sorted the waste and whether it is baled in bulk (Department of Environmental Affairs and Tourism of South Africa, undated:17). Although all buy-back

centres have the facilities and capacity to sort waste, the informal waste collectors therefore have to pre-sort the waste they sell to the buy-back centres to ensure better prices (“Mondi”, 1999:43).

For a buy-back centre’s sustainability, it is the task of the entrepreneur of the buy-back centre to ensure that the buy-back centre is supplied with enough recyclable waste, whether from street waste pickers, landfill reclaimers or individual waste collectors. Buy-back centres therefore need to have sufficient information about the type and quality of waste that the recycling companies demand (Waste Management in South Africa, 2011:1).

Methodology

A quantitative survey coupled with qualitative questions similar to the mixed method approach used in a study by Schenck and Blaauw (2010) was adopted in this study to elicit information on the role and social and economic contribution of buy-back centres, in terms of their linkage with the bottom end of the waste recycling chain namely the individual street waste pickers.

Creswell and Plano Clark (2011:5) describe the mixed method approach as a method focussing “on collecting, analysing, and mixing both quantitative and qualitative data in a single study or series of studies. Its single premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone”.

According to Creswell and Plano Clark (2011:61) it is important to state explicitly, the reasons for using the mixed method design. The reason for using this design is to collect as much data as possible from the buy-back centres which are beyond the scope of what a structured questionnaire on its own can achieve. With this kind of design, knowledge on the broader picture of the recycling industry and the role of the buy-back centres in the recycling chain can be obtained.

Qualitative questions were built into the questionnaire to clarify a number of the quantitative items. Creswell and Plano Clark (2011:40) are of the opinion that this approach includes both post-positivist and constructivist thinking to allow the participants to give their own meaning to some of the questions. When qualitative research are used along with quantitative methods,

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the qualitative research help us to interpret and better understand the complex reality of a given situation as well as the implications of the quantitative data (Mack, Woodsong, MacQueen, Guest & Namey, 2005:2).

Data on buy-back centres were not readily available and the researcher conducted an intensive search for buy-back centres in the two areas covered in the study. Available data was found to be incomplete, inaccurate and outdated. Data on buy-back centres were obtained from an internet search, telephone directories, referral by other buy-back centres and own observation. In some cases waste pickers on the streets directed the researchers to the buy-back centres. Only the buy-back centres that buy from street waste pickers were covered by this study and no buy-back centre that deals exclusively with scrap metal were included.

Ten buy-back centres were identified in Pretoria and five in Bloemfontein. The fieldwork for the study was done between 19 April and 4th July 2011. The search for buy-back centres as well as the fieldwork was conducted by the authors themselves. The lack of reliable and updated information on the buy-back centres and their location renders this an extremely difficult task. The buy-back centres were however, very cooperative in this regard. For the purpose of this study, the information obtained from buy-back centres is kept anonymous to prevent harm to any of the participants.

In the next section the results of the study will be discussed and linked with the relevant literature. It will be done in three sections according to the three aims of the study.

Results of the Study

This section deals with the analysis of the institutional profile of the buy-back centres in the Pretoria and Bloemfontein.

Respondent's relationship to the recycling buy-back centre

From the ten buy-back centres identified in Pretoria, seven of the respondents were the owners of the buy-back centres whereas three were employees in charge of the operations at the buy-back centres. In Bloemfontein, only two of the five respondents were the owners This is indicated in Table 1 below.

Table 1: Respondent's relationship to the recycling buy-back centre (Pretoria n=10; Bloemfontein n=5)

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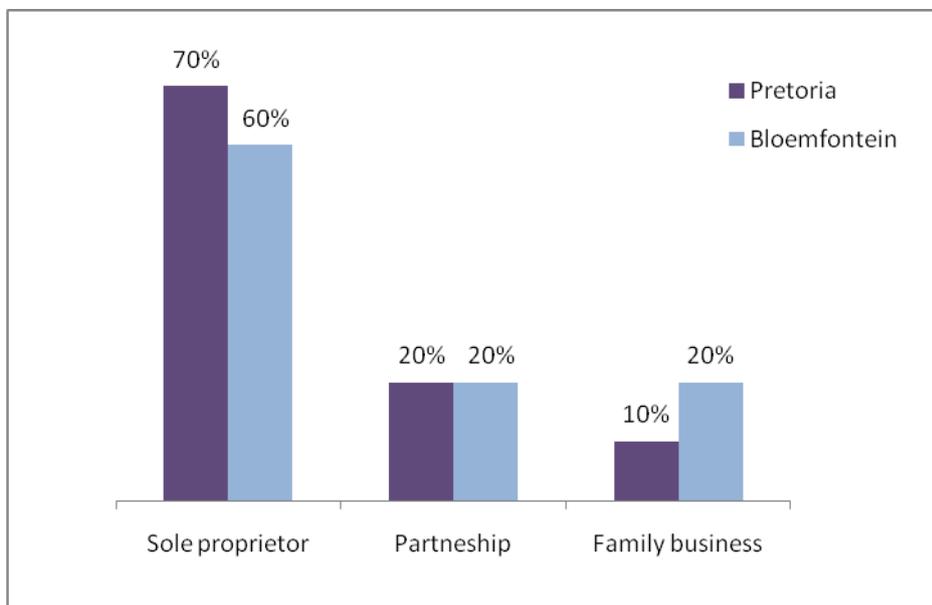
| | Pretoria | Bloemfontein |
|-----------------|-----------------|---------------------|
| Owner | 7 | 2 |
| Employee | 3 | 3 |
| Total | 10 | 5 |

Source: Survey data (2011)

All respondents were very cooperative and provided valuable quantitative as well as qualitative information on the buy-back centre as well as the recycling industry in general in their area.

