

# Determining the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu Municipality, KwaZulu-Natal

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## **ABSTRACT**

Waste management plays a crucial role in preserving the environment, promoting resource efficiency, reducing pollution, and safeguarding human and ecosystem health. It requires collaboration among individuals, businesses, governments, and communities to effectively address the challenges associated with waste generation, treatment, and disposal. Small businesses, like all economic entities, contribute to waste generation through the operations. As waste generators, small businesses can adopt waste reduction, recycling, and proper disposal methods to create a cleaner environment and healthier communities. However, many small business owners lack awareness and understanding of waste management laws, preventing from fulfilling the responsibilities as waste generators in accordance with legal requirements. Therefore, this study aimed to assess the regulatory awareness and knowledge of small business owners in the Nquthu Municipality, KwaZulu-Natal. Initially, a literature review was conducted on international, African, national, and municipal waste management legislation, as well as the obligations of waste generators and how awareness and knowledge of these laws contribute to sustainable waste management practices. Subsequently, a structured questionnaire consisting of closed and open-ended questions was administered to 143 consenting small business owners. The study results revealed a low level of awareness among small business owners regarding the implementation of provisions outlined in the National Environmental Management: Waste Act (NEMWA) for the businesses. Many small businesses were unaware of the National Waste Management Strategy (NWMS) 2020 and lacked understanding of how it applied to the operations. Additionally, approximately half of the participants were aware of the norms and standards for waste storage (Government Notice 505 of 2014), while there was limited knowledge of the Municipal Solid Waste By-laws. Based on these findings, targeted awareness campaigns, educational programs, resource support, monitoring and compliance checks, incentives, and recognition strategies are urgently needed to address the lack of awareness and knowledge among small business owners regarding waste management.

Keywords: waste management legislation, awareness, small business owners, questionnaire, South Africa.

## **ABBREVIATIONS AND ACRONYMS**

COGTA: Cooperative Governance and Traditional Affairs

DEA: Department of Environmental Affairs

DEFF: Department of Environment, Forestry and Fisheries

DM: District Municipality

DSBD: Department of Small Business Development

IDP: Integrated Development Plan

LM: Local Municipality

NEMA: National Environmental Management Act

NEMWA: National Environmental Management: Waste Act

NWMS 2020: National Waste Management Strategy 2020

SALGA: South African Local Government Association

SANS 10324: South African National Standards 10324

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# CHAPTER 1 INTRODUCTION

This chapter offers an overview of the research study, starting with a discussion on the background that explores waste management issues from a broader perspective. It proceeds to present the problem statement that the study concentrates on, followed by the research aim, scope, assumptions, and limitations. Additionally, the chapter delves into the potential contribution of the research to existing literature, including the municipality. Lastly, it outlines the structure of the dissertation and concludes.

## 1.1 Background.

The World Bank reported that a total of 2.01 billion tonnes of municipal solid waste is produced annually, resulting in an average of 0.74 kg of waste generated per person per day worldwide (World Bank, 2022). The World Bank also highlights the correlation between income level and waste generation, with high-income countries accounting for nearly 33% of global waste output. This trend suggests that waste will experience exponential growth by 2050 (World Bank, 2022) as the global population continues to increase. Additionally, the amount of waste produced in low to middle income countries is closely tied to gradual increases in income, which are projected to triple by 2050. According to the Global Waste Index 2019, the United States holds the title for being the largest producer of waste globally, with an average yearly waste generation of 808 kilograms per capita.

Waste generation often leads to the disposal of waste on Earth, either on land or in water (Abowitz & Toole, 2010). The various types of waste that are discarded include domestic, industrial, construction, plastic, electronic, radioactive, sewage, and runoff waste, such as fertilizers. Waste disposal exacerbates the issue by causing pollution of land, air, groundwater, and oceans, posing significant dangers to the environment and human health (Abowitz & Toole, 2010).

The process of waste collection plays a crucial role in overall waste management (Bimir, 2020). Proper waste collection ultimately helps mitigate illicit dumping and pollution (Fakoya, 2014). Sub-Saharan Africa faces a significant challenge in waste management, with only 44% of rubbish being collected, in stark contrast to the 90% waste collection rate observed in Europe and North America (World Bank, 2022). An examination of waste composition in Africa reveals that a smaller amount of recyclable waste is being collected, hindering the possibility of achieving zero waste disposal in African countries. Additionally, Africa has become a destination for the disposal of obsolete products, including electronic waste, primarily originating from wealthy nations. The lack of recycling facilities and infrastructure further complicates the management of this waste stream (Sthiannopkao & Wong, 2013).

Waste management is a significant environmental concern in South Africa (Strydom *et al.*, 2009). According to the Constitution of South Africa, municipalities are responsible for providing waste services. However, some municipalities choose to outsource these services to private corporations. The municipality's inability to provide services is often due to a lack of financial resources, which occurs when residents or companies fail to make payments for waste services (Kanyane, 2011). Rural municipalities are expected to face difficulties in delivering these services due to the predominantly low-income population and limited business presence. Furthermore, operational waste services encounter obstacles such as a deficient fleet, inadequately trained personnel, and insufficient equipment, further impeding effective waste management (Kanyane, 2011).

The Department of Small Business Development (DSBD) has recently updated the first schedule of the National definition of small enterprise in South Africa, as outlined in the National Small Enterprise Act 102 of 1996. According to this definition, a small enterprise refers to an independent business entity, including its branches or subsidiaries, if any. This includes cooperative enterprises managed by one or more owners and primarily engaged in any sector or subsector of the economy mentioned in column 1 of the Schedule. The classification of a business as a micro, small, or medium enterprise is determined by meeting the criteria mentioned in columns 3 and 4 of the Schedule. For this study, we will focus on retail small enterprises with an enterprise size ranging from 0 to 10, as stated by the Department of Small Business Development (2023:3). According to the National Environmental Management Waste Act 57 of 2008, waste generators must ensure that waste is reused, recycled, recovered, treated, or disposed of within eighteen (18) months of being generated. Unfortunately, many small business owners are unaware of this requirement, leading to mismanagement of the waste generated.

## **1.2 Problem statement and rationale for the study.**

Research highlights that small businesses frequently encounter distinct obstacles in waste management, such as constrained resources, expertise, and infrastructure (Gumel, 2017). Consequently, there is an increasing acknowledgement that distinct criteria and assistance measures are essential to encourage their involvement in waste reduction endeavours. Efforts are being made to develop policies and strategies to meet these requirements. Regulations, rules, and support programmes are being created by governments and international organisations specifically designed to meet the needs and limitations of small businesses (Rowe & Enticott, 1998). The objective of these policies is to encourage small businesses to reduce waste, recycle, and use appropriate disposal methods. Moreover, there is a strong focus on cultivating collaborations among small businesses, local communities, and waste management authorities

to promote the exchange of information, consolidation of resources, and joint problem-solving (Rowe & Enticott, 1998).

The South African waste management legislation is designed to ensure that businesses of all sizes fulfil their environmental obligations and actively participate in sustainable waste management practices (Nieuwenhuizen, 2019). Furthermore, governmental organisations and initiatives may help, direction, and incentives to aid small businesses in fulfilling these standards and embracing eco-friendly waste management techniques. The National Waste Management Strategy 2020 established a strategic framework for waste management in South Africa that includes the participation of all sectors, including small businesses. This highlights the significance of cultivating partnerships, encouraging creativity, and enhancing capabilities to accomplish sustainable waste management objectives throughout the country.

Regulatory awareness and comprehension play a vital role in determining small businesses compliance to waste management laws (Wilson *et al.*, 2011). Small business owners and operators who possess knowledge of the legal obligations of waste management are more inclined to comprehend the potential hazards linked to non-compliance and acknowledge the need of conforming to regulatory norms. Small businesses can effectively implement waste management strategies and fulfil their legal requirements by having access to knowledge, resources, and support services (Wilson *et al.*, 2011).

Rural communities face significant challenges in adhering to waste management rules at the local, provincial, or national level (Godfrey, 2008). Typically, these areas have high population densities and lower living standards, with individuals and businesses having poor income. As a result, many municipalities in rural areas struggle to provide waste collection services, functional equipment, waste treatment facilities, recycling infrastructure, and treatment or buy back centres (Godfrey, 2008). This often leads to ineffective waste policy implementation by local authorities (Kironde & Yhdego, 1997). Additionally, there is a lack of waste management awareness programs, training, or courses aimed at equipping small enterprises with the knowledge needed to understand and apply relevant policies (Lema *et al.*, 2019). Consequently, small business owners in these areas may struggle to prioritise waste management practices due to a lack of awareness and understanding of the impact of waste on human health and the environment (Desa *et al.*, 2012).

While small enterprises are crucial for rural economies, waste management techniques are often overlooked. The attitudes and actions of small business owners in rural areas towards waste management have significant implications for environmental sustainability and community welfare. However, many rural communities lack knowledge and understanding of waste management (Muzenda *et al.*, 2011). The consequences of waste management illiteracy among

small business owners extend beyond own businesses and affect the environment, legal and regulatory compliance, financial viability, market competitiveness, employee well-being, and community welfare.

