



Thinking Households—How Resident Conceptualisations of Waste, Reclaimers and Separation at Source Shape Recycling Practices

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Abstract

Municipalities across the globe are implementing separation at source programmes to reduce waste sent to landfills. Yet typically, significant numbers of households do not participate. This article contributes to debates on reasons for low S@S participation rates through comparative analysis of participation in Johannesburg’s first S@S programme by residents in the low-income, predominantly black suburb of Newlands and the high-income, predominantly white area of Franklin Roosevelt Park. The article argues that how residents conceptualised waste, S@S and reclaimers (waste pickers) influenced whether they separated their recyclables and what they did with them. Class (which is articulated with race) played an important role, as while some residents in each area revalued recyclables via routes other than the official Pikitup programme, those in Franklin Roosevelt Park tended to separate for reclaimers, while residents in Newlands were more likely to sell their recyclables to augment their incomes or reuse them to reduce the need for new purchases. These separation practices and the quantities diverted from landfill were invisible to Pikitup, which only recognised separation of materials for its pilot. The findings highlight the necessity of expanding conceptualisations of S@S to include these additional routes to revaluation if we are to develop S@S programmes that are contextually appropriate and capture accurate data on waste diversion from landfills. In addition, interventions to transform residents’ conceptualisation of waste so that it excludes recyclables and other items that retain value could facilitate greater participation in this expanded form of separation at source.

Keywords Waste · Separation at source · Recycling · Reclaimers · Waste pickers · Waste theory · Waste picker integration

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Introduction

Management of urban solid waste is one of the major environmental issues facing developing countries, including South Africa. Increasing urbanisation has resulted in higher consumption of products, leading to larger quantities of waste being generated (Makwara & Magudu, 2013; Mmereki et al., 2016; Tvedten & Candiracci, 2018). Not only is waste a key issue to all as everyone produces waste, but there is increasing recognition that its environmental and social impacts demand a shift to more sustainable waste management practices (Gregson & Crang, 2010; Oteng-Ababio, 2014; Volschenck et al., 2021).

The selective collection of recyclable materials through ‘separation at source’ (S@S) programmes is upheld as a primary way to divert domestic waste from landfills that are rapidly reaching full capacity (Moh, 2017; Zeng et al., 2016) and to enhance the quality of recyclables collected for re-insertion into the recycling value chain (Chen et al., 2017). However, the success of S@S hinges on the participation of residential households, and numerous studies establish that participation rates are notoriously low in most developing countries (cf Mbiba, 2014; Miezah et al., 2015; Padilla & Trujillo, 2018; Schoeman & Rampedi, 2022b; Strydom & Godfrey, 2016). This leaves many S@S programmes far from achieving their goals.

In the past 15 years, the South African government has made several interventions to promote S@S. The 2008 South African National Environmental Management: Waste Act mandated municipalities to implement S@S programmes that facilitate the diversion of municipal solid waste from landfills (Republic of South Africa, 2008). Following this, the 2011 National Waste Management Strategy (NWMS) (Department of Environmental Affairs, 2011) required all municipalities to implement S@S by 2016. However, by 2015, only 10.8% of urban households and 3% of rural households were separating waste. Johannesburg fared only slightly better, with a rate of 16.2% (StatsSA, 2018, p. 31–32). The 2020 NWMS (Department of Forestry, Fisheries and the Environment, 2020) acknowledges the failure to meet the 2011 targets, noting the high number of municipalities that have not implemented S@S, as well as low levels of household participation in existing programmes. The 2020 NWMS once again includes commitments to promote better uptake of S@S across the country. However, although the 2020 NWMS includes targets for recycling rates (70% of paper, 60% of plastic, 90% of glass, and 90% of metals recycled by 2025), it does not include binding targets for the implementation of S@S by municipalities (Department of Forestry, Fisheries and the Environment, 2020).

This article contributes to debates on why households do not participate in official S@S programmes through critical social analysis of resident participation in the first S@S pilot initiated by the city of Johannesburg’s Pikitup waste management utility. The pilot commenced in 2009 in suburbs serviced by Pikitup’s Watervaal depot. The article is based on a qualitative comparative case study that was conducted between November 2016 and June 2017 in two suburbs that were part of the pilot project: the low-income, predominantly black area of Newlands and the high-income, predominantly white area of Franklin Roosevelt Park (FRP).

Newlands is an integrated low-income neighbourhood that is 1.98 km² in size. According to the most recent census information, in 2011 (2 years after the start of the pilot project), Newlands had a population of about 11,295 people comprising approximately 3384 households. This population was 71% black (39% African and 32% coloured) and 24% white, with others making up the remaining 3% (StatsSA, 2011). On the other hand, FRP is a relatively high-income suburb, which boasts of large family homes with lovely gardens and few complexes. It covers an area of 1.58 km², and in 2011 had 3467 residents living in 1289 households (StatsSA, 2011). Of this population, 59% were white, 21% were Indian, 5% were coloured, and 2% were from other population groups (StatsSA, 2011). Although the geographical size of both suburbs is relatively the same, Newlands had double the number of households of FRP and there were significant differences in the racial and class composition of the two suburbs.