Type of business structure

Figure 2: Business structure of the buy-back centres (Pretoria n=10; Bloemfontein n=5)



Source: Survey data (2011)

The results of the study shows that most of the buy-back centres in Pretoria and Bloemfontein are sole proprietors, namely seven in Pretoria and three in Bloemfontein. This is followed by only two partnerships in Pretoria and one in Bloemfontein with only one family business in each of the two cities. As indicated in Figure 1, the percentage distribution of the different business structures resembles more or less the same proportion in each city.

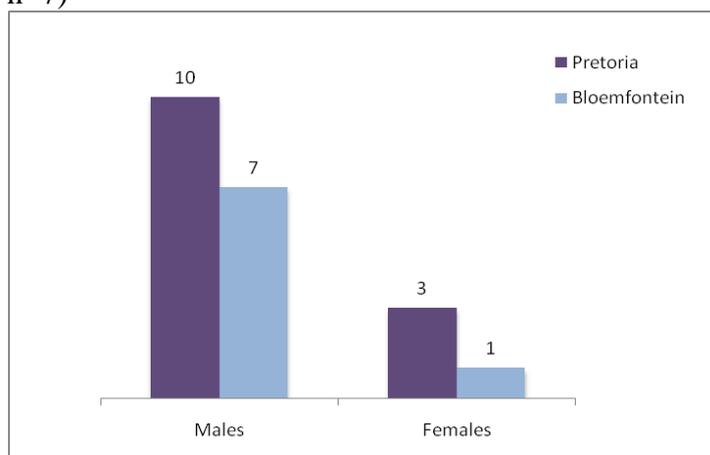
An important factor to note in terms of the number of owners of the buy-back centres covered in the study is the complexity of the structures of ownership. The total number of owners of the ten buy-back centres in Pretoria covered in the study amounts to thirteen. Four of the buy-back centres are owned by the same owner, one is a family business with two owners and one

is a partnership also with two owners. The largest buy-back centre is a private company with five directors. The three remaining buy-back centres have one owner each. Three buy-back centres in Bloemfontein are owned by one person each, one family business consists of three owners and one partnership consists of two owners. One of the owners of the family business are however also one of the partners in the partnership. The number of owners in Bloemfontein therefore amounts to seven owners amongst the five buy-back centres.

Race and gender of owners

Figure 2 shows that the gender distribution of the ownership in the two areas is predominantly male orientated with only three and one female owners in Pretoria and Bloemfontein respectively.

Figure 3: Gender distribution of ownership of buy-back centres (Pretoria n=13; Bloemfontein n=7)

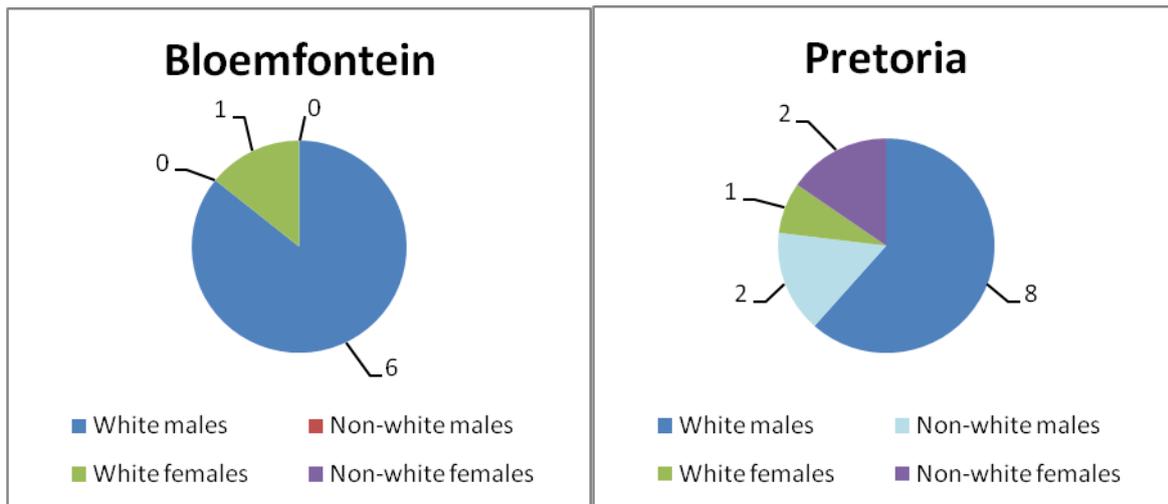


Source: Survey data (2011)

With regard to the race distribution, a distinction was only made between Whites and Non-whites.

Figure 4 portrays the racial composition of buy-back centre ownership. It is clear that in both areas the ownership is still White male dominant.