Small enterprises in rural regions demonstrate a lack of responsibility in managing and disposing of waste, as evidenced by inadequate attention and action towards proper waste handling and disposal (Woodard, 2021). This problem is often caused by factors such as limited knowledge of the environmental consequences, limited resources, a focus on immediate financial gains, inadequate education and training, complex regulations, and a perception of minimal influence. These repercussions result in ecological harm, legal and regulatory obstacles, damage to reputation, financial burden, and negative impacts on communities.

Effective waste management is essential for reducing environmental damage and advancing sustainable development. However, small businesses frequently encounter difficulties in comprehending and complying with waste management standards, resulting in poor waste management practices and environmental damage (Redmond *et al.*, 2008). By assessing the awareness and knowledge of waste management requirements among small business owners, it is feasible to pinpoint areas that require supplementary help and education. Consequently, this can aid in enhancing waste management practices among small businesses, resulting in less ecological consequences and improved sustainability within nearby communities (Redmond *et al.*, 2008).

This research study focused on examining small business owners from the Nquthu Municipality in KwaZulu-Natal. Existing literature highlighted a lack of waste management awareness initiatives targeted towards rural communities hence the study aims to assess the regulatory awareness and knowledge of small business owners regarding waste management.

### **1.3 Research aim.**

The aim of this research project was to determine the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu Municipality, KwaZulu-Natal.

### **1.4 Scope of the research.**

The study aimed to assess the regulatory awareness and knowledge of small company owners in the Nquthu Municipality, KwaZulu-Natal, with regards to waste management. This municipality was chosen based on its geographical convenience for the researcher and its potential for observing the behaviour of small enterprises in waste management. The intended recipients of this research were individuals who own small businesses and those who manage day-to-day

operations. The selection of small businesses for the representative sample was based on the data supplied by the municipality regarding the total number of operable small businesses. The methodology employed in this study was of a mixed method approach. The target group was administered structured questionnaires through physical visits and in-depth interviews to gather information on waste management. Data was gathered from responses provided by small business owners, and subsequently analysed using descriptive statistics. The findings were then presented using graphical representations.

## **1.5 Assumptions and limitations.**

Apart from the literature limitations related to the scope of this research project, particularly on Nquthu Municipality regarding waste management, the following assumptions and limitations were noted:

### **1.5.1 Difficulties with service delivery.**

Most rural municipalities face difficulties with service delivery, particularly regarding waste management, due to insufficient investment in finances, inadequate equipment and infrastructure, a lack of buy-back centres, recycling facilities, treatment facilities, and waste recovery facilities (Fakoya, 2014).

### **1.5.2 Amount of waste.**

A significant amount of waste from small businesses is unlawfully dumped in open areas as the municipality struggles to regularly collect waste.

### **1.5.3 Waste laws and policies.**

There are national, provincial, and local government waste laws and policies in place that regulate proper waste management practices. However, many small business owners and managers lack awareness and basic knowledge of the responsibilities as waste generators to ensure health and environmental safety.

### **1.5.4 Management awareness programs.**

Waste management awareness programs primarily prioritise households and schools, neglecting businesses in the area that are also significant waste generators.

### **1.5.5 Access to resources.**

The assumption is that all small business owners in rural areas have equal opportunities to access resources for regulatory training and compliance; however, economic disparities and geographical factors may restrict access to waste management educational programs.

### **1.5.6 Static regulation of the environment**

If the regulatory requirements remain consistent throughout the duration of the study. Regulations change over time, potentially affecting the awareness, knowledge, and compliance measures of small business owners.

## **1.6 Potential contribution of the research.**

Several research studies have examined waste management awareness and knowledge in urban regions; however, there has been less attention given to examining the implementation of waste management techniques in small businesses located in rural areas, specifically within the Nquthu Municipality. This study seeks to enhance the existing academic literature on the regulatory awareness and knowledge of small business owners about waste management. Furthermore, to effectively communicate the findings to the Nquthu Municipality, it is necessary to build or enhance waste management awareness initiatives for communities and small enterprises, thereby enhancing health and environmental security.

## **1.7 Structure and outline of the dissertation.**

This section provides a concise overview of the structure and outline of this dissertation, aiming to help the reader navigate through it easily.

### **1.7.1 Chapter 1: Introduction.**

The subsequent chapter consists of a concise overview of the study topic, the specific group being researched, a defined issue statement together with the justification for the study, the research aims and objectives, the scope of the research, any assumptions made, limits encountered, and finally, a summary of the dissertation.

### **1.7.2 Chapter 2: Review of the existing literature.**

Chapter 2 provides a comprehensive literature analysis of the research study, focusing on the worldwide difficulties of waste management, with a specific emphasis on the African viewpoint and the South African setting. It also examines the experiences of municipalities in waste

management and explores the awareness and understanding of small company owners in this field.

### **1.7.3 Chapter 3: The methodology used in the study.**

The study employed a mixed methodology to administer structured questionnaires to small business owners, aiming to assess the regulatory awareness and understanding of waste management. The sample size was established based on the data obtained from the municipality regarding the total population of small enterprises in the area. Each research participant was provided with a consent form to authorise participation.

### **1.7.4 Chapter 4: The outcomes and analysis of the structured questionnaire.**

Data was collected from the obtained responses, then analysed using descriptive statistics. The findings were subsequently discussed and displayed in graphical representations such as bar graphs and tables.

### **1.7.5 Chapter 5: Conclusions and Recommendations.**

Conclusions were derived based on the research aim and objectives of the study. The municipality was advised on the significance of promoting waste management awareness and understanding to build effective waste management practices in small enterprises.

## **1.8 Conclusion.**

This chapter outlined the aim of the study and provides supporting evidence from the literature. Additionally, it identified the problem statement that the researcher had found within the Nquthu municipality. The chapter provided an aim, assumptions, and possible limitations and discussed the potential contribution of the study to the existing body of literature. In the subsequent chapter, Chapter 2, the literature review was examined.

## **CHAPTER 2 LITERATURE REVIEW**

### **2.1 Introduction.**

This chapter presents a literature analysis of a research study that examined the role of small businesses as waste generators and impact on waste management concerns. After providing examples of the obligations that international law imposes on waste generators in the context of small businesses, the research explores an African viewpoint on waste management. The South African waste management policies outline the obligations of waste generators as stipulated in the NEMWA (Act 57 of 2008) and the waste management bylaws of 2021. The study also focuses on the role of municipalities in delivering waste services to local communities and emphasises support for small businesses. Lastly, it investigates the regulatory awareness and knowledge of waste management in South Africa, explores the waste management challenges faced by small businesses, and concludes with a summary of the chapter.

### **2.2 Waste management international law applicable to small businesses.**

Efficient waste management is a crucial aspect that organizations need to prioritise, irrespective of scale. Although there is no dedicated international legislation exclusively targeting waste management for small businesses, other international accords and standards exist to address environmental conservation, waste management, and sustainable practices. Small businesses should consider the following crucial elements of international law pertaining to waste management.

The Basel Convention is an international agreement that aims to regulate the transportation and disposal of hazardous wastes across national borders. The Basel Convention regulates the cross-border transportation of dangerous waste. The objective is to reduce the production of hazardous waste, guarantee its proper environmental handling, and control its transportation across borders (Krueger, 2001). The Stockholm Convention aims to eradicate or limit the manufacturing, utilisation, and discharge of persistent organic pollutants (POPs) (Lallas, 2001). Small businesses should possess knowledge on the appropriate disposal and handling techniques for chemicals such as asbestos, polychlorinated biphenyls (PCBs), and other persistent organic pollutants (POPs). The Rotterdam Convention is an international agreement that establishes a procedure for obtaining prior informed consent for the trade of certain hazardous chemicals and pesticides (VanDorn, 1999). The Rotterdam Convention fosters collective obligations in relation to the entry of dangerous chemicals and pesticides (VanDorn, 1999). Small businesses must be cognisant of the prerequisites and limitations associated with engaging in commerce using these substances. The Framework Convention on Climate Change and the Paris Agreement are international

agreements. While not exclusively related to waste management, these agreements primarily address the reduction of climate change impacts and the adjustment to its effects (Zangerolame Taroco & Sabbá Colares, 2019). Small businesses ought to use environmentally conscious waste management strategies, such as minimizing the release of greenhouse gases by means of trash reduction, recycling, and energy-efficient operations.