Seven years after the initiation of the Pikitup S@S pilot project, Pikitup reported a project participation rate of 18.38% (Pikitup, 2016). While this was higher than the national resident participation rates reported above, it fell far below expectations. Based on comparative analysis of the wasting and S@S practices in Newlands and FRP, this article argues that how residents conceptualised waste, S@S, and reclaimers influenced whether they separated their recyclables and what they did with them. Class (which is tightly articulated with race in South Africa) played an important role, as while some residents in each area revalued recyclables via routes other than the official Pikitup programme, those in FRP tended to separate for reclaimers (waste pickers), while residents in Newlands were more likely to sell their recyclables to augment their incomes or reuse them to reduce the need for new purchases. These residents' separation practices and the quantities of recyclables they separated were invisible to Pikitup, which only gathered data on participation in its project. Based on these findings, we argue that to achieve maximum extraction of recyclables from the waste stream and accurately record diversion from landfills, municipalities should redefine S@S to include S@S practices that extend beyond separation for official municipal programmes, and there should be a focus on transforming how residents conceptualise waste so that this excludes recyclables and other items that retain value.

This article is divided into ten short sections. This introduction is followed by the "Methodology" and "Literature Review" sections. The "Pikitup Waterval Depot S@S Pilot Programme" section provides an overview of the pilot project run by the Waterval Depot, as well as Pikitup's assessment of the project's success. The section on "Pikitup's Conceptualisation of Reclaimers" critically assesses Pikitup's conceptualisation of reclaimers and their relationship to S@S. The following section presents *Standard Explanations of Non-Participation in Pikitup's S@S Programme*. The "Conceptualisations of Waste and Non-Separation of Recyclables", "Conceptualisations of Waste and Participation in Pikitup S@S Programme", and "Multiple Conceptualisations of S@S" sections explore how residents' conceptualisations of waste, S@S, and reclaimers shape their separation practices. In the "Conclusion" section, we reprise the key arguments and present recommendations to strengthen municipal policy and practice related to S@S, as well as suggestions for future research.

Methodology

This study followed the qualitative exploratory case study approach (Leedy & Ormrod, 2013) employed in similar studies by Matter et al. (2013) and Babaei et al. (2015). It also included documentary analysis of official reports, journals and legal documents relating to municipal solid waste management in South Africa and the City of Johannesburg. Ethical clearance was obtained from the University of the Witwatersrand Human (non-medical) Research Ethics Committee before fieldwork was conducted. Co-author A conducted the research fieldwork between November 2016 and June 2017 with occasional assistance from a translator. Forty semi-structured interviews were conducted with residential households (twenty in each suburb), three with key municipal officials associated with S@S and recycling and ten with reclaimers working in the study areas. In addition, one focus group was conducted with residents in each suburb. Non-participant observations were undertaken to determine the residents' wasting practices and relationships between residents and reclaimers. Following Braun and Clarke (2006), data was analysed using Thematic Content Analysis (TCA).

Literature Review

Conceptualisations of Waste and Wasting Practices

The conceptualisation of waste is a key factor influencing how residents understand and dispose of their waste (Gregson & Crang, 2010; Kalina et al. 2020; Moore, 2012; Oteng-Ababio, 2014). Waste is sometimes referred to as junk, trash or filth, and is seen as unpleasant, unwanted and bothersome. Drawing on Mary Douglas' famed argument that 'dirt' is 'matter out of place' (Douglas, 1966, 35) and 'is essentially disorder' (Douglas, 1966, 35, 2), many waste theorists conceptualise waste as something that threatens socio-spatial norms and the 'world class' status of cities (Dias, 2016; Gregson & Crang, 2010; Moore, 2012). When waste is viewed in these negative ways, societies shy away from it, endeavour to dispose of it quickly and stigmatise people who work with it. However, waste can also be framed as possessing value and as a secondary resource. Within this positive conceptualisation of waste, reclaimers are increasingly recognised as playing a key role in realising the incipient value in wasted commodities (cf Fahmi & Sutton, 2006; Hayami et al., 2006; Millington & Lawhon, 2019; Nzeadibe & Mbah, 2015; O'Brien, 1999; Pongrácz & Pohjola, 2004; Wilson et al., 2006; Whitson, 2011).

While it may seem that these ways of conceptualising waste are binary opposites, already in 1979, Thompson introduced the idea that waste must be seen as a dynamic as opposed to static concept and explored how an object moves through different ways of being valued as their contexts and owners change (Thompson, 1979). Thompson also argued that it is inadequate to think of rubbish as having either no value or negative value, as the rubbish phase is a critical part of the process through which value is created and destroyed. In recent years, this relational

conceptualisation of waste has gained prominence, with increasing attention to the indeterminacy of waste, how ways of ‘knowing waste’ are important in accessing the value in waste and how different ways of knowing waste are central to contestations around it (Alexander & Sanchez, 2019; Butt, 2020; Parizeau & Lepawsky, 2015).

Separation at Source

The process of S@S refers to the ‘separation of MSW [municipal solid waste] into several categories at the generation source according to the different characteristics of each material before further treatment’ (Chen et al., 2017: 183). The objectives of S@S are to promote the practice of the 3R principles (reduce, reuse, and recycle), increase diversion of waste from landfills and improve the quality of recyclables by reducing contamination by organic waste (Babaei et al., 2015; Sheau-Ting et al., 2016). S@S requires the placement of different used materials in separate bags/bins, which are then collected separately through a selective collection process.

