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Public Private Partnerships for Municipal Waste Management in the City of Johannesburg

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Public Private Partnerships for Municipal Waste Management in the City of Johannesburg

Dineo Madiba

A research report submitted to the Faculty of Management, University of the Witwatersrand, in 50% requirement of the requirements for the degree of Master of Management (in the field of Governance and Management)

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Abstract

Municipal solid waste management is increasingly becoming a burden while population growth, urbanisation and economic growth have overwhelmed the municipalities capacity to deliver waste services. In response municipalities are increasingly implementing public private partnerships to meet the growing demand for waste services. This qualitative study was conducted in the City of Johannesburg and focuses on investigating the challenges of public private partnerships for the delivery of waste services more specifically the study will focus on the Separation at Source program.

Thirteen interviews were conducted involving participants from Pikitup, co-operatives, private companies, and an NGO. Interview guides were developed and interview questions were informed by the theoretical framework and themes identified in the literature review. Other sources of information consulted included legislative frameworks as well as Pikitup's business plan.

The results of this study indicate several challenges in the partnership model used to implement the Separation at Source program and the challenges can be summarised as institutional, financial, operational, and technical all of which are preconditions necessary to make partnerships work. It was also observed that stakeholder consultation and participation was inadequate leading to a lack of buy-in from key stakeholders.

Declaration

I declare that this report is my own unaided work. It is submitted in partial fulfilment of the requirements of the degree of Master of Management (in the field of Governance and Management) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other university.

Dineo Madiba

27 February 2023

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List of abbreviations

BEE: Black Economic Empowerment

CBO: Community Based Organisation

COIDA: Compensation for Occupational Injuries and Diseases Act

COJ: City of Johannesburg

GDARD*:* Gauteng Department of Agriculture and Rural Development

IDP: Integrated Development Plan

IWMP: Integrated Waste Management Plan

JMPD: Johannesburg Metropolitan Police Department

MFMA: Municipal Finance Management Act

MOU: Memorandum of Understanding

MSA: Municipal Systems Act

MSWM: Municipal Solid Waste Management

NGO: Non-Governmental Organisation

PFMA: Public Finance Management Act

PPP: Public Private Partnerships

SOS: Separation Outside Source

S@S: Separation at Source

SW: Solid Waste

SWM: Solid Waste Management

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1. Chapter 1: Introduction

The waste management hierarchy is recognised as the most effective approach for waste management by moving away from landfilling towards waste minimisation through recovery, recycling and re-use (Eberhard, 2018). South Africa has adopted this waste hierarchy and it is reflected in several legislations including the Waste Act (2008) and the National Waste Management Strategy (2011) both of which emphasise the need for municipalities to expand the provision of waste services beyond just collection and disposal towards waste minimisation by implementing separation at source (S@S) programs.

The South African context for the adoption of PPPs to undertake MSWM emerged following the promulgation of the Waste Act and National Waste Management Strategy which emphasises the collaboration and participation of various stakeholders including the private, public sector and civil society to address South Africa's waste crises. PPPs are recommended as the implementation tool for S@S programs. The purpose of this program is to implement the waste hierarchy and achieve the objectives of the aforementioned legislation both of which emphasise the urgency of implementing recycling activities given the crises of declining landfill space in the country.

The enactment of the Waste Act and its NWMS means that municipalities have to critically consider the waste hierarchy options as a legal requirement. These legislations have placed additional pressures on municipalities given the fact that municipalities do not have the systems and facilities in place to support waste recycling (van Niekerk, 2019). Hence a number of municipalities in South Africa have adopted public private partnerships to facilitate service delivery. The contribution and participation of these external actors in municipal solid waste management remains problematic and in the context of the Separation at Source program little is known about the challenges affecting these public private partnerships particularly from the perspective of the actors who form part of these partnerships.

This research focuses on the partnerships undertaken by Pikitup, an entity owned by the City of Johannesburg to implement the Separation at Source program. The program was initially launched in 2009 and by the year 2018 participation in the S@S program had become mandatory in many areas of the city. The demographics of the City of Johannesburg are marked by extreme social, economic and ethnical diversity. At the same time the city has various development challenges including urban poverty, rapid urbanisation, economic downturn, insecurity and infrastructure shortage (COJ,2020).

The objective of this research is to explore the policy and legislative context for solid waste management in South Africa, to describe the actors involved in the public private partnerships and their challenges, to explore the efficacy of public private partnerships for waste service delivery in the study area and lastly, to make recommendations to improve planning and implementation of public private partnerships.

1.1 Background

Globally the collection and disposal of waste is a growing burden and in 2019 the amount of municipal solid waste (MSW) generated worldwide was between 2.29 and 3.13 billion tons, representing a 30%- 50% increase since 2004 and about one-third or (870 million tons) was uncollected (Maalouf & Mavropoulos, 2022). It is further estimated that by 2050 the total amount of MSW generated will increase to 4.54 billion tons (Maalouf & Mavropoulos, 2022) which creates sustainability challenges.

Population growth, commercial activity, urbanisation and economic growth contribute to the waste problem and overwhelm the capacity of municipalities to deliver services (Pikitup,2021). Economic growth is directly proportional to solid waste and its impacts are affected through industrialisation, manufacturing and higher incomes (Hiremath, 2016). Population growth is also an important consideration and is correlated with industrialisation and urbanisation processes and as a consequence increases waste generation. Hence, the pressure for waste services is typically greater in settings with high population density (Hiremath, 2016). It is worth noting that solid waste management issues are most severe in developing countries considering that waste management in these regions remain informal, ineffective, and limited (Rodseth et al., 2020). Maalouf & Mavropoulos (2022) predicts that population growth and urbanisation in these regions will continue to grow and lead to uncontrolled dumpsites with adverse impacts on the environment and populations health. Variations in SWM practices between developed and developing countries can be attributed to the differences in political stability, economic sustainability, the legal and economic framework (Maria et al.,2017).

1.1.1 Adoption of public private partnerships for municipal waste management

The MSWM system encompasses various functions including waste collection, disposal and recycling. It is noteworthy that in the past solid waste services were delivered as a public good performed exclusively by local governments. Evidently this proved to be unsustainable in a large number of settings consuming considerable human, financial, technical and administrative resources to deliver services efficiently (Alabi et al., 2020). The delivery of SW services was restricted by rigid laws, inadequate resources, weak institutional capacity and a lack of political will all of which severely impacted the performance of municipalities (Kubanza et al., 2017). Ahmed & Ali (2004) have reiterated this and provide an exhaustive list of conditions that municipalities operate under which impede effective service delivery. These include political interference, corruption, rising budget deficits and limited technical capacity. All of which the scholars argue can be offset by public private partnerships (Ahmed & Ali, 2004).

In recent years MSWM has expanded in scope and complexity and municipalities can no longer monopolise this function. Moreover rapid population growth and urbanisation mean that MSWM challenges will continue to grow (Ahmed & Ali, 2004) and it is against this backdrop that a large number of municipalities are moving towards PPPs. Without a doubt, there exists an avenue of opportunity where one the one hand is the existence of a government with limited capacity, undergoing fiscal stress and a track record marred with unsatisfactory efficiency and on the other hand is a private sector willing to participate and provide solutions. Furthermore, the presence of public demand for waste services and willingness to pay makes this sector profitable. All of which are the ingredients required to initiate PPPs (Ahmed & Ali, 2004). PPPs are viewed as an alternative to complete privatisation as government can retain ownership of services while assigning the responsibility for service delivery to private companies and interactions are managed through contractual arrangements (Awortwi, 2004). A partnership in this form reduces "red tape", costs and political interference (Oteng-Ababio, 2010).

The goal of PPPs is to elevate the SWM system by introducing efficiency and investment. Private companies are viewed as modernising agents whose dynamism, knowledge and access to technologies, finances and political independence (Oteng-Ababio, 2010) make them measure up favourably to public expectations. In this way it is assumed that through these partnerships the experience and concerns of the public sector — generate employment, contextual knowledge, social responsibility are combined with the strengths of the private sector (Ahmed & Ali, 2004) and the sum of efforts and resources create a mutually favourable relationship for both sectors. Consequently, in this context undertaking PPPs will place new demands on local governments and its role needs to evolve from that of service provider to that of service regulator. Such a transition can prove to be challenging in the absence of an institutional framework and supportive policies. At the same time fulfilling the new duties requires capacity building to empower public officials (Ahmed & Ali, 2004). Awortwi (2004) contends that the capability of local government needs to extend to tendering processes, contract management, performance monitoring, establishing tariffs and bylaws, as well as other aspects of governance in service delivery. Without which PPPs can worsen the state of MSWM.

The success and role of PPPs in MSWM is dependent on the institutional context, hence differences between developed and developing countries have been observed with the former more equipped with the technical "know how" and the prerequisites present to some degree (Ahmed & Ali, 2004). While in the case of developing countries Ahmed & Ali (2004) argue that this arrangement cannot and does not work. This is attributed to the absence of strong regulatory, legal and institutional frameworks which the scholars identified as hampering the integration of private partners. Inherently, another issue is the limited capacity of local governments to adapt to the "new way of doing business" (Ahmed & Ali, 2004).

What's more the dynamics of PPP arrangements are different in developing countries given the presence of external actors which presents a formidable challenge to integrate and co-ordinate their efforts. In this setting, the deficiencies in the institutional structures of PPPs have given rise to a number of actors including the informal waste collectors, CBO's and NGO's and in many African countries these actors recognise the weakness of PPP arrangements and local governments in providing adequate and equitable SW services particularly among the urban poor (Kubanza et al., 2017; Tukahirwa et al., 2010) and have taken on the urban responsibility, complementing the activities of government and the private sector.

A number of countries have taken to develop policy proposals to facilitate partnerships with these stakeholder groups and co-ordinate their efforts. Currently, the levels of formalisation and collaboration vary across settings. Despite this, it remains an undeniable fact that the participation of informal waste workers, CBO's and NGO's has not only increased access to SW services in impoverished areas but has had other development benefits including creating employment (Kubanza et al., 2017). This experience demonstrates that achieving environmental justice and sustainable MSWM requires the collaborative efforts of a multitude of actors and in the face of limited resources the local governments in developing countries should make an effort to strike a balance between the various actors (Ahmed & Ali, 2004).

1.1.2 The informal waste sector

Developing countries are often characterised by the presence of a sizable informal sector comprised of individuals or family groups, not engaged by the public sector, but solely or partly depend on waste for livelihood (Ahmed & Ali, 2004; Kashyap & Visvanathan, 2014; Wilson et al., 2006). Unemployment and a steady decline in economic growth in such countries have propelled a large portion of the population to rely on informal waste activities for livelihood (Godfrey & Oelofse, 2017). These scavengers otherwise referred to as waste pickers engage in the labour-intensive activities of extracting reusable and recyclable material from waste (Wilson et al., 2006) and it is for this reason that Kashyap & Visvanathan (2014) submit that waste management in such settings is as much an environmental concern as it is a socio-economic phenomenon.

Waste pickers have filled an important gap undertaking recycling activities in the cities particularly in the absence of municipal recycling systems (Dias, 2016) even establishing their own recycling system which Samson et al., (2022) refers to as the Separation outside Source (SOS) system. As a result, the new paradigm in MSWM views the inclusion and participation of the informal waste sector as an integral part of the implementation of environmental policy and achieving integrated waste management (Coletto & Bisschop, 2017; Marello & Helwege, 2018). Key challenges hampering this shift revolve around the ongoing debates regarding the best approaches to ensure the participation of this informal sector in just and inclusive ways. At the same time, the presence of this SOS system presents a dilemma for decision makers in the public

sector and raises questions as to whether approaches should build on the existing informal recycling system or establish a new formal recycling system (Wilson et al., 2006).

The term integration features prominently in the MSWM literature and while the idea of integration has appeal, there remains a lack of consensus around defining what integration is and what it entails (Sekhwela & Samson, 2020; Simatele et al., 2017). For Kashyap & Visvanathan (2014) integration mainly focuses on formalisation processes across a broad spectrum. One end of the spectrum is characterised by the use of identity cards to foster the recognition of waste pickers or recognising the informal sector as legitimate stakeholders in policy documents. At the other end of the spectrum is the more extreme approach of forming cooperatives to institutionalise waste pickers (Kashyap & Visvanathan, 2014). Aparcana (2016) discusses the various approaches to formalise the activities of the informal sector which include organising the informal sector into cooperatives, associations or CBO's or contracting out individual waste pickers as workers which in this case formalisation is associated with formal employment (Aparcana, 2016). On the other hand, scholars including Baudouin et al., (2010) equate integration to partnerships and in this case the process of integrating the informal sector begins by organising individual waste pickers into associations or cooperatives (Boampong et al., 2020; Dias, 2016; Godfrey et al., 2017; Kashyap & Visvanathan, 2014; Kruljac, 2012; Marello & Helwege, 2018; Robles & Roxana, 2016; Sekhwela & Samson, 2020; Simatele et al., 2017). These organisations provide entry points for waste pickers to participate as partners and access state support (Boampong et al., 2020; Sekhwela & Samson, 2020; Simatele et al., 2017). Thus, organising becomes a condition through which municipalities can contract the informal sector and achieve intergration into the MSWM system (Dias, 2016; Robles & Roxana, 2016). Within this arrangement, the provision of support and access to waste forms part of integration (Dias, 2016; Simatele et al., 2017).

Interestingly, the use of partnerships for integration have been criticised and face significant hurdles in achieving the full inclusion of the informal sector. Firstly, the formation of cooperatives has become the basis on which partnerships have been shaped and at the same time, integration is viewed narrowly as the provision of support and access to waste both of which facilitate the participation of waste pickers in the MSWM system (Marello & Helwege, 2018). In this case, PPPs are structured in such a way that they create new forms of exclusion by establishing preconditions for participation while simultaneously creating differential access to waste material among waste pickers. This further reinforces the structured hierarchy among waste pickers about who participates and who benefits from privileged access to waste. Marello & Helwege (2018) posit that partnerships are by no means a fair and all-inclusive process as they do not always benefit the most marginalised waste pickers including the disabled, least employable and most independent but instead prioritise waste pickers who are already members of cooperatives with access to waste (Marello & Helwege, 2018).

Waste pickers participating in PPPs are often not viewed as genuine and equal partners as their roles are not integrated into MSWM planning and policy documents (Boampong et al., 2020; Mbah & Nzeadibe, 2017). These partnerships remain informal and even after self-organising, waste pickers rarely influence policy and decision making for waste management(Boampong et al., 2020; Mbah & Nzeadibe, 2017). Partnerships tend to portray the informal sector as target groups who heavily depend on support from local government while there remains little scope for their participation in the planning and implementation of MSWM services. Recognising these patterns, one can question whether waste pickers in these circumstances can be regarded as partners or beneficiaries.

While still on this matter, it is evident that scholars have varied understandings and conceptual standpoints on the integration of waste pickers and to a greater extent the absence of a concise definition of integration has created conceptual tensions in the literature and in practice. Sekhwela & Samson (2020) have narrated the complex interaction between the formal and informal where unequal power dynamics and a top-down approach to implementation led to the failure of an integration project. In this case, the Robinson Deep project, the officials understood integration in terms of incorporating the work of waste pickers into the service chain of the MSWM system while waste pickers understood integration as including both the MSWM system and the broader recycling value chain. This conceptual tension stemmed from the absence of participatory and consultative processes as the waste pickers were not involved in the design of the project. Instead, officials dictated the form that integration should take and how it should be achieved which led to new forms of social and economic exclusion. More specifically the economic standing of waste pickers was worsened due to their limited access to recycling material and places to sell their recycling materials, both of which had direct consequences on their livelihood (Sekhwela & Samson, 2020).

Other limitations of integration approaches become apparent when one considers the size of the waste picker community and a major concern is that waste pickers are often viewed as a homogenous group, while in reality informal waste recycling consists of four main categories depending on how and where recycling material is recovered (Wilson et al., 2006). This community is fragmented and the presence of hierarchies means that programs and policies aimed at inclusion rarely serve the entire population particularly the most disadvantaged (Marello & Helwege, 2018). Waste pickers can be leaders of integration approaches, partners or even beneficiaries, however, the choices and possibilities of their participation are often dictated by the public actor who define how they should participate in MSWM. Top-down approaches to integration warrant caution and Sekhwela & Samson (2020) contend that integration challenges can be resolved through inclusive decision making which grants waste pickers decisive powers to influence decisions about their integration which goes far beyond existing practices.

1.2 Municipal solid waste management in South Africa

South Africa has the characteristics of a developing country and in this setting solid waste generation continues to increase at an unprecedented rate due to rapid urbanisation and population growth (Petterson, 2019; Sentime, 2014). Between 2011 and 216 South Africa's population increased by 7.5% and during the same time period waste characterisation studies found a 32,2 % increase in the amount of municipal waste generated (Petterson, 2019). Service delivery by municipalities remains problematic particularly waste collection. For instance, South Africa generates 12.7 million tons of waste annually but 29% of this waste is not collected (Rodseth et al., 2020). The reality is that South African's do not have universal access to waste services and access to solid waste services is unequal, varying greatly between municipalities and geographical areas. Statistics SA's (2016) survey data revealed that nationally 63,9% of South Africa's households have their waste removed once per week and waste removal services are most common in metropolitan municipalities than rural areas, where 86,3% of metropolitan households receive waste removal services compared to 12,6% of rural households (StatsSA,2016).

An article by Adeleke et al., (2021) reports that Gauteng Province continues to generate the highest quantity of waste in the country due to the upsurge in population and economic growth therefore placing more pressure for waste services. Moreover the City of Johannesburg, located in Gauteng, has experienced a considerable decline in refuse collection between 2018 and 2019 where only 1.6 million or 85% of households in Johannesburg had weekly access to SWM services while the remaining 15% experienced backlogs (COJ,2020). In recent times, the magnitude of the problem has been captured by various media outlets with headlines including: "City of Joburg must clean up its act" (Sowetan,2022) and "Business owners take City of Joburg to court" (Gilili,2022) both of which portray official and public concerns regarding the City's inability to deliver waste services.

South Africa's municipalities are plagued by several performance challenges relating to waste management including increasing costs, lack of enforcement of regulations and legislation (Eberhard, 2018). van Niekerk & Weghmann (2019) report that financial challenges stem from the pervasive under-pricing of waste services, inefficient capacity and political constraints affecting the ability to collect tariffs as well as the reluctance of service recipients to pay. Within the municipalities various agencies and institutions are involved in waste management however their activities remain uncoordinated due to the top-down approach to urban governance (Kubanza & Simatele, 2020). Furthermore the enforcement of by-laws and regulations has been inadequate due to the lack of policy guidelines and insufficient information dissemination among municipal officials regarding their roles and responsibilities (Fakoya, 2014). Relatedly, the organisational capacity of municipalities has been compromised by corrupt recruitment practices

resulting in the appointment of unqualified and inexperienced staff at operational and managerial levels (Fakoya, 2014).

On this matter scholars including Adeleke et al., (2021) blame the country's waste management problems on the absence of reliable and updated data on waste characteristics and generation. In South Africa like many developing countries the systems to collect, capture and report data on waste collection remain inadequate. Moreover, where waste data does exist Adeleke et al., (2021) found the data to be scarce, unreliable and outdated. This problem is particularly evident in the provincial yearly waste generation data and municipal data which is generated from landfill data and population estimates instead of being gathered from the production and transportation of waste. The data also excludes waste collected from informal waste collectors and illegally dumped waste and there remains an unwillingness of the informal sector and private sectors to report waste data. Thus, the current estimates do not represent the entire quantity of waste generated or collected in the country (Adeleke et al., 2021). Waste data is an essential element to inform decision making, formulation of policies and regulations as well as facilitate the allocation of resources (Adeleke et al., 2021a). Such institutional weaknesses remain widespread and have contributed towards solid waste management challenges.

Waste management has a direct bearing on a city's social and economic development. Ineffective and inefficient waste management systems often result in environmental pollution as citizens have to resort to: a) burning waste, which releases toxic gases into the atmosphere, b) illegal dumping and littering which clogs drains resulting in flooding, contamination of ground water and the spread of diseases (Haywood et al., 2021) all of which have environmental and public health impacts. In addition to this the financial implications are worrisome and Polasi (2018) reported that municipalities spend an estimated R58 million annually on clean-up initiatives to remove illegally dumped waste, an amount that could be spent on other development agendas. The challenge for already distressed municipalities is to find solid waste management solutions that achieve the optimal balance between economic sustainability and environmental risks and pollution.

1.3 Waste legislation in South Africa

Globally the three R model is a waste management hierarchy recognised as the most effective approach for SWM by moving away from landfilling towards waste minimisation through recovery, recycling, and re-use (Eberhard, 2018). Recycling is a complete cycle and encompasses both recovery and re-use to minimise waste (Nkosi & Muzenda, 2013) and these proposed alternatives to landfilling reportedly have social, economic and environmental benefits for countries (Godfrey et al., 2014). South Africa has adopted this waste hierarchy and it is reflected in several legislative documents including the Waste Act (Act No. 59 of 2008) and section 3 of the National Waste Management Strategy (2011) both of which emphasise the need to implement separation at source programs.

1.3.1 The Waste Act

The waste hierarchy is illustrated by means of an inverted triangle. Within this structure waste reduction is prioritised as signalled by its presence at the top of the triangle, re-use, recycling and recovery occupy the midsection of the triangle and as a last resort is the treatment and disposal of waste which occupies the bottom section of the triangle. The steps outlined in the waste hierarchy inform the objectives of the Waste Act and the overall approach to MSWM in the country. The promulgation of the Waste Act was the first step towards integrated waste management in South Africa.

The Waste Act assigns the responsibility for the provision of waste services to the municipalities; hence the Act needs to be understood in combination with other legislations regulating the local sphere of government. These include the Municipal Systems Act (2000) as well as the Municipal Finance Management Act (2003). Chiefly, the Municipal Systems Act (2000) stipulates that municipalities can contract waste services to external service providers which can include another government, municipal entity or private company. The Act further guides the municipal planning and the manner in which municipalities should exercise its duties when contracting out. In addition, a legislative requirement of the Waste Act is the development of the National Waste Management Strategy and its goal is to archive the objectives set out in the Waste Act. Section 4(a) of the Waste Act mandates municipalities to develop and implement IWMPs to co-ordinate and integrate the actions of the three spheres of government and at the same time, the plans and targets outlined in the IWMP are intended to give effect to the NWMS.