Small businesses should consider national and regional laws and regulations pertaining to waste management methods, in addition to the international agreements (Thébault, 2010). To ensure compliance with waste management regulations, it is crucial to seek guidance from local authorities, waste management organizations, or environmental experts to understand and adhere to the specific waste management rules that applicable to the location of the business (Thébault, 2010). Small businesses have the option to voluntarily adopt effective waste management procedures (Gaines, 1991). This includes the reduction of waste generation, the recycling and repurposing of materials, the implementation of appropriate storage and disposal systems, and the monitoring and reporting of waste management activities (Şchiopu *et al.*, 2007). Additionally, small businesses could contemplate affiliating with industry associations or collaborating with local organizations that advocate for sustainable practices to acquire access to resources, training, and advice pertaining to waste management (Şchiopu *et al.*, 2007). Small businesses must be informed on changing waste management laws, regulations, and best practices at both the international and local levels to comply with and contribute to a sustainable future.

### **2.3 African perspective regarding waste management in small businesses.**

Waste management laws and regulations in Africa reveal substantial variation among countries, as each country holds its own legal framework and specific legislation may diverge depending on the country within the African continent.

Several African nations have legislation in place to regulate waste management as part of environmental protection efforts (Du Plessis, 2011). These regulations frequently provide criteria for the management of waste, control of pollution, and evaluations of environmental consequences. Typically, small businesses must adhere to these regulations. Regulations stipulate the specific procedures that businesses must follow when disposing of various categories of waste. This encompasses instructions for the segregation of recyclable materials, proper disposal of hazardous waste, and the utilisation of authorised waste management facilities (Bimir, 2020). Certain countries mandate that small businesses, must acquire licenses or permissions for the processing and management of waste. These permissions might be granted by environmental bodies or municipal authorities (Mmereki, 2018). Small businesses may have

an obligation to maintain documentation of waste generation, means of disposal, and initiatives to minimise, reuse, and recycle. Additionally, certain legislation require the regular submission of reports to the appropriate authorities (Tough, 2007).

Extended Producer Responsibility (EPR) refers to the concept that producers of goods are responsible for the entire lifecycle of products, including disposal and recycling. Several African countries are now investigating or enacting Extended Producer Responsibility initiatives (Ajani & Kunlere, 2019). These programs impose accountability on producers for the waste generated by products, motivating to implement strategies to reduce the ecological footprint. The management of waste is frequently associated with concerns regarding public health. Regulations can be implemented to handle the secure management and proper disposal of waste to mitigate any risks to public health. It is anticipated that small businesses will conform to these requirements (Manga *et al.*, 2011). Regulatory systems generally provide measures for imposing fines in the event of non-compliance (Oteng-Ababio *et al.*, 2013). Small businesses should be cognisant of the possible repercussions of not complying with waste management legislation.

Certain legal systems in various regions promote or require community involvement and educational initiatives in the field of waste management. This entails raising public awareness about proper trash disposal and encouraging community engagement in waste management endeavours (Garnett & Cooper, 2014). Small businesses must prioritise staying updated on waste management legislation that are relevant to geographical area. This requires seeking advice from local environmental agencies, industry associations, or legal experts specializing in environmental law. Consistent revisions and adherence to these standards not only ensure legal compliance but also promote sustainable and responsible company practices (Muniafu & Otiato, 2010).

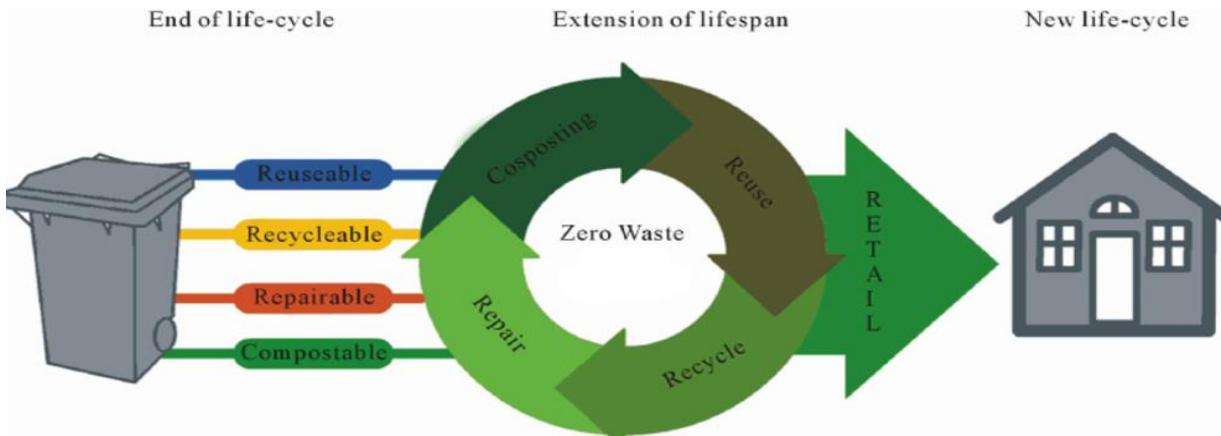
African countries face environmental and health issues due to the mismanagement of municipal solid waste. These challenges arise from population growth and urbanization, leading to increased waste generation (Achankeng, 2003). However, there is a lack of sufficient measures to enhance waste management services (Oteng-Ababio *et al.*, 2013). Several African nations have initiated investments in environmental awareness initiatives, collaborating with non-governmental organizations and civil society to support homes, businesses, and schools in managing waste (Oteng-Ababio *et al.*, 2013). In the realm of politics, both national and local government authorities directly acknowledge the problems related to waste management. Political officials witness these issues firsthand while traveling through polluted streets and visiting communities that are grappling with illegal dumping, endangered species, and potential risks to public health. However, these authorities lack the necessary dedication to drive meaningful change.

African countries require effective waste management services to address these difficulties, as evident from unambiguous signs (Hope, 1998). The government's failure to effectively adapt to changes and the limited involvement of different sectors and communities pose significant obstacles to the proper management of waste (Bhuiyan, 2010). For instance, in Malindi, a secondary town in Kenya, the population was rapidly growing as the area became more urbanized, leading to challenges in waste management (Mireri, 2006). A total of 36,000 tonnes of solid waste were produced, with only 7,300 tonnes being collected by the municipal waste collection services. This indicates that only 24% of the rubbish is being collected, raising significant concerns about the fate of the remaining waste in the town (Onibokun, 1999). Moreover, the swift urbanization of African nations presents risks to government officials in those urban areas. The insufficient waste infrastructure and services compel communities and sectors to resort to unauthorised methods of waste disposal, such as illegal dumping, littering, and burning. These practices often have adverse effects on the environment and human health (Onibokun, 1999).

#### **2.4 Legal obligations of small businesses according to South African waste management legislation.**

Section 24 of the South African Constitution establishes the right to a healthy and safe environment, free from harm, and mandates environmental conservation for the well-being of both current and future generations. This is accomplished through a legislative framework that prioritises the prevention of pollution and environmental damage as well as the promotion of conservation, sustainable utilisation of natural resources, and sustainable development. The DEA aims to uphold these rights by utilising waste management tools outlined in NEMA's (Act 107 of 1998) guiding principles for environmental legislation. These tools include the life cycle approach to waste management (as illustrated in figure 1), producer responsibility (as depicted in figure 2), the precautionary principle, the polluter pays principle, and the duty of care.

Figure 2.1 depicts the updated methodology for managing waste product materials to prevent disposal in landfills. South Africa is currently confronting the issue of diminishing airspace. Consequently, it is imperative to devise strategies that prevent items from being wasted and instead repurposed for various uses (Zaman, 2012). This also offers economic advantages to small enterprises in remote locations that face challenges in accessing waste collection and disposal services (Baloyi & Masinga, 2011).