In developed countries, source segregation and recycling have been positively embraced by residential households (Abd’Razack et al., 2017; Zhang et al., 2012). However, as noted above, South Africa has poor participation rates in S@S (du Toit et al., 2017). Although Strydom and Godfrey (2016) highlight that between 2010 and 2015, the recycling rate almost doubled (rising from 4 to 7.2%) and there was an increase in the willingness of households in South Africa to participate in S@S, they note that this would not necessarily translate into action if S@S and selective collection programmes were offered to these households.

South African and international literature explores the relevance of demographic characteristics to recycling behaviour. These include income, employment status, age, race, gender, education, presence of school-age children, household size, type of residential dwelling and length of time living in a dwelling (Okonta & Mohlalifi, 2020; Omotayo et al., 2020; Schoeman & Rampedi, 2022a, 2022b; Strydom, 2018; Volschenk et al., 2021). It is important to note that even within South Africa, the findings are not unanimous. This is not surprising, given the range of factors that can affect recycling behaviour.

To date, South African literature on residents and S@S has not engaged more recent international literature that interrogates the power relations underpinning S@S, how successful S@S is predicated on the forging of new subjects and subjectivities, and how this is bound up with cultural constructions of waste and articulations of gender, caste, class and race (Cornea et al., 2017; Luthra, 2021). Instead, following more standard approaches in international scholarship on residents and S@S, research on South Africa is largely empirical, policy-oriented, and (implicitly or explicitly) grounded in psychological theories such as Theory of Planned Behaviour and, more recently, Theory of Intentional Behaviour (Issock et al., 2020; Omotayo et al., 2020).

As such, research on residents and S@S in South Africa is preoccupied primarily with identifying factors that either inhibit or encourage resident participation in S@S and drawing on these to develop proposals for policies that could improve

participation rates by changing residents' behaviours. Key factors identified include knowledge of the importance of recycling, knowledge of what to recycle, convenience, personal norms, economic interests, time constraints and availability of household storage space. Key proposals include providing households with recycling bins or bags, establishing more buy-back centres in more convenient locations, developing economic incentives and disincentives to promote separation, creating programmes tailored for the specific demographic composition (particularly income-level) in different parts of the city, improving communication from local authorities, providing information and education on what to recycle and the importance of recycling; making recycling programmes more user-friendly; and establishing more communal/public receptacles in convenient locations (Issock et al., 2020; Millington et al., 2022; Okonta & Mohlalifi, 2020; Omotayo et al., 2020; Polasi & Oelofse, 2022; Schoeman & Rampedi, 2022a, 2022b; Strydom, 2018; Strydom & Godfrey, 2016; Volschenk et al., 2021).

Looking at the extent of resident participation in S@S, Strydom and Godfrey (2016) find that it is easier to successfully encourage households that already recycle to increase the types and quantities of recyclables separated than to get non-recycling households to start recycling. This has a number of implications: (1) we cannot assume that households either recycle or they do not; (2) households that already recycle need to be constantly engaged and encouraged to improve their separation practices; and (3) specific education programmes should be created for residents with different recycling practices. The South African literature includes proposals to strengthen S@S that extend beyond changing individual behaviour, including increasing funding for S@S (Roos et al., 2021), strengthening relationships between municipalities and contractors (Polasi & Oelofse, 2022), and poverty alleviation (Omotayo et al., 2020).

Residents, Reclaimers and Recycling

In addition to official S@S programmes, a vibrant and active informal selective collection system exists in almost all major cities in developing countries (cf Beall, 1997; Godfrey et al., 2016; Guibrunet, 2019; McKay et al., 2015; Oguntoyinbo, 2012; Schoeman & Rampedi, 2022b; Wilson et al., 2009). Samson (2020) refers to this system as 'separation outside source', as reclaimers separate and collect recyclables after they leave residents' homes from residents' rubbish bins, landfill sites, public waste receptacles or open spaces. Official S@S programmes run by municipalities in South Africa, as elsewhere, generally have failed to engage and integrate this well-functioning system, and have instead eliminated or severely reduced reclaimers' access to recyclables, dramatically reduced their incomes, and typically not led to an increase in the overall quantity of recyclables extracted from the waste stream (cf Department of Environment, Forestry and Fisheries, 2020; Department of Environment, Forestry and Fisheries & Department of Science and Innovation, 2020; Dias, 2016; Dinler, 2016; Fahmi & Sutton, 2006; Furniss, 2017; Luthra, 2021; Parra, 2020; Schenck & Blaauw, 2011, Schenck et al., 2018; Schoeman & Rampedi, 2022b; Zhang et al., 2012).