1.3.2 The National Waste Management Strategy

The NWMS outlines a plan to address the numerous waste challenges prevalent in the country which is summarised into eight goals. Goals particularly relevant for the purpose of this study include goal one (1) which specifically focuses on the implementation of the waste hierarchy. Targets relate to waste diversion from landfills, implementation of S@S programs, waste recycling and reduction. Goal five (5) in particular mandates municipalities to develop IWMP to give effect to the waste hierarchy. According to the NWMS achieving its goals will rely on an inclusive strategy and the systematic efforts of stakeholders. More specifically section two of the NWMS provides a toolbox for its implementation and highlights the need for consultations, collaborations and partnerships with key role players including the public and private, civil society and other spheres of government. Likewise, the IWMPs emphasises partnerships.

Despite the formulation of regulatory policies and legislature South Africa still lags behind in implementation and has not been able to manage its waste problem (Eberhard, 2018).The promulgation of the Waste Act has had little effect on the prevailing practice of waste disposal as landfilling remains a preferred means of handling waste and up to 90% of generated waste is still landfilled (Godfrey et al.,2014). This method is not environmentally sustainable due to declining landfill space nor is it economically sustainable given the rising

costs of operating landfill sites (Oelofse, 2014). South Africa has not moved up the waste hierarchy despite the presence of opportunity to recover and recycle waste. The enactment of the Waste Act and its NWMS means that municipalities have to critically consider the waste hierarchy options as a legal requirement. As stated before municipalities face challenges in relation to the delivery of waste services and the requirements of the Waste Act and NWMS have placed additional pressures on municipalities to expand waste services and implement separation at source programs to foster waste recycling and divert waste away from landfills. Recycling in particular is seen as the most attractive for public private partnerships given the fact that municipalities do not have the systems and facilities in place to support waste segregation (van Niekerk, 2019). The adoption of partnerships to implement the separation at source program and incorporate recycling into the public sphere has become a common practice.

1.4 Public Private Partnerships in South Africa

The starting point for PPP's in South Africa dates back to 1994 following the first democratic elections and prior to that, legislative guidance on the adoption of PPP was largely absent (Mandiriza & Fourie, 2022). The choice for PPP's was underpinned by the mandate to transform service delivery in the country, address infrastructure and service delivery backlogs and achieve the goals of the incoming government (Fourie, 2008; Mandiriza & Fourie, 2022). To date, South Africa has managed to establish a remarkable PPP regulatory framework creating an enabling environment for all levels of government to adopt PPPs for service delivery. PPPs were first formalised following the promulgation of South Africa's Constitution in 1996 and although the Constitution does not specifically refer to PPP, it contains general procurement guidelines that are applicable to PPP's. For instance, Section 217 (1) of the Constitution states that:

"When an organ of the state in the national, provincial and local sphere of government or any other institution identified in national legislation, contracts for goods or services, it must do so in accordance with a system which is fair, equitable, transparent, competitive and cost-effective".

In the years to follow the country witnessed the enactment of various legislation making specific reference to the governance of PPP both provincially and nationally. These includes the Public Finance Management Act 1999 which governs PPP by providing guidance for procurement processes and seeks to foster financial management and accountability in the public sector (Arimoro, 2018). PPP regulations supporting this Act were issued in 2001 and are contained in the 'Treasury Regulations for National Departments, Constitutional Institutions and Public Entities' (Mandiriza & Fourie, 2022) or otherwise referred to as Treasury Regulation 16 (Arimoro, 2018). An important feature of this regulation is that it requires all PPP projects to be approved by National Treasury (Fourie, 2008) and ensures that PPP's are subject to a 3-point test involving important questions that consider the transfer of sufficient risk to the private partner, affordability and value for money (Arimoro, 2018).

Additional legislations that provide general regulations for local government, also applicable to PPP's include the Municipal Systems Act of 2000 and the Municipal Finance Management Act 2003 (Mandiriza & Fourie, 2022). In terms of Section 76 of the MSA, internal or external mechanisms may be used for the delivery of municipal services and in this case, external mechanisms include any entities outside of the municipality which can include PPPs. Section 77 of the Act provides guiding points for reviewing and deciding on the appropriate mechanisms for the delivery of municipal services. While Section 78 provides that when determining the mode of service delivery, the first point of departure should be to undertake assessments to provide the services internally following which options to deliver services by an external mechanism can be explored which needs to be supported by a feasibility study. Lastly, the MFMA provides the financial governance framework for local governments and outlines the financial and budgetary management practices in local governments. In terms of PPP for service delivery, the MFMA contains similar provisions as the MSA and requires that municipalities conduct a feasibility study before undertaking PPP's. More specifically, chapter 8 of the MFMA Act provides that the municipal manager who also serves as the accounting officer should consider value for money choices for the delivery of public services which may include PPP's.

The Municipal Service delivery and PPP Guidelines were enacted in 2005 and combine the requirements of the MFMA the MSA providing details and guidance to facilitate the provisions of the two Acts. These guidelines are considered South Africa's PPP Manual and are structured around a combination of 9 modules giving consideration to PPP regulations in the country, Black Economic Empowerment and PPP, PPP project inception, PPP feasibility study, PPP procurement, managing the PPP contract, auditing PPP's, accounting regulations for PPP and lastly, project finance. These modules provide the mechanisms to address key issues associated with PPP arrangements so that PPP projects achieve the requirements of affordability, value for money and substantial risk transfer (Arimoro, 2018). In addition to this, it is worth mentioning that a unique feature of South Africa's PPP landscape is the commitment to Black Economic Empowerment in procurement processes. BEE is a national policy objective whose fundamental purpose is to address the economic effects of Apartheid and subsequent inequalities hence PPP projects are viewed as a means to develop and promote BEE. This policy has been issued in accordance with the Public Finance Management Act of 1999 (Arimoro, 2018).

In terms of MSWM the guidelines offer feasibility study toolkits for solid waste management partnerships with the private sector. As a first step, municipalities are required to have in place an IDP and IWMP in accordance with the requirements of the NWMS. Once this is completed, these toolkits outline the full processes and procedures to help municipalities undertake feasibility assessments when considering partnerships. Key aspects include needs analysis, technical options analysis, service delivery options analysis and value assessments. The purpose of the needs analysis is to identify gaps in the provision of solid waste

services in accordance with the IWMP, the technical options analysis assesses the technical variables needed for solid waste activities, the service delivery options analysis focuses on assessing the capacity and costs of delivering services internally and lastly, value assessment concentrates on the costs around categories including labour, administration and operations.

1.5 Research problem statement

To meet the demand for waste services a number of municipalities in South Africa have adopted public private partnerships to facilitate service delivery but the contribution and participation of these external actors in municipal solid waste management remains problematic. For instance several barriers constrain the participation of private service providers in municipal waste service delivery including inefficient and ineffective management of contracts with private service providers (Eberhard, 2018), the promulgation of waste regulation both at the provincial and municipal levels (Godfrey & Oelofse, 2017),bureaucratic "red tape" and the inconsistencies between the regulations as well as its interpretation by officials at different levels of government (Oelofse & Mouton, 2014). Additionally, the participation of private actors is regulated by city by-laws and service providers cannot operate without permits (Eberhard,2018) which Godfrey et al., (2013) found to be time consuming and costly even affecting waste operations. Furthermore Oelofse & Mouton (2014) found that the short-term contracts offered by municipalities affected private providers ability to implement good waste management practices and the sustainability of small businesses in the waste industry. Such challenges require private actors to continuously evolve and concurrently remain profitable.

At the same time the participation of key stakeholders including NGO's, CBO's, informal sector and the general community remains a contentious issue. The reality is that municipalities recognise the contribution of community organisations in policy and political statements yet their participation has been limited (Simatele et al., 2017b). On the other hand, the activities of informal waste collectors are viewed as illegal and this stakeholder group remains marginalised (Sekhwela & Samson, 2020; Simatele et al., 2017). Finally, there is a lack of ownership and participation of community members in waste management and solving the problems that affect them (Serge Kubanza & Simatele, 2020).

In South Africa the literature on the challenges affecting these public private partnerships is scarce and in the context of the Separation at Source program little is known about the challenges particularly from the perspective of the actors who form part of these partnerships. The purpose of this study is to explore the partnership model used to implement the S@S program in the City of Johannesburg. A case study of Pikitup, an entity wholly owned by the City of Johannesburg will be used with a focus on the separation at source

program.

1.6 Research questions

What are the challenges in public-private partnerships for municipal solid waste management in the City of Johannesburg?

1.6.1 Secondary questions

- What is the policy and legal context of the public private partnerships in the City of Johannesburg?
- What challenges and constraints have partners experienced participating in the partnerships?
- What is the efficacy of public private partnerships in the City of Johannesburg?
- What are the financial challenges underpinning these partnerships?

1.6.2 Research objectives

- To explore the policy, legislative and legal context for solid waste management in South Africa
- To describe the actors involved in the public private partnerships and their challenges.
- To explore the efficacy of public private partnerships for waste service delivery in the study area
- To make recommendations to improve planning and implementation of public private partnerships.

1.7 Structure of the report

This research report has been divided into six chapters. Chapter 1 begins with an introduction followed by the background which provides a comprehensive overview of MSWM and the adoption of PPPs for MSWM. It further discusses the status of MSWM in South Africa which is followed by the problem statement. This chapter ends with the research question including the secondary questions and the objectives of this study.

Chapter 2 of this research then presents the review of literature on this topic focusing on the use of public private partnership arrangements for the delivery of various aspects of municipal waste services. The discussion has been summarised into four themes relating to stakeholder participation, the role of local government in PPP arrangements, financing and the efficiency and effectiveness of PPPs for the delivery of MSWM. It then identifies the knowledge gap and provides the theoretical framework through which PPP arrangements can be analysed. The literature review demonstrates that much effort has been made to understand the nature of PPP arrangements undertaken for MSWM including the relationship between the public partner and external actors, financial, institutional, organisational and legal aspects.

Chapter 3 details the methodology adopted by this study. This includes a discussion of the research design and procedures, an overview of the City of Johannesburg including the social and economic conditions and background information relating to Pikitup. This is followed by details of the instruments used to collect data, sampling procedures, a description of the research respondents and concludes with the ethical considerations for field work and data presentation.

Chapter 4 presents the results of the study and begins by providing the background of the S@S program. The structure of this chapter has been informed by the themes identified in the literature review and the theoretical framework. Following is chapter 5 which provides the discussion of results. The secondary research questions have been used to inform the structure of this chapter. Lastly, chapter 6 provides the conclusion of this research report which is organised based on the objectives of this study. The limitations of this study are then discussed which is followed by recommendations.

2. Chapter 2: Literature review

2.1 Introduction

To inform the key themes of this literature review a desktop search was conducted and although this was not systematic, the focus was primarily on identifying journal articles highlighting private-public partnerships (PPP) for municipal solid waste management (MSWM). Key terms applied in the search for literature included: public-private participation, privatisation, solid waste management (SWM), waste services, municipal waste management all of which were used in several combinations to produce a wealth of literature. Databases prioritised for this review included Google Scholar, Science Direct and PubMed. In addition, journal databases focused on waste were searched, these included Habitat International and Waste Management. During the search, results were filtered by year to include journal articles published between 2016-2022 to ensure up-to date information. Lastly, the reference lists were scanned for relevant articles. Themes identified include stakeholder participation, efficiency and effectiveness of PPP, financing, and the role of local government in PPP.

2.2 Stakeholder participation

Traditional PPP frameworks for MSWM have been neoliberal in nature prioritising formal private contractors with local governments assuming sole responsibility in decision making, exerting influence and power (Cobbinah et al., 2017). The current debates on MSWM have centred around the importance of cooperate arrangements for solid waste management (SWM) and various scholars' assert that resolving the city's waste problems requires consultation and buy-in from stakeholders. At the same time, cooperation between stakeholders can facilitate good governance (Zainal et al., 2021). Spoann etal., (2019) emphasise that to coordinate stakeholders' participation their interests need to be identified while Kabera et al., (2019) advocates the need for communication channels that ensure that local cultures are institutionalised and that a policy was needed to facilitate stakeholder participation.

For Phonchi-Tshekiso et al., (2020) and Sandhu et al., (2017) PPP processes for SWM depend on several agents, including NGO's, communities, and CBO's. Yeboah-Assiamah et al., (2017), collectively refers to this group as the "third party" and insists that the definition of PPP needs to recognise the role of the "third party" to realise any benefits for MSWM. Sukholthaman et al., (2017) and Yeboah-Assiamah et al., (2017) conceptualise such a partnership as a tripartite system involving private sector, public sector, and civil society as the three key stakeholders. To elaborate further on the functioning of this arrangement, Sukholthaman et al., (2017) confer that private contractors can collaborate with service recipients to co-

create values which can also introduce a voice for nature in SWM processes and Yeboah-Assiamah et al., (2017) insists that the private sector dimension should incorporate informal waste collectors while Sukholthaman et al., (2017) recognises that NGO's can contribute significantly to the sustainability of MSWM by playing an active role in assessing and monitoring the services provided by the private sector.

Within this arrangement, insufficient stakeholder engagement remains a problem (Yeboah-Assiamah et al., 2017) and Plaček et al., (2021) found that communication among stakeholders including management, politicians and bureaucrats was most problematic in hybrid organisations involving the state and private sector. According to Dolla & Laishram (2020), stakeholders often have negative attitudes towards PPP as they perceive the procurement process as inappropriate resulting in overexploitation by service providers and failed projects.

The participation of various stakeholders in MSWM is well documented and some scholars have narrated their roles. In particular, the role of informal reclaimers in PPP has been acknowledged by several scholars. For instance, Boampong et al., (2020) provides that formal contractors often did not cover all aspects of MSWM such as recycling, reuse and recovery, while at the same time Mbah & Nzeadibe (2017) reported on the inefficiencies of private waste collectors particularly in providing SWM for low-income areas all of which have created a gap that can be filled by informal waste collectors. Hettiarachchi et al., (2018) highlighted the benefits of informal waste collectors in MSWM and notes that the informal sector reduced the costs of local services including transportation costs incurred by the municipalities and played a significant role in diverting waste away from landfill sites through recycling efforts.

The services of informal reclaimers are particularly relevant in developing countries. For instance, in Accra Ghana the efficiency and effectiveness of informal waste collectors is occasioned by the fact that they utilise specialised equipment suitable for servicing low-income areas characterised by narrow and unpaved streets compared to private providers (Boampong et al., 2020) and it is for this reason that Hettiarachchi et al., (2018) labels informal waste collectors "experts" in the delivering of SWM services to low income areas as they utilize cost effective equipment and are more familiar with such areas compared to policy makers and public managers. Coletto & Bisschop (2017) found informal waste collectors to be more flexible in meeting the needs of service recipients even adjusting pick-up points, compared to the more rigid requirements of private providers. Such flexibility was also reported in the payment structures used by the informal waste collectors, where user fees are charged according to the income levels of households, a very attractive option for residents who cannot afford the user fees charged by municipalities (Boampong et al., 2020).

Despite the documented contribution of the informal sector PPPs have displaced informal waste collectors as municipalities often prioritised private providers. At the same time, the nature of contractual agreements created monopolies on access to waste, which limited the informal sectors access to waste and effectively

criminalising their activities (Oduro-Appiah et al., 2019, 2021). This affected the livelihood of informal waste collectors (Sandhu et al., 2017). Moreover other scholars are of the view that because the activities of informal waste collectors are not recognised or regulated they can infact worsen the state of sanitation (Lartey et al., 2018). Informal waste collectors face discrimination and alienation from both the public and local government and it is not uncommon to find that this sector had not been integrated into MSWM domains. The lack of stakeholder engagement has also been attributed to political power plays. For instance, most scholars agree that informal waste collectors are critical stakeholders in SWM but they remain marginalised. A major hurdle facing this group is that local governments often do not recognise informal waste collectors as legitimate actors in SWM partnerships and its framework (Boampong et al., 2020; Sandhu et al., 2017). In fact, Oduro-Appiah et al., (2019) reports that those responsible for MSWM planning remained reluctant to regulate and integrate the activities of the informal sector even with the exitance of frameworks to guide decision making.

The hostile attitudes of local government officials have been captured by Sandhu et al., (2017) who directs attention to the fact that local government had disregarded the existence of the informal sector including their contribution to SWM in the city with some municipal workers harassing informal waste workers who had to pay a certain amount to be able to continue their work. This notwithstanding that private company workers and households became hostile towards informal waste collectors following the introduction of private contractors (Sandhu et al., 2017). Moreover Mbah & Nzeadibe (2017) reports that informal waste collectors are often ill-treated by residents who cannot tolerate their activities and perceive them as causing a nuisance by interrupting traffic flow and littering. Lastly, the lack of recognition of the informal sector means that in practice their activities go unreported and are not accounted for. This impacts on the ability of municipalities to collect and publish data in the MSWM system (Oduro-Appiah et al., 2019). Mbah & Nzeadibe, (2017) reinforce this utterance and states that within the context of IWM, planning and implementation will not be evidence based.

The formulation of a MSWM policy is considered a pre-requisite to acknowledging and formalizing this sector and facilitate their participation (Mbah & Nzeadibe, 2017). Boampong et al., (2020) in their study in Accra Ghana found that informal waste collectors can increase their voice and visibility through self-organisation into associations. In this setting, the government encouraged informal waste collectors to establish associations which served as a medium through which the government could regulate the activities of informal waste collectors and legitimise their activities. The associations were managed by executive members, registration was regulated, and a constitution was drafted in accordance with the requirements of the department to obtain certification. Furthermore, associations in the sector facilitated government support through access to operating facilities and financial assistance (Boampong et al., 2020). This demonstrates that informal waste collectors needed to work as a collective to obtain official recognition.

Similar to informal waste workers, there is evidence that governments have excluded households from MSWM and assumed the sole responsibility. The overall argument has been that the role of households should move beyond the passive role of paying user fees to adopting an active role of fostering accountability in the delivery of services by both public actors and service providers (Yeboah-Assiamah et al.,2017). Supporting this notion Cobbinah et al., (2017) narrates the important roles households can play in MSWM including supervision, monitoring of service quality and direct involvement by participating in SWM activities and awareness creation. Cobbinah et al., (2017) also notes that the active involvement of households can contribute to governance by limiting corruption in tendering SWM contracts and holding municipalities accountable for the delivery of its SWM agenda.

In Berekum municipality an intervention was undertaken to engage residents for MSWM. Access to the community was gained through traditional and political leaders and through their involvement the municipality undertook several activities to facilitate the participation of households. These included community cleaning exercises, supporting traditional and formal regulations to improve living conditions and lastly the allocation and demarcation of areas for waste disposal. The participation of residents was a relative success however, their involvement could not be sustained. The underlying issues was that the municipality continued to dominate the management of SW services only engaging service providers while residents had no avenues to make their voices heard and had no roles and ownership in the solution. Hence residents did not regard their participation as meaningful and discontinued participating in SW activities (Cobbinah et al., 2017). The lack of buy-in from households often manifests as hostile attitudes and resistance from communities. Kirama & Mayo (2016), Lissah et al., (2021), Madinah (2016), Phonchi-Tshekiso et al., (2020) and Zainal et al., (2021) attribute the residents lack of commitment and participation in SWM activities to limited access to information. Lissah et al., (2021) reinforces this observation and indicates that behaviour change communication interventions did not have the intended impact as they had been limited or utilised communication channels that were inappropriate for the setting. On this matter, Phonchi-Tshekiso et al., (2020) noted that households could not hold service providers accountable if they did not have information about the waste collection times or who their service providers were. On the other hand, Spoann et al., (2018) has observed that participation is influenced by location, where citizens in peri- urban communities have limited participation in SWM issues.

Interventions are crucial to sensitise residents and facilitate their participation. Mohan et al., (2016) found that residents who self-organised into informal ward committees were able to create a multi-stakeholder forum to facilitate engagement, learning and communication among different actors. Through this platform residents were able to collectively hold not only private contractors accountable for the quality of services but also each other to reduce payment defaults (Mohan et al.,2016). At the same time, various civic organizations have organised themselves into citizens advisory communities involved in planning discussions

with city officials (Lee-Geiller & Kütting, 2021). Other interventions undertaken to increase household participation and stakeholder involvement include adopting an integrated approach, incorporating the social and cultural characteristics of the community in planning and implementing a policy to co-ordinate stakeholder participation. This policy needed to incorporate the various interests of stakeholders. Through these factors, the local government in Phnom Penh city was able to increase stakeholder participation, conduct monthly campaigns to facilitate cleaning initiatives and raise awareness among community members. This intervention also improved the efficiency of local government and enabled officials to mobilise financial support from stakeholders such as NGO's (Spoann et al., 2018).

2.3 Role of local government

The involvement of the private sector in MSWM and transfer of SWM responsibilities to this group does not mean that local governments can relinquish themselves from the issue and overly rely on private providers. In actual fact local governments remain accountable to citizens for the delivery and quality of services by private actors and ensuring value for money (Dolla & Laishram, 2020). The literature reviewed on this topic suggests that the success of PPP depends on the local government assuming a client role to the services provided by the private sector. As such, the public sector should establish the institutional and legal frameworks which serve as decisive parameters to facilitate PPPs for effective SWM (Olukanni & Nwafor, 2019; Saadeh etal., 2019; Spoann et al., 2019) without which PPP can worsen the state of affairs. A study conducted by Dolla & Laishram (2020) highlights the neglect or ambivalence of local governments towards their role in PPP arrangements. Noting that the failure of PPP has everything to do with the lack of commitment of local authorities to institute the principles of operation, delineate responsibility between involved parties, maintain and report activities (Dolla & Laishram, 2020). Sections 2.2.1 will focus on the institutional framework while sections 2.2.2 will focus on the legal frameworks and policy support.

2.3.1 Institutional framework

The centralisation of decision-making processes can affect the performance of MSWM and PPP arrangements. To address this, scholars including Spoann et al., (2018) champion for the decentralisation of SWM functions to local government as this would enable the introduction of operation procedures to achieve transparency, productivity, and efficiency at the local level which can also improve the sustainability of MSWM and ensure environmental stability. The decentralisation of SWM functions to local government was specifically intended to improve service coverage, quality, and accountability (Spoann et al., 2019). However the technical capacity of local governments is often inadequate to fulfil newly established roles and assigned responsibilities on waste management (Spoann et al., 2019) as municipalities are often staffed with supervisors and managers who have no educational background in

SWM and lacked the prerequisite skills. Furthermore, municipalities are not able to attract and retain a skilled workforce due to poor remuneration (Lissah et al., 2021).