Figure 4: Race distribution of owners of buy-back centres (Pretoria n=13; Bloemfontein n=7)



Source: Survey data (2011)

Number of employees working on the buy-back centre sites

Assessing the ability of buy-back centres to create jobs, it is clear that the total number of employees working on the different buy-back centre sites differs significantly between the two cities as well as between the different sites. The mean number of employees however, is very similar in the two cities with a mean of 18.4 in Pretoria and 18.6 in Bloemfontein.

Table 2: Total number of employees working on the buy-back centre sites (Pretoria n=10; Bloemfontein n=5)

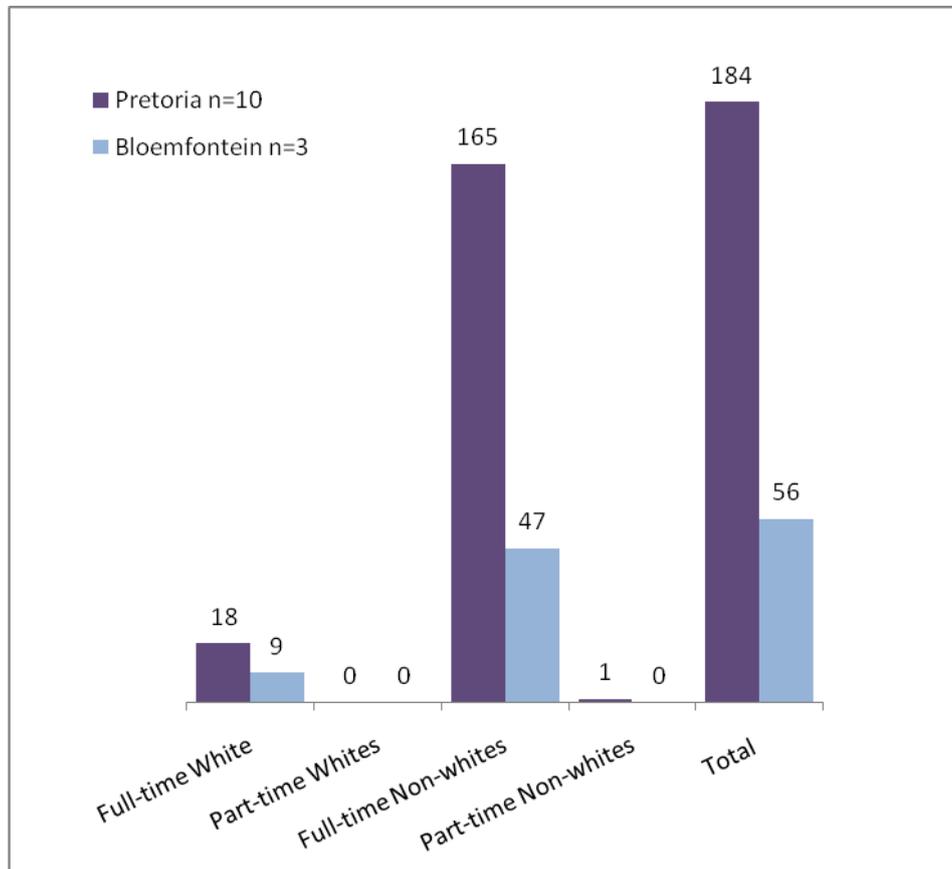
| | Total number of employees | Minimum number of employees | Maximum number of employees | Mean |
|--------------|---------------------------|-----------------------------|-----------------------------|------|
| Pretoria | 184 | 2 | 89 | 18.6 |
| Bloemfontein | 93 | 14 | 27 | 18.4 |

Source: Survey data (2011)

Table 2 shows the total number of employees employed in Pretoria is much larger than that in Bloemfontein. This is expected as the number of buy-back centres in Pretoria is double that of Bloemfontein. What is of interest is the fact that the smallest and largest buy-back centres in terms of employee numbers are in Pretoria. Five of the ten buy-back centres in Pretoria employ less than five employees and two employ between five and eight employees. The largest buy-back centre in Pretoria has 89 employees.

The results on the racial distribution of the employees at the buy-back centres reveal that buy-back centres are an important employment generator mostly for non-White employees.

Figure 5: Racial distribution of employees working at the different buy-back centre sites (Pretoria n=10; Bloemfontein n=5)



Source: Survey data (2011)

It is also important to note that the buy-back centres provide full-time employment opportunities and therefore does not exploit cheap part-time workers to ensure high profit margins. There is only one Non-white part-time worker employed in Pretoria and none in Bloemfontein.

Operations and activities at the buy-back centre

Due to the nature of ownership and the size of the buy-back centres, the main activities of all buy-back centres in the two cities are the basic tasks of receiving, weighting, sorting and packing of the recyclable waste.