Reclaimers in South Africa and across the globe make significant economic and environmental contributions. For example, in 2016, Godfrey et al. reported that reclaimers in South Africa salvaged 80–90% of used packaging and paper that was extracted from the waste stream and inserted into the recycling value chain. They calculated that this saved municipalities up to R748 million in landfill airspace (Godfrey et al., 2016). Despite this, due to reclaimers' association with waste and frequent status as members of oppressed racialised, caste, migrant and minority religious and ethnic groups, reclaimers are harassed, criminalised and dispossessed. In addition to being excluded from official S@S and recycling programmes, reclaimers are stigmatised and shunned by most residents, who engage in physical and verbal violence as they seek to prevent reclaimers from entering the suburbs where they live and salvaging materials from their waste (Beall, 1997; Coletto & Carbonai, 2023; Dias, 2016; Porras Bulla et al., 2021; Schenck et al., 2016; Uddin et al., 2020; Velis et al., 2012; Wittmer, 2021).

While these hostile and negative relationships are still the norm, literature from Asia, Latin America and Africa reports some cases in which reclaimers have forged relationships of collaboration and solidarity with residents, who separate recyclables for them. Frequently, reclaimer organisations play an important role in educating residents about reclaimers and the importance of their work and fostering these positive resident-reclaimer relationships (Andrianisa & Brou, 2016; Chikarmane, 2012; Foment, 2019; Gutberlet et al., 2021; Katusiimeh et al., 2013; Matter et al., 2013; Samson et al., 2022; Zhang et al., 2012).

Studies in South Africa and globally advocate for a policy shift from neglect and repression to the inclusion and integration of reclaimers (cf Andrianisa & Brou, 2016; Dias, 2016; Marelló & Helwege, 2018; Mbah & Nzeadibe, 2016; Godfrey & Oelofse, 2008; Guibrunet, 2019; Navarrete-Hernández & Navarrete-Hernández, 2018; Velis et al., 2012, Yu et al., 2020). In recent years, some progress has been made in this regard in South Africa. In 2020, the South African government released a *Waste Picker Integration Guideline for South Africa* to guide municipalities and industry on how to collaborate with and integrate reclaimers (Department of Environment, Forestry and Fisheries and Department of Science and Innovation, 2020). In addition, the *2020 National Waste Management Strategy* requires all metropolitan municipalities to integrate reclaimers by 2021 and all other municipalities to integrate reclaimers by 2024 (Department of Forestry, Fisheries and the Environment 2020). However, as of March 2023, national government has created neither a funding mechanism nor a coherent capacity building programme to support municipalities to develop and implement integration programmes and achieve these targets.

Pikitup Waterval Depot S@S Pilot Programme

The Pikitup S@S programme was first introduced in the City of Johannesburg in 2009, long before the policy shifts towards integration discussed in the previous section. It began as a pilot programme implemented in suburbs serviced by the Waterval Pikitup depot, including Newlands, Franklin Roosevelt Park, Linden, Victory Park and Brixton (Pikitup, 2011). The pilot programme was intended to

promote a new way of thinking and transform the waste practices of residential households and businesses in the pilot area.

The pilot was started in partnership with Mondi Recycling. Pikitup did not pay Mondi for the provision of the service, and Mondi was expected to cover all operating costs from revenue generated through the sale of recyclables. The pilot was based on the assumption that 57,000 households would participate in the programme. Pikitup provided households with clear plastic bags for dry recyclables including cans, glass, plastic bottles, jars and milk and juice cartons, as well as orange 'Ronnie bags' (a pre-existing Mondi paper recycling initiative that was included in the pilot) to be used for separated paper such as newspapers, magazines, books and cardboard. The residents were required to place these bags outside their properties on their regular waste collection days, together with the black wheelie bin for rubbish they used prior to the start of the S@S pilot. The key message of the pilot was that residents should 'separate their waste' (Pikitup, 2013).

Education and awareness on S@S were conducted through a door-to-door campaign that included the distribution of educational recycling pamphlets and information stickers to be placed on 240-L wheelie bins (Pikitup newsroom, 2011). In addition, Pikitup conducted radio talk shows and exhibitions at shopping centres and malls to promote the programme. According to the 2016 Pikitup annual report, approximately 38.5% of the households in the pilot areas in 2009 were reached by door-to-door educational awareness and informed about the recycling project (Pikitup, 2016).

In 2011, Mondi withdrew from the S@S programme due to a lack of sufficient funds to cover its operating costs. Pikitup assumed responsibility for the pilot. Instead of contracting another company or providing the service itself, Pikitup partnered with three community cooperatives it was already supporting to run buyback centres. Pikitup provided the cooperatives with trucks, drivers and recycling bags, and the cooperatives provided the workers who prepared the starter packs, worked on the Pikitup truck, separated the recyclables and prepared the recyclables for sale. A second phase was rolled out in 2012, with the distribution of starter packs that included clear plastic bags, orange Mondi bags and a sticker to place on the black wheelie bins indicating that they were participating in S@S (Pikitup, 2013).

Pikitup failed to achieve its targets related to both resident participation in S@S and tonnes of recyclables diverted from landfills. Pikitup reports from 2010 to 2017 highlight the strong divergence of the actual participation rates from the targets (Fig. 1).

In addition, Pikitup underperformed in terms of recyclables collected. The annual target for 2014/15 was pegged at a collection of 30,000 tonnes of dry recyclable material, yet only 20.808 tonnes were collected in Pikitup's S@S programmes across the entire city (Pikitup, 2015).