The relationship between central and local government has created several operational challenges. For instance in Sri Lanka, as seen with many countries, central governments oversee MSWM issues at the national level including the allocation of budgets and financial plans while the municipality usually manages service delivery and coverage. In this setting, poor co-ordination between local and national government has led to logistical concerns and administrative challenges particularly relating to poor financial planning (Hettiarachchi et al., 2018). In Phnom Penh Capital Spoann et al., (2018) acknowledge that decentralisation has been insufficient as it has not been accompanied by adequate technical, human and financial resources which limited the administrative capacity of local governments to play key roles including coordinating stakeholder engagement, managing contracts and responding to complaints. Ferza et al., (2019) reported that the most significant flaw with decentralisation was the formulation of regulations at the central level of government. Such regulations were often inadequate for the context and constrained the operation of private partners (Ferza et al., 2019).

Relatedly is the issue of poor co-ordination and co-operation among institutions for various aspects of MSWM. Within local governments departments involved in the waste management process and policies operate at various levels (Ashraf et al., 2018; Zainal et al., 2021). Key challenges affecting the working of this relationship include the lack of coordination and cooperation between departments (Madinah, 2016; Spoann et al., 2018). Policies and laws are usually the first to suffer often established by one institution and implemented or enforced by another, which severely impairs the performance standards and accountability measures for MSWM. Over and above, Oduro-Appiah et al., (2019) supports this position and notes that such organisational structures can infact create gaps in the formulation and implementation of policy, monitoring and the regulation of MSWM activities. This was found to be the case in Ghana, where the responsibility for enforcing by-laws overlapped between agencies located in different ministries and the lack of co-ordination and co-operation between these agencies inhibited the effectiveness of by-laws. In this setting, the health unit responsible for monitoring was located in local government and on the other hand the enforcement of the bylaws was the responsibility of the protection agency operating in a different ministry. In practice this created misunderstandings concerning the roles and responsibilities of each actor and weakened the regulatory framework (Lissah et al., 2021). Ferza et al., (2019) suggests that cooperation agreements were necessary in such situations.

Furthermore, discussions in the literature verbalize how the poor division of roles of responsibilities contributes to poor MSWM processes and PPP (Lissah et al., 2021; Mam & Raji, 2021; Oduro-Appiah et al., 2019; Spoann et al., 2018). Overlapping responsibilities are as a result of inadequate definition and division

of roles and responsibilities (Mam & Raji, 2021) and the appointment of public officials with limited knowledge on MSWM both of which result in a loss of productivity and efficiency (Spoann et al., 2018). This is worsened when roles and responsibilities are not politically established which diminishes institutional capacity and the ability of officials to carry out their duties and enforce regulations (Spoann et al., 2018).

2.3.2 Legal frameworks and policy support

2.3.2.1 Policy support

A comprehensive policy is needed to support MSWM (Ferza et al., 2019) and scholars have further argued that a specific PPP policy was equally significant to facilitate private sector participation (Ferza et al., 2019; Mbah & Nzeadibe, 2017; Yeboah-Assiamah et al., 2017). Mbah & Nzeadibe (2017) note that despite the prevalence of the waste problem policy regarding MSWM has been absent, inadequate, or ambiguous. In addition, partnerships are often undertaken in an ad hoc manner and the absence of an overreaching PPP policy means that planning and decision making was done as and when needed (Mbah & Nzeadibe, 2017). Policies on MSWM and PPP are interlinked and Yeboah & Odoom (2018) found that the absence of a PPP policy to complement MSWM policies and by-laws meant that the benefits of PPP arrangement could not be realised. This also meant that staff relied on the national policy on PPP to guide decision making a practice the scholars found to be inappropriate to inform partnerships undertaken for MSWM as such policies were often inadequate and irrelevant for the different dynamics involved in MSWM activities (Yeboah & Odoom, 2018).

Contraversly, settings that had MSWM policies in place faced several challenges and dominantly policy formulation was often the authority of central government (Ferza et al., 2019) while the adoption of stakeholder participation to inform MSWM policy prioritised certain actors and it was often common practice to exclude the informal sector from participatory processes. This reinforced the marginalisation of informal waste workers (Mbah & Nzeadibe, 2017). More importantly MSWM interventions are not substantiated by solid evidence and Mbah & Nzeadibe (2017) have noted the absence of policy research or waste data to inform policy makers. Another challenge relates to the lack of knowledge among staff tasked with implementing MSWM policy (Spoann et al., 2018; Yeboah & Odoom, 2018). This was found to be the case in Phnom Penh, the capital city of Cambodia and Mam & Raji (2021) revealed that SWM policies were ambiguous and the absence of clear roles and responsibilities meant that staff were not conversant with the waste policy creating implementation challenges. A bigger obstacle in MSWM relates to political interference. Policy implementation in this area has been marred by political interference manifesting in the form of frequent changes in leadership (Mbah & Nzeadibe, 2017; Olukanni & Nwafor, 2019) and inevitably resulting in the loss of critical skills, institutional memory and creating opportunities for corruption to reign

(Mbah & Nzeadibe, 2017). On this matter Olukanni & Nwafor (2019) reports that such political environments have the potential to worsen the state of MSWM as the entry of a new government with different strategies and plans often leads to the discontinuation of polices. Spoann et al., (2019) concluded that institutional weakness and the lack of political will contribute towards implementation challenges.

2.3.2.2 Regulation and contracts

Permits are used to regulate the participation of private actors, monitoring and control the behaviour and performance of service providers (Kirama & Mayo, 2016). Local governments issue permits that authorise approved service providers to perform the various waste tasks and this allows local governments to control the participation of private actors from a legal basis. On this matter Kirama & Mayo (2016) asserts that issuing permits and licensing would ensure fair competition among providers and allow municipalities to ensure quality service delivery from a legal basis.

Cobbinah et al., (2017) notes that MSWM has been subject to political powerplays and narrates how the political economy can have a direct impact on SWM issues. For instance in Ghana, contracts for waste management were awarded based on political affiliation and personal relations and changes in government lead to the abrupt annulment of contracts which were often used as pawns to reward political allies and further political interests. This created uncertainty among service providers resulting in poor waste management (Cobbinah et al., 2017). This finding is supported by Mam & Raji (2021) who argue that contracts can often hinder private participation. According to Spoann et al., (2019) the issue of corruption and lack of transparency in tendering processes has limited the participation of private providers leading to ineffective and unreliable waste collection services. To address this, various scholars have argued for open and competitive tendering (Kirama & Mayo, 2016; Pavel & Slavík, 2018). To provide further support for this view, Pavel & Slavík (2018) assert that sustaining competitive pressure on private providers could be achieved by adjusting the duration of contracts and tendering at regular intervals. However, Park & Hong (2021) found that open bidding was subject to local governments legal framework and certain provisions provided legal grounds for local governments to create monopolies.This suggests the likelihood for political interference which manifests in the form of collusion where public officials develop clientelist relationships with private contractors when contracting out. Such tendering prevents rational decision making on the part of public officials and efficient service delivery(Jeong et al., 2017).

Furthermore there is the recognition that tendering in isolation was not sufficient and that the success of PPP lay in the details of the contract. Dolla & Laishram (2020) contend that contracts can foster accountability in PPP arrangements but this depended on the competency of the public sector to include such mechanisms when drafting contracts and during monitoring. Kirama & Mayo (2016) notes that contracts were often

ambiguous and needed to include details about the type of service being offered so that local authorities could monitor performance and hold contractors accountable for the required standards. However, in some settings confidential contracts created challenges in monitoring service delivery (Spoann et al., 2019). For instance in Sunyani Municipality Yeboah & Odoom (2018) identified that PPP processes had been highly centralised to the extent that contractual agreements had been initiated and signed at the national level while the responsibility to monitor and supervise the private sector to ensure compliance with the stipulations in the contract was to be done at the local level. In this setting the top-down approach to implementing PPP and lack of transparency between central and local government meant that local municipalities did not know the details of the contract and were unclear of their roles in the arrangement. This made monitoring and supervision of service providers challenging (Yeboah & Odoom, 2018).

The duration of the contracts has also been found to influence service delivery, where short-term contract designs meant greater business risks for private providers and limited access to external funding such as loans and credits thus restricting continual service provision (Kirama & Mayo, 2016). The other common weakness is the local governments limited capacity to develop the regulations and monitoring practices for PPP (Spoann et al., 2019). While on the other hand Dolla & Laishram (2020) observed that public officials bypassed the monitoring aspect believing that service providers would self-regulate. Supporting this view, scholars including Yeboah-Assiamah et al., (2017) have narrated about the lack of commitment of public officials to SWM issues, to the extent of entering PPP arrangements without exercising due diligence and ignoring the monitoring aspect. This has had a knock-on effect as the public sector relents on its role to monitor and supervise service providers they tend to neglect quality and efficiency to focus on maximising profits (Olukanni & Nwafor, 2019). Similarly, Ferza et al., (2019) and Kirama & Mayo (2016) report that in the absence of monitoring service providers did not uphold service standards and diverted from agreed routes.

On this matter Ferza et al., (2019) provides that monitoring and evaluation is a specialised function and that local governments needed to create such units for MSWM. For effective monitoring cooperation from service providers was required but Spoann et al., (2019) reports that service providers have not been compliant in their reporting duties. Pan et al., (2020) maintains that fiscal transparency can improve the private contractors trust in government while monitoring and evaluation can improve the performance of service delivery (Ashraf et al., 2018; Ferza et al., 2019)

2.4 Financing

Financing waste management remains a contentious issue and insufficient funding for SWM can jeopardise its sustainability (Spoann et al., 2018). State governments reportedly have limited financial

capacity to fund PPP for SWM (Ferza et al., 2019; Moruf et al., 2020; Phonchi-Tshekiso et al., 2020) which impacts negatively on the performance of private providers particularly waste collection frequency in the municipality (Cobbinah et al., 2017; Lissah et al., 2021). This is exacerbated by the mismatch between budget allocation, revenue generated and operational costs (Alabi et al., 2020; Moruf et al., 2020). Hence, Pan et al., (2020) emphasised that local governments should evaluate their financial resources before considering PPP and Ferza et al., (2019) noted that financial support from central government was required for PPP policy in SWM.

User fees are an important source of revenue to finance MSWM however, revenue mobilisation remains challenging and local officials have indicated challenges in determining tipping fees as central government regulations did not offer guidance (Ferza et al., 2019). Phonchi-Tshekiso etal., (2020) contends that establishing user fee collection figures was subject to political interference and as a result government authorities were reluctant to implement user fees due to their socio- political obligations (Mohan et al., 2016). Olukanni & Nwafor (2019) found that where residents pay a fee as determined by their area and value of property households in high income areas paid the most and were given priority in service delivery. In contrast, Kabera et al., (2019) prescribes that households should be charged according to their social class classification and the ability to pay which reportedly ensured the financial sustainability of MSWM. Unfortunately, this also meant that private providers servicing poor communities collected less revenue (Kirama & Mayo, 2016). On the other side of this debate Mohan et al., (2016) contends that households should be charged in proportion to the weight of their waste. But for scholars including Boampong et al., (2020) resolving the low collection rate was simply about being responsive to the socio-economic context. In this case because households in low-income areas could not afford the service payment, Boampong et al., (2020) recommends that informal waste workers be assigned to such communities as their payment arrangements are better suited to the resident's needs.

Also on this note the literature reveals a great variation in the billing systems adopted by local governments to facilitate the collection of user fees which has implications for SWM financing. Kabera et al., (2019) found that fee collection rates were higher when billed alongside public services that citizens valued. For instance in Kigali Rwanda the local government was able to achieve exceptionally high fee collection rates by incorporating the service fee for waste collection into the bill for local security services, a service that residents were happy to pay for. In addition penalties were issued for households that did not comply, an amount considerably higher than the initial fee. Through this strategy collection of fees was efficient and generated considerable returns (Kabera et al., 2019). Another example can be found in Penh Capital City where the electricity bill was the preferred method of billing waste services. Collecting

user fees using this method was effective as the staff of the electric company had the authority to issue power cuts to citizens who did not comply (Mam & Raji, 2021). However, similar attempts in Botswana using this model of fee collection were not successful. In this setting, the waste collection fee was incorporated into the service levy for public services and subsequently the fees collected flowed into the general government revenue. This created administrative challenges establishing a levy for waste collection and officials often experienced challenges verify the fees paid by households and compliance. Furthermore in the absence of measures to enforce and regulate the service levy, cases of non-payment and non-compliance by households became common(Phonchi-Tshekiso et al., 2020).

Within the discussion of financing MSWM the experiences of service providers need to also be taken into account. A review of the literature lays bare the economic hardships endured by the private companies participating in PPP arrangements. Chiefly service providers face financial uncertainty and given that SW activities are capital intensive; the economic analysis of private service providers signals an inability to maintain financial commitments. Service providers are often not endowed with financial resources and in Oyo State Nigeria the PPP scheme collapsed partly due to the financial constraints preventing service providers from purchasing specialised equipment such as trucks and tippers, employing and paying experienced staff (Olukanni & Nwafor, 2019b). Service providers financed their operations through self-funding or access to loans and the capacity of service providers to finance their activities has been continuously challenged by the duration of contracts or lack thereof. Kirama & Mayo (2016) reported that service providers operate under contracts with a very short duration and the maximum period was often two years. Poorly structured short-term contracts have implications on accessing support including loans and credits from financial institutions (Kirama & Mayo, 2016) thus increasing the risk of business and continual service provision. Still on the matter of contracts Kirama & Mayo (2016) notes that contracts can be instrumental in facilitating payments to service providers yet they appear to be problematic and seriously flawed often lacking important details. According to the scholars in the case of households, contracts should specify the user fees contributed by households and sanctions for non-compliance while on the part of service providers contracts should indicate the amount, timing and method of paying service providers. The absence of such features often creates concern and confusion amongst the actors involved (Kirama & Mayo, 2016).

Furthermore the operational costs of service providers have been found to be unsustainable even reducing profits. This is primarily due to the indirect costs incurred including the administrative task of billing municipalities which required follow-up calls, paying for equipment insurance, company registration, taxes, marketing and custom duties (Kirama & Mayo, 2016). Following are the yearly charges

incurred for the renewal of operation permits which is only granted upon receipt of payment for license and registration fees and without which service providers would not be legally permitted to operate (Alabi et al., 2020). Such expenses are not accounted for or subsidised by municipalities in the payment structure. It is also worth noting that municipalities don't incur such costs when providing the services in-house due to the numerous subsidies available to them (Kirama & Mayo, 2016). Kirama & Mayo (2016); Yeboah & Odoom (2018) have also reported an over-reliance of service providers to payments from local government to finance service delivery which indicates that local governments are responsible for financing the partnerships. This was particularly prevalent in Sunyani Municipality and Yeboah & Odoom (2018) reports that service providers entered into PPP arrangements without adequate financial resources and the municipality was often the sole provider of funds. This meant that anytime the municipality delayed in processing payments the delivery of waste services by private partners often came to a halt due to the lack of cash flow to maintain equipment and pay staff salaries. This arrangement was found to be unsustainable (Yeboah & Odoom, 2018).

Relatedly, another concern is the citizens unwillingness to pay for waste services which is well documented (Madinah, 2016; Moruf et al., 2020; Phonchi-Tshekiso et al., 2020; Saadeh et al., 2019). In some settings, waste service fees are the only source of funding for MSWM and PPP and unfortunately, non-compliance of households has a negative impact of the performance of service delivery. Cases of underpayment, late payment or non-payment are prevalent which reduce the profitability of SW activities and contribute to the reluctance of service providers to enter into PPP arrangements (Kirama & Mayo, 2016). Scholars provide differing reasons for non-compliance ranging from limited information regarding service costs and inadequate knowledge about the importance of user fee payments (Kirama & Mayo, 2016; Phonchi-Tshekiso et al., 2020) to the perception that waste collection services were free (Phonchi-Tshekiso et al., 2020) or that SWM is the municipalities sole responsibility and general taxes should cover the costs (Mohan et al., 2016). On the other hand, Ferza et al., (2019) and Madinah, (2016) found that households refused to pay for waste services because they were not actively involved in decision making and waste planning. Another identified bottleneck was the tension between residents who perceived the sanitation levies as too costly while service providers complained about low returns (Lissah et al., 2021).The lack of affordability was also an issue and Lartey et al., (2018) found that residents who could not afford the user fees often resorted to unconventional forms of waste disposal such as burning, recycling or disposing in public spaces, which worsened the waste problem in such settings.

2.5 Efficiency and effectiveness

The literature on the success of PPP for MSWM has produced mixed results. There remains a lack of consensus on whether PPPs are efficient and effective as well as the contributing factors. Generally, PPP have improved efficiency in solid waste collection in several settings which can be attributed to the operational capacity of private contractors (Adib & Mahapatro, 2022). Private contractors have higher operational efficiency due to access to capital (Olukanni & Nwafor, 2019) and contracting out led to a 2.5 % increase in efficiency gains compared to public delivery (Salazar-Adams, 2021). Household satisfaction is commonly used to measure the performance of service providers (Madinah, 2016; Phonchi-Tshekiso et al., 2020; Spoann et al., 2018) and scholars who have compared the differences between private and public provision of waste services reported a noticeable difference in household satisfaction following the introduction of private providers (Madinah, 2016; Phonchi-Tshekiso et al., 2020). For instance in Botswana waste collection by service providers was found to be frequent, timeous and reliable compared to the waste services provided by the local government which was reportedly unreliable and inadequate. The local government did not offer complete waste collection services due to the allocation of waste management tasks across various departments, the classifications of waste and regulations which segmented the delivery of waste services. This hindered waste management planning and delivery by local government leading to heaps of uncollected waste posing a threat to the health of residents (Phonchi-Tshekiso et al., 2020). Plaček et al., (2021) adds that hybrid organisations, collectively owned by the public and private partners, offered a more significant variation of services and innovative service delivery compared to the indicated arrangements.

On the negative side of this debate Jeong et al., (2017) found that local governments who contracted out waste services had lower efficiency and productivity gains compared to their counterparts who opted for public delivery. This demonstrates that although collection was higher with private contractors it did not lead to cost savings. Furthermore Pérez-López et al., (2016) identified that the population size of the municipality influences which service delivery form is most efficient and larger municipalities achieved higher levels of efficiency through contracting out. Jeong et al., (2017) and Park & Hong (2021) concluded that SWM services had become capital intensive and contracting out increased MSW budget spending compared to direct public delivery, with the costs being transferred to citizens. In other settings it was difficult to determine if PPP had any cost-saving benefits owing to the absence of documentation on service costs (Phonchi-Tshekiso et al., 2020).

Another area of interest on this debate has been the discussion on competition. The key argument has been that market competition can enhance efficiency and ensure service quality in SWM. For Bel & Sebő (2021), competition influenced the behaviour of firms which delivered quality services to areas where monitoring by regulators was effective and customers could compare performance to other areas that belonged to a

different firm, this created competitive pressure. Gradus et al., (2016) and Madinah (2016) asset that the lack of competition has been associated with higher costs compared to publicly delivered services. Studies have shown that the benefits of competition are limited by the political and institutional capacity of local governments. Where smaller municipalities could not benefit from competition (Pavel & Slavík, 2018) and local governments with limited resources to select service providers opted for long-term contracts with existing service providers (Jeong et al., 2017; Spoann et al., 2019). This allowed private contractors to maintain monopoly which worsened the situation, resulting in the loss of efficiency and service quality (Spoann et al., 2019).

Other scholars have observed that PPP has led to unequal access to waste services and that implementation of the 3R policy, promoting activities including reduce, reuse and recycling, was challenging due to the limited capacity of private companies to provide services beyond waste collection (Spoann et al., 2018). Boampong et al., (2020); Olukanni & Nwafor (2019); Spoann et al., (2019) and Yeboah- Assiamah et al., (2017) found SW collection services to be inadequate with private contractors generally serving urban communities over others. Pan et al., (2020) attributes this to the practice of service providers not abiding by the stipulations of the contractual agreement regarding the routes and standards of operation. On this matter, Kirama & Mayo (2016) found that in Dar es Salaam waste service fees based on the ability to pay principle created disincentives for serving poor communities due to inadequate revenue collection and service providers preferred high income neighbourhoods. Comparably Alabi et al., (2020) confer that the allocation of routes to service providers have been prejudice often prioritising formal neighbourhoods, commercial and industrial zones due to the capacity of such areas to pay for services. Christelle et al., (2019) notes that routes were often politically motivated and influenced by the incentives offered by municipalities resulting in uneven waste collection. Other contributing factors as identified by Kirama & Mayo (2016) includes the reality that high income urban communities are planned areas which made them accessible and as a result, these areas had greater service coverage.

What's more contracts can provide economic incentives which create inequalities in access to waste services. This was particularly prevalent in Cameroon where the contractual agreement used to manage the PPP arrangement had a payment structure in place based on the tonnages of waste collected. Service providers had to meet monthly tonnage targets and failure to meet such targets service providers were penalised and incurred financial losses. By contrast service providers made profits if they exceeded the targets. In practice, this meant that service providers had preferential routes and focused their efforts on planned settlements and areas in the city centre as waste production and overall consumption was higher in these areas. Hence providers could achieve tonnage targets more easily and efficiently. Due to this practice waste collection services in the informal settlements was in short supply and often focusing on the main roads due to limited accessibility of the interior parts of these neighbourhoods (Christelle et al., 2019).

Another issue has been the equipment used by the service providers which has a direct effect on the performance of PPP and the delivery of MSWM. Advanced and specialised equipment is especially time saving and enables efficiency in collection activities (Kirama & Mayo, 2016). Madinah (2016) argues that there has been a major mismatch between the operational capacity of private contractors and the amount of waste to be collected. Numerous scholars including Moruf et al., (2020) and Spoann et al., (2019) support this position and findings from their studies indicate that private contractors reportedly used operation vehicles not specifically designed for SWM which affected waste collection efficiency. This was found to be the case in Ibadan Nigeria where Alabi et al., (2020) did not find a significant contribution of private service providers in the collection of waste compared to the local government owing to the scarcity of funds and lack of equipment to operate efficiently. Service providers in this setting operated on a small scale as they owned operation vehicles that were inadequate in number and capacity to meet the service needs of the city given the condition of the roads and the size of the population. The service providers reportedly used all sorts of trucks which were inappropriately designed and unstandardised to collect and transport waste. At the same time the trucks were relatively old. Ultimately the performance of service providers was way below that of the local government in terms of tonnages of waste transferred to the dumpsites (Alabi et al., 2020). On this matter Kirama & Mayo (2016) emphasised that the use of inappropriate vehicles could infact result in littering and illegal dumping worsening the environmental problems. The scholars note that contracts have a role to play in enforcing environmental and equipment requirements that service providers ought to use (Kirama & Mayo, 2016).