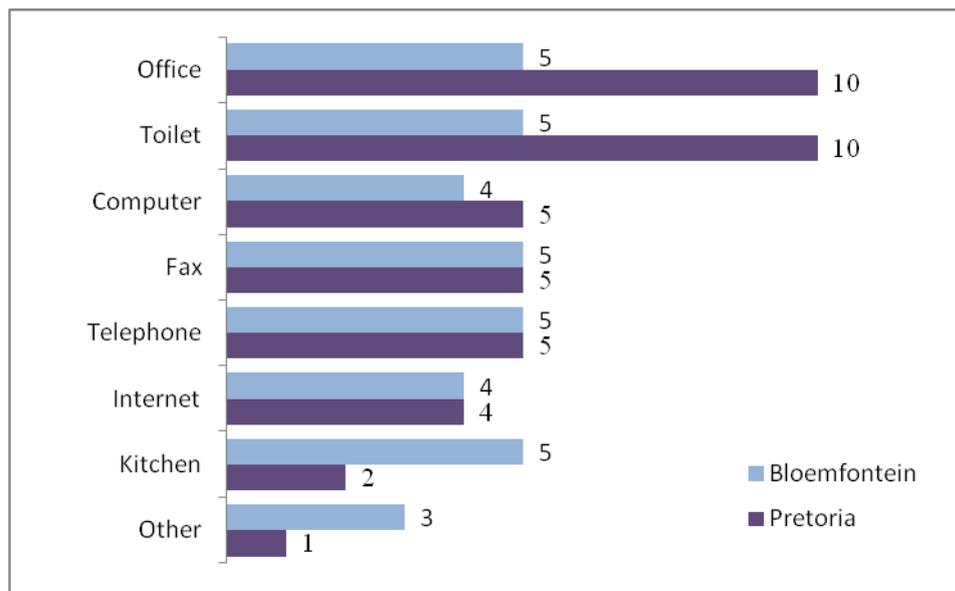
Table 3: Operations and main activities of buy-back centres on site (Pretoria n=10; Bloemfontein n=5)

| | Pretoria | Bloemfontein |
|--------------------|-----------------|---------------------|
| Do pay-outs | 10 | 5 |
| Sorting the waste | 10 | 5 |
| Packing the waste | 10 | 5 |
| Weighing the waste | 10 | 5 |
| Baling the waste | 2 | 2 |

Source: Survey data (2011)

Table 3 shows that only two buy-back centres that buys from street waster pickers in each city are large enough to have baling equipment. The baling machines are provided by the recycling companies to buy-back centres who supply them with sufficient quantities of recyclable waste to justify the expense.

Figure 6: On-site facilities at the buy-back centres ((Pretoria n=10; Bloemfontein n=5)



Source: Survey data (2011)

In the investigation into the on-site facilities at buy-back centres it is interesting to note that the facilities of the buy-back centre sites differ significantly between the two cities. All buy-back centres have the most basic facilities on site namely an office and a toilet as indicated by Figure 6. In Bloemfontein, all buy-back centres also have fax, telephone and kitchen facilities. Eighty percent or four have computer and internet facilities and sixty percent or three have other facilities like a tuck shop, shredder or baling facilities. Besides office and toilet facilities, only half or five of the buy-back centres in Pretoria have computer, fax and

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telephone facilities on site and only forty percent or four have internet facilities. Of great concern is the fact that only twenty percent or two of the buy-back centres in Pretoria have a kitchen for their staff.

The next section shows the results on the relationship of buy-back centres with informal waste collectors and specifically street waste pickers.

Types and numbers of street waste pickers that visit the buy-back centres

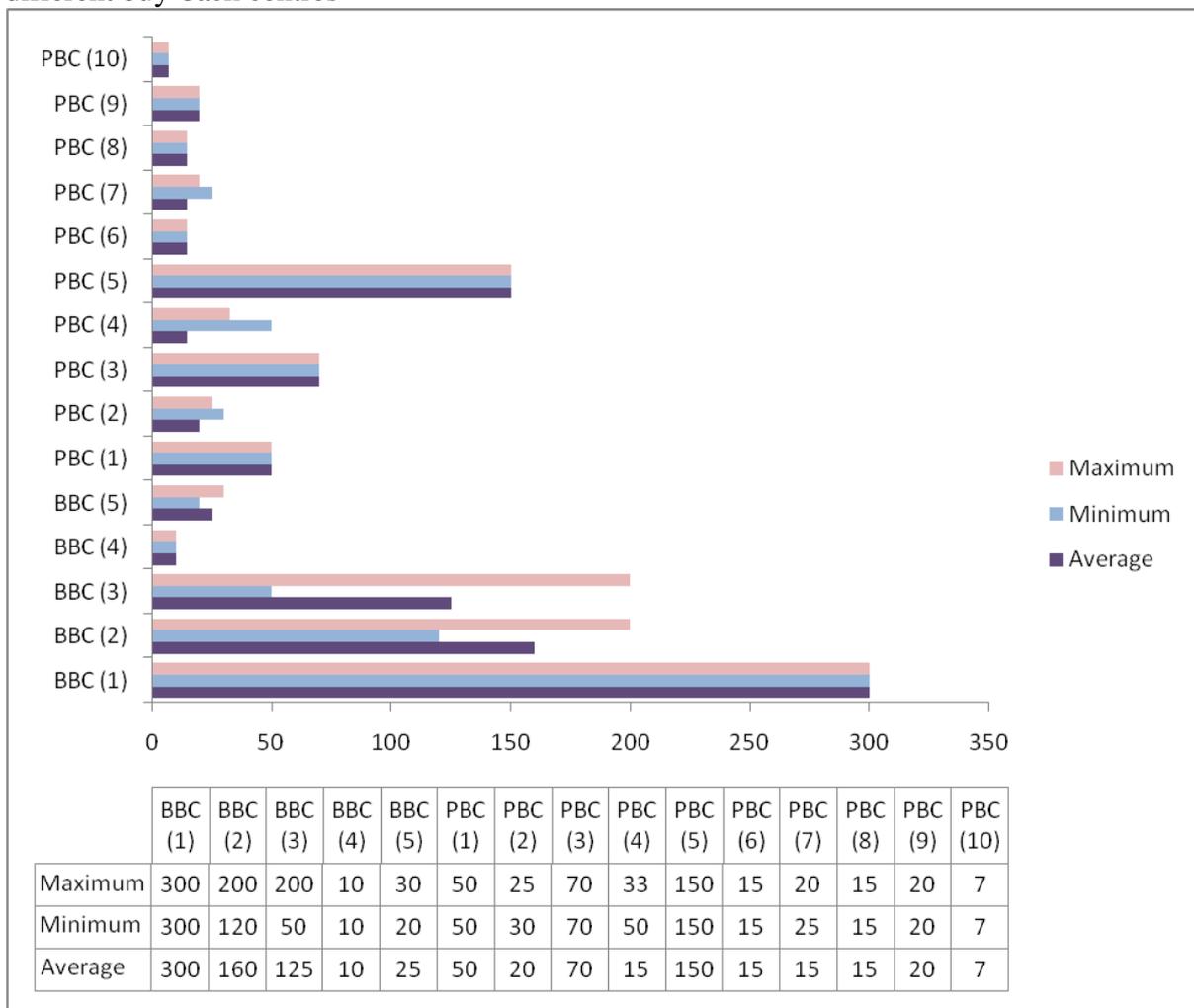
An initial observation in a study by (Schenck & Blaauw, 2010) estimated the number of street waste pickers active within the Pretoria city limits between 150 and 200. Frequent movement of street waste pickers from one location to another, renders an accurate estimation of street waste pickers impossible. Over a five-week period, only 142 street waste pickers could be found, but it is possible that not all the waste pickers in Pretoria were included in the study. The study by (Schenk & Blaauw, 2010???) concluded that the best places to find the waste pickers were at the buy-back centres, where they sell the goods they have collected.