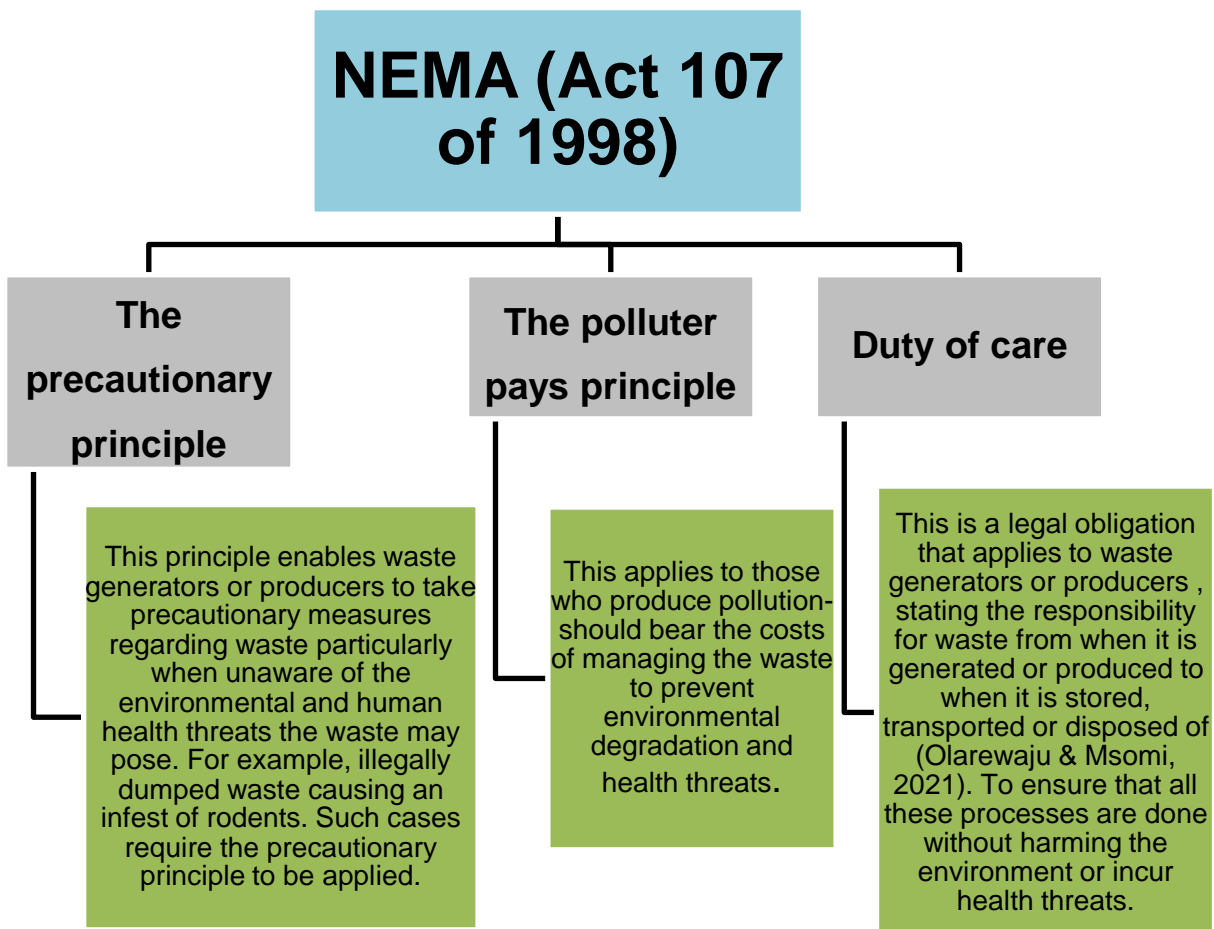
**Figure 2-1: New life cycle approach for waste management (adapted from Zaman, 2012).**

Extended Producer Responsibility (EPR) refers to the concept that producers of goods are responsible for the entire lifecycle of products, including its disposal and environmental impact (Nahman, 2010). South Africa has been implementing Extended Producer Responsibility (EPR) schemes, which entail holding producers and importers accountable for the disposal and recycling of products and packaging once reached full life cycle (Nahman, 2010). Small businesses are obligated to comply with Extended Producer Responsibility (EPR) regulations, depending on the nature of the items manufactured or imported. The regulations cover matters such as waste collection timetables and waste segregation (Adeleke *et al.*, 2021). Figure 2.2 illustrates the concept of extended producer responsibility, which emphasises that waste producers should take responsibility for the environmental implications of products across the whole life cycle, including post-consumption or use. This incentivizes waste producers to develop goods with minimal environmental and health risks.



**Figure 2-2: Extended producer responsibility (extracted from IASToppers, 2023).**

Figure 2.3 provides more clarification on the environmental regulations outlined in the NEMA (Act 107 of 1998) to ensure compliance with section 24 of the Constitution. The precautionary principle, polluter pays principle, and duty of care assign the responsibility of waste management to waste generators and producers, with the aim of safeguarding the environment and promoting human health.



**Figure 2-3: South African environmental legislation (adapted from Van der Linde, 2006).**

## **2.5 The application of Industrial waste management plans (IndWMP) to small businesses.**

Industrial waste Management Plans (IndWMPs) offer small businesses comprehensive guidance on regulatory obligations and optimal strategies for managing waste, encompassing waste prevention, reduction, reuse, recycling, and proper disposal (Molaba, 2019). This ensures compliance to pertinent regulations while enabling businesses to create customised waste management strategies that are in line with their individual activities. Moreover, IndWMPs provide crucial data regarding waste management infrastructure, facilities, and services, allowing small businesses to efficiently identify and make use of available resources. Small businesses can attain substantial cost savings by adopting sustainable waste management practices as outlined

in IndWMPs (Baloyi & Masinga, 2011). These practices involve minimising waste generation and optimising resource utilisation. Additionally, small businesses can contribute to environmental protection by reducing pollution and conserving natural resources. In addition, IndWMPs promote community involvement by encouraging cooperation among individuals and organisations involved and providing educational initiatives to increase understanding of waste management concerns (Tahulela & Ballard, 2020). IndWMPs offer incentives and support programmes that promote the adoption of sustainable practices by small businesses, thereby strengthening their dedication to environmental stewardship.

## **2.6 The relation between waste management of small businesses and local Integrated waste management plans (IWMP).**

Integrated Waste Management Plans (IWMPs) are crucial in guiding small businesses towards effective waste management methods while guaranteeing compliance to local rules. Small businesses can contribute to the broader environmental objectives specified in the plan by adhering to IWMP recommendations for waste management (Municipality, 2009). In addition, IWMPs offer useful data on waste management infrastructure and services accessible in the area, enabling small enterprises to enhance resource allocation and reduce environmental harm. IWMPs promote collaboration by building partnerships among small businesses, local government, and community organisations (Municipality, 2009). Small businesses can engage in joint endeavours, such as recycling programmes and waste reduction campaigns, which promote community accountability for waste management. In addition, IWMPs facilitate community involvement empowering small businesses to actively contribute to the promotion of sustainable waste management techniques and the dissemination of knowledge. Small businesses can actively participate in the formulation of policy by engaging in Integrated Waste Management Plans (IWMPs), so ensuring that their viewpoints are considered in waste management policies that are specifically designed to meet local requirements (Municipality, 2009).

## **2.7 The role of rural area municipalities in supporting small businesses.**

Small businesses have important obligations in the waste management process, which include activities such as waste avoidance, minimisation, reuse, recycling, storage, handling, collection, transportation, and safe disposal (McDougall *et al.*, 2008). The primary responsibility is to reduce waste production by implementing sustainable methods, advocating for reusing and recycling programmes, guaranteeing appropriate storage and management of waste to avoid pollution, and coordinating the safe collection, transportation, and disposal of waste in compliance with regulations (McDougall *et al.*, 2008).

Similarly, municipalities play vital roles in waste management, which involve carrying out waste reduction initiatives, setting up recycling systems, enforcing waste storage regulations, offering guidance and assistance to businesses, supervising waste collection and transportation services, and overseeing waste disposal facilities (Mesjasz-Lech, 2014). Small businesses and governments both have crucial roles in promoting sustainable waste management practices and protecting the environment. Cooperation among these institutions is crucial for efficient waste management and to reduce its negative effects on communities and ecosystems.

According to the NWMS 2020, municipalities have a crucial role in planning and providing waste collection, disposal, and infrastructure services. However, in certain municipalities, these services may be outsourced to private waste corporations. For local governments to effectively contribute to the implementation of the NWMS 2020, it is crucial for the owners to prioritise the transition from landfill disposal to the practices of reuse, recycling, and recovery.

It is recommended that all towns incorporate drop-off or buy-back centres and storage facilities for recyclable waste, which can be used by small businesses and the community. (Viljoen *et al.*, 2012). Incorporating awareness programs and enforcement measures into integrated waste management plans is crucial for fostering a culture of adherence to waste management laws, namely those outlined in the Waste Act. Municipalities have the responsibility of providing waste services, but there is a lack of knowledge among government officials, particularly within the local government, about the significance of waste management (Fernando, 2019). This has a detrimental impact on the strategic planning and financial allotments for waste management. Municipalities have variability in capacity to generate revenue, and the incurred costs also exhibit variation (Fernando, 2019). Rural municipalities face the difficulty of generating low income, which frequently leads to a deficiency in providing essential services to communities. Nevertheless, it is the duty of local governments to guarantee the implementation of community developments as well as to promote environmental safety and public health (Guerrero *et al.*, 2013). Municipalities have the potential to collaborate with small businesses to identify opportunities that will promote effective waste management practices and enhance the organizational frameworks of small businesses in rural regions.

Section 8 of the National Domestic Waste Collection Standards provides detailed information regarding communication, awareness, and complaints. According to the document, waste management officers are responsible for managing general communications and promoting awareness about waste. If there are any complaints related to carelessness or the absence of community awareness programs, efforts to promote public awareness must be intensified. While this standard primarily focuses on awareness development requirements for homes, it is worth

noting that these standards can also be relevant and useful for small enterprises. The guidelines are as follows:

- The various categories of waste collection services offered.
- Encourage the practice of separating waste at its source by extracting all recyclable and reusable components from general waste before disposal.
- Implement various composting techniques.
- Strict prohibition of unlawful disposal and scattering of waste.
- Prosecution procedures should be taken against individuals who are discovered engaging in illegal dumping or littering in open fields.
- The financial implications of addressing environmental remediation resulting from illegal dumping and littering and its potential effects on waste collection rates.
- Benefits of reporting instances of illicit dumping and littering.