Pikitup's Conceptualisation of Reclaimers

Pikitup conceptualised reclaimers as enemies of S@S. For example, the Pikitup 2014/15 annual report stated that the "[t]arget for the year was not achieved due to some household separated material being taken by reclaimers and thus being lost to the Separation@ Source reporting system" (Pikitup, 2015: 43). One official elaborated:

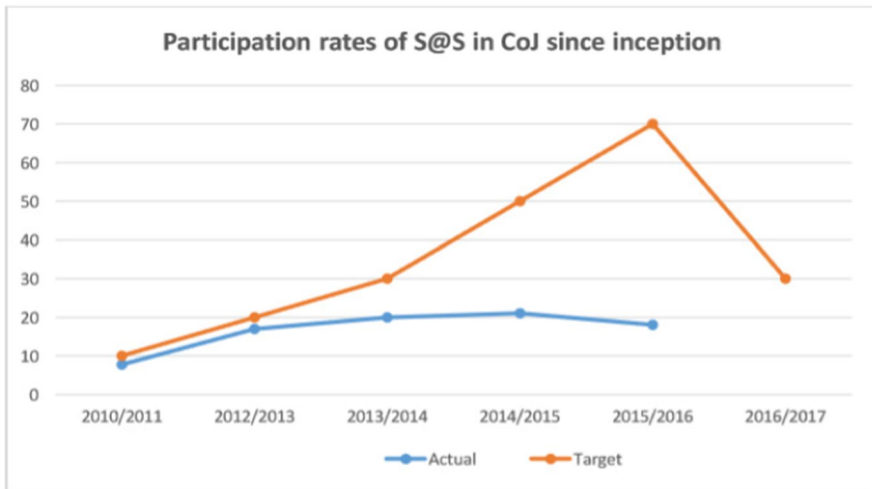


Fig. 1 Participation rates of S@S in the CoJ since its inception

Pikitup has tried to call meetings with these guys (trolley guys/reclaimers) to form cooperatives, but they are not interested. They don't want to sell to Pikitup buyback centers. They take the contents together with the bag. Then we are not able to replace the residents' recyclable bags because they call to complain. We are trying to communicate to them that they should leave the bags alone and take stuff from the black bins (Key official, 01/13/06/2017).

This official's critiques of reclaimers demonstrated a lack of awareness of who reclaimers are, how they work, and the problems related to the Pikitup buyback centres. Literature on reclaimers in South Africa has identified numerous reasons why reclaimers do not want to form cooperatives. These include preferences to work on their own, govern their own work, and determine when and how long they will work. Reclaimers who do form cooperatives frequently do so as this is the only way to access government support and potentially be integrated into municipal programmes (Godfrey et al., 2015; Sekhwela and Samson, 2020). It is also important to note that 92% of cooperatives in South Africa's waste sector fail (Godfrey et al., 2016).

In addition, reclaimers in Johannesburg do not sell to buyback centres supported by Pikitup and the City for one simple reason—they offer lower prices than other buyback centres. This is because instead of creating buyback centres that support reclaimers by giving them a higher percentage of the value of the materials they salvage and sell, Pikitup and the City's focus is on creating jobs and business opportunities for unemployed non-reclaimers who have not previously worked in the waste sector. Reclaimers make rational economic decisions to sell to buyback centres that offer the highest prices and/or other benefits, even if they must walk many more kilometres to reach them.

Finally, as reclaimers' ability to feed themselves and their families depends on their ability to access and sell recyclables, they have no choice but to salvage as many recyclables as possible before they are collected by the official S@S programme. In fact,

it was Pikitup that took the recyclables reclaimers had been collecting for years when they gave Mondi the right to collect them, and reclaimers were simply trying to continue to work and earn an income as they had been doing for decades.

Although some Pikitup officials recognised that reclaimers had been collecting recyclables before the S@S programme, they did not express empathy for reclaimers or concern regarding how reclaimers could continue to sustain themselves. Instead, they took highly punitive actions against reclaimers. One official explained:

The trolley guys have always been there, even before separation at source started in 2009. They come before the trucks and take the recycled stuff from the recycling bins and the bins sometimes. When the trucks come, there are no recyclables to collect. If we see them, we stop them and take half their recyclables away, just to teach them a lesson. They steal the white sacks and the stuff inside. They are affecting our operations (Key Official: 13/07/2017).

Similar claims that reclaimers ‘steal’ separated materials and undermine official S@S programmes have also been made in Cape Town (Millington et al., 2022).

Officials also blamed reclaimers for Mondi’s withdrawal from the S@S programme. One stated:

The trolley guys are taking our recyclables and now we are collecting less. Therefore, Mondi [the recycling company working with Pikitup to collect recyclable from residents in the initial S@S roll-out programme] will not come back. They will not make a profit.

While it is correct that reclaimers’ extraction of materials reduced Mondi’s income from sales, the official’s assertion that this was why Mondi would not resume collection of recyclables contradicts Mondi’s own statement that the key issue was lack of payment from Pikitup for the service and the expectation that Mondi would be able to finance the collection service solely through the sale of recyclables collected. Pikitup now pays a service fee to all private companies contracted to do selective collection for Pikitup’s S@S programme, although cooperatives are still expected to provide this service for free, which is a key reason why they are unable to provide an effective service.