Kirama & Mayo (2016) further observed that partners in SWM were not equally endowed with specialised equipment and ownership of equipment varied between the actors. Private companies are more likely to own superior equipment such as compactors, trucks, skip bins, trailers and tractors. However the lack of financial resources has limited private providers participation due to their inability to purchase the necessary equipment and manpower and as a result some private providers have been found to engage in other activities outside the realm of SWM to maximise profits (Kirama & Mayo, 2016; Olukanni & Nwafor, 2019). Meanwhile CBO's are often ill-equipped using only wheel barrows and carts (Kirama & Mayo, 2016). This is owing to the fact that CBO's are constrained by small capital bases and thus were limited to utilizing inferior equipment. Although this allowed greater access to squatter areas it limited their participation to providing primary collection services (Kirama & Mayo, 2016).

Lastly, other scholars lay the blame on the lack of context specific service delivery. For instance, Cobbinah et al., (2017) observed that waste facilities remained unused because they were inaccessible and did not consider the locals' indigenous disposal methods. This demonstrates that waste services needed to be responsive to the context and this view is supported by several scholars including Kabera et al., (2019) who identified cultural factors of the local people as a determinant, where locals who prioritised cleanliness

were more likely to be responsive and participate in aspects of waste collection services. On this matter, Boampong et al., (2020) found that because low-income areas lacked road infrastructure and the communities are often inaccessible informal waste collectors were better suited to serve such areas as they had appropriate vehicles which catered for these conditions. The literature also mentions how the political context influences the differences in efficiency between privately and public delivered waste services. Jeong et al., (2017) found this to be the case in Korea where central governments could exert pressure on local governments using performance evaluation to determine the allocation of grants and subsidies. This was used to incentivise local governments to improve efficiency in service delivery and were effective among local governments experiencing fiscal constraints.

2.6 Knowledge gap

The topic of MSWM has been extensively studied but has produced mixed results with regards to the efficiency and effectiveness of PPP in delivering MSWM. There remains a lack of consensus on whether this mode of delivery works and the contributing factors. Thus this study will contribute to this debate. Additionally the existing studies did not appraise the different forms of PPP, to address this limitation this study will focus on the partnership between a State-Owned Company and private entities. Plaček et al., (2021) investigated this arrangement in Czech Republic however, the results cannot be generalised to other settings since PPP should be studied in the local context due to differences in socio-economic, legal and political conditions. Moreover the discussions in the literature focused on PPP's undertaken for waste collection and disposal while the area of waste recycling was limited in the literature, this study will address this gap. Lastly in the South African context literature on MSWM in general has been limited or outdated. The emerging literature has focused on the inclusion of informal waste pickers, more specifically, the integration concept has received attention with scholars including Sekhwela & Samson (2020) exploring the different understandings of integration and its implications on the success of integration projects. Evidently, intergration can take different forms and the literature in South Africa has not applied the use of PPPs to achieve the integration of the informal sector. Addressing this knowledge gap is paramount considering the presence of a sizable informal sector in the country (Godfrey & Oelofse, 2017).

2.7 Theoretical framework

2.7.1 Agency theory

The agency theory is concerned with the working relationship between two parties in which the principal delegates responsibilities for the delivery of services to the agent. Within this theory the relationship between the principal and agent is characterized by separate, independent roles and responsibilities

(Awortwi, 2004). At the core of the agency theory are the assumptions that principals and agents have differing goals and values and that agents engage in opportunistic behaviour due to information asymmetry and because it is often difficult and expensive for principals to monitor the behaviour of their agents (Eisenhardt, 1989). The two kinds of opportunistic behaviour agents engage in include moral hazard and adverse selection. The first behaviour arises when the agents neglect the delegated responsibilities simply not putting forth the agreed effort while the latter refers to a situation during the pre-contractual phase where the agent may misrepresent their skills and the principal cannot ascertain the agents' abilities (Eisenhardt, 1989).To resolve such agency problems this relationship is governed by a contract (Eisenhardt, 1989) which also serves as a tool to control the behaviour of agents and ensure that it is aligned with the principals' goals (Waterman & Meier, 1998). Addressing information asymmetry requires principals to monitor the agent's behaviour and establish information systems which include budgeting systems, reporting procedures and managerial supervision(Eisenhardt, 1989).

PPP is an agency relationship between the public sector who appoints private actors to further its interests and the public sector serves as the principal. The public sector is concerned with the delivery of public services while the private partners are focused on maximising profits and may engage in opportunistic behaviour at the expense of the public sectors objectives. In addition, contemporary PPPs include NGO's and CBO's and Amagoh (2009) submits that these actors are most likely to ally themselves with the public sector as they share similar missions and have fewer incentives to engage in opportunistic behaviour in comparison to private actors (Amagoh, 2009). Furthermore Amagoh (2009) argues that within this agency relationship public managers need to aggressively manage the contract and that thoughtful oversight and accountability methods were necessary to ensure compliance and performance. This also puts pressure on the public sector to build capacity to fulfil this duty (Awortwi, 2004).

The agency theory is relevant for studying PPP in MWSM because within this context principal agent relationships operate at multiple levels thus one needs to explore the agency variables including the dynamics of having interdependent actors such as NGO's, CBO's and even citizens at all levels. Several scholars have prescribed that the agency theory be supplemented and not used in isolation. For instance, Mugarura et al., (2020) criticised the agency theory for its limited applicability to PPP as it only provides a generic view of this arrangement. Similarly Eisenhardt (1989) maintains that the agency theory would provide a partial view of the complexity of organisations thus additional theories would yield a more realistic view. However, for the purpose of this study no additional theories will be used.

2.8 Conceptual framework

The meaning of PPP has changed overtime and there is no agreed upon definition of partnerships (Arimoro, 2018). In the context of MSWM, a number of definitions have been offered by several scholars including

Ahmed & Ali (2006) who define PPPs as an arrangement in which public and private sector agencies merge their interests, share responsibility, governance structures and decision making for the delivery of SWM services. Formerly, the term PPP referred to a traditional dual system involving the public and private sector as key partners but more recently particularly in the context of environmental governance the prevailing narrative in debates around the delivery of environmental infrastructure and services is that the concept of partnerships be diversified to include collaborations involving the state, private sector and civil society organisations (Forsyth, 2005). In this case, the private sector should be viewed as a multi-faceted actor and several scholars contend that a comprehensive definition of PPP for MSWM cannot be achieved without acknowledging the effect or the role of the informal sector. Hence the definition of private sector has been further expanded to include the informal sector (Baudouin et al., 2010; Yeboah-Assiamah et al., 2017). Interestingly, scholars including Ahmed & Ali (2006); Sukholthaman et al., (2017) and Yeboah-Assiamah et al., (2017) have instead opted to label such PPP arrangements as a "tripartite partnership" in an effort to recognise the role played by households, civil society and the media, collectively referred to as the third party, in the delivery of MSWM.

One of the distinguishing features of PPP's in MSWM is a shared decision-making process (Ahmed & Ali, 2006). In the past, decisions about waste management were limited to public actors but in recent times MSWM opened to new approaches symbolising a power shift which advocates for the collaboration and involvement of all actors to solve SWM problems (Baudouin et al., 2010). Public participation is the essence of environmental decision making where non-state actors acquire a greater voice in decision making processes at all levels including policy formulation and implementation (Forsyth, 2005; Vasconcelos et al., 2022). Such participation can be closely associated with terminology such as empowerment to connote greater involvement in decision making (Abas, 2019; Schübeler, 1996). At the same time when partners are part of the deliberation process project measures are more responsiveness to the needs of the people which can foster program ownership (Schübeler, 1996).

Lastly, the presence of waste pickers places several challenges for their recognition and formalisation and at the same time their right to access waste needs to be expanded and secured. Partnerships are viewed as a pathway through which the activities of the informal recycling sector can be formalised by organising this group into legal structures such as cooperatives or associations (Aparcana, 2016; Godfrey et al., 2017; Simatele et al., 2017). Within this PPP arrangement, co-operatives are considered mediums to integrate waste pickers into the MSWM systems through processes of contracting or collaborating to provide services on behalf of the municipality (Aparcana, 2016; Godfrey et al., 2017) while the provision of support is intended to facilitate the participation of cooperatives (Godfrey et al., 2017). In the context of an expanding informal sector, partnerships also address the livelihood concerns and working conditions of waste pickers

and at the same time, the formation of cooperatives is viewed as contributing to the triple bottom line —job creation, economic growth as well as environmental protection (Kashyap & Visvanathan, 2014; Marello & Helwege, 2018; Simatele et al., 2017).

2.9 Conclusion

In this chapter, the literature review demonstrates that much effort has been made to understand the nature of PPP arrangements undertaken for MSWM and the information has been grouped into four key themes including stakeholder participation, the role of local government, financing and the efficiency and effectiveness of PPPs for the delivery of MSWM. The fundamental argument presented in this literature was that resolving waste problems requires the collaboration and buy-in of a network of stakeholders and in this regard local governments play a central role in establishing the institutional and legal frameworks which serve as decisive parameters to facilitate PPPs for effective SWM. Despite this, reality paints a different picture as policies to facilitate stakeholder engagement have been absent and at the same time stakeholders are often excluded in planning, decision making and implementation of SWM processes. Moreover, decision making processes remain centralised and where SWM functions have been decentralised this shift has been largely unsuccessful as the technical capacity of local governments is often inadequate to fulfil newly established roles and responsibilities for waste management. Other challenges associated with PPP arrangements include insufficient funding for MSWM due to challenges mobilising revenue and actors involved in PPP's possessing inadequate financial resources. Lastly, the literature on the success of PPP for MSWM has produced mixed results. There remains a lack of consensus on whether PPPs are efficient and effective as well as the contributing factors.

3 Chapter 3 Methodology

3.1 Research paradigm

For the purpose of this research the pragmatic paradigm will be adopted which carries with it epistemological and ontological implications and a variety of assumptions about what constitutes as knowledge and the methods through which this knowledge can be acquired (Bryman, 2016). Ontologically the pragmatic paradigm states that reality is constructed by human interaction with the environment while epistemologically it asserts that knowledge is a product of our actions when interacting with the real world (Onghena et al., 2019). Pragmatism is a flexible approach offering researchers the freedom to choose the methods best suited to answer the research question and provides a middle ground philosophically and methodologically for the qualitative/quantitative divide (Agerfalk, 2013).

3.2 Research design

This study adopts the case study method. Yin (2009) suggests several sources of evidence that would be appropriate for case studies including participant observation, interviews and document analysis amongst others. The present study undertook an exploratory case study encompassing a qualitative method to determine the challenges to the adoption of PPP for MSWM in the COJ. Pikitup will be the object of this case study and the case is important because it is responsible for SWM activities in the COJ.

3.2.1 Description of the study setting

The City of Johannesburg is located in the Province of Gauteng South Africa. With a population just above 5.87 million in 2021 the city comprises 40% of Gauteng's total population and 10% of South Africa's population (COJ,2021) and in the last decade the city has witnessed a 3% annual increase in population growth (COJ, 2020). Key factors contributing to population growth can be attributed to the influx of both national and international people who settle in the city due to its economic and education opportunities (COJ, 2020).

The demographics of the city are marked by extreme social, economic and ethical diversity. At the same time the COJ has various development challenges including urban poverty, rapid urbanisation, economic downturn, insecurity and infrastructure shortage (COJ,2020). In fact in the last 15 years the inner part of the COJ has degraded significantly due to the rise in informal trading that goes unmanaged and severe overcrowding including illegal conversions of residential units (Khatleli,2018). Social problems endemic to the city include crime, poorly serviced public areas, highjacked and badly maintained buildings and the lack

of facilities to accommodate minibus taxis all of which contributed to the mass exodus of corporates in the city (Khatleli, 2018) and in 2020 unemployment was reportedly as high as 32.7% (COJ,2020).

Pikitup is classified as a state-owned company (SOC) wholly owned by the COJ and was established in 2001 (van Niekerk & Weghmann, 2019). The entity provides waste collection and disposal services to the residents and commercial enterprises throughout Johannesburg (COJ, 2021). Pikitup's 2020/2021 business plan indicates that the company services approximately 5.05 million people and covers at least 1 625 square kilometre area of the COJ and a limited part of the city is serviced by private providers. Pikitup's operations include twelve depots, 5 landfill sites and 42 drop off sites (Pikitup,2021).

An exploratory case study is relevant for this context due to the limited knowledge of the research topic in the COJ and would address the knowledge gap. Several advantages of the case study approach influenced its primary selection for the purpose of answering the research question. Firstly, an important characteristic of case study research is that it relies on a natural setting thus a qualitative study would enable the researcher to analyse who the actors are, their interests and responsibilities they have in MSWM. The interaction of the actors within the setting is also a significant part of the investigation. The use of multiple sources of evidence is also ideal for investigating the critical aspects that define MSWM and PPPs which are important for understanding the challenges.

3.3 Research procedure and methods

3.3.1 Data collection instruments

Taking guidance from Yin (2009) the data collection tools adopted for this study include semi- structured interviews and document analysis of existing policy, legislative frameworks and annual reports all of which are publicly available online. These include the Waste Act, the NWMS and the COJ has the following documents available and applicable to MSWM: Integrated Waste Management Plan, Integrated Development Plan and waste bylaws. In the case of Pikitup the company's business plan is available on the website. These documents can provide insight into institutional processes, planning and ultimately how and if these are implemented in practice and the challenges. Interview questions were informed by the discussions in the literature review and the theoretical framework, which is the agency theory. The information collected from the interviews included general information about the organisation, participation in MSWM, operational, financial and management aspects of PPPs. These appeared to be common performance measures used in the literature and filled important gaps in understanding the factors that influence service delivery outcomes. Two interview guides were constructed each for the public and private sectors (Appendix C and D respectively).

3.3.2 Target population and sampling

Purposive sampling is a non-probability sampling technique in which the researcher applies their judgement to draw a sample from any person or group that is knowledgeable about the phenomenon under study (Brink et al.,2012). This sampling method was applied to this research since the researcher selected stakeholders that have partnered directly with Pikitup for the delivery of MSWM in the COJ.The reality is determining the total number of participants to be included is not always possible and scholars including Brink et al., (2012) propose that in the case of purposive sampling researchers should continuously sample until the point of data saturation and no new themes emerge.

To identify potential participants for the purpose of this study desk research was undertaken which involved reviewing Pikitup's annual reports which provides an exhaustive list of stakeholders and their area of specialty. Additionally the South African Waste Information System provides access to information on licensed waste management operators in the country which is publicly available on the website, sawic.environment.gov.za as well as the Institute of Waste Management of Southern Africa available at https://www.iwmsa.co.za. Following the websites of the identified companies were scanned to ascertain their involvement in MSWM and partnerships with Pikitup as most companies would readily have this information on their websites. Otherwise in cases where it is not clear the companies were contacted. Informal waste collectors otherwise known as waste reclaimers were identified through online media reports following which an online search was done to retrieve their contact details which is readily available on their NGO's website. In the case of sampling participants from Pikitup this research specifically targeted Pikitup officials directly involved in the S@S program. Contact details of the supervisors were obtained from the owners of the co-operatives who had direct contact with these supervisors.

Potential participants were contacted and invited to participate in the study. They were emailed information sheets and those agreeing to participate in the study were requested to provide the researcher with permission letters which are required to obtain ethical clearance.

During the field work it became evident that most of the participants were involved in partnerships for the S@S program mainly focused on recycling while partnerships to undertake other aspects of MSWM such as waste collection and disposal were limited. Also in some instances recruiting research participants proved to be challenging. For instance in the case of Pikitup officials obtaining permission took up to four weeks in the most extreme case as the official to be interviewed was in a management position and would not permit an interview unless the correct procedures were followed through the communications department. Other officials included supervisors who are based at the Pikitup depots. The S@S supervisors were relatively accessible and were identified through referrals from other research participants. The

other challenge relates to the private companies. One would identify through the companies' websites that the company was involved in partnerships with Pikitup however some respondents indicated that this was no longer the case while some declined to participate for fear of straining relations with Pikitup. Hence the participation of private companies is limited. Ultimately co-operatives proved to be the most accessible as they operated within the same areas, some in the same sorting facilities allocated by Pikitup and referrals were used to access this group. No challenges were experienced accessing the informal sector who were eager to narrate their challenges. Obtaining the perspectives of all residents would've been time consuming given that this is a huge population. In sum using probability sampling in the beginning proved to be challenging due to the low response rate and ultimately the research resorted to adopting the snowballing technique and recruited participants through referrals.

3.3.2.1 Description of the research participants

The group of respondents that were recruited can be classified into two groups. The first group include public officials employed at Pikitup which includes management and supervisors. The second group composed of external actors i.e., private companies, an NGO and co-operatives. In this study thirteen interviews were conducted and the sample comprised of three (3) officials from Pikitup who work directly in the S@S program, five (5) co-operatives, three (3) private companies and one (1) NGO. The participants identities have been replaced with pseudonyms. The participants of this study were distributed across different locations in the City of Johannesburg and the Pikitup depots covered in this study include the Selby depot (located in the inner city), Marlboro depot (located between the wealthy suburb of Sandton and Alexandra township) and Randburg (depot located in the informal settlement of Diepsloot). These specific areas allowed the researcher to compare and explore the experiences of the partners spread across areas with differences in class and thus contributes to the richness of the data. The audio recordings have been transcribed and the information has been condensed into themes in relation to the research questions.

Table 3.1: Description of research participants

Category of respondent	Position	Pseudonym
Pikitup	Manager	Respondent 1, Pikitup Official
Pikitup	Supervisor S@S program	Respondent 2, Pikitup Official
Pikitup	Supervisor S@S program	Respondent 3, Pikitup Official
Co-operative	Manger	Respondent 4, Co-operative A
Co-operative	Director	Respondent 5, Co-operative B
Co-operative	Director	Respondent 6, Co-operative C

Co-operative	Owner	Respondent 7, Co-operative D
Co-operative	Chairman	Respondent 8, Co-operative E
Private Company	Director	Respondent 9, Private Company A
Private Company	Head of finance	Respondent 10, Private Company B
Private Company	Office manager	Respondent 11, Private Company C
NGO	Reclaimer and Organising Committee Member	Respondent 12, Waste reclaimer and NGO member
	Reclaimer and Chairperson	Respondent 13, Waste reclaimer and NGO member

3.3.3 Positionality

The researcher can be viewed as a research instrument collecting, analysing and interpreting data and carries their own personal values, biases, and assumptions (Creswell,2003). Data collection methods including observations, surveys or ethnography are ongoing contact-based processes thus the ethical considerations transcend the scope recommended in research ethics. As such, scholars including Holmes, (2021) have called for researchers to consider "situational ethics" which are conditioned by positionality or the researcher's identity, as part of the ethical landscape when interacting with participants. Identities such as race, gender, as well as dynamics of inequalities and class can create ethical dilemmas. Hence, positionality must be considered and navigated by researchers (Holmes, 2021). To do so, I will first detail the identity of the researcher, the nature of MSWM as well as insider-outsider dynamics.

I am a young black woman residing in the City of Johannesburg. My perception of waste management in the city has been shaped by my own observations as a resident having witnessed the accumulation of illegally dumped waste in certain parts of the city and how this threatens the environment and well-being of the community. I have also been exposed to media content narrating the issue and as a result I may bring biases to this study particularly regarding the magnitude of the waste problem. This can influence the way I view and interpret the data. Lastly, conducting the research as an academic student and interacting with employees in MSWM, a male dominated community, may presented several challenges in terms of power dynamics and access. My experiences within the setting enhanced my sensitivity and knowledge of the challenges encountered by actors involved in MSWM and assisted me when working with the participants of the study.

3.3.4 Ethical considerations

Prior to data collection ethical clearance was obtained from the Wits Ethics committee which also required obtaining permission letters from participants, this was fulfilled. Ethical principles including informed

consent and confidentiality were adhered to. Letters were sent out to participants inviting them to participate in the study (see Appendix A) detailing the purpose and objectives of the research, how the results of the study will be used and written permission was obtained from participants willing to take part in the study.

Informed consent was applied during the interviews. It was reiterated that participation is voluntary and participants can withdraw at any time. Participants signed consent forms which also permitted the researcher to audio record the interviews. Participants were also afforded the opportunity to skip questions viewed as sensitive and this was the case for questions relating to aspects of financing. To ensure and respect the confidentiality of research participants identifying information such as the name of the participants or company were not used instead pseudonyms have been used. Furthermore the data collected was stored on a computer that is password protected and only accessible by the researcher. On the other hand the review of publicly available documents had minor ethical considerations.

3.3.5 Data processing and analysis

During data collection with the permission of the participants the interviews were recorded using a mobile phone. The voluminous information collected from the interviews was reduced into themes and the themes identified are influenced by the researchers' interests. Also the preconceived themes were derived from existing knowledge, that is the discussions from the literature review facilitated the qualitative analytical process. In other words interview responses were analysed using thematic analysis.

3.4 Conclusion

This chapter has detailed the research methodology adopted by this study. A qualitative study was used to investigate the challenges of public private partnerships for the delivery of waste services in the City of Johannesburg. Purposive and snowballing sampling methods were employed while data collection techniques included semi- structured interviews and document analysis of existing policy, legislative frameworks and annual reports all of which are publicly available online. Additionally, this chapter provides a description of the research respondents, the ethical considerations followed for field work and data presentation and concludes with the data processing and analysis procedures to be followed to present the data in Chapter 4 of this study.

4 Chapter 4: Presentation of results

4.1 Introduction

The overreaching aim of this chapter is to present the results of the interviews and analysis of documents including legislations, policies and Pikitup's business plan. The presentation of results is informed by the themes identified in the literature review. Section 4.2 provides the context of the S@S program, section 4.3 presents the dynamics of the partnerships and participation of key actors including co-operatives (section 4.3.1), residents (section 4.3.2) and waste reclaimers (section 4.3.3). Following which is section 4.4 which will provide the legal framework underpinning the S@S program, section 4.5 will present the financial challenges relating to the S@S program, section 4.6 will present details relating to the equipment owned by the partners, section 4.7 details the working conditions of the various actors and lastly, section 4.8 will detail the communication channels used in this PPP arrangement. The conclusion can be found in section 4.9.