## **2.8 Knowledge and awareness of waste management in South Africa.**

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The efficacy of waste management legislation targeting waste avoidance, recycling, or recovery is contingent upon the public's understanding of waste issues and accompanying actions (Karani & Jewasikewitz, 2007). The DEA is responsible for spearheading the creation of communication and awareness strategies related to waste management challenges. The NWMS 2020 plays a crucial role in ensuring the successful implementation of these programs (DEFF, 2021). An unequal reaction to waste concerns has been noted across different groups in South Africa, highlighting the necessity for the government to launch public awareness programs to educate citizens about the consequences of inadequate waste management. The DEA, in collaboration with SALGA and COGTA, is ready to incorporate training programs and resources for local government officials to enhance awareness and knowledge. This will enable the owners to effectively lead and set a good example for others (DEFF, 2021).

*Indalo Yethu* was founded by the DEA during the 2002 World Summit on Sustainable Development. It is a program designed to raise awareness and knowledge about environmental concerns (Jacobs *et al.*, 2011). The endorsement and assistance of this effort by all levels of government, sectors, and civil society will enhance individuals' consciousness of environmental concerns. An important benefit of investing in good awareness and instructional initiatives is the possibility of reducing future expenses for waste collection and recycling services (Wehrmeyer, 2017). Additionally, the DEA has implemented a cleaning and greening initiative that serves to promote waste management advocacy and raise awareness. The collaboration between *Indalo Yethu* and the Cleaning and Greening Programme offers a comprehensive strategy for addressing environmental issues in urban planning (DEA, 2023).

Enhancing citizen participation in the oversight of waste service delivery is crucial for promoting awareness and knowledge. Incorporating waste management into the school curriculum, alongside the core principles of water conservation and environmental protection, will enhance the practical aspects of waste prevention, fostering the promotion of waste reuse, recycling, and recovery (Debrah *et al.*, 2021). Industries and businesses are obligated to educate members about the effects of waste in accordance with the regulations of the Waste Act. Pillar 3 of the NWMS 2020 focuses on ensuring compliance, enforcement, and awareness to enhance the understanding and recognition of the socio-economic advantages associated with adhering to environmental and waste management regulations. This involves effectively managing the environmental impact of waste and monitoring shifts in people's behaviour and attitudes towards waste. The goal is to foster a culture of compliance with international, national, and local waste management standards among community members, businesses, and the government (DEFF, 2021).

The global concern about waste management has been sparked by observable environmental shifts, including the adverse effects of global warming leading to drastic temperature variations as well as the contamination of land, water, and air (Desa *et al.*, 2011). Many individuals have expressed alarm over the sudden deterioration of the Earth, with one major factor being attributed to inadequate waste management. Human activities produce waste, and the way waste is managed, stored, collected, transported, and disposed of can result in environmental harm and affect human health (Amasuomo & Baird, 2016). The literature suggests several environmental rules and strategies for small and medium enterprises to enhance waste management and social performance, hence raising awareness among small business owners or managers (Johnson, 2015). Environmental awareness empowers small business owners and managers to make informed decisions regarding the waste produced and enables people to effectively monitor and implement environmentally friendly business practices. In addition, the absence of waste management awareness programs would provide difficulties for small businesses in complying with the waste regulations imposed and hinder progress in developing more effective business plans. (Johnson, 2015).

## **2.9 Awareness and knowledge propel compliance to waste management regulations in small businesses.**

Awareness and knowledge is crucial for small businesses to comply with waste management requirements. When small business owners and operators possess comprehensive knowledge about the legal obligations and optimal methods pertaining to waste management, they are more inclined to comprehend the significance of compliance and adopt proactive efforts to comply with rules (Woodard, 2021). Insufficient awareness and understanding of waste management legislation can result in unintentional infractions and damage to the environment. Small enterprises may encounter difficulties in comprehending their legal responsibilities or face limitations in terms of resources and knowledge to establish waste management strategies that adhere to regulations (Woodard, 2021). By providing small businesses with the essential information and understanding, stakeholders may cultivate a culture of adherence that is advantageous to both the environment and the business community holistically.

## **2.10 The waste management challenges experienced by small business.**

Small businesses frequently encounter distinct waste management challenges, which arise due to restricted resources, insufficient awareness, and differing capacity for regulatory compliance. Small businesses possess restricted financial and human resources to allocate towards implementing extensive waste management protocols. This can impede capacity to execute sophisticated recycling initiatives or allocate resources to waste reduction solutions (Gumel,

2017). Certain small businesses lack complete awareness of the environmental and economic advantages of efficient waste management (Gumel, 2017). Insufficient knowledge might result in ineffective waste disposal methods and missed chances to save money by recycling and reducing waste. Small businesses function in regions with insufficient waste collection and disposal facilities. Inadequate waste disposal infrastructure or restricted availability of recycling services might provide considerable obstacles (Chimucheka & Mandipaka, 2015). Small businesses have difficulties in meeting regulatory standards for waste management. Small business owners lack the necessary time and experience to fully comprehend and adhere to waste management requirements (Zondi, 2017).

Small businesses sometimes operate within limited premises, which poses difficulties in terms of waste storage and management (Gumel, 2017). Allocating space for distinct waste categories, such as recyclable materials and hazardous waste, can pose significant challenges in compact facilities (Thorpe, 2014). Waste collection services for small businesses are disorganised or ineffective in certain areas (LaGrega *et al.*, 2010). This might lead to inconsistent collection schedules and challenges in coordinating waste disposal (Henry *et al.*, 2006). Small businesses face limited recycling alternatives due to the lack of close-by recycling facilities or restricted access to recycling programs (Henry *et al.*, 2006). This can result in an increased proportion of waste being deposited in landfills. Introducing novel waste management strategies could encounter opposition from both employees and management, particularly if these alterations disturb well-established routines. Resistance can impede the effective implementation of more environmentally friendly waste management procedures (Zondi, 2017). A substantial obstacle can arise from a lack of awareness regarding waste segregation, recycling methodologies, and the advantages of waste minimisation (Kasim, 2009). Employees' lack of familiarity with optimal procedures results in the contamination of recyclable materials and other operational inefficiencies.

To successfully address these difficulties, it is necessary to employ a blend of education, cooperation with waste management service providers, and a dedication to implementing sustainable practices (Kasim, 2009). Small businesses might derive advantages by seeking counsel from nearby environmental organizations, industry associations, and waste management specialists to formulate efficient and practical waste management programs. Furthermore, small businesses can enhance waste management solutions by actively seeking collaborations with local recycling efforts or community-based programs, which can offer more convenient and economical options (Fakoya, 2014).

Researchers have examined the obstacles that small businesses face when it comes to implementing waste management methods. Based on the literature, two key factors that

significantly contribute to ineffective waste management (Hillary, 2004). The presence of resources (financial, personnel, and equipment such as bins) and the attitudes of small business owners and managers, small businesses are hindered by a lack of instruments, which prevents efficiently managing the waste generated and participating in the progress of sustainable development (Aragón-Correa *et al.*, 2008).

Business owners and managers' unfavourable disposition towards waste management leads to inefficient handling of waste (Kasim, 2009). The business activities will not prioritise waste minimisation or the implementation of measures for waste reuse or recycling. Additionally, small business owners do not comply with municipal bylaws governing proper waste management procedures (Kasim, 2009). The ethical position of business owners or managers is crucial to waste management activities. Furthermore, most small businesses are described as informal, possessing inadequate information systems, and lacking strategic approaches in decision-making processes concerning waste management. The attributes contribute to the difficulties encountered in implementing effective waste management techniques in small enterprises (Redmond *et al.*, 2008).

### **2.11 Small businesses as waste generators.**

Every business, irrespective of its size, generates waste because of its daily operations in the commercial, industrial, or trade sectors. While small businesses contribute to waste generation, majority do not demonstrate a strong commitment to proper waste management practices (Redmond *et al.*, 2008). Existing literature indicates that enterprises with a larger workforce and higher yearly profits receive greater focus, implying that smaller businesses receive less support in terms of waste management (Melnyk *et al.*, 2003). Due to the limited number of employees in small businesses, it is common for owners to also serve as business managers and bear the responsibility for managing the waste generated by the business. Consequently, if the owner-manager lacks knowledge in this area, it can lead to a lack of concern for environmental safety and health (Redmond *et al.*, 2008).

If commercial sectors fail to adhere to waste legislation, the improper disposal of waste can disrupt ecosystems, cause injury to species, result in toxic pollution, and contaminate the protected biosphere (Alabi *et al.*, 2019). Some businesses have started to acknowledge the negative effects that the waste generated has on the environment. Improper waste management can lead to surface water contamination, whereby business waste is deposited into water bodies such as oceans, rivers, and dams. This contamination alters the chemical composition of the natural water, posing significant risks to organisms that rely on it for survival. Inadequate storage of waste

at commercial premises can result in land and air pollution, leading to environmental degradation and respiratory ailments in humans (Ifeoluwa, 2019).