Standard Explanations of Non-Participation in Pikitup’s S@S Programme

Separation practices and resident participation rates in the Pikitup programme differed between the two suburbs in the study. In the lower-income Newlands suburb, 11/20 residents did not separate materials and only four separated for Pikitup. By contrast, 7/20 of the higher-income FRP residents did not separate materials and 12/20 participated in the Pikitup programme.

In our research, we asked questions related to standard explanations for why people do not separate recyclables and received responses that generally conform to the

literature. In Newlands, 7/11 residents who lived in non-separating households cited the lack of provision of recycling bags, 5/11 cited lack of environmental knowledge and awareness and 6/11 cited time constraints as reasons for not participating in the Pikitup formal S@S programme. In FRP, 2/7 of the residents from non-separating households cited the lack of incentives to reward participation, the lack of environmental knowledge, and absence of bins as hindrances to their participation. These reasons for non-separation generally align with the findings in a number of other studies in South Africa and elsewhere (cf Mbiba, 2014; Babaei et al., 2015, Polasi & Oelofse, 2022; Oteng-Ababio, 2014; Schoeman & Rampedi, 2022b; Volschenck et al. 2021).

A key official from the Watervaal Depot and the owner of one of the buyback centres disputed the residents' self-reported explanations. They asserted that residents of low-income areas were generally not active participants of their S@S programme regardless of the provision of recycling starter packs and other interventions by Pikitup. While Pikitup could not provide evidence that all households received starter packs and regular replenishment of recycling bags, officials indicated that they conducted follow-ups after the provision of the packs and still found that low-income area residents did not separate their recyclables for the pilot. The officials believed low-income residents simply were not willing to participate. One official explained:

The residents of low-income areas like Newlands, Brixton, Claremont are just not willing to separate at all. Some of them say they have no time; others say they have no stuff to separate and others are just lazy. They don't know much about waste problems. We give starter packs when residents ask for them or we are told there are new residents in the area. Only one person does this for the whole area. Sometimes we give [starter packs to] the people who work with the truck. Still, residents will not separate (Key official 1: 13/07/2017).

The officials' explanations of why households did not participate in their S@S programme relied on pathologising the poor. As a result, they did not provide any reasons why residents in wealthier areas such as FRP did not participate in their programme, despite the facts that participation rates are generally low across the city, and 7/20 participants from FRP came from households that did not participate in the programme.

In the next sections of this article, we argue that analysing how conceptualisations of waste are related to separation practices provides a deeper, non-pathologising understanding of non-separation of recyclables that cuts across racialised class distinctions between the two suburbs in our study and expands current academic explanations for non-separation. Following that, we argue that Pikitup's assumption that all households that separate materials do so solely for its programme leads to underestimation of both the number of households separating materials and the quantities being separated.

Conceptualisations of Waste and Non-Separation of Recyclables

As noted above, a greater proportion of households in Newlands (11/20) did not separate recyclables than those in FRP (7/20). However, their reasons for not separating recyclables were similar. All eleven members of non-separating households in Newlands defined waste as something that is not needed or wanted. Three residents from FRP also said waste is something that is not needed or wanted, two said waste makes the house untidy, one said waste is something that has no place in the house and one said waste is rubbish.

These households placed everything ranging from paper, plastics, leftover food, appliances that no longer worked and whatever else they did not need into the 240-L black wheelie that is provided by Pikitup for waste disposal. Other types of material mentioned were banana peels, bottles, cereal boxes, eggshells and glass. One non-separator stated that ‘everything we no longer need such as paper, leftovers, plastics, appliances that don’t work’ is placed in the black wheelie bin (Resident 3,H1, 01/11/2016).

The common thread in all non-participating households’ conceptualisations of waste (except perhaps the statement that waste is rubbish) is that waste is conceptualised solely in terms of the needs and interests of the specific household, with anything that is not useful or pleasant for that household defined as waste. This is similar to the findings of Pongrácz and Pohjola (2004), who argue that the definition of waste is related to the concept of ownership, intended usage and value. When the intended usage of the material expires, the primary owners (the residents) now consider it garbage. For example, when they drank juice and the container was empty, the container became garbage and was thrown away. Similarly, Beall (1997: 73) defines solid waste or garbage as ‘organic and inorganic waste materials that have lost their value in the eyes of the first owner’.

Conceptualisations of Waste and Participation in Pikitup S@S Programme

While overall participation rates in S@S in Johannesburg were low, key officials highlighted that the rate of participation in FRP was considered one of the best in the city. Virtually all reclaimers interviewed reported higher participation rates in the Pikitup S@S programme in affluent areas such as FRP, Victory Park, Montgomery Park and Emmerantia than in low-income areas. Data from the residents reflected these class-based differences, as three times as many households (12/20) in FRP participated in Pikitup’s S@S pilot compared to only 4/20 in Newlands.

Despite these overall differences in participation rates between the two areas, as with residents in non-separating households, residents in participating households provided strikingly similar conceptualisations of waste. Two participating residents in Newlands and six in FRP said that waste is something that is not recyclable,

making statements such as, ‘waste is material that cannot be recycled, like torn clothes, bad food, stuff like that’ (Resident L2, 01/11/2016). Four participating residents in FRP broadened their conceptualisation of waste beyond non-recyclables to encompass any item that cannot be used again, elaborating that ‘we never throw away something others could use like old clothes’ (Resident H4, 09/11/2016).