4.2 The context: Separation at Source program

The purpose of the S@S program is to achieve the objectives of the Waste Act, the NWMS and the city's IWMP all of which emphasised the urgency of implementing recycling activities given the crises of declining landfill space in the country. Pikitup implemented the S@S program in line with the city's IWMP of 2011, using the partnership model to increase recycling in the COJ. The programme was initially launched in 2009 and by the year 2018 participation in the S@S programme had become mandatory in many areas of the city and although Pikitup has several depots across the COJ the S@S program has only been implemented in a limited number of depots.

Within the deports implementing the S@S program Pikitup has appointed team leaders, a supervisor and operations manager who are responsible for co-ordinating the programme. Using the partnership model Pikitup provides support mainly to co-operatives in the form of dustbins, plastics, a caged truck and sorting facilities. Co-operatives are assisted by the City of Johannesburg with a place of operation and the common approach is to allocate abandoned buildings or landfill sites which serve as sorting facilities for the co-operatives to utilise for that period. Co-operatives are then given lease agreements. This is beneficial since co-operatives require a place of operation to qualify for the waste hub certificate. Furthermore, Pikitup assists with training on financial management, conflict management, operations and to address the issue of occupational injuries Pikitup has put in place an initiative called Team Talk where officials conduct workshops to raise awareness about safety.

Pikitup established a 2-bag collection system where recyclable waste and general waste are collected on

separate days. S@S supervisors are responsible for formulating collection schedules while co-operatives provide their own labour. On collection days co-operatives allocate their workers who together with the team leader and driver employed by Pikitup collect the bags filled with recycling material which must be sorted within 7 days and then sold for a profit. In return co-operatives need to report the tonnages of materials recycled to Pikitup.

4.3 Partnerships and participation

Section 7 of the city's IWMP emphasises the need for partnerships in particular the input and participation of stakeholders to promote and sustain waste management practices. Interviews revealed that within the COJ various forms of partnerships exist for the delivery of municipal waste management at various levels with the City of Johannesburg itself and its entity Pikitup. Partnerships with the COJ include clean up campaigns involving NGO's, co-operatives, small and medium enterprises. While the main partnerships with Pikitup includes those undertaken to implement the S@S program and involve co-operatives, small and medium enterprises, schools, and other stakeholders who offer to assist with recycling. In this case partnerships with the private sector are predominately found with companies involved in recycling activities and operating buy-back centres. Furthermore Pikitup often contracted out waste collection services to private companies, another form of partnership. However, this discussion will predominately focus on the PPP's implemented for the S@S program.

Stakeholder engagement and consultations are at the core of Pikitup's business plan. However, interviews with co-operatives depict a different reality where Pikitup's approach to partnerships has often been top-down and although members of co-operatives have indicated that Pikitup does host workshops, sending out drafts of policies they felt that their participation is not meaningful and has often been reduced to a tick-box exercise where meetings are attended to be marked present.

"The policy is sent out as a draft; you cannot change that policy because it's a draft. Even if we participate its all the same because there is nothing we can change because already they give the policy as a draft. They just want us to fill in numbers, that they called us and we attended" (Respondent 6, Co-operative C).

Other members of the co-operatives revealed the dominance of Pikitup in these partnership arrangements and felt disempowered and that they had lost their freedom to make a positive contribution to the S@S project. They expressed the need for more independence.

"We need more freedom; they mustn't control us. I think the reason why the project is not successful is because it is managed by Pikitup. Once they can let it go and allow us to run it. Because we are the ones who know what's going on. Pikitup does not know about recycling and some of the things they learn from us but

then they want to manage us. So, they have to let go and start paying us so that we can manage our own thing because I think we have proven that we can do this" (Respondent 5, Co-operative B).

Waste reclaimers expressed their frustration in relation to the lack of engagement on the drafting of policies for MSWM and their integration. One reclaimer recalled that policy implementation is often undertaken my Pikitup and appointed service providers.

"First thing they need to change is proper engagement on drafting of other policies and proper engagement on implementation. Because when it comes to implementation, they neglect you and go and get a service provider" (Respondent 12, Waste Reclaimer and NGO member).

The following section below will provide details of the partnerships undertaken to implement the S@S program and the challenges of the working relationship between key stakeholders and Pikitup. Actors prioritised for this section include co-operatives (section 4.3.1), residents/households (section 4.3.2) and waste reclaimers (section 4.3.3).

4.3.1 Co-operatives

Interviews with Pikitup officials reflected a high preference for working with co-operatives and Pikitup actively encouraged those previously involved in recycling, including informal waste workers, to establish co-operatives in order to participate in the S@S program.

"Remember as part of Pikitup's social responsibility we partnered with co-operatives, these are people who were already doing recycling so we just formed a partnership. So it was easier to work with them rather than taking someone new that doesn't have any idea of how to separate the recyclables. Some companies involved in the partnerships are cc's, some are SMNE's and others co-operatives. But Pikitup prefers co-operatives the reason being co-operatives involves a lot of people thus you can empower a lot of people at a time" (Respondent 1, Pikitup Official).

Pikitup recognised the potential for co-operatives to not only contribute to providing recycling in the city but also generate employment and serve as an opportunity to formalise the activities of informal waste collectors.

"So, when we saying we want to create employment it is where now we are partnering with co-operatives. That means the people who are forming these small companies in the communities and also the reclaimers we have been mandated by the City of Johannesburg to integrate these people into our system. So as Pikitup we normally encourage these people to form groups or to officiate themselves by establishing co-operatives. Also in the inner city the people who are unemployed we encourage these people to establish co-operatives because as Pikitup we don't want to work with individuals" (Respondent 3, Pikitup Official).

4.3.1.1 Challenges working with co-operatives.

Pikitup officials identified a number of challenges working with the co-operatives and these clustered around a number of themes which primarily include the sustainability of co-operatives (section I), opportunistic behaviour (section II) and poor conflict management among members of co-operatives (section III).

i. Sustainability of co-operatives

The common narrative about co-operatives was that they had a high failure rate and during the interviews, one of the Pikitup officials expressed concern regarding the sustainability of co-operatives despite Pikitup's commitment to provide support.

"The co-operatives are not sustainable, we have been supporting them since the project started and we thought after 2-3 years they will be on their own but we realised that they can't be on their own. If we take our trucks, plastic bags and sorting facilities and say go and be on your own there is no way they can survive on their own. So I think they need a lot of support, financial support from other organisations. Unfortunately as Pikitup we can only go up to here we can't go beyond that. But what we normally do is make arrangements with other organisations such as your Coca-Cola, Lottery, DEAFF, Gedard to assist the co-operatives with a lot of support. Maybe buy them the trucks, bailing machines, PPE and even offer trainings" (Respondent 1, Pikitup Official).

Senior members of co-operatives were often individuals with low skills in business or management and because of this some felt they were still at the bottom of the recycling chain on the same level as street waste pickers. At the same time retaining workers proved to be challenging.

"As a co-operative run by people with little financial knowledge the co-operative did face challenges retaining its workers and not achieving the desired growth. This was due to difficulties obtaining funding and lack of experienced workers" (Respondent 5, Co-operative B).

ii. Opportunistic behaviour

Pikitup officials have accused members of co-operatives of engaging in opportunistic behaviour as many of the co-operatives in operation are believed to have been the result of opportunistic registration, established by members with no experience in recycling or waste in order to benefit financially from Pikitup and access support. Furthermore site visits conducted by Pikitup supervisors found co-operatives utilising the sorting facility for financial gain by sub-leasing the facility or engaging in other activities outside of waste.

"If we give you the city owned building to utilise you not supposed to sub-lease. So the challenge that we normally have with co-operatives is that they will sub-lease these buildings, benefiting from rent. They don't come to us and say I am taking rent from people and once they do this they are suspended by Pikitup and contract is not renewed. They are out of Pikitup's system. The other challenge is that co-operatives don't do

what they said they are going to do. So when we give the co-operatives buildings instead of doing recycling alone they will do other activities outside of waste management. But those are the challenges, they just need monitoring every now and again" (Respondent 3, Pikitup Official).

Pikitup has put in place an MOU to manage its partnerships with cooperatives. This MOU is intended to outline the roles and responsibilities of cooperatives, reduce opportunistic behaviour and resolve disputes among members of cooperatives.

"You know with us we send the MOU to say this is your obligation. You are going to do 1,2,3 Pikitup will do 1,2,3 but even if we send the MOU the co-operatives still divert from the MOU, there will always be challenges. You know you can't predict that they wont fight, it will happen. The conflict will always be there" (Respondent 1, Pikitup Official).

A respondent from a private company expressed the same sentiments and felt the waste sector was being exploited by people who lacked knowledge about waste, often establishing co-operatives

"There is a lack of accurate data of how many recycling and buy back centres are in operation. There are opportunistic people who get involved in the waste industry for money and establish an association or co-operative of some sort but lack experience or knowledge in waste management" (Respondent 9, Private Company A).

iii. Poor conflict management

Characteristically co-operatives are often established by members who have no previous association or working relationship. In addition, senior members of the co-operatives assume management roles and employ volunteers or workers to carry out the manual labour. Participants indicated that conflicts and in-fighting were common among members of co-operatives due to lack of financial trust with workers often striking against their seniors for non-payment of salaries.

"The other challenge is that remember co-operatives is different people that came together, they fight, conflict management is an issue, because they don't know each other, they can't work together" (Respondent 1, Pikitup Official).

"They get no pay at all for some of the materials they separate because their boss claims that the market prices were too low, making profit margins so slim he or she cannot afford to pay the workers" (Respondent 4, Co-operative A).

Furthermore, officials disclosed that in extreme cases such conflicts affected operations at Pikitup. However, Pikitup officials could not get directly involved in resolving conflicts among members of the co-operatives as this was outside the scope of their work.

"When there is a strike [with cooperatives] we can engage but we don't get involved. Let's say for example, the co-operatives don't pay their workers. Since we have a MOU in place, their workers are not supposed to come here and strike at Pikitup. They are supposed to strike for their bosses but we have such challenges where you find that co-operates don't pay their workers and their workers come and strike on the Pikitup premises even locking our gates. We suspended that co-operative" (Respondent 2, Pikitup official).

To resolve financial conflicts with their workers some managers of the cooperatives resorted to disclosing their earnings to the workers to enhance transparency.

"So, after selling the recycling material, I return to the office and check the profits with the workers. So, they can see. Transparency" (Respondent 4, Co-operative A).

4.3.2 Residents

With the S@S program Pikitup distributes recycling bags to residents of participating areas on a weekly basis and residents are then given the responsibility of separating their general household waste from recyclable material. Common in interviews conducted with Pikitup officials was the concern regarding the low participation of residents and the lack of penalties and incentives.

"Most of the residents don't participate in the recycling, few areas participate fully. We did education and awareness campaign but still it's not working out" (Respondent 1, Pikitup Official)

A Pikitup official expressed that a policy and penalties were needed to foster the participation of residents which would also offer an opportunity to address the issue of illegal dumping in the city.

"People think that participation is a choice. But if it can be stated clearly in the policy and adverts that its compulsory. It needs to be emphasised and there must be penalties. It is about time for us to ensure that there is a penalty for people who are dumping, people who don't participate in recycling" (Respondent 3, Pikitup Official)

Furthermore, it was revealed that residents in high-income areas had higher levels of participation and compliance compared to residents in low-income areas and those residing in the inner City. One of the Pikitup official stated:

"We are only doing certain areas where there is high volume of waste generated and also the education level of those residents is easier to separate from the high-income areas than the low income areas because with the low-income areas they tell you 'I don't have bread, I don't have this and I need to recycle. How am I going to recycle if I can't even buy a bread?'. Again, with the high-income areas, its mostly the suburbs and most of them know how to recycle" (Respondent 1, Pikitup Official).

Another official attributed the low levels of participation, particularly among community members in the inner city and high rise buildings, to the negative attitudes of residents towards recycling in general and lack of time.

"The community some of them they don't want to participate in the recycling program. Some of them they will say especially those in the inner city, 'we don't have time'. When we introduce it to them they don't feel that it's their job. So what we normally do to mitigate that is to send co-operatives into the buildings to sort the waste" (Respondent 3, Pikitup Official)

In response to low participation rates among residents, Pikitup implemented education campaigns to raise awareness among residents. But despite this, the campaigns have largely been unsuccessful in changing the negative attitude of residents, partly because the campaigns have not been continuous.

"Once we see that there is a lack in the participation we enhance it by providing education and awareness. But even when we conduct education campaigns participation of schools and communities remains low. Also, education and awareness campaigns need to be continuous. However, education campaigns have not been effective among residents in high rise buildings and participation remains low" (Respondent 3, Pikitup Official)

Another Pikitup official felt that the low participation rates could be attributed to the way the S@S program was designed and that there was a lack of context specific S@S models for the different income areas. This suggests that there are social and economic conditions that shape recycling behaviour and participation which had been ignored.

"So our separation at source although when we started we mixed we included the low income areas and high income areas but in the process we realised that in the low-income areas it's not working for us so which means for low-income areas we have to come with a different model because then again separation at source model is not a one size fits all. So, the model depends on the area" (Respondent 1, Pikitup Official).

4.3.3 Waste reclaimers

Within the City of Johannesburg, informal waste collectors are given a variety of names from scavengers, waste pickers to waste reclaimers. For the purpose of this study the informal waste collectors requested to be labelled as waste reclaimers. More significant to this study is the working relationship between Pikitup and waste reclaimers, tensions between the two actors began when the reclaimers who had been involved in recycling for several years before Pikitup were excluded when the S@S program was implemented. Reclaimers maintain that they were not consulted and that the program undermined their work.

"Separation at source is a good program but it turns out that we have different understanding because we thought they [Pikitup] will appoint reclaimers to do that separation at source. This would've saved Pikitup a lot of money. But now they didn't, they used private companies and we even had to do marches to stop the private companies and again after stopping the private companies Pikitup introduced a R50 recycling levy that was to be paid by households to promote recycling. We were against that again and we won again" (Respondent 13, Waste Reclaimer & NGO member).

Furthermore, Pikitup's business plan provides little discussion on plans to integrate waste reclaimers into its waste management system. Interviews with reclaimers depict a very hostile environment and some waste reclaimers viewed themselves as competitors to Pikitup.

"Pikitup will never call us, we are a competitor to Pikitup because Pikitup has recycling programs, separation at source. They hire someone, I don't know how they get that contract to get exclusive rights to collect recyclables in suburbs. So when that person gets exclusive rights, the rest of the people can't have access to that. And that person doesn't even know recycling. So Pikitup is a competitor, we don't work with Pikitup" (Respondent 12, Waste Reclaimer and NGO member)

It was also a general sentiment among reclaimers that Pikitup did not have the knowledge or experience to carry out the separation at source program.

"We are still very far. Pikitup's management and the city's management needs to be educated on waste and they need to be educated on labour. They don't understand the process of separation at source, if they did understand then we would have plastic sortation spaces all over the city. Because they would understand that this was needed in order to divert waste" (Respondent 12, Waste Reclaimer and NGO member).

From the interview responses Pikitup officials expressed that waste reclaimers often disrupted the work carried out by the co-operatives and it was often difficult working with reclaimers as regulating their activities was challenging. Previously, attempts have been made to develop a framework outlining the plans to integrate the waste reclaimers and establish a working relationships, however, the presence of migrants in the sector hampered such efforts.

"We are trying to work with them [reclaimers]. We are trying to integrate them into the waste management system so at the moment we did develop the framework document. Remember they've got organisations that represent them, so we sit with those people. We have the meetings and talk how we will work together. But we have challenges also with them because most of them are not South Africans and are in the country illegally. So there are laws in the country to say that we can't work with the illegal people, we can only work with the people that have permits and their job is not a scare skills where they can get a permit. So there are all those issues but we are trying to work with them" (Respondent 1, Pikitup Official).

Officials expressed that waste reclaimers themselves contributed to the problem of illegal dumping in the city and there was a need for the development of guidelines to manage their activities.

"Reclaimers need to understand that they can't work as silos. They need to be integrated into the system and they need to comply because the reclaimers as well can create illegal dumping. They take whatever they want and they leave. But if there was a tight policy that is guiding them that they need to be doing things according to terms and conditions, I think then we wont have these challenges" (Respondent 3, Pikitup Official).

On this matter another official indicated that reclaimers preferred to continue working individually and refused to establish co-operatives which made it difficult for Pikitup to integrate them and establish partnerships.

"People don't want to be organised they want to work as individuals. We have tried several times with the reclaimers but they refuse because they believe if they form a co-operative they won't be profitable or there will be this middleman and they get nothing. Reclaimers don't want to partner with Pikitup or formulate co-operatives" (Respondent 3, Pikitup Official).

Interviews with reclaimers revealed the varying reasons for refusing to establish co-operatives. One of the prominent reasons include not meeting the requirements and specifications for co-operatives which was mainly due to the presence of foreign nationals who worked as reclaimers as well as the high failure rate of co-operatives in the country.

"Pikitup works with co-operatives and there are specifications of a co-operative. When you look at the specification of co-operatives and our informal sector we have foreign nationals and co-operatives doesn't want foreign nationals. So already it's a fail without counting the other requirements" (Respondent 12, Waste reclaimer and NGO member)

"Again we need to notice that most co-operatives are failing in South Africa. They say people must form co-operatives but they don't provide education. They don't teach you how to run the co-operative. There is no education, they don't teach people" (Respondent 13, Waste Reclaimer and NGO member).

Furthermore, reclaimers expressed reluctance to establish a working relationship with Pikitup as they felt they were continuously excluded from decision making processes and any consultative processes undertaken by Pikitup was fruitless.

"We have been talking to Pikitup for the past 6 years, unmeaningful engagement. Waste of time. It's us trying to find a working relationship and them always doing the opposite" (Respondent 12, Waste reclaimer and NGO member).

Another reclaimer expressed that consultations were limited to individuals they met on the street. Bringing into question the credibility of the consultations.

"Pikitup makes decisions without us and they don't talk to us. They say they consulted while they spoke to a reclaimer they found on the street" (Respondent 13, Waste reclaimer & NGO member).

Previously waste reclaimers collaborated with Pikitup to establish policies and guidelines for their integration however these have not been implemented. This created trust issues towards Pikitup. Waste reclaimers further expressed their frustration regarding the impact that the changes in management at Pikitup has had on their efforts to try and find a working relationship with Pikitup. Stating how they often had to build relationships with new people and work with officials who don't know anything about waste or recycling.

"We've been talking to a lot of people from Pikitup, local government, councils, every municipal office you can think of in Johannesburg. The minister, even the previous ministers and they keep coming and going. We've been doing a lot. So, to be honest, I rather work with people and business than speak to government because they are not driven by policy" (Respondent 12, Waste Reclaimer and NGO member).

Reclaimers felt that trust was a major issue hampering their working relationship with Pikitup, particularly as it pertains to the implementation of the integration agreement designed by the reclaimers organisation in collaboration with Pikitup.

"Pikitup needs to come on board, sit down with us and be trustworthy because they are not trustworthy. Right now there is a draft we made in 2017, it has not been signed even now. This was the agreement between us [Pikitup and Reclaimers] about integration. This was drafted together with Pikitup, it hasn't even been signed out and it was finalised in 2018" (Respondent 13, Waste Reclaimer and NGO member).

To increase their voice and presence in the City's recycling activities the waste reclaimers have self-organised and established an NGO, which is run and controlled by the reclaimers. One such NGO known to the researcher was established when reclaimers opposed the S@S program by mobilising in the streets and in court demanding to be integrated into the City's waste management system. Additionally, among its goals is to fight for the rights of reclaimers both at local and national level by conducting campaigns and marches.

"We decided to have a structure of our own that will represent us, run by us. Everyone in the organisation does this job, there is no bigger person" (Respondent 12, Waste Reclaimer and NGO member).

"This organisation was established to fight for the rights of reclaimers and negotiate with the city, national government and industry" (Respondent 13, Waste Reclaimer and NGO member).

Furthermore, this particular NGO has implemented its own separation at source program in several communities in Auckland Park and surrounding neighbourhoods. Collaborating with partners including WWF,

Coca-Cola and Unilever. By forming the NGO reclaimers are able to mobilise financial support from the private sector and create dialogue between the two parties.

"We've got collaborations with WWF, Uniliver on separation at source. So I rather work with people and business" (Respondent 12, Waste Reclaimer and NGO member)

A key to the success of the S@S program implemented by reclaimers was that they had established a working relationship with the communities. The reclaimers teach the residents about recycling and how to segregate the recyclable material from the general waste. Whatsapp groups were established to form communication channels with residents. This motivates the residents to participate. Through this program the reclaimers were able to change any negative attitudes residents had by creating awareness on their activities, this gave residents an opportunity to get to know the reclaimers. This program has improved the reclaimers access to recycling material, working conditions as well as their income.

"Residents here we have a very good relationship with based on the collection of their material, so they understand separation at source, we teach them separation at source, we practice separation at source together" (Respondent 12, Waste Reclaimer and NGO member).

When asked what needs to be improved, the response from the reclaimer was as follows:

"Pikitup and the City of Johannesburg's management need to be educated on waste, on labour, recycling processes and required facilities" (Respondent 12, Waste Reclaimer and NGO member).

4.4 Legal framework

Legislation governing the delivery of waste services including the Municipal Systems Act as well as the Waste Act, place the responsibilities for waste management planning on municipalities which are required to develop IWMP in line with the waste hierarchy and supporting by-laws. In this setting, waste planning and development is done by the COJ while implementation is undertaken by Pikitup. The COJ's IWMP was first formulated in 2011 and provides guidelines for its implementation. The IWMP indicates that it needs to be reviewed continuously and updated every 5 years to ensure its effectiveness and relevancy, however this has not been the case. In addition the waste bylaws are one of the supportive legal instruments for the implementation of the IWMP. In section 4.3.1 the data relates to the waste by laws. This is followed by a presentation of results relating to contracts (section 4.3.2) and monitoring and control (section 4.3.3).