Waste not only impacts the environment, but it also exacerbates health risks and heightens the likelihood of infectious disease epidemics. Failure of small businesses to prioritise effective waste management practices, including proper storage of waste in containers or bins for collection, can lead to infestation by rodents and insects. This, in turn, increases the risk of disease transmission, surface contamination, and the spread of foodborne illnesses (Triassi *et al.*, 2015). Illegally disposed of commercial waste poses a threat to the health and safety of communities by contaminating residential areas and compromising the cleanliness of water and food sources. Plastic pollution poses a significant threat to human health. Majority of consumer purchases from businesses consist of plastic-based goods, including furniture, electronics, apparel, and food packaging (Alabi *et al.*, 2019). The widespread use of plastic results in detrimental damage to both the environment and human health. Plastic waste can have detrimental effects on health through many mechanisms. It is possible for us to ingest these microplastics from water sources, which might lead to physical ailments (Comăniță *et al.*, 2016). Plastic waste contains chemical substances that have been linked to severe health problems, including malignancies, neurodevelopmental abnormalities, and infertility. Furthermore, the presence of plastic waste in the environment can attract hazardous bacteria, therefore heightening the likelihood of diseases in people (Comăniță *et al.*, 2016).

Small businesses typically specialise in selling specific products or providing a single service, resulting in the generation of a particular form of waste. This suggests that the environmental impact of the waste produced by these enterprises may be considered insignificant by the owners (McKeiver & Gadenne, 2005). Nevertheless, the amalgamation of waste produced by a group of small enterprises result in a higher environmental "footprint" compared to that of larger businesses (Redmond *et al.*, 2008). Furthermore, it is crucial for small enterprises to adopt waste management strategies that minimise the amount of waste produced and prioritise the well-being of communities and the environment.

## **2.12 Response of Nquthu Municipality towards waste management.**

The Nquthu Town Urban Design Framework states that the local municipality established a waste management unit within the Technical Services department. However, the effectiveness of this unit is hindered by financial limitations, preventing it from providing waste services to full potential (Nanga Development Consultants (PTY) LTD, 2023). The municipality allocates the funding it gets to maintain and operate a waste management fleet, which includes two functional compactor trucks. These trucks are responsible for collecting and disposing of waste in a designated landfill

site located in Nondweni, as authorised and licensed by Nanga Development Consultants (PTY) Ltd. in 2023. The landfill site also offers Buy Back Centres the opportunity to acquire recyclable material to decrease waste accumulation, conserve airspace, and exploit possible economic benefits from recyclable waste. The municipality now offers recyclable waste collection trucks, a 5-ton forklift for transporting big loads within the centre, waste compacting and bailing machines, and other recycling-related equipment (Nanga Development Consultants (PTY) LTD, 2023).

The Integrated Development Plan (IDP) of Nquthu Municipality was officially approved in June 2021, and its evaluation was finished prior to the end of 2021, according to the Department of Cooperative Governance and Traditional Affairs (Cogta, 2023). The strategy focuses on three main areas: assessing the environmental impact of waste management options, specifically examining ecologically sustainable practices for recycling and landfill sites, and identifying potential economic benefits derived from recycling (Cogta, 2023). In addition, the municipality promotes public waste management awareness campaigns by regularly organizing these programs to help reduce littering and unlawful dumping. However, to obtain better outcomes, it would be necessary to undertake a greater number of awareness campaigns (Cogta, 2023).

### **2.13 Chapter summary.**

The literature review for this study involved an extensive examination of numerous pertinent articles, journals, and dissertations from reputable sources such as Google Scholar, Scopus, Science Direct, Boloka: NWU Institutional Repository, and publications from Nanga Development Consultants on the Nquthu Town Urban Design Framework. To ensure a comprehensive review, the search string encompassed keywords such as "awareness," "knowledge," "small businesses," "small business owners," "waste management," "waste generators," and "how to improve the level of awareness." The results obtained from the literature provided a comprehensive overview, highlighting the existing gaps in waste management educational programs, particularly for small businesses in disadvantaged areas. Overall, my research suggested that there is still significant work to be done to provide effective waste management educational programs, with a greater emphasis on small businesses operating in disadvantaged areas. These findings emphasised the need for targeted initiatives that can improve the regulatory awareness and knowledge of small business owners, ultimately leading to more environmentally sustainable waste management practices.

Chapter 2 provided a description of small businesses as contributors to waste, with a specific emphasis on the waste management difficulties encountered at the international, national, and local government levels. Most developing nations continue to have challenges adequately delivering waste collection and disposal services to both communities and companies. The main

reason for this is the insufficient financial resources, inadequate waste equipment, and inadequate infrastructure in many towns, especially in rural areas where households and small company owners cannot afford to pay for services (Wilson, 2007). According to both international and South African law, waste generators are required to assume complete responsibility for the waste generated to prevent any potential harm to the environment and human health. Waste must be managed in accordance with established policies, and failure to comply can result in legal action. Complying with waste policies becomes difficult when individuals lack knowledge about the specific requirements (Agwu, 2012). The Technical Service Department/Unit of the Nquthu Municipality places a high priority on delivering public waste services. Despite facing budgetary limitations, the municipality possesses a licensed and operational landfill site that supplies recyclable waste to buy-back centres (Nanga Development Consultants (PTY) LTD, 2023). While waste management awareness campaigns are conducted on a quarterly basis, there is a lack of targeted programs for small businesses. This leads to owners and managers adopting an indifferent attitude and behaviour towards effective waste management procedures. Local government authorities must be taught about waste management to strategically plan and provide waste services, thereby addressing difficulties arising from waste generation (Ivankova & Creswell, 2009).

## **CHAPTER 3 METHODOLOGY**

### **3.1 Introduction**

This chapter outlines the methodology used to assess the level of regulatory awareness and knowledge pertaining to waste management in the Nquthu local municipality. The chapter provides a detailed explanation of the research approach, including its justification. It also discusses the research design that was used in this study. The chapter also describes the study area and how a selection criterion was applied to choose the specific region for examination. A structured survey was administered to the research participants, considering ethical standards and the potential limits of the methodology. Data was collected, analysed using descriptive statistics to validate the results, and presented in graphical representations.

### **3.2 Literature review on a mixed method research approach**

This study utilised a mixed method research technique, combining quantitative and qualitative procedures to thoroughly analyse the phenomenon being studied (Migiro & Magangi, 2011). The study collected quantitative data and in-depth contextual insights by employing structured questionnaires in conjunction with semi-structured questions. This strategy provided several benefits, such as improving data validity, and gain a more comprehensive understanding of the study (Almalki, 2016). One of the limitations of this strategy was the inclusion of many role players in the study (Rowley, 2012). The mixed method technique was considered appropriate for this study because of its ability to provide thorough and detailed insights (Teherani *et al.*, 2015), which fit with the complex and multifaceted nature of the research topic and objective. Nquthu Municipality was contacted with the purpose of collecting data on the overall quantity of small businesses in the region as well as to question small business owners to obtain responses to the presented inquiries. The research study would have been impacted if specific participants declined or lacked enthusiasm for involvement (Terrell, 2012).

### **3.3 Method justification**

The aim of this study project was to determine the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu Municipality in KwaZulu-Natal. The methodological strategy of this study was created by considering the significance of the variables under investigation and the specific group of individuals being studied. There exists a substantial body of literature on research endeavours employing questionnaires to assess knowledge and awareness pertaining to waste management (Desa *et al.*, 2011). This study utilised these resources to create an appropriate asset for this project. The researcher employed a mixed methodology due to the project's emphasis on validating the waste management awareness of

small business owners. Specifically, the study aimed to ascertain the understanding of small businesses owners as waste generators regarding waste management.

### **3.3.1 Research design**

A research design is a systematic and structured plan or framework that describes the entire process of conducting research. It serves as a model for how to conduct a study, from formulating the initial research questions or hypotheses to collecting and analysing data and reporting the results. This project utilised the following design to conduct the research:

#### **3.3.1.1 Research aim**

To determine the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu Municipality, KwaZulu-Natal.

#### **3.3.1.2 Sampling**

The sample size was established based on a combination of practical considerations and statistical principles. To collect data, a statistical power analysis was conducted to determine the sample size needed to detect significant results with a satisfactory level of confidence. The total number of 223 (population size) small businesses in this area was obtained from the Local Economic Development Department of this municipality, which was utilised to determine the sample size. A sample of 143 study participants was calculated and recruited to determine the regulatory awareness and knowledge of small business owners in the Nquthu Municipality. This sample size was determined based on the confidence level of 95% with margin of error at 5% using the SurveyMonkey sample calculator. The 95% confidence level is a widely employed criterion in research, signifying that if the study were replicated numerous times, the estimated confidence interval would encompass the true population parameter in 95% of the instances (Hunter, 2016). The researcher employed a non-probability sampling method by selecting the participants based on their easy accessibility- convenience sampling. The small business owners needed to have an employee size of 1-20 employees and be a permanent resident within the Nquthu Municipality. The study did not have any restrictions as to which specific type of small business it aimed to investigate, however the business owner was required to be part of the population list of 223 owners received from the Municipality.