Two participating residents in each neighbourhood defined waste in similar ways to residents who did not separate recyclables, as either something that is not needed or as rubbish. However, a strong majority of 12/16 participating residents across the two neighbourhoods conceptualised waste as a non-relative ontological category, with waste being understood as something that cannot be recycled or cannot be used. Unlike the non-separating residents, they understood that even if they did not need or want an item, it should not be considered waste if other people could find it useful or desirable. This analysis makes clear that people’s recycling practices are related to how they conceptualise waste.

Multiple Conceptualisations of S@S

As should be evident from the above discussion, the number of households that separated their recyclables did not directly align with the number of households participating in Pikitup’s S@S programme. This is because some households separated for themselves and/or reclaimers. In addition, some households that separated for Pikitup also separated for reclaimers.

Separating for Themselves

Three residents in Newlands reported that although they did not participate in Pikitup’s programme, their households separated recyclables for their own benefit. One of these residents also separated for reclaimers, giving the reclaimers items that the household did not revalue. At least some Pikitup officials were aware of this, with one noting that as a resident could earn even ten rand by selling their recyclables, this would be appealing to low-income residents. One Newlands resident explained, ‘It (the Pikitup separation at source programme) won’t work. We are poor. What we can recycle we sell for ourselves’ (Resident 12, L10, 03/11/2016).

These Newlands residents did not only separate recyclables for sale. One compensated for limited ability to purchase items due to their household’s poverty by separating recyclables to reuse in their own homes stating, ‘I don’t have much income to buy many luxuries, so the little plastics I get and glasses I use for personal use’ (Resident L5, 03/11/2016)). Another said, ‘We give old clothes to charity. Old appliances we fix because hubby is a handy man, then we sell them. She added, ‘one guy’s garbage is something of value to someone [else]’.

Separating for Reclaimers

Residents generally disagreed with Pikitup's and the City's negative framing of reclaimers. Only three residents in FRP believed that reclaimers disrupted/undermined Pikitup's S@S programme and should not be permitted to collect recyclables. One of these residents stated that:

it [Pikitup's S@S programme] is a good programme which is disrupted by waste pickers. They tear up the cream plastics and take what they want and then mix the waste and leave a big mess (H13, 16/11/2016).

Three additional residents in FRP stated that reclaimers made a mess, but this did not lead them to argue that reclaimers should be prohibited from working or that reclaimers undermined Pikitup's programme.

Only one resident in Newlands said that reclaimers should not be permitted to work. Notably, this resident did not articulate any complaints about the reclaimers' behaviour or state that they compromised the Pikitup programme. The resident simply noted the concern that 'we don't know where they come from' and that 'Pikitup must do their job and collect our waste'.

Three FRP residents and five Newlands residents were neutral towards reclaimers, and one FRP resident did not answer the question. The remaining thirteen FRP residents and fourteen Newlands residents stated that reclaimers did good/important work, or directly argued that reclaimers should continue to work. Their reasons included that reclaimers contribute to the environment, do a better job of separating than residents, are making an honest living, and need to support themselves. Eight of these FRP respondents and five of these Newlands residents believed that Pikitup should work with reclaimers. One FRP resident motivated this position stating, 'I think they recycle more than the residents' (Resident H14, 16/11/2016). Interestingly, two Newlands residents thought that Pikitup already worked with reclaimers. Two others thought that perhaps reclaimers should continue to work independently instead of with Pikitup, as they were concerned that Pikitup would underpay the reclaimers.

This generally positive conceptualisation of reclaimers translated into some residents separating recyclables for them. Explaining why they separated recyclables for reclaimers, one FRP resident said, 'I think waste pickers are amazing and recycle a lot. I give them empty juice bottles which they put on their platform trolleys' (Resident H6, 14/11/2016). Residents also separated reusable items for reclaimers. One FRP resident explained:

I put my old clothes on top of the bin for them. Sometimes I put leftover food too so that it doesn't go into the bins. Waste pickers are also human (Resident H14, 16/11/2016).

A resident in Newlands shared:

I see the same young man every week as I go to work. He is polite and sometimes I give him old appliances and clothes if I have any. I have heard others say those guys are a nuisance, but I don't believe so (Resident L2, 03/11/2016).

As highlighted by the previous quote, the forging of social relationships encourages residents to separate for reclaimers. One Newlands resident noted that although she could not communicate with most reclaimers as they did not speak the same languages, she was able to develop a relationship with a reclaimer who spoke Afrikaans. She felt that ‘he is a nice guy’ and saved her recyclables to give to him when he knocked at her gate. Reclaimers interviewed for this project also emphasised the importance of personal relationships with residents. One explained that ‘we are too many, so I have got my areas where people know me and give me things...clothes, many things, food and sometimes I sweep and do jobs and get paid’ (Waste Picker 5, Newlands, 26/07/2017).

Although residents in FRP and Newlands who separated for reclaimers gave similar reasons for doing so, there were important differences between the two areas. Six out of 20 residents in FRP separated recyclables for reclaimers, compared to 2/20 in Newlands. As noted in the previous section, three residents in Newlands separated for themselves, while no residents in FRP engaged in this practice. This shows that residents in the lower-income area who separated recyclables were more likely to do so for their own benefit to supplement their incomes, while residents in the higher-income area were more likely to separate for reclaimers, as they did not need the additional income.