4.4.1 Waste bylaws

The first set of waste management by-laws were implemented by the COJ in 2013, reviewed in 2018 and amendments published in 2021. The COJ formulates the waste by-laws, Pikitup is responsible for implementation while another agency the Johannesburg Metropolitan Police Department (JMPD) is

responsible for enforcing waste by-laws. Respondents indicated several enforcement challenges including lack of knowledge of waste management among JMPD officials and the absence of communication challenges between departments responsible for waste and JMPD. This has resulted in low prosecution rates. The amended bylaws make provisions to support recycling in the city which can also contribute towards the S@S program. The data presented below includes aspects of the waste bylaws that are directly associated with recycling activities and in this view contribute towards the S@S program. For instance, Chapter 4 section 35 (1) of the waste by laws states that:

"Generators or holders of particular categories of waste must for the purpose of recycling separate those categories of waste at the source and must store, dispose of and treat the separated waste in the manner prescribed in the notice."

Furthermore, the by-laws provide stipulations to regulate the participation of service providers in municipal waste management through the use of accreditation permits and waste management licensing. For instance, section 34 of chapter 4 states that:

"No person may undertake to collect, transport, sort, store, re-use, recycle, or recover waste with the intention of making a profit including scrap dealers, waste treatment facilities and formalised recycling groups unless the person is accredited."

At the same time, the provisions of Chapter 8, Section 61 state that:

"No person may provide a commercial service as defined in section 1 of these By-laws without obtaining an accreditation permit from the Council and obtaining a relevant waste management license from the national or provincial authorities where one is required."

Most of the co-operatives and private companies were in possession of operating licences and obtaining licensing was relatively easy for the co-operatives as this process was assisted by the COJ and mainly required co-operatives to report the waste tonnages to the city. Contraversly, private companies were more likely to experience challenges with licensing due to varying reasons. The main challenge relates to the assessments undertaken to determine whether you meet the requirements which were found to be time consuming.

"We struggle a lot to get licensing. It takes time for you to get it because with our licensing they come and view your place to check if it is suitable for waste management and then they take measurements, assess it and then they go back, sit down and decide if they will give it or not if you meet their requirements" (Respondent 9, Private Company A).

To regulate the participation of waste reclaimers and regulate their activities chapter 4, section 37-43 of the bylaws stipulates that waste pickers are to establish waste picker associations in order to participate in waste

management services. Furthermore, the sections detail the conditions and requirements for accreditation, conduct and processes of suspension for non-compliance. Despite this requirement in this setting the waste reclaimers were more likely to self-organise into an NGO. Furthermore, waste reclaimers felt discriminated against and expressed that by-laws were only enforced against their activities while other activities go unpunished.

"Bylaws are practiced when it suits them. They don't practice them properly. Because I am not from South Africa or I am a reclaimer, that's when they are practiced. Bylaws hurt us a lot because right now they tell us not to push our trolley on the road but where is the trolley supposed to go?" (Respondent 13, Waste Reclaimer and NGO member).

Lastly, Pikitup's business plan identified various legal challenges in relation to by-laws including poorly integrated bylaw enforcement strategy and the absence of interventions to encourage the RRR values, "reduce, re-use and recycling".

A member of the cooperative questioned the success of the S@S program in diverting waste away from landfills and expressed the need for more interventions to add value to the waste they collected.

"There is lack of implementation. We are still taking waste to landfills instead of finding ways to process waste and up cycle whether you turn it into energy or products" (Respondent 8, Co-operative E)

Research participants expressed concern regarding the weak enforcement of by-laws in the city as evidenced by the persistent practice of landfilling, illegal dumping and the operation of illegal buy-back centres in the city.

"Illegal dumping is still an issue so if the municipality can do the awareness every now and then to teach the community how to manage their waste because it's really bad, especially in townships" (Respondent 11, Private Company C)

"There are a lot of fly-by night buy back centres and the law enforcement agencies fail to address this. Buy back centres are used to operate illegal activities which makes competition tough in the industry. This makes it difficult to make a profit. Thus, this requires the support of the law enforcement to address illegal buy back centres" (Respondent 9, Private company A).

4.4.2 Contracts

Pikitup manages its partnerships using a Memorandum of Understanding (MOU) which also stipulates the roles and responsibilities of Pikitup towards its partners. During the interviews many of the co-operatives indicated that they did not have a contract or MOU in place and the common approach to manage this

relationship was through verbal agreements with Pikitup. This means that the partnerships had not been formalised and consequently co-operatives could not hold Pikitup accountable for its obligations.

"It has been 6 years without a contract and currently operating on a verbal agreement. But they are busy fixing it. But the situation has been this way. The verbal agreement is based on the old MOU" (Respondent 5, Co-operative B).

"We don't have a contract with Pikitup and the memorandum of understanding that was put in place has since expired. Under the old MOU Pikitup would provide a truck for collection of material for separation at source. Pikitup would pay half the electricity while we pay the other half of the electricity. Right now in the absence of the agreement there is nothing on paper that the co-operatives can hold Pikitup accountable to even provide the truck" (Respondent 8, Co-operative E).

In the absence of the MOU co-operatives experienced challenges accessing Pikitup resources to perform their recycling activities.

"Right now I don't have a truck but if we had an agreement in place I would know that I have a truck from 7-3pm. But right now I cannot confirm because there is nothing on paper even if I want to use a truck. I can spend the whole week without a truck because we don't have anything formal. You can't force Pikitup to provide a truck until you really have something legal that says ok we agreed on trucks" (Respondent 8, Co-operative E)

Responding to claims regarding the lack of contracts or MOU in place Pikitup officials indicated that co-operatives fell into three different categories. Those that joined the S@S program after the MOU had been issued, co-operatives that did not sign the MOU and lastly, those that signed the MOU which has since expired. Furthermore, in the absence of a MOU, officials could do very little to manage and regulate the activities of co-operatives.

"We have got the MOU which has expired so at the moment we are still going to sign another MOU and we are still looking at a model that we think will work better for us that will incorporate those co-operatives. So with us we don't have capacity, we are struggling with capacity and we feel it's too much for us to manage these co-operatives" (Respondent 1, Pikitup Official).

Officials confirmed that a process was underway to draft a new MOU which would not only formalise and institutionalise partnerships with co-operatives but also standardise the S@S program in all depots.

"In September this year [2022] Pikitup issued a notice that all co-operatives should submit documents required by Pikitup. This is to assist Pikitup in drafting a new MOU. This new MOU was supposed to have been released by now but some of these co-operatives have not submitted because they don't have the documents

which means some of the co-operatives are operating illegally. But as a supervisor I can't have the co-operative removed without the release of the new MOU and its requirements. So, such delays means that there is no contract in place for the co-operatives. They are just working" (Respondent 2, Pikitup Official).

This new MOU is also intended to foster accountability on the use of public funds and regulate the activities of cooperatives. However, the process of implementing a new MOU had been delayed due to the lack of cooperation on the part of co-operatives and many co-operatives not meeting the requirements. S@S supervisors felt handicapped as they could not take action against cooperatives that did not comply.

"Remember we are working with public funds so we need all the information from the co-operates, so until today they don't comply. They don't send the required details, they're not registered, they don't have waste permits. They have to register with different institution. For instance, they have COIDA they are working with people and when those people get injured at work, they have to compensate them but they're not registered. Remember, they are working with waste they have to transport waste on the road, they have to have waste permits from the City to do this. So they are the ones that are delaying everything and there are a lot of issues regarding the compliance" (Respondent 1, Pikitup Official).

A document provided by a Pikitup official detailing the requirements of the new MOU to regularise co-operatives indicated that co-operatives had to submit documents including proof of co-operative registration, tax certificate, proof of registration on the central database, registration with GDARD, registration with Waste HUB, physical address of the directors, proof of rates and taxes, dispute resolution mechanism, list of all employees and their contact numbers. The certificate of registration with Waste Hub is received from the COJ which this goes hand in hand with the company registration and tax certificate. This certificate is very important for the co-operatives to have but without the company registration document and tax certificate co-operatives cannot complete the COJ's registration with Waste Hub.

4.4.3 Monitoring and control

Supervisors are responsible for conducting the monitoring and checks on what happens with the recycling material. Conducting site visits to the sorting facilities, checking on the operations and listen to grievances. The purpose of the site visits is to ensure that the co-operatives fulfil their duties within the given time and to prevent stock piling in the sorting facilities which are to be kept clean for the safety of workers.

"I as the supervisor do the monitoring. I check what happened, let's say I give the co-operatives material for a week and then if I can see that their struggling I have to divert the truck because they are not supposed to stock pile. They are supposed to sort within 7 days and sell. The place is supposed to be clean" (Respondent 2, Pikitup Official)

Tonnages are used as an indicator to measure the performance of co-operatives, the S@S program and recycling activities. Co-operatives submit their tonnages report monthly to the depot supervisor who then inspects the amount and submits to the Pikitup head office and from there to the City of Johannesburg.

"What they do, we have a template that we use for reporting and then we give it to the depot. The depot will sit with the co-operatives to fill in the reports. They check, the supervisor together with the cooperative member will sign and then it is sent to the Pikitup head office. And then when it comes to us we check it, verify it and request the slips where they sold the recycling materials so that we can see the tonnages match each other" (Respondent 1, Pikitup Official).

The tonnages report is crucial in fostering accountability for the implementation of the S@S program by Pikitup and serves to indicate the effectiveness of the S@S program in diverting waste away from landfill sites. On the matter of accountability, the official had this to say:

"*The City of Johannesburg makes by laws and Pikitup implements. The COJ sets the targets that Pikitup must meet. So for accountability we report to the City in terms of tonnages. But they will tell us that you don't meet targets"* (Respondent 1, Pikitup Official).

Furthermore, when the co-operatives don't perform and report low tonnages Pikitup does not institute any penalties but issues a verbal warning. This is also due to the absence of targets against which the performance of the co-operatives can be assessed.

"At the moment we don't implement the penalties. But remember we must give them the targets because remember we are using public funds money. Its the trucks, the bags, the facilities, its public funds and we have to account for that. So we are supposed to give them the targets but because we can see that they are struggling and we don't give them the targets to say every month you must give us so many tonnages. But if we had a service provider we would give them the targets. So for now we are very lenient with the cooperatives" (Respondent 1, Pikitup Official).

However, some of the co-operatives indicated that they often struggled to submit tonnages reports which they attributed to the lack of finances and equipment as many of the cooperatives did not have computers. This has direct effects on the reliability of the tonnages report.

"We create reports for Pikitup, they need to know the tonnages of the waste we sort. This needs a laptop and resources which needs money. If you don't have these you need to go to the internet shop which is also money to generate the report. If you don't send the report, you don't receive the recycling material from Pikitup" (Respondent 4, Co-operative A)

Some respondents questioned the reliability of the waste data given the gaps in data collection:

"People in leadership positions don't come to us. According to me nationally they don't have any data of how many recyclers you have and how many buy-back centres. They don't have that system. But I believe that if municipalities can get accurate data they would be able to know exactly how many recyclables we converted from landfill sites and how many recyclers we have. Because we are the ones having this data, a day we know how many people that we got, how many tonnages of plastics and whatever recyclables that you convert it from landfill sites" (Respondent 9, Private Company A).

4.5 Financing

In the past, attempts had been made to introduce a R50 waste recycling levy to finance the S@S program however, the proposal was protested by the waste reclaimers through their NGO as this threatened their livelihood and would effectively increase refuse removal charges. Signatures from residents were collected for the petition following which the levy was withdrawn. Currently, Pikitup finances the S@S program through the budget allocated by the COJ.

"The money for the project comes from the COJ and using rate payers money that's why we have to monitor everything. Remember people are paying the rates, so these are the monies being used for the program and also from the treasurer" (Respondent 1, Pikitup official).

Officials felt that at times the budget allocated was not sufficient to finance the entire programme, particularly when demand was high.

"Since it's a mandate from the COJ, when it allocates the budget the separation at source is included in the budget. Sometimes we have a challenge where the need is so big but the budget is so small. Sometimes the budget is not sufficient for the entire program but there is allocation of budget" (Respondent 3, Pikitup official).

Another concern with the S@S program is that partnerships with co-operatives had come at a considerable cost and one official felt that tendering the S@S program to private companies would be more cost-saving and effective, making reference to previous attempts by Pikitup to find a suitable model.

"The people that can implement separation at source correctly are the service provider or private people. But they are expensive, they don't just do it for free. We tried it and had areas where Pikitup was doing their own separation at source and we had the areas where we outsourced to the private sector and we find out that the private sector is working more efficiently and effectively than us" (Respondent 1, Pikitup Official).

"With us tomorrow we don't have trucks we have got break downs. With the private sector we don't have such challenges because we pay them. They know time is money" (Respondent 1, Pikitup Official).

Officials felt that contracting to the private sector would've been more cost saving than partnerships with cooperatives. When probed for further elaboration the official stated:

"It's still the same between using private company and co-operatives remember private sector we pay them, co-operatives we give them the trucks its money, we give them the driver, diesel, buy bags for them its money. So its more or less the same. Co-operatives are even more expensive. Remember their using our sorting facilities which need to be maintained and they don't pay rent" (Respondent 1, Pikitup Official).

On the other hand, co-operatives and other stakeholders participating in the partnerships for the S@S program do not receive any form of payment from Pikitup but must rely on collecting the material and selling to the recycling industry to generate an income. Members of co-operatives and some Pikitup officials expressed dissatisfaction with this arrangement.

"We want to get a contract that shows that we have to get paid because the service that we are doing, we are saving Pikitup a lot of money. So the new contract must show how we are going to get paid" (Respondent 5, Co-operative B).

"Pikitup needs to meet the co-ops halfway. Remember these people are helping Pikitup, so I'm thinking if Pikitup can meet them halfway with a stipend because if these people were not there the Pikitup workers would never collect the recycling" (Respondent 2, Pikitup Official).

This arrangement has presented several challenges regarding the profitability of participating in the partnerships and respondents felt that participating in the S@S program had restricted their income. Some even recalled how they would be able to recycle more tonnages and had cash flow before Pikitup approached them.

"We had been doing recycling before Pikitup, then they [Pikitup] came in and said we want to improve you but instead we are stagnant. Because we used to do more tonnages and had cash flow then Pikitup approached us and said let us use this strategy for you to improve and the trucks will be yours after 2-3 years but that never happened" (Respondent 5, Co-operative B).

Respondents indicated that the profitability of recyclables was dependent on a number of factors including the participation of households. For instance, in areas where participation of residents was low retrieving recyclables was challenging and some households provided material of low quality. In addition, co-operatives often struggled to retrieve clean recycling material because households often used the plastics provided by Pikitup for domestic waste and not recycling.

Simultaneously the fluctuating prices of materials made it difficult for co-operatives to generate a profit and even pay workers which had a negative impact on the sustainability of co-operatives. A similar challenge was

reported by the waste reclaimers and many of the participants called on the need to regulate the recycling industry which officials at Pikitup supported.

"The prices of recyclables are reduced and when they are reduced they don't tell you, they just drop. So we need prices to be regulated" (Respondent 13, Waste Reclaimer and NGO member).

"The challenges that we have is that we don't get a lot of money because remember when you sort waste there are plastics and card boxes, the prices are not the same and the money you get from selling waste is not the same. So in terms of paying the volunteers it becomes a challenge to us because the money does not balance" (Respondent 4, Co-operative A).

Pikitup officials further attributed the financial challenges experienced by cooperatives to their poor management skills.

"The money is not easy for them to manage especially since recycling depends on the value so you'll find that the value is low and you have a lot of people that you have to pay and its not enough money to pay those people. So those are some of the challenges and unfortunately its not easy to regulate the prices of recyclables and that is something that government is failing to do" (Respondent 1, Pikitup Official).

However, on this matter one of the Pikitup officials blamed the financial situation that co-operatives found themselves in on their preference for material of high value which contributed towards the failure of the S@S program to divert waste from landfill.

*"The price of the recyclables is not regulated so it fluctuates and as a result the co-operatives will want to sell what is moving. For example, the polystyrene its value is very low, its very bulky and light. So when the co-operatives go and collect the recyclables in the communities they will sort and obviously the material that is low value they will throw it in the bin and not separate it because the value is very low. So then again we are still taking recyclable material to the landfill site. The same with bottles, the value is very low so most of the people don't collect bottles. Its about 20 cents a kilo and you say 'I worked so hard, the bottle is so heavy and at the end of the day I only get 20cents, its not worth it'. So the cooperatives collect the material that they know has value e.g. white paper, PET bottles. So at the end of the day we are still taking a lot of recyclables to the landfill because the value is very low" (*Respondent 1, Pikitup official).

On the matter of competition one respondent indicated that illegal buy-back centres made it difficult to make profits from the recycling while the presence of waste reclaimers put a strain on the income of co-operatives who often had to compete with waste reclaimers to find valuable material. Acknowledging this challenge, an official had this to say:

"They get there early [waste reclaimers] and know on which days collections happens. So they will arrive there early and only take what is valuable to them and leave the rest. So when the cooperatives come and do the collection they find that the material left is not of value. So that's why the money will be low" (Respondent 1, Pikitup Official).

Operational expenses incurred by co-operatives relate to the payment of salaries, office operations and fueling of trucks which was viewed as too costly. A few co-operative owners indicated that they had to pay their workers from their own pockets when profits were low while other research participants have also indicated their involvement in other activities to supplement their income. This included construction, cleaning projects while others have indicated their participation in cleaning campaigns in partnership with the City of Johannesburg as initiated by the Premier.

"We are also involved in construction, so when its lacking on the one side [recycling] we take from the construction side to support the recycling side" (Respondent 4, Co-operative A).

Clean up campaigns were popular amongst the respondents and entail clearing illegal dump sites, street sweeping and collecting waste. Participants don't receive payment and the only benefit is the recycling material they can obtain or extract which is sorted and sold for profits. Furthermore, respondents did indicate that the cleaning campaigns were often short term due to political interference and changes in management in the city which resulted in new ideas and new campaigns.

"In 2017 we were given an opportunity to clean the city, that helped us a lot because whatever materials you get on the street we were able to bring to our buy-back centre. We sort and we were able to sell to complement our cash flow. But unfortunately when the management at the municipality changed everything changed because everyone comes with their own ideas. We only did the contract for 1 year, it was supposed to be 3 years. So when a mayor with his team is moved out the other mayor comes with his own ideas and he didn't see it helpful to have local people cleaning" (Respondent 9, Private Company A).

Waste reclaimers in particular benefit from the cleaning campaigns through easy access to recycling material. This also gives the reclaimers an opportunity to introduce themselves and create a relationship with the community to continue separating waste even when campaigns have ended.

"We were involved in the Kleen Green project that was being done by the Premier but we were only volunteering. We cleaned informal settlements. We got involved by talking to the right people, who work in the right programs with the right intentions. But cleaning programs usually end up just like that once a year, done. Now we take the initiative of going further, after the campaign we create that relationship with the community to separate their waste. So for the city it's just the Premier doing a cleaning campaign, his going

to do it, give us that platform. When his done, we going to continue with it because we are getting value out of it" (Respondent 12, Waste reclaimer & NGO member).

4.6 Equipment

Table 4.1: Type of waste collection vehicles owned by actors.

Waste collection vehicle	Co-operative	Private company	NGO
Open truck	3	2	1
Skip loader truck	1	2	0
Compactor truck	0	2	0
Tractor	0	0	0
None	2	0	0

Private companies were more likely to own transport relevant to the waste sector including open trucks, trailers, skip loaders and compactor trucks. This was necessary for companies engaged in partnerships for waste collection with Pikitup and improved the efficiency of collection activities. However, the respondents revealed that specialised equipment was capital intensive and required maintenance plans. There was also a preference for companies with newer trucks due to the lower risk of break downs.

"They don't want your truck to be older than 5 years, in terms of risk the trucks are less likely to break down" (Respondent 10, Private Company B).

Private companies obtained funding to purchase equipment through bank loans which proved challenging especially among black owned companies.

"The equipment is funded through bank loans. Now the bank won't give you money because they need to know the history of your business, your financial ability for you to repay the loan. They want to see the contract that you have with Pikitup to see if you can afford to pay for this. So if you're a small, black company it will be a challenge for you to get those resources mobilised. Banks need security that you will be able to pay them on a monthly basis" (Respondent 10, Private Company B).

External sources of funding were also found to be useful.

"The challenge that we have, the support that they [Pikitup] give to buy-back centres is non-existent. Because as we have our own buy back centres we are supposed to pay for rental, take care of ourselves, everything overall project we do it on our own. We get support from private, Petco, Coca-Cola and Polygo and also Impact Recycling. We get support with machinery like bail machines, scales and work suits" (Respondent 9, Private Company A).

On the other hand, co-operatives sorted waste manually and were less likely to have operational equipment such as bailing machines, scales, shredders and compactors all of which are all basic equipment necessary

to perform recycling activities and since the recycling industry favours large volumes of pressed and bundled material the absence of such machinery affected the quality of the recycling materials, lead to inefficiencies and reduced profits.

"We don't have enough equipment because we need bailing machines. After sorting the material is transported loosely. If we had a bailing machine we would bail the material then it would have more weight and ton" (Respondent 6, Co-operative C).

"The profitability of the recycling business depends on the volume that you recycle. Profits can be slim with each load, so if your not able to handle a large quantity it can be challenging to meet your targets" (Respondent 7, Co-operative D).

And although loading trucks are provided by Pikitup on collection days co-operatives still had to spend more money renting or buying trucks to transport the material for selling after sorting. To do this some co-operatives had to rely on other companies to collect the sorted material while others had to negotiate between paying workers and fueling their trucks (those owning a truck). Costs incurred were exacerbated by the distances to the buy-back centres and the rising costs of fuel.

4.7 Working conditions

Working conditions between the co-operatives, NGO and even private companies were different and each faced unique challenges. What was common among co-operatives working at sorting facilities provided by Pikitup was the lack of shelter, security, and limited PPE which compromised the health and safety of workers.

"Since we don't have sponsors our volunteers are working in the field. They should be under shelters sorting in safe spaces. But Pikitup keeps making promises, always they promise to extend, the budget is out, contract is appointed, it's been 4 years" (Respondent 4, Co-operative A).

"The site is not in a good condition for working. For example when it's raining it is difficult to work. There is no security at the site which puts the co-operatives at risk of having their material stolen" (Respondent 5, Co-operative B).

The lack of PPE was also common among co-operatives while private companies had the capacity to provide their workers with PPE.

"We issue workers with PPE two times a year. We give them boots, overalls and gloves monthly. Even rain suits" (Respondent 11, Private Company C).

Another Pikitup official mentioned an occupation injury that occurred at one of the depots which prompted the implementation of the Team Talk initiative to educate the cooperatives about safety.