#### **3.3.1.3 Questionnaire development**

The questions developed aimed to assess the purpose of this study by extracting relevant information from the legislative documents used in this project, which were NEMWA (Act 59 of 2008), the NWMS 2020, the Norms and Standards for Storage of Waste (GNR 926 of November

2013), and Municipal Solid Waste By-laws. The researcher highlighted the requirements of each document and used previous research publications related to the awareness and knowledge of small business owners to develop questions that provided a clear understanding of the small business owners' awareness of waste management, what is expected, and how. The researcher also developed questions to determine the demographic information of the small businesses, which was necessary for this research as it provided critical context, which assisted the researcher in making meaningful comparisons, enhanced the generalizability of findings, supported informed decision-making, and addressed ethical considerations. The formulated questionnaires were peer reviewed by two Masters of Environmental Management graduates from the University of KwaZulu-Natal (Pietermaritzburg) and discussed with the Supervisor of this project.

#### **3.3.1.4 Piloting**

A pilot study was conducted to actively identify and resolve potential challenges related to the clarity, length, or phrasing of the questions in the research questionnaire. However, pilot study indicated that there were no notable difficulties encountered in responding to the questions, as they were also rendered into the native language (IsiZulu). The comprehensive approach ensured that participants thoroughly understood and actively participated in the questionnaire, leading to no required changes to its content or organisation. As a result, the questionnaire was considered appropriate for the research study.

#### **3.3.1.5 Administering the questionnaire to the research participants**

The Nquthu Local Municipality was solicited for authorization to conduct the questionnaire among the selected small company owners or managers. Each participant received consent forms, as presented in Annexure A, to confirm agreement to take part in the study. The study focused on 200 small businesses, of which 143 agreed to participate. Table 3-2 displays the demographic data of the small businesses and corresponding owners or administrators. The researcher elaborated on the study's aim and the inquiries outlined in the questionnaire. This provided an opportunity to directly discuss issues contributing to the quality aspects of the method. Both the consent forms and questionnaires were translated from English to IsiZulu so respondents could fully understand the context and respond accordingly.

#### **3.3.1.6 Data collection**

Mixed method data collection entails the concurrent utilisation of both quantitative and qualitative methodologies to acquire data. This strategy integrates quantitative data from formal instruments, such as questionnaires, with qualitative insights obtained through semi structured questions. By

combining both methodologies, researchers can achieve a holistic comprehension of the research subject, encompassing both the wide range and detailed aspects of information (Ivankova & Creswell, 2009). For this study, the data was gathered after the small business event sessions conducted at the VA Makhoba Hall, which were arranged by the Local Economic Development Department of the Nquthu Municipality between April 2023-June 2023. The information gathered from an administration of hardcopy questionnaires (Annexure B) to small business owners in Nquthu Town was consolidated using Excel spreadsheets.

### **3.3.1.7 Data analysis**

Mixed method data analysis refers to the process of combining and examining both numerical and descriptive data gathered during a research investigation. The procedure usually commences with the individual examination of each data type (Bergin, 2018). After the participants completed answering the questionnaires, the researcher collected the results and proceeded to input the data into Excel spreadsheets for further analysis. The collected data was then subjected to descriptive analysis, which entailed evaluating the outcomes in relation to percentiles. Descriptive statistics represented in percentiles offer insights into the relative position of a specific value within a dataset. Percentiles offer a means to comprehend the distribution of data and pinpoint significant values within the collection. They are especially valuable for comparing individual data points to the overall distribution and for detecting outliers or extreme values (Nick, 2007). To enhance visual representation, the findings were graphically presented using bar graphs and summarised in a table format. The ultimate objective of this study was to gain insights into the regulatory awareness and knowledge levels of small business owners in the Nquthu Municipality, shedding light on potential areas of improvement and informing targeted interventions aimed at assisting and supporting these businesses.

### **3.3.1.8 Data reporting**

The results of the questionnaire were presented comprehensively in tables and graphical representations. This approach aimed to improve the clarity and accessibility of the results, allowing for a better understanding of the data collected (Shankar, 2004).

### **3.3.2. Selection criteria**

This section provides the selection criteria for the research study area:

- The town/plaza area of this community required numerous small businesses selling goods and products to the community to study awareness regarding waste management.

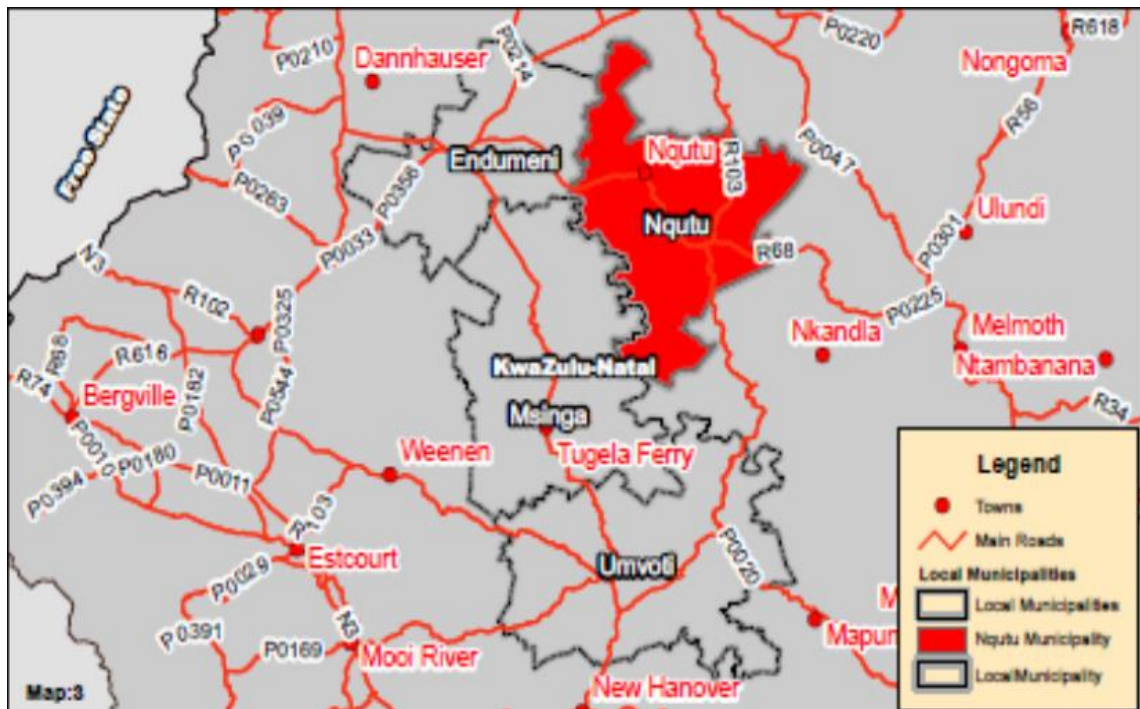
- For the researcher to conduct the research questionnaire, he needed to have geographical access to the study area. In rural areas, there tend to be geographical restrictions such as mountainous areas where buildings can be built.
- It was required that there were small business owners in this region who were representative of this study and were sufficiently motivated to be research participants in this study.
- Study participants needed to be able to participate in possible secondary research sessions.

Although there are many areas within the province and in the country which met this selection criteria, Nquthu Municipality was selected for the geographical convenience of the researcher. Additionally, the researcher's current location is in Nquthu and therefore has noted the waste management challenges, particularly within small businesses regarding waste management awareness. The Municipality prioritises awareness programs for households and in school activities but not lack in providing such for small businesses. The research conducted in the Nquthu municipality holds the potential for substantial practical consequences, which can benefit local communities and provide valuable insights for waste management policies and practices. Through the examination of practical issues, such study has the potential to enhance the quality of life for individuals and promote the adoption of environmentally friendly waste management methods.