This study attempts to get a more accurate estimation of the number of the informal waste collectors. The respondents however, confirmed the observation in the study by (Schenck & Blaauw, 2010) that it is very difficult to give an accurate estimated number of street waste pickers who makes a living from the waste that they sell to the buy-back centres. They postulated that the same waste pickers move between the different buy-back centres and deliver goods to depots in different areas on different days of the week. The study of street waste pickers in India conducted by Hayami *et al.* (2006) reveals similar movements between buy-back centres. Despite this limitation, the buy-back centres gave an estimation of the minimum and maximum number of street waste pickers that visit their sites frequently.

Figure 7 clearly indicates that in both cities, one or two of the larger buy-back centres attract more street waste pickers than the other smaller buy-back centres. The large number of smaller buy-back centres in both cities is a direct result of the need to have several smaller buy-back centres across the city in order to provide easier and closer delivery points for the street waste pickers. According to the guidelines by the Department of Environmental Affairs and Tourism of South Africa (undated:17) each centre should be strategically located to service collectors within 2 to 5 kilometers radius.

If there is no buy-back centres within a reasonable distance from where the street waste pickers find their recyclable waste, it makes their life difficult. The recyclable waste collected by the street waste pickers is heavy and becomes uncomfortable to carry for long distances. It is therefore extremely important that these centres are conveniently placed in the areas where collectors find the recyclables. (Department of Environmental Affairs and Tourism of South Africa, undated:17).

Figure 7: Estimated minimum and maximum number of street waste pickers who sell at the different buy-back centres



Source: Survey data (2011)

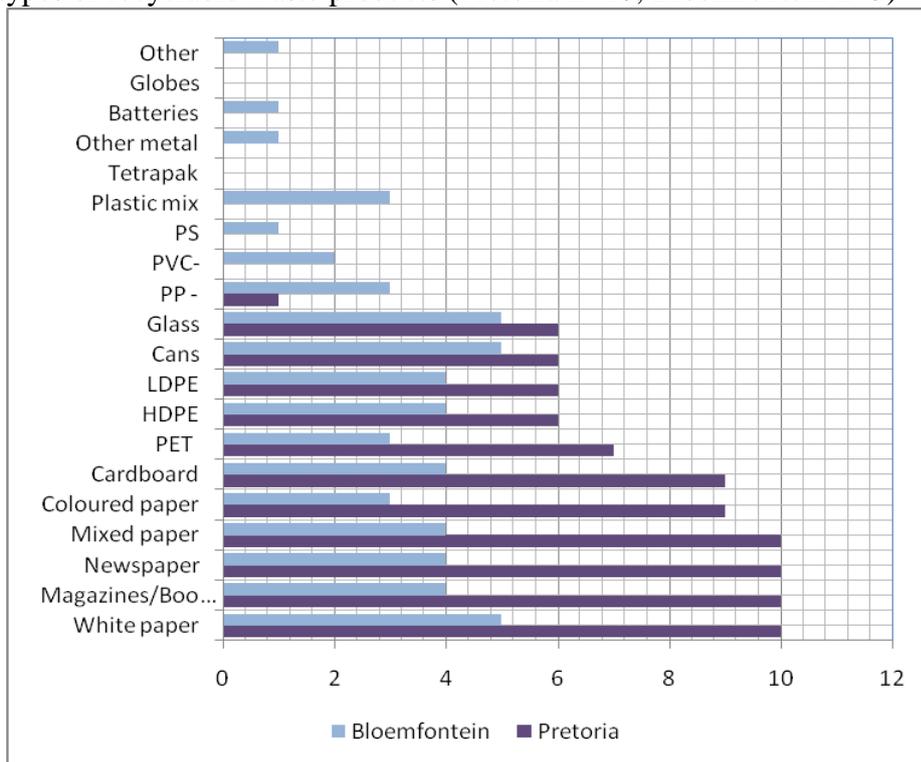
In Bloemfontein, two of the buy-back centres also buy ferrous and non-ferrous metals together with all the other recyclable waste. For this reason they attract more street waste pickers.