"We had an injury with one of the co-operative member who was crushed by a truck. So, to avoid this an intervention was introduced called Team Talk and now and then they are educated about safety when dealing with trucks and dogs in the community. Alerting them about safety" (Respondent 2, Pikitup Official)

Reporting on these challenges an official from Pikitup had this to say

"The other thing the co-operatives steal each other's material. At times there are break inns and others even burn that material. So those are the challenges even if you have a MOU in place we still have some challenges" (Respondent 1, Pikitup Official).

What worsened the working conditions and efficiency of co-operatives in conducting recycling activities was the shortage of trucks provided by Pikitup due to break downs and repairs. This unfortunately meant that the recycling material would be uncollected for days, frustrating participating residents. To resolve such challenges, ward councillors served as mediators contributing towards communication efforts between Pikitup officials and community members. Through these counsellors officials are able to communicate to residents on matters including collection times and any delays.

"I used to have 5 trucks but now I only have 2 trucks. There is a problem, this is a Pikitup problem. So what happens I receive a lot of complaints especially from councillors, so what I do I inform them prior if I know who the councillor is. I will inform him that there will be no collection, I will collect the following day. So I need to communicate with the councillors so they can let the residents know. So those are the challenges we encounter with the separation at source" (Respondent 2, Pikitup Official).

Workers strike at Pikitup and the working hours of Pikitup employees, particularly truck drivers allocated to assist co-operatives affected the performance of co-operatives. Such conditions often meant that no collections or drop offs are done and the co-operatives don't receive the recycling material during that time which affected their ability to generate an income and pay salaries.

"When Pikitup is on strike, we don't collect the material. This disadvantages us, we have raised this issue with Pikitup and hopefully this will change. Because even when the truck driver has conflict with Pikitup that means we don't work during that time. Also, since the driver is employed by Pikitup, they get to work at 8 while we need to start working at 7, this delays our work" (Respondent 5, Co-operative B).

"We have challenges when there is a strike because we don't have trucks and we cannot get material. The more we don't get material we can't pay our workers. Strikes affect us" (Respondent 6, Co-operative C).

Another area of concern raised by members of co-operatives was that Pikitup often changed employees or management which negatively affected the working relationship they had established with Pikitup staff.

"There is always changes at Pikitup and it does affect things because when I'm working with someone and the next person doesn't know me, so information gets lost. We have to explain to the new person why this, why is that. So, we always need to establish new relationships and working with different people is not the same from the first person to the last person" (Respondent 8, Co-operative E).

Another more pressing issue was the persistent loadshedding in the country and how this affected operations particularly for private companies operating buy-back centres.

"Right now, there is no electricity. The electricity was cut off due to loadshedding and outstanding debts. If you have a bailing machine it needs electricity, a lot of equipment needs electricity, even the scales" (Respondent 8, Co-operative E).

"Loadshedding affect us a lot to the point where we fail to meet the targets of our clients. Without electricity we can't perform and even during the loadshedding sometimes you find that the machinery is on operation and that thing can affect the machinery and cause breakdowns. This creates expenses and requires maintenance" (Respondent 9, Private company A).

On the other hand, the harsh working conditions experienced by reclaimers were worsened by the ongoing prioritisation of co-operatives and private companies over reclaimers and the continued lack of recognition and respect from officials and residents.

"We still struggling with a lack of space and facilities as well as experiencing continued difficulty in accessing municipal and government land to continue our work" (Respondent 12, Waste reclaimer & NGO member).

Furthermore, the implementation of the S@S program compromised their safety and livelihood as reclaimers had to live in public spaces and in the streets to ensure that they could collect the recycling material before co-operatives arrived. Often times reclaimers displayed a complete disregard for health and safety as they filtered through waste in open dumps and manually handled waste.

"We get our waste anywhere and everywhere. Where there is waste, we there. We are competing with the formal recyclers they get easy, exclusive access and clean materials. While we go through the dirt" (Respondent 12, Waste reclaimer and NGO member).

4.8 Communication channels

Pikitup has put in place various communication channels with its partners and community members. For the co-operatives meetings are conducted monthly with supervisors where they can communicate with Pikitup personnel regarding their challenges. Meetings are monitored using an attendance register which is subject to auditing. One supervisor reportedly uses a Whatsapp group to communicate with co-operatives.

"I have a Whatsapp group that I use to communicate with the co-operatives and once in a month we should have meetings. By law when it comes to the residents who don't participate if we had an education officer. Then I as the supervisor, the education officer, and co-ops we supposed to go out" (Respondent 2, Pikitup Official)

Despite all efforts from Pikitup, most of the co-operatives have found the meetings ineffective in addressing their grievances.

"We did so many meetings and everything. You go meet the MD [managing director], who is aware of the problems, they promise and after that there is inn fighting among the management" (Respondent 5, Co-operative B)

In addition, Pikitup has put in place a specialised communications department and a communications manager responsible for communicating with the stakeholders including the residents. Furthermore, to address the low participation rates among community members Pikitup has identified the need for education campaigns through the media which is facilitated by the COJ.

4.9 Conclusion

The chapter has highlighted the challenges with the PPP arrangement adopted by the City of Johannesburg and has specifically focused on the S@S program implemented to facilitate recycling in the city. The results from interviews undertaken as well as document analysis have been presented using key themes including the state of partnerships and participation of key stakeholders, a review of the legal framework underpinning the S@S program in the City. Other themes concentrate on the financial challenges, equipment, working conditions and communication channels.

This chapter highlights the fact that the implementation of the S@S program including partnerships has been predominantly top-down and dictated by Pikitup. The consultation and participation of key stakeholders including cooperatives, households and waste reclaimers has largely been absent. Moreover, the PPP arrangement has essentially displaced waste reclaimers while the role of households has been limited to that of service recipient. Moreover, Pikitup's authoritative approach to utilise a co-operative model to facilitate partnerships has had far reaching consequences on financing the S@S program and the working conditions of waste reclaimers. These partnerships have failed to meet the needs and expectations of key stakeholders whose participation is critical for the success of the S@S program. At the same time, important legal documents such as the city's IWMP and bylaws have been found to be outdated or incomplete while contracts to manage the partnerships have been absent. This combination of factors has had important implications on the efficiency and effectiveness of the of the S@S program and the functioning of the partnerships.

5 Chapter 5: Discussion of results

5.1 Introduction

This research set out to explore the challenges of PPP for MSWM in the COJ. Pikitup undertakes MSWM activities on behalf of the city. This study posed four secondary questions. First, what is the policy and legal context of the public private partnerships in the City of Johannesburg? Second, what challenges and constraints have partners experienced participating in the partnerships? Third, what is the efficacy of public private partnerships in the City of Johannesburg? And lastly, what are the financial challenges underpinning these partnerships? The purpose of this chapter is to interpret the research findings presented in Chapter 4 with the goal of examining the challenges to implementing public-private partnerships in the City of Johannesburg using the principal agent theory, agency theory, as the theoretical framework. The findings of the study reveal that the relationship between Pikitup and the partners appointed to carry out the S@S program can be described as a principal agent relationship and the purpose of establishing the partnerships was for the delivery of recycling activities.

5.2 Policy and legal context

5.2.1 Legislation

The S@S program is underpinned by the Waste Act and the NSWM strategy. Instruments giving effect to these legislations include the city's IWMP and supportive bylaws. The City of Johannesburg issued the IWMP in 2011 while waste by-laws were recently updated in 2021. In this context the S@S program has been implemented without an overarching waste recycling policy while the city's IWMP which informs Pikitup's S@S program has not been updated since 2011 bringing into questioning its relevancy more than 10 years later. Furthermore, in the case of bylaws there is a division of roles wherein the formulation is the responsibility of the City of Johannesburg, implementation is undertaken by Pikitup while enforcement is done by the JMPD. There remains a lack of co-operation and co-ordination between the three actors and interviews reveal weak enforcement strategies given the prevalence of illegal dumping and operation of illegal buy-back centres in the city. This is consistent with the findings reported by Lissah et al., (2021) who found that despite the presence of a regulatory framework, including environmental rules and by-laws, major factors hampering effective waste management could be attributed to weak enforcement. This was mainly due to the legal, political and organisational barriers particularly in the absence of the delineation of roles and responsibilities among the different actors and regulatory agencies.

5.2.2 Contracts

Thematic analysis of the interview responses reveal that Pikitup officials had fallen short when it came to planning, negotiating and regulating the partnerships as crucial elements relating to contracting, monitoring and control, sanctions and or penalties all of which lie at the heart of the principal agent theory were not rigorously followed and sometimes not at all. Pikitup has appointed dedicated officials responsible for the S@S program mainly a full-time supervisor to initiate and implement the S@S program in participating depots. This means that managerial supervision, monitoring and reporting the activities of co-operatives was ongoing and in line with the requirements of the City of Johannesburg. However sanctions and penalties were limited although in severe cases suspension was imposed.

Within this partnership arrangement accountability applies on two levels where Pikitup is accountable to the COJ for implementing the S@S program and co-operatives are accountable to Pikitup for undertaking recycling activities on its behalf. The partnerships between co-operatives and Pikitup are managed using less formal arrangements such as verbal agreements or MOU's. The absence of a legal agreement detailing the roles and responsibilities of involved parties meant that partners involved in the S@S program did not have a formalised standing and this enabled Pikitup officials to neglect the co-operatives. This also did not create favourable conditions to foster accountability between the two parties and also meant that Pikitup officials themselves were handicapped and could not sanction co-operatives for poor performance or non-compliance. Between the COJ and Pikitup targets had been set for the S@S program and tonnages reports are used to measure the performance of the S@S program as well as the performance of co-operatives however these reports have no use and are collected habitually even if operatives don't report regularly thus are inadequate to be used to facilitate accountability.

Attempts have been made to implement a new MOU with Pikitup dictating the terms but this has been met with resistance and lack of co-operation from the co-operatives. Co-operatives themselves don't comply and have not submitted the required documents which has delayed the implementation of the new MOU. According to the reviewed documents the new MOU seeks to regulate co-operatives and ensure the participation of reliable partners through minimum requirements on registration, taxation, place of operation and conflict resolution. It is unclear to what extent the co-operatives were consulted during the drafting stages of this new MOU.

5.3 Challenges experienced by partners.

The delivery of municipal waste services requires the concerted effort of all stakeholders including service users, public and private actors. Scholars including Sukholthaman et al., (2017); Yeboah-Assiamah et al., (2017) envisioned partnerships as a tripartite system in which three key stakeholders including public, private

and civil society would collaborate for MWM processes and Yeboah-Assiamah et al., (2017) further notes that the informal sector be incorporated. In this case since members of co-operatives and private sector had prior knowledge and experience in recycling they were better placed to inform the planning and implementation of the S@S program. Instead the S@S program was implemented as a top-down approach not taking into account the interests, concerns and needs of key stakeholders. The general consensus among participants was that the S@S program was unsuccessful due to Pikitup's lack of knowledge or experience in recycling and the continued domination of Pikitup. Another area of concern was the frequent changes in members of staff particularly in management positions which had a negative effect on the implementation of the S@S program and relationship building. In the same way this also inhibited the growth and performance of its partners.

This study notes that the participation and consultation of key stakeholders in the S@S program has been insufficient. The evidence to support this statement can be found in the manner in which the S@S program was initiated. For instance the start of the S@S program was marked by Pikitup dictating the terms of participation one of which was the requirement to establish co-operatives. The purpose of using the co-operative model was to formalise the role of waste reclaimers and co-ordinate the efforts of various actors. This condition created several challenges and below is a discussion of the challenges encountered specifically focusing on the co-operatives (section 5.3.1) and waste reclaimers (section 5.3.2). A discussion on residents is also included in section 5.3.3.

5.3.1 Co-operatives

In this context the main advantages of operating a co-operative is the recognition from Pikitup, guaranteed access to recycling material and improved social status as co-operatives could present themselves as professionals dressed in uniform and organised compared to waste reclaimers. The choice and selection of co-operatives was based on their previous involvement in recycling but it is unclear if formal assessments were undertaken to ascertain their credibility. Pikitup endorses the use of co-operatives as a vehicle to address unemployment in the city and empower the people. Without a doubt by establishing co-operatives one will have access to recycling material and can thus secure an income but the portion about empowerment is questionable. An important component of empowerment is the ability to exercise agency, that is having control over one's actions. In the case of fostering empowerment the assumption would be that partnerships with Pikitup would expand the participation of partners in MSWM issues in areas such as planning, decision making or even defining the activities of the S@S program but instead the participation of co-operatives has been limited in scope and the way in which the PPP is structured does not enable co-operatives to exercise their agency. For instance, co-operatives continue to struggle and their operations have been confined to the procedures and scheduling dictated by Pikitup. Co-operatives expressed that prior

to the partnerships they possessed a level of independence and achieved more waste tonnages which enabled them to generate significant income but this has since dwindled following the introduction of partnerships. This group has lost their freedom to decide when and where to collect recycling material. They continue to face challenges expanding their work and accessing funding.

In addition, it is worth noting that despite the popularity of co-operatives among Pikitup officials they hold no formal or legal position in MSWM as the role of co-operatives has not been institutionalised in bylaws or policy documents only mentioned in Pikitup's business plans. For instance, performing a careful scan of the existing waste bylaws one observed that there is no mention of co-operatives or any requirements that co-operatives need to adhere to. In essence, the bylaws have neglected the role of co-operatives. Instead the most dominant term used is that of service provider which given the requirements for accreditation this can be interpreted as referring to private companies involved in waste management. The absence of co-operatives in the bylaws is concerning given their responsibilities particularly in light of the recent attempts by Pikitup to regulate the participation of co-operatives in its S@S program. Hence co-operatives continue to operate illegally.

What's more Pikitup had taken on the responsibility or burden of supporting the co-operatives through the provision of trucks to collect the recyclables and premises as sorting facilities which has had significant benefits for their work but consequently resulted in opportunistic behaviour. This opportunistic behaviour manifested in the form of co-operatives exploiting the resources provided by Pikitup for personal and economic gain or establishing co-operatives motivated by the opportunity to access support from Pikitup. While still on the matter of support, the other issue goes beyond its availability to assessing whether the resources provided are responsive to the needs and challenges co-operatives encounter. In other words does the support provided by Pikitup meet the real needs of co-operatives? The reality is that members of co-operatives expressed dissatisfaction with the working conditions at the allocated sorting facilities indicating that the infrastructure on site was scarce. Other challenges included the absence of basic recycling equipment, absence of remuneration from Pikitup, lack of protective measures and working without PPE which exposed members to occupational health hazards. Based on this one can conclude that the support provided by Pikitup is inadequate and unresponsive to the plight of the co-operatives.

Statements made by members of co-operatives reveal the existence of avenues for communication through regular meetings and workshops. Drafts of policy proposals have also been distributed among senior members of co-operatives. However, involvement in decision making has been limited and their problems and perspectives have not been integrated into the S@S program. Co-operatives have little influence which raises the important question of whether we can have genuine partnerships if decisions are made unilaterally. One must remember that PPPs are far more than meetings between officials and co-operatives

and current practices contrast with the definition of partnerships given in the literature. It can even be argued that the current PPP arrangement is purely administrative.

Another drawback experienced by co-operatives is the limited flexibility in their operations which are controlled by the scheduling and planning done by Pikitup and this is in contrast to waste reclaimers who continue to enjoy greater autonomy. This has remained a major obstacle and most co-operatives regarded themselves as no better than the waste reclaimers operating in the streets since they had not moved up the value chain and remain stagnant. Other challenges relate to the internal difficulties experienced by co-operatives as some of the co-operatives were formed in response to the S@S program established by members who lacked basic business skills. Also, the co-operatives did not evolve organically which resulted in poor conflict management between senior members and workers due to the absence of formal arrangements and lack of financial trust. Such internal dynamics within co-operatives threatened the functioning of the S@S program and operations at Pikitup. Moreover, the prevailing concern among the participants has been the scepticism on the suitability and sustainability of co-operatives and interview responses demonstrate an over reliance of co-operatives to support from Pikitup to the extent that any withdrawal or inconsistency in its provision threatens the existence of co-operatives.

5.3.2 Waste reclaimers

In the literature the role of waste reclaimers has been recognised by several scholars who have narrated their positive contribution to MSWM (Boampong et al., 2020; Coletto & Bisschop, 2017; Hettiarachchi et al., 2018). Similarly, in South Africa several scholars have recognised the invaluable contribution of waste reclaimers to the recycling industry (Godfrey & Oelofse, 2017). Given such appraisals one would expect that Pikitup would naturally be inclined to form alliances with waste reclaimers but instead partnerships with waste reclaimers have not been easy to achieve and statements made by the waste reclaimers indicate that engagements with Pikitup have been unmeaningful as their perspectives have not been integrated or valued. Pikitup officials narrated the challenges regulating the activities of waste reclaimers and posit that waste reclaimers do infact contribute to the waste problem through illegal dumping, leaving waste scattered on the streets in an attempt to salvage what they need.

With that said, the fact that at some point there had been interactions between Pikitup and waste reclaimers to formulate guidelines and policies for their integration means that reclaimers had achieved some level of recognition. However, a working relationship could not be established due to the lack of commitment on the part of Pikitup to implement and approve the previously established guidelines which framed the processes of integration for reclaimers. These guidelines had been co-created by Pikitup and waste reclaimers and the failure to implement these guidelines created trust issues between the two parties providing yet another reason for refusing to work with Pikitup.

More to the point, the formal integration of waste reclaimers has been hampered by the repressive stance taken by Pikitup to only work with co-operatives which meant that the participation of waste reclaimers in MSWM was largely contingent on the reclaimers establishing co-operatives. The current model of co-operatives reflects an absence of co-designing strategies to integrate the reclaimers and reclaimers expressed discontentment with this arrangement as this would effectively exclude migrant workers. The reclaimers resistance to establishing co-operatives emanates from the prevailing narrative regarding the high failure rate of co-operatives and the absence of mentorship and training from Pikitup.

Over and above this it is also worth mentioning that the City of Johannesburg and Pikitup have different approaches to the integration and formalisation of waste reclaimers. On the one hand the city's bylaws advocate for the formation of waste pickers associations which enable waste reclaimers to continue with their way of work, waste picking in the streets but in possession of accreditation permits and operating within the required code of conduct. In contrast Pikitup prefers the use of co-operatives which would be more formal and waste reclaimers would effectively operate under the conditions and control of Pikitup. Nevertheless attempts to regulate the activities of waste reclaimers have been met with defiance as reclaimers in this setting preferred to self-organise and establish a structure to manage themselves, an NGO that enabled the reclaimers to maintain their autonomy.

Waste reclaimers have not been pleased with the S@S program in general as they have been excluded from the start and the entry of co-operatives into spaces previously occupied by waste reclaimers has created tension between Pikitup, the reclaimers and co-operatives. Two trends have become prevalent following the introduction of the S@S program namely competition and livelihood each affecting the other. In this instance, the S@S program monopolised access to recycling material which led to the displacement of reclaimers and increased competition between co-operatives and waste reclaimers for access to the most valuable recycling materials. Through the PPP arrangement those forming co-operatives are guaranteed access to recycling material and can thus make a living. While on the other hand this meant that waste reclaimers had limited access, this worsened the reclaimers working conditions and threatened their livelihoods. This is similar to the observations made by Boampong et al., (2020); Buch et al., (2021) and Sandhu et al., (2017) that informal waste collectors were often displaced by PPP arrangements, mainly losing access to recycling material. Lastly, the other area of competition is between Pikitup and waste reclaimers in that this particular group of reclaimers and their organisation had implemented their own S@S program to reduce their social and economic vulnerabilities. Boampong et al., (2020) found empirical evidence demonstrating how self-organised waste reclaimers are more likely to have a meaningful impact on MSWM issues and facilitate support from local government. However in this setting even after self-organising reclaimers have not been able to facilitate support from Pikitup and continue to lack the gravitas necessary to effect changes in South

Africa's waste policies. Instead by self-organising the reclaimers were able to mobilise support from the community and private sector.

Aside the trauma of being excluded and isolated in the past by self-organising waste reclaimers can maintain a level of independence about what to collect, where and when to collect steering clear of Pikitup's control. Their fight and victory against the implementation of the recycling levy demonstrates their voice and visibility in the city's MSWM issues. Fighting for their livelihoods and the best interests of the residents. The introduction of their own S@S program indicates that their contribution to the recycling industry is unmatched but despite these achievements waste reclaimers continue to live at the margins of society experiencing social and economic hardships.

5.3.3 Residents

Residents are an interesting stakeholder group who have a primary role to play by separating waste at the source. They are not regarded as partners but at the same time the success of the S@S program and more specifically recycling efforts are highly dependent on their participation. Generally, the participation of households in the S@S program has been inadequate which reflects the common results reported in the literature regarding households' low participation in MSWM issues (Cobbinah et al., 2017; Kirama & Mayo, 2016; Lissah et al., 2021; Madinah, 2016; Phonchi-Tshekiso et al., 2020; Zainal et al., 2021). Moreover, an analysis of interviews depicts differences in the participation of households which was relatively low among residents from low-income areas and the inner city while the high-income neighbourhoods were more compliant. Officials attribute this to the income and education levels of this particular group. This is in line with the findings by Spoann et al., (2018) who identified location as an important variable influencing household participation with communities in peri-urban areas being less likely to participate and pay for MSWM services.

Some of the distinguishing factors to explain the low participation rates among residents in the inner city can be found in the description of the setting provided in section 3.2.1 of this report (description of the study setting). For instance, in the inner city residents are grappling with social and economic problems and when such residents encounter competing priorities recycling is viewed as an inconvenience. Another emerging argument to explain this phenomenon relates to the lack of context specific recycling interventions. The S@S program was implemented as a "one size fits all model" wherein the same operating standards were carried out in the communities without taking into account the different living and economic conditions of the communities in which the households are found. A single S@S model cannot be sustainable or be appropriate across different communities. Hence the differences in participation between the inner city and the northern suburbs. This further demonstrates the absence of consultative and collaborative processes with residents to develop interventions.

Residents are not regarded as service partners and their role beyond just service recipients is non-existent as evident from the statements written in the waste bylaws and Pikitup's business plan. Attempts by Pikitup to undertake education and awareness campaigns to encourage households' participation in the S@S program have not been fruitful and further reinforce the prevailing top-down tradition of implementation. Where the S@S program is designed at the top by Pikitup and residents are expected to participate rather than involving residents in decision making to foster program ownership. More specifically the use of words such as "obligation" in the bylaws gives off the idea that participation is mandatory however, the absence of incentives and penalties to accompany this obligation has led to residents becoming indifferent to participating and any participation will not be sustained unless there is a reward.