One resident in each neighbourhood separated recyclables solely for reclaimers. The second resident who separated for reclaimers in Newlands separated for their household as well as to give away. An important point to note is that five out of the twelve FRP residents who participated in the Pikitup programme also separated for reclaimers, setting aside particular items for reclaimers and at times giving recyclables to reclaimers if they saw the reclaimers before the recycling collection trucks arrived. This has two important implications. First, the same household can hold and act on multiple conceptualisations of S@S, and Pikitup should not assume that households that participated in its programme saw it as the only legitimate collector of used household recyclables. Second, this also meant that Pikitup was not gathering complete data on the quantity of recyclables extracted from the waste stream, not just because it did not record the materials separated by residents who gave all of their recyclables to reclaimers and revalued the materials themselves, but also because it did not record all materials separated by households that participated in its programme but also gave materials to reclaimers.

Conclusion

Increasing resident participation in S@S programmes is a global challenge. While much research has been conducted on the effects of educating residents about the importance of recycling and how to participate in S@S programmes, this article drew on debates in waste theory to focus on a more abstract level, exploring how residents’ conceptualisations of waste, reclaimers and S@S shaped their separation practices. Residents who defined waste only in terms of their own household’s needs and desires were more likely to not separate recyclables, while those who separated materials for the Pikitup programme tended to define waste as something that could not be used by anyone, including those outside their households. The research also

found that residents had a more positive conceptualisation of reclaimers and their role in S@S than Pikitup, and that they also had a broader conceptualisation of S@S that went beyond Pikitup's programme to include separating materials for themselves and reclaimers.

The findings have several theoretical and practical implications. First is the need to transform conceptualisations of waste. In much of the literature on waste theory, a positive conceptualisation of waste is understood to mean that not all waste is valueless, and that value can be created out of waste. This conceptualisation implicitly underpins the call on residents to 'separate your waste' that is the cornerstone of Pikitup's S@S programme, as well as other S@S programmes around the country and across the world. It is not hard to understand why it is confusing for residents to be asked to separate waste from waste. Our findings establish that most residents who separated recyclables and other materials that still retained value did so precisely because they did not see these items as waste. Perhaps S@S programmes could secure greater participation rates if they explicitly educate residents that the category 'waste' does not include recyclables and other items that retain value, as if these items are not waste, then it could be easier for residents to see that they should not go into rubbish bins.

Second is the need to expand conceptualisations of S@S. Numerous studies of reclaimers and recycling in South Africa and globally recommend 'integrating' reclaimers into municipal waste management systems and S@S programmes (c.f. Chikarmane, 2012; Dias, 2016; Godfrey et al., 2016; Kashyap & Visvanathan, 2014; Kasinja & Tilley, 2018; Marello & Helwege, 2018; Roos et al., 2021; Scheinberg, 2012; Schoeman & Rampedi, 2022b; Velis et al., 2012). As residents already separate for reclaimers and for their own benefit, we expand this discussion by arguing that separation for both reclaimers and own benefit must be understood as forms of S@S, and that it is essential that municipalities reconceptualise S@S to include these actually existing forms of separation. Although reclaimers' selective collection from residents' rubbish bins is separation outside, rather than at, source, it must also be included as a crucial component in the reconceptualisation of pathways to S@S. These new conceptualisations will enable the creation of official S@S policies and programmes that are more appropriate in cities that have reclaimers who salvage recyclables, are tailored for different socio-economic areas of these cities, and do not dispossess reclaimers. This will also ensure the capturing of more accurate data on separation rates and quantities of materials diverted from landfills.

One example of this type of approach is the African Reclaimers Organisation (ARO) 'Recycling with Reclaimers' S@S project that the organisation conducts in partnership with resident associations in the Johannesburg neighbourhoods of Brixton and Auckland Park. In this programme, reclaimers conduct educational workshops for residents (including children in creches and schools) and participate in community events. Resident champions also encourage other residents to get to know reclaimers and separate recyclables for them. An evaluation of the programme found that some residents are more willing to separate recyclables for reclaimers as they know the people who will benefit. Data is captured on all recyclables extracted from the waste stream, including those separated by residents and those that reclaimers separated for residents by salvaging from residents' rubbish bins. Analysis of this

data showed that if all 8000 reclaimers in Johannesburg collected the same quantity of materials per day as reclaimers in the Recycling with Reclaimers programme, it would take them 22.5 days to collect the same quantity of materials that Pikitup and all of its subcontractors collected in 2018/2019 (Samson et al., 2021).

The success of Recycling with Reclaimers affirms the importance of reclaimers playing a leading role in developing, implementing and evaluating S@S programmes. Despite this, the City and Pikitup continue to approach both S@S and reclaimer integration through a top-down charity approach in which officials and consultants develop programmes that residents and reclaimers are simply meant to accept and support. A key starting point for improved S@S and S@S participation rates would be for municipalities to partner with both residents and reclaimers to develop, implement, evaluate, and revise S@S programmes that embrace and track all forms of separation and all routes to revalue separated materials.

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Declarations

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