Waste products that buy-back centres buy from waste collectors and their prices

Whereas recycling initiatives for cans, glass and plastic bottles have led to large increases in the rate of recycling, recycling rates for plastic bags remain close to zero (Paton, 2009:1). According to Nahman it is partly because of the limited number of end-uses for recycled plastic bags (Paton, 2009:1).

The recycling of other packaging materials has been very successful. Collect-a-can, which collects cans and recovers high-grade steel by extracting the tin content, has achieved a 68 percent recycling rate for cans. Glass recycling levels also increased from 20 percent to 26 percent after the industry launched voluntary recovery programmes, and plastic bottle recovery from 2 percent to 17 percent (Paton, 2009:1).

Figure 8: Number of buy-back centres in Pretoria and Bloemfontein buying the different types of recyclable waste products (Pretoria n=10; Bloemfontein n=5)



Source: Survey data (2011)

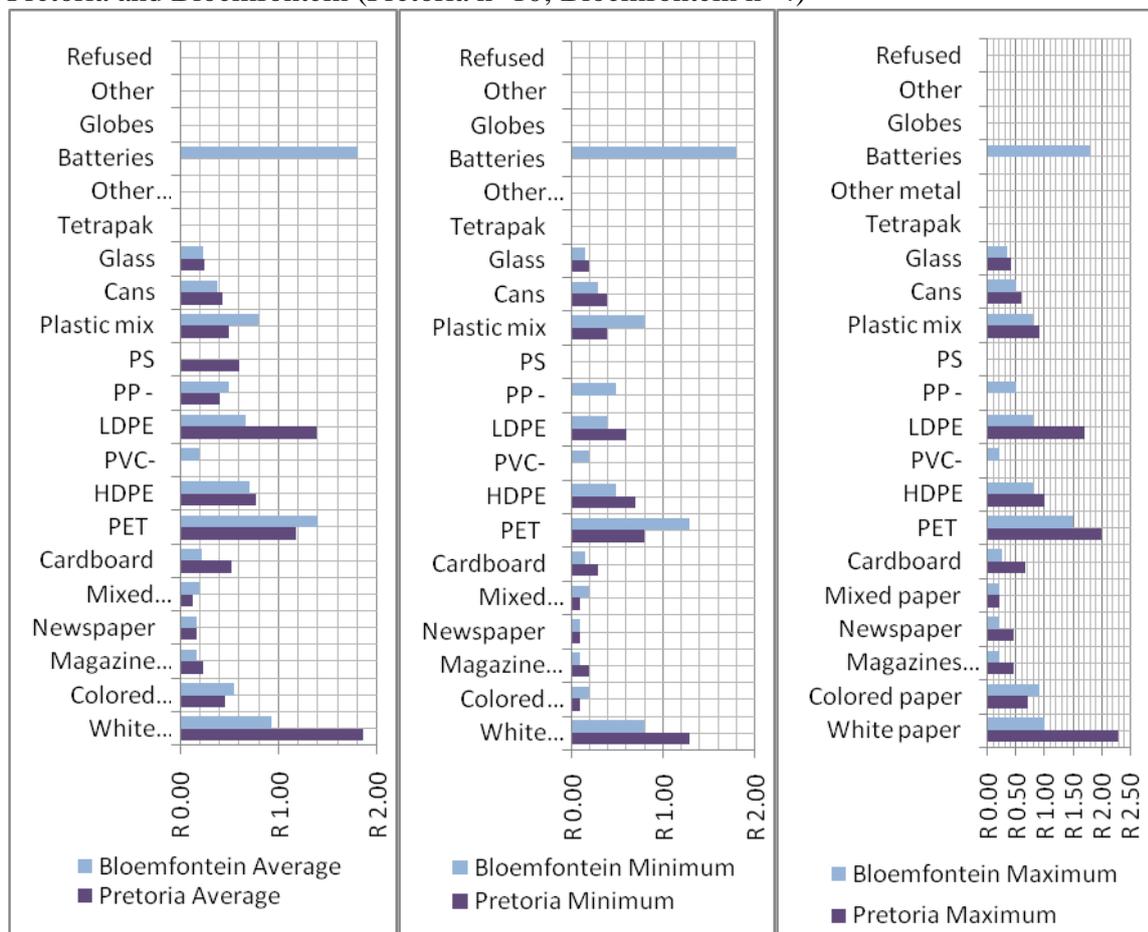
Figure 8 reveals that all ten buy-back centres in Pretoria buy white paper, magazines, books, newspapers and mixed paper. Nine indicated that they collect cardboard and coloured paper. The Plastic Federation of South Africa claims that PET offers one of the most widely available recycling options in terms of all recyclable plastics which are confirmed by this

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study. Seven buy-back centres in Pretoria buy PET and only six is buying glass, cans, LDPE and HDPE.