The limited participation of households has also had negative consequences on the sustainability of co-operatives and achieving the goals of the S@S program. For instance, the non-compliance from households affects the quality and quantity of material co-operatives can extract and ultimately profitability. At the same time waste that is not recycled is still landfilled. In contrast, the S@S program implemented by waste reclaimers appears to be relatively successful in building relationships with the community members and thus achieved a good response from the households. It is worth mentioning that by self-organising reclaimers were able to dilute any negative attitudes that households may have had towards the informal sector. What makes the reclaimers S@S program standout from that of Pikitup is the creative use of engagement and education as tools which gave both the community members and reclaimers a sense of ownership of the program.

5.4 Efficacy of public private partnerships

The overreaching goal of the S@S program is waste diversion from landfills and increase recycling rates in the city. Pikitup maintains a collection schedule as facilitated by the S@S supervisor and as per the requirements co-operatives must guarantee to sort and sell the recycling material at an efficient rate and completed within seven days before the next round of collections. Failure to do so leads to temporary exclusion. This study observed that co-operatives operate under difficult conditions which hamper their efficiency. Co-operatives lacked the basic equipment necessary to undertake recycling activities and instead used inferior methods such as manually sorting through waste which meant that in the absence of adequate workers this exercise was time consuming. Other challenges include the lack of transport, resource-constrained scheduling and lack of safe and conducive sorting facilities all of which limit the operational capacity of co-operatives to collect and processes larger quantities of material demanded in the recycling industry. Moreover the paternalistic relationship between Pikitup and co-operatives meant that any internal disruptions at Pikitup, strike action, had a direct impact on the performance of co-operatives. Lastly, the

profit driven practice among co-operatives of preferring certain material over others means that recycling material remains waste and continues to end up in landfills.

On the other hand private companies were more likely to own superior equipment. However, the efficiency of the private partners particularly those operating buy-back centres was constrained by the persistent loadsheding in the country which affected operations and escalated maintenance costs due to damage to machinery.

Furthermore, in this context it should be noted that it would be difficult to determine the effectiveness of this PPP arrangement as Pikitup officials revealed that co-operatives were not given targets and measures to determine the performance of co-operatives were absent. Moreover, based on the interview responses alone one can conclude that the data to determine the effectiveness of the S@S program is both unreliable and incomplete. Unreliable in the sense that some of the co-operatives reported challenges submitting tonnages reports which creates data gaps and at the same time the lack of integration of waste reclaimers into the S@S program and MSWM in general means that the activities of the informal sector and contribution to recycling efforts are unaccounted for. Relatedly, private actors operating buy-back centres do not report tonnages to Pikitup and there is a lack of a data collection system of the buy-back centres and recycling companies. The waste data is scattered and there is no formal system to collect data from different organisations. This situation would create challenges ascertaining the contribution of the S@S program to diverting waste away from landfills.

5.5 Financial challenges

Proponents of PPPs for MSWM cited cost-saving as reasons to undertake this arrangement. In this study the general consensus among respondents was that to some degree the S@S program has had substantial cost-savings for Pikitup in terms of landfilling and the costs to provide recycling services internally. However, the financial sustainability of the S@S program more especially the implementation approach was found to be problematic particularly the internal costs and benefits of this initiative considering the withdrawal of the recycling levy intended to finance this program. The current budgets have had to be stretched to meet demands.

Furthermore, the experience with the PPP arrangement or more specifically the co-operative model was considered capital intensive. Pikitup was the only partner possessing the financial and other resources and even though Pikitup does not financially compensate partners for recycling activities the costs of providing support to co-operatives has been rated very high, bringing into question the financial sustainability of the current model. This is similar to the findings reported by Jeong et al., (2017) and Park & Hong (2021) who found increased budget spending on MSW following the introduction of PPPs.

Similarly, private sector involvement in these partnerships is capital intensive, they are self-funding and mobilising resources can be challenging. The social and economic status afforded to the private sector provides an opportunity to access funding through bank loans and grants. This financial model adopted by private companies supports the findings made by Kirama & Mayo (2016) who report that since municipalities don't provide private actors with financial support, they have to rely on loans and credits to purchase equipment for service provision. In the case of waste reclaimers, self-organising afforded this group the opportunity to access support both directly and indirectly from the private sector and the public. On the contrary, cooperatives continue to struggle accessing funding externally and respondents were all in unison regarding the need for a stipend to subsidise recycling activities in the city.

More significant in this study is the inherent lack of profitability of recycling activities and the absence of regulations in the recycling industry both of which are external factors beyond the control of partners. This was reportedly an issue for co-operatives, reclaimers and private companies alike. Co-operatives don't generate enough income from recycling which affects funding for their operational costs and to subsidise their income partners often engaged in other activities, some outside the realm of municipal waste. The profitability of recycling material depends on the quality and type of material as well as the market prices at the time. The market is structured in such a way that materials have to be bailed or shredded to increase their economic value and given the absence of such equipment among co-operatives and reclaimers prices for their recycling materials are set very low. This is further exacerbated by the fluctuating prices of recycling material and limited participation of households in the S@S program both of which undermine recycling efforts. Such conditions threaten the ability of co-operatives to remain profitable creating uncertainty on their sustainability. Poor regulation of markets also has a negative impact for recycling and slows the shift towards integrated waste management and despite the urgency of this matter the partners have no capacity to address this individually and require intervention from government.

5.6 Conclusion

Generally, the findings of this study indicate several challenges in the PPP model used to implement the S@S program. The challenges can be summarised as institutional, financial, operational and technical all of which are preconditions necessary to make PPP's work. Most notably the limited consultation and participation lead to a lack of buy-in from key stakeholders necessary for the success of the program. While Pikitup demonstrated a preference for co-operatives its lack of operational equipment served as a disadvantage and at the same time co-operatives lacked the necessary support systems. Furthermore, given the limited income generated from recycling this rendered many of the co-operatives unsustainable.

6 Chapter 6: Conclusion

This study had four objectives: to explore the policy, legislative and legal context for solid waste management in South Africa, to describe the actors involved in the PPP and their challenges, to explore the efficacy of PPPs for waste service delivery in the study area and to make recommendations to improve planning and implementation. This study relied on data collected from interviews and analysis of key documents including the Pikitup business plan and legislations. The study used the principal agent theory. The combination of data collection methods and this theory allowed this inquiry to draw conclusions from different standpoints.

In the case of objective one (1), the policy, legislative and legal context. The NWMS and Waste Act are the key legislation underpinning MSWM in South Africa. Both legislations mandate the implementation of the waste hierarchy, the S@S at source program and supportive by-laws. The waste management hierarchy promotes re-use, recycle and recovery of waste. It has been revealed that in this context the S@S program does not achieve the environmental goals embedded in the Waste Act and the NWMS. In the first instance, the implementation of the waste hierarchy has been inadequate in the city as the S@S program was viewed as a single project primarily focused on recycling and ignores other aspects of the waste management hierarchy such as waste reduction, re-use and recovery. It is the opinion of the researcher that the S@S program is also a missed opportunity to address the waste problem in the City of Johannesburg. Other aspects of waste management that have a role to play in diverting waste away from landfills including waste collection and disposal were lacking in the S@S program which meant that the recycling aspect was implemented in isolation. Such activities also have an important role to play in recycling efforts. For instance, waste collection and disposal can reduce illegal dumping and landfilling. Furthermore the Pikitup experience demonstrates that recycling programs are not a one size fits all and that context needs to be taken into account to ensure adoption. As mentioned depots are located in communities with differences in socio-economic status so the participation of residents won't be similar due to the different priorities that residents have.

The IWMP which informs the S@S program is relatively outdated while the by-laws have recently been amended but can be considered incomplete. In theory bylaws support recycling activities however, the absence of penalties can create enforcement challenges. In this setting the effectiveness of bylaws is undermined by the distribution of roles and responsibilities across different agencies. Furthermore these laws fail in facilitating the participation of external actors. For instance, the absence of co-operatives in this document creates challenges regulating their activities and by the same breath, the approach adopted to regulate the activities of waste reclaimers has not been well received and current methods are beyond the tolerance of waste reclaimers who have opted to self-organise into an NGO instead. The use of a MOU was

inadequate to foster accountability and give the PPPs a legal standing. It is also worth mentioning that the S@S program has been implemented without an overarching waste recycling policy.

In the case of objective two (2) to describe the actors involved in the PPP and their challenges. This study found fundamental problems with the PPP arrangement. As a first step the success of public private partnerships hinges on collaborative and consultative processes. In the City of Johannesburg the recycling ecosystem consists of various actors including Pikitup, co-operatives, waste reclaimers, private companies and industry who purchase the recycling material. The challenges faced by Pikitup and the public private partnership arrangement undertaken to implement the S@S program were diverse and relate to financial and administrative factors. More specifically the absence of legally binding agreements which created accountability challenges. The PPP arrangement utilised for the S@S program amounts to a one-way approach, lacks mutual commitment and equates to out-sourcing. In particular the arrangement between Pikitup and co-operatives was about controlling and neglecting this group who became incapable of performing as partners. Waste reclaimers have a role to play in the S@S program however, there remains a lack of consensus on their integration. All in all the partnerships in this setting are dispersed, imperfect and fragmented. Tools to manage and co-ordinate the efforts of the different actors are limited. The lack of participation of all actors has had a negative impact on recycling efforts and achieving the goals of the S@S program. The results of this research indicate that the PPP arrangement utilised had underlying problems about how partnerships should work and the current challenges outweigh the predicted benefits. Despite this the presence of the S@S program implemented by waste reclaimers presents important lessons and demonstrates that implementing a separation at source program requires co-ordinated and collaborative actions from various stakeholders particularly households.

Lastly, the third objective is to explore the efficacy of PPPs for waste service delivery in the study area. To achieve this objective the following question is put forward and that is, to what extent does the PPP arrangement achieve the goals of the S@S program? Firstly before responding to this question the researcher admits that a satisfactory response will not be provided as realistically examining the effectiveness of the PPP arrangement proved to be difficult given the absence of indicators and targets to measure the performance of the S@S program. Additionally, the performance of co-operatives was not monitored and the use of tonnages reports does not provide a reliable means to measures effectiveness mainly because these reports are not submitted regularly by the co-operatives. Thus, the accuracy of these reports can be disputed. Another aspect relates to the cost-effectiveness of the PPP arrangement which has been questioned by Pikitup officials and the general concern is that the co-operative model is financially unsustainable. Also in this case, the researcher found it difficult to quantify the costs of this PPP arrangement and compare this to the environmental benefits given the absence of data. Unfortunately given such circumstances this study cannot contribute to the current debates on the effectiveness of PPP for MSWM

Despite such limitations examining the interview responses and discussions from earlier chapters can provide useful support for drawing conclusions on this matter. For instance, the findings of this research indicate that the PPPs may not have been successful in achieving the goals of the S@S program mainly to divert waste away from landfills due in a large part to the deficiencies in the operational capacity of co-operatives. This group has to some extent fallen short of meeting the demand for providing efficient and effective recycling services as they operate on a small scale. Secondly, the way in which the PPP arrangement is handled and the interaction between the different actors has had a substantial impact on achieving the goals of the S@S program. Other factors include the limited participation of households and the prevailing practice of only sorting material of value which means that at the end of the day recycling material remains waste that is landfilled. In closing the S@S program is an important milestone towards moving up the waste hierarchy and the role of PPPs to deliver MSWM in the City of Johannesburg is promising. For Pikitup to leapfrog past the current challenges it needs to think about how to strike a balance between the various actors and adopt tools to manage the partnerships effectively. This study provides recommendations in section 6.2.

6.1 Limitations of the study

This study has had several limitations. Firstly, one area of concern is that this study did not determine the technical capacity available at Pikitup and how this affects the functioning of the PPP arrangement and the S@S program in general. It is common knowledge that public officials often have limited capacity, skills and experience and the interviews revealed frequent changes in management at Pikitup and some participants questioned the qualifications and skills of Pikitup officials. However, this study did not ascertain these claims by investigating further. Questions in the interview guide did not consider this aspect and one could've tried to find out the experience and skills of the S@S program supervisors and whether these are relevant for their roles and duties. This is an important area particularly given the discussions in the literature regarding how inadequate technical resources can have an impact on the implementation of PPPs. Another limitation relates to the financing aspect, with regards to the cost-effectiveness of the S@S program. This feature was difficult to ascertain since financial information is not readily available to the public and as a researcher I had to rely on the opinion of Pikitup officials which could not be verified.

Overall, the intention of this study was to include a diverse range of stakeholders or actors however, this was not the case. An inherent weakness of this study is that interviews and discussions primarily focused on co-operatives however they are not the only partners involved in the S@S program. The preference for co-operatives stems from their accessibility which also results in their experiences overshadowing the responses of other actors. The voices of private companies, particularly those operating buy-back centres and those of residents are absent from this study. In the case of private companies participation is limited due to the lack of feedback when invited to participate in the study. Furthermore, interviews with co-operatives were limited

to managers and owners, one could've included interviews with the workers given that they are responsible for carrying out most of the tasks.

6.2 Recommendations

This chapter is in line with the last objective in section 1.3.2 of this report. To realise the potential benefits of the S@S program and PPPs officials must tackle with several challenges. The purpose of this section is to share ideas without being prescriptive on the ways in which the PPP arrangement can be improved as well as the implementation of the S@S program.

6.2.1 Conduct a cost-benefit analysis and design context specific separation at source model.

Financial sustainability is important when implementing a project and in this context given the uncertainty over the internal costs and benefits of the partnerships it is recommended that a cost-benefit analysis be conducted to determine the appropriate S@S model. In other words whether to use tendering or partnerships.

In addition within this setting the experience with the S@S program demonstrates that recycling programs should not be viewed as a "one-size fits all" and that S@S programs are more likely to be appropriate and relevant if the local context is taken into account. Within the City of Johannesburg when designing the S@S program one needs to remember that firstly Pikitup has depots across the city and each having differing capacity in terms of human and technical resources to implement. A second consideration relates to the communities in which the depots operate, in other words the social and economic set up and community structures. For this reason a single type of S@S program will not be suitable across the depots or communities and by the same token depots need to modify the interventions to suit their available resources. Such conditions need to be considered in order to design a context specific S@S program. The city's IWMP (2011) recommended that a waste classification and characterisation study should be conducted to identify the type of waste generated in each setting which can inform the type of program best suited. This study supports this recommendation and to add to this collection distances also need to be taken into account and the specific needs of each community given the differences in income levels and education. This information is required to support decision making and if such distinguishing factors are not considered then recycling programs are at risk of failure. Lastly, recycling efforts should be accompanied by adequate waste collection and disposal.

6.2.2 Consultations and collaborations

A waste classification study needs to be accompanied by consultations and collaboration with key stakeholders to obtain their buy-in and participation. Key stakeholders include households, waste reclaimers

and co-operatives. Co-operatives, waste reclaimers and private actors operating buy-back centres have knowledge and experience with the recycling system, they know what their problems are as well as their needs. Thus the design of the S@S program and PPP in particular needs to be negotiated with these actors through consultative and collaborative approaches. Stakeholders' participation can be sustained and maximized by identifying the needs and interest of stakeholders, involving stakeholders in decision making, planning and providing incentives and penalties. Furthermore, collaborations with waste reclaimers can have direct benefits on the collection of waste statistics in the city and measuring their contribution to recycling efforts. Below is a discussion of the recommendations to collaborate with the various actors.

6.2.2.1 Residents

The discussions in this research make it clear that the role of residents should be beyond that of participants to that of service partners. Collaborations with household is the touchstone for the success of recycling programs and collaborating with citizens can tap their interest and ownership in the S@S program. Folz (1991) suggests that democratic decision processes are crucial during the planning stages of a recycling program and that local officials have a role to play to facilitate the co-production of interventions with citizens. Within the City of Johannesburg the presence of ward counsellors presents a unique opportunity to consult residents and to foster program ownership, residents need to be included in the design and planning of the S@S program.

Education and awareness campaigns have a role to play in changing the attitudes and behaviour of households while implementing the S@S program through co-operatives provides a unique opportunity to improve the participation of residents. For instance, co-operatives often encounter residents during collection days which provides an avenue to facilitate education and awareness campaigns for the S@S program.

6.2.2.2 Co-operatives

Within the S@S program the use co-operatives have been upheld as a solution to simultaneously address the waste problem and reduce unemployment. Given the issue of sustainability and the dependency of co-operatives on Pikitup a needs assessment study should be conducted to determine interventions needed to enhance their capacity. Contracts are needed to foster transparency and accountability. As such designing the new MOU needs to be a collaborative effort between Pikitup and co-operatives. In other words, co-operatives should be able to give input in the design of the MOU to ensure their co-operation and avoid designing repressive regulations. In addition, capacity building is needed to facilitate entrepreneurship amongst co-operative members and scholars including Buch et al., (2021) recommends that capacity building of co-operatives should include education and training addressing issues such as establishing and managing

a co-operative, financial literacy, technical and business skills and product development. Capacity building can assist the co-operatives to improve their profitability.

6.2.2.3 Waste reclaimers

The S@S program cannot hold without the participation of waste reclaimers on the ground. For waste reclaimers to become partners a reform is necessary of the current approaches for their integration. This requires a critical rethinking of their roles in MSWM. Fortunately, in this setting waste reclaimers in the city have established an NGO which can serve as an entry point through which the informal sector including the pool of waste reclaimers in the city can be approached for discussions and engagement. And given that the informal reclaimers interviewed in this study have been relatively successful in implementing their own S@S program and forming relationships with the community Pikitup can learn important lessons from this model. Consultations can also assist in identifying a model of partnerships that can enable Pikitup to work alongside both co-operatives and establish a working relationship with informal waste workers. Creating an effective dialogue with informal reclaimers will require officials to approach and include NGO's and associations established by waste pickers in the city.

6.2.3 Update the existing legal and regulatory framework.

The legal and regulatory framework can create conducive conditions to facilitate PPP and the S@S program. The current bylaws and weak enforcement strategies demonstrate that bylaws need to be carefully constructed to regulate and sustain the participation of various stakeholders. In this setting bylaws need to be revised and provide clear roles and responsibilities of the different stakeholders including the community, schools, business and co-operatives. Particularly the co-operatives whose activities need to be regulated as a matter of urgency. In addition, incentives and penalties need to be introduced to accompany such obligations and reinforce the recycling agenda. Lastly a framework or PPP policy to co-ordinate efforts and partnerships has to be initiated.

6.2.4 Establish a monitoring and evaluation unit.

Pikitup needs to consider other means to monitor and evaluate the performance of co-operatives beyond just the use of the tonnages report especially since partnerships with co-operatives also presents the city with opportunities to address other social and economic challenges such as unemployment. According to Ferza et al., (2019) monitoring and evaluation is a specialised function requiring dedicated financial and human resources. Such a department would need to be established to support monitoring and control activities.

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8 Appendices

8.1 Appendix A: Participant information sheet

Dear Sir/ Madam

My name is Dineo Madiba, and I am a Masters student from Wits University, student number 717395.I am conducting a study about municipal waste management under the supervision of Dr TK Pooe andmy study is titled An analysis of public private partnerships for municipal waste management in the City of Johannesburg.

I am writing to invite you to participate in my research study that I will undertake as part of the requirements for my academic studies. This is to gain insight on your role in the delivery of municipalwaste management as contracted by Pikitup and your experiences in this area.

This study will make use of interviews to obtain your views in relation to the operational, technical, and financial aspects of waste service delivery. Interviews would take no more than 40 minutes and pseudonyms will be used in place of any personal or identifying information.

Your participation in this study remains voluntary at all times and withdrawing from the study is permitted. The information collected will be compiled into a research report to be submitted and available on the university website.

Yours sincerely

Researcher details:

Dineo Madiba

Email: 717395@students.wits.ac.za

Supervisor

details: TK

Pooe

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ac.za

8.2 Appendix B: Consent form

Title of project: An analysis of public private partnerships for municipal waste management in theCity of Johannesburg.

Name of researcher: Dineo Madiba

I, ... agree to participate in this research project. The research has been explained to me and I understand that my participation willinvolve participating in an interview.

I agree to the following:

The research study has been explained to me and I understand its purpose

Yes No

I give the researcher permission to use direct quotations from the interview

Yes No

I agree that the interview may be audio recorded

Yes No

..... (signature of participant)
..... (name of participant)

..... (signature)
..... (name of researcher/person seeking consent)
..... (date)

8.3 Appendix C: Data gathering instrument: Survey

General information

Which group stakeholder group do you belong to?

Public sector	Private sector	NGO	CBO	Other

What type of activities in solid waste do you carry out?

Waste collection	Waste disposal	Recycling	Street sweeping	Other (specify)

Experience in Municipal solid waste management?

4 or less projects	5-8 projects	9-12 projects	13-16 projects	more than 17 projects

Does your organisation have suitable transport equipment for waste collection?

Yes	No

Type of waste collection vehicles

Open truck	Skip loader truck	Compactor truck	Tractor	None

What type of contract forms part of the Public-Private Partnership arrangement?

No contract	Franchise contract	Service Contract	Other specify	

Contract duration

6 months	1 year	2 years	12 years	Other

How would you rate the frequency of payment of service contracts?

Very bad	Bad	Good	Very good	Excellent

8.4 Appendix D: Data gathering instrument: Municipality interviews

How does Pikitup monitor and control the services of privatepartners?

Does Pikitup have the resources to monitor and control the waste services delivered by private partners?

How does Pikitup address the issue of accountability of private providers and to the City of Johannesburg?

How is the MSWM financed and what are the challenges with funding?

How does Pikitup enforce the policy and legal framework? And what are some of the implementationchallenges you have experienced?

How effective are the communication channels that have been put in place between Pikitup, private partners and service recipients?

In your opinion, what policy gaps or limitations are there in the country's SWM landscape?

8.5 Appendix E: Data gathering instrument: Private partner interviews.

What are the challenges or obstacles to your participation in MSWM? In terms of contracts, licensing, equipment and working conditions

In your opinion, what policy gaps or limitations are there in the country's SWM landscape?

How does your organisation finance its activities and what are t hechallenges?

What sort of support does your organisation receive fromPikitup?

How can MSWM be improved from your perspective as a private actor?