In Bloemfontein white paper, glass and cans are high in demand by all five buy-back centres. Four buy-back centres buy magazines, books, newspapers, mixed paper, cardboard, HDPE and LDPE. Three buy-back centres buy coloured paper, PET, PP and plastic mix. Only two buy PVC and only one buy PS, other metals and batteries. From figure 8 it is clear that the buy-back centres in Bloemfontein are more diversified than the buy-back centres in Pretoria because they also buy PVC, PS, plastic mix, batteries and other metals which include ferrous and non-ferrous metals.

Figure 9: Mean, minimum and maximum prices of the different recyclable waste products in Pretoria and Bloemfontein (Pretoria n=10; Bloemfontein n=4)



Source: Survey data (2011)

The prices of the different products vary between the two cities as well as between the different buy-back centres. White paper is the recyclable waste product that can earn a street

waste picker in Pretoria, the highest on average price per kilogram followed by LDPE and PET. This is an indication that these recyclable waste products are high in demand in Pretoria. In Bloemfontein, the picture looks somewhat different. Batteries are the highest income generator followed by PET and then white paper.

The price of white paper as well as for magazines and newspapers differ significantly between the two cities. The reason for the significant gap between the prices of these products may be attributed to the fact that most or three of the five buy-back centres sell their paper to another buy-back centre for baling who in turn sell it to a recycling company.

Most of the buy-back centres claim that the prices of these recyclables do not change very often. The only two buy-back centres in Bloemfontein, who indicated that the prices change on almost a daily basis, were the buy-back centres that deal with other metals like ferrous and non-ferrous metals. The reasons given for the price changes of the different products are indicated in Table 4 below.

Table 4: Reasons for changes in the waste products' prices

| Reasons for price changes | Products affected |
|--|--|
| Supply and Demand factors | White paper |
| Prices determined by recycling companies or other buyers from buy-back centres | Coloured paper Magazines & books |
| Prices of buy-back centres to which they supply changes | Newspaper, and mixed paper, Cardboard, Plastic, PET, polyethylene terephthalate, HDPE, PVC, LDPE, PP, PS, Plastic mix, Other metal Ferrous and non-ferrous, Batteries |
| Competitors prices changed | |
| Fuel hikes | |
| Scarcity of goods | |
| Exchange rate changes | Plastic and PET, Other metal Ferrous and non-ferrous, Batteries |

Source: Survey data (2011)

Most of the products' prices change due to demand and supply factors. Some buy-back centres export their excess plastic, especially their excess PET to China, therefore, the exchange rate has a direct influence on the prices they receive from abroad. This instability in the prices is then carried over to the informal waste collectors in the form of lower or higher prices. Another factor that has an influence on the product's prices is price changes by recycling companies or other buy-back centres to which the buy-back centres supply. The recycling company price changes are driven by the changes in demand for certain types of

waste during certain periods of the year. If competitors prices change, it also force some of the buy-back centres to adjust their prices accordingly to ensure that they retain their clients. The escalation in fuel prices is also a reason given by buy-back centres for price changes.

Patterns in the business activities with informal waste collectors and specifically street waste pickers

The business activities at buy-back centres differ from day to day. The busiest season, according to most buy-back centres, is summer and more so during the months of December and January. This is expected as these months are the months in which most consumers and households spend more and buy more goods which create more waste products. More waste is then assessable to waste collectors. Buy-back centres who buy used fruit cardboard boxes also find that in summer, they are supplied with more boxes, as the farmers' return is better in summer than in winter. Most buy-back centres also indicated that the activities of street waste pickers are less at month-end. Fridays are one of their busier days, most probably because the waste collectors need money for the weekend. Rain also inhibits waste collectors from doing business with buy-back centres.

Support by buy-back centres to informal waste collectors and specifically street waste pickers.

The buy-back centres have a direct and personal relationship with street waste pickers. The assessment whether the buy-back centres provide any kind of support or facilities to the street waste pickers, showed that the street waste pickers get very little support from the buy-back centres. Table 5 shows that only two buy-back centres in Pretoria and only one buy-back centre in Bloemfontein provide street waste pickers with meals. Only one buy-back centre in Pretoria provide shelter for the street waste pickers and only two give them money donations. The buy-back centres do provide their regular street waste pickers either with bags or trolleys. In Pretoria six of the ten buy-back centres provide them with trolleys. Four of these six buy-back centres also provide them with bags. The remaining four buy-back centres do not provide them with any bags or trolleys. In Bloemfontein, four buy-back centres provide the waste collectors with bags and only one of them provide trolleys as well. One buy-back centre does not provide any bags or trolleys.

In Pretoria most or seven buy-back centres helps the street waste pickers with the safe-keeping of their money as opposed to only one in Bloemfontein. None of the buy-back

centres in Bloemfontein lend money to street waste pickers whereas in Pretoria, seven lend money to street waste pickers. The amounts vary between a minimum of R20 and a maximum of R200. None of these buy-back centres charge any interest on the money they lend them. One specific buy-back centre in Bloemfontein provides meals, clothing, bags and blankets for the children who collect waste for a living.

Toilet facilities and drinking water are commonly provided by most buy-back centres but none provide any other facilities like a kitchen to prepare meals or washing facilities. One buy-back centre in Bloemfontein operates a tuck shop which is accessible to the street waste pickers.

Table 5: Buy-back centre support to street waste pickers (Pretoria n=10; Bloemfontein n=5)

| Kind of support | Pretoria | Bloemfontein |
|------------------------------------|-----------------|---------------------|
| Meals | 2 | 1 |
| Shelter | 1 | 0 |
| Money donations | 2 | 0 |
| Clothing | 1 | 1 |
| Bags | 4 | 4 |
| Trolleys | 6 | 1 |
| Safe-keeping of money | 7 | 1 |
| Lend money to street waste pickers | 7 | 0 |
| Blankets | 0 | 1 |
| Toilet facilities | 10 | 3 |
| Kitchen facilities | 0 | 0 |
| Drinking water | 10 | 4 |
| Washing facilities | 2 | 0 |
| Tuck shop | 0 | 1 |
| Transport to collect bulk waste | 6 | 3 |

Source: Survey data (2011)

Six of the ten buy-back centres in Pretoria and three in Bloemfontein have trucks or bakkies available to assist street waste pickers with transport if they find waste in bulk, which they want to sell to the buy-back centre. Eight of the nine buy-back centres indicated that they provide this service free of charge except one buy-back centre in Bloemfontein, who charges between R20 and R30 for collection fees.

Relationship of buy-back centres with recycling companies

The buy-back centres have a direct relationship with the recycling companies. The buy-back centres in Pretoria and Bloemfontein sell their waste to a wide variety of recycling

companies. Some of the buy-back centres are agents of large and well known recycling companies. These recycling companies usually guarantee that they will buy the waste products which they require from the buy-back centres (“Mondi”, 1999:43). The buy-back centres can however, collect any waste materials but it is then the responsibility of the individual buy-back centres to find a buyer for the other waste products.

A phenomenon characterising the buy-back centres in Bloemfontein, is that three of the five buy-back centres sell their waste to another larger buy-back centre which are a baling plant and who do not buy small quantities from the street waste pickers. Another buy-back centre sells to a larger buy-back centre who also buys from street waste pickers and who are included in this study. This phenomenon causes an additional layer of buy-back centres, which act as an extra middle-man between the street waste pickers and the recycling companies, eating away the profits or decrease the price paid to street waste pickers.

Collection/delivery of waste products to recycling companies

Table six reveals that most of the recycling companies or waste buyers collect the waste from the buy-back centres. This lessens the cost of the buy-back centre in terms of their transport bill. The general practice is that the buy-back centre contacts the recycling company once they have enough waste to be collected.

Table 6: Collection/delivery of waste products to recycling companies (Pretoria n=10; Bloemfontein n=5)

| | Collect | Deliver |
|--------------|---------|---------|
| Pretoria | 8 | 2 |
| Bloemfontein | 3 | 2 |

Source: Survey data (2011)

Summary and Conclusions

The ownership of buy-back centres in Pretoria and Bloemfontein is still predominantly White male orientated with only four female owners. Most of the buy-back centres are sole proprietors.

The buy-back centres promote and sustain on-site job opportunities for 277 workers in total in Pretoria and Bloemfontein. The average number of on-site jobs created by the buy-back centres in Pretoria is 18.6 and in Bloemfontein it is 18.4. This is an encouraging fact

especially for poorer cities with high unemployment rates. These figures exclude the owners of the buy-back centres who amounts to a total of 20 owners. Pretoria has the smallest and largest buy-back centres in terms of employees. Although the ownership of buy-back centres are predominantly White males orientated, they are an important employment generator for full-time Non-white employees.

The buy-back centres further creates informal job opportunities for between 932 and 1145 street waste collectors who cannot find a job in formal employment sector. Due to the buy-back centres' existence, they are also indirectly responsible for formal job opportunities at the upper end of the recycling chain, namely the recycling companies.

The prices paid to these street waste collectors differ between the different buy-back centres as well as between the different cities. The reasons for this price differences includes the fact that not all buy-back centres supply or sell their waste to the same recycling companies. Each recycling company offer different prices to the buy-back centres which affect the prices that they in turn can offer the street waste collectors for their waste. In addition to the different prices from recycling companies, the cost structure of the buy-back centres, which also differs, also have an influence on the prices paid to street waste collectors.

The buy-back centres play an important role in linking the formal sector recycling activities with the informal sector recycling activities. Any changes in the formal or informal recycling sectors will have a direct influence on the operations and existence of the buy-back centres. Buy-back centres can therefore be regarded as important role players in the recycling industry.

Limitations of the study

The paper is based on a case study approach and the findings can therefore not be generalized. The findings are specific to buy-back centres in Pretoria and Bloemfontein and reflect the differences in the structure and operations of buy-back centres in different geographical areas. Thus, the findings are not necessarily applicable to all buy-back centres.

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