### **3.3.3. Nquthu Municipality description**

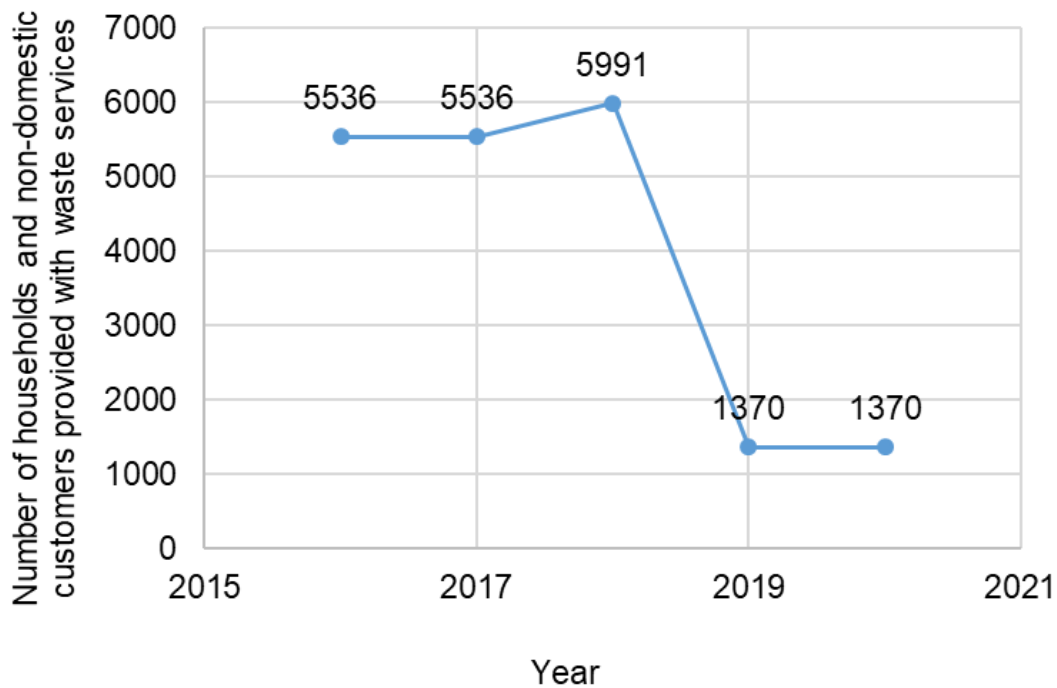
Nquthu Municipality was established according to Section 155 (1) of the Constitution of the Republic of South Africa. It is one of the four municipalities that fall under the uMzinyathi District Municipality which is located within central KwaZulu-Natal covering approximately an area of 1 962 km<sup>2</sup>, predominantly consisting of rural communities. Nquthu local municipality is found within the North-East perimeters of KZN and share borders with neighbouring local municipalities as shown in figure 3-1 (Nanga Development Consultants (PTY) LTD, 2023).

- Emadlangeni local municipality under Amajuba District Municipality and Abaqulusi LM within Zululand DM are located on the north borders.
- Ulundi LM is situated on the east border within the Zululand DM
- Nkandla LM within the south border under King Cetshwayo DM
- Endumeni and Msinga LM are to the west borders of which both are located within the uMzinyathi DM which are adjacent municipalities to Nquthu LM.



**Figure 3-1: Nquthu Local Municipality (extracted from (Nanga Development Consultants (PTY) LTD, 2023)**

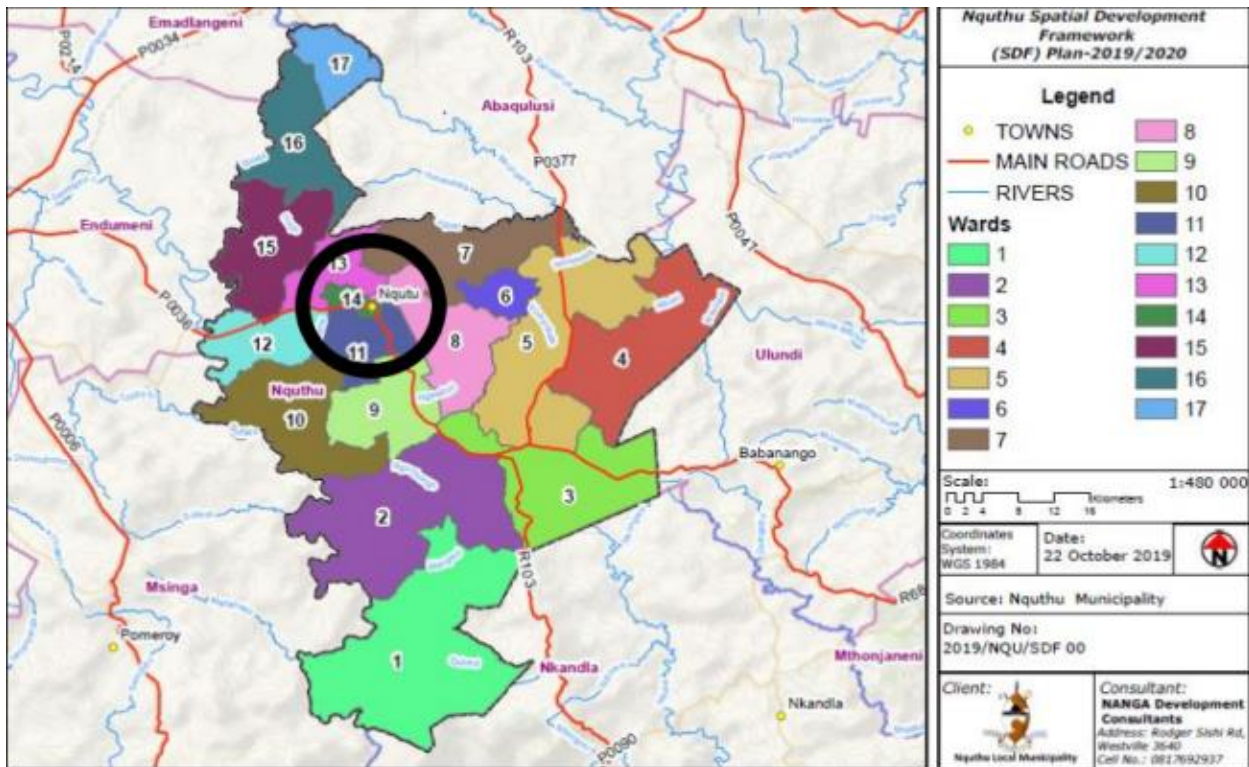
This Municipality is led by the Cllr IL Shabalala and deputy mayor Cllr MR Ngobese with a total population of 171 325, where majority of the population is between the ages of 15-64 (Cogta, 2021). The municipality provides waste services to households and non-domestic customers which in this context include small businesses. Figure 3-2 below shows the number of households and non-domestic customers to which services were provided for over the period of 4 years, from 2016-2019 (Municipalities of South Africa, 2015). The figure depicts a drastic decline in provision of these services form 2018, suggesting that the municipality experiences shortage of resources leading to communities and small businesses improperly handling waste.



**Figure 3-2: The number of households and non-domestic customers provided with waste services annually in the Nquthu Municipality (extracted from Municipalities of South Africa, 2015).**

#### **3.3.4. Study area description**

The research study area is located within the perimeters of Nquthu Town, also known as the Plaza, which is situated on Erf 100 Nquthu. The town is divided into four by R68 (P36-1), P36-2 and P54. Nquthu has a total of 17 wards in which the town is sited in ward 14, as shown in figure 3-3 indicated by the black circle (Nanga Development Consultants (PTY) LTD, 2023). Nquthu town area is surrounded by the Batshe River, Luvisi, Mangongoloza, Qedusizi, and Good Hope settlements. The town is reachable through the R68 (P36-1) from Dundee, through R68 from Babanango, P36-2 from Ulundi or Vryheid and through P54 from Mondlo or Vryheid as well. Majority of the small businesses in Nquthu are in town and therefore the research study will be conducted there as shown in figure 3-3 (Nanga Development Consultants (PTY) LTD, 2023).



**Figure 3-3: Nquthu Town/Plaza (extracted from Nanga Development Consultants (PTY) LTD, 2023).**

**3.3.5. Mixed method as an approach of investigation.**

A mixed method approach was the most appropriate tool to use to effectively determine the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu Municipality. The development and distribution of a structured questionnaire to participants enabled the collection of reliable data from a large sample of small businesses operating in the area. The administration of the questionnaire provided participants with clear and concise questions that could be answered effectively. This helped maximize response rates and gather meaningful feedback within the study timeframe. The use of a uniform questionnaire also facilitated the systematic collection of comparable responses (Neuert *et al.*, 2021) that were easy to analyse and interpret. This method further maintained the objectivity and fairness of the study by ensuring that all participants received identical information and response options (Dalati & Marx Gómez, 2018). This standardized approach minimised the potential for variability, bias, or subjective interpretation associated with mixed methods.

**3.3.6. The purpose of piloting the questionnaire.**

The purpose of conducting a pilot study was to determine the feasibility of the method utilised in this study and to observe whether it would achieve the research aim (Van Teijlingen & Hundley, 2001). A pilot study provides important information for assessments, minimizing needless efforts

from researchers and respondents and saving resources used during investigations (Van Teijlingen & Hundley, 2001). In this study, a structured questionnaire was piloted to determine whether the participants would be able to comprehend the contents of the questions. Since Nquthu Municipality is mainly dominated by rural areas, most of the residents have language barriers. Understanding English was a limiting factor. Therefore, the researcher investigated 20 small businesses to check understanding of the questions. To assist with understanding, the researcher translated all statements, questions, and responses from English to IsiZulu. The results of this pilot study were not included in this dissertation.

### 3.3.7. Determining the representative sample

A representative sample is a subset of the population being studied that accurately represents the characteristics of the larger population (Frick *et al.*, 2004). In this study, the SurveyMonkey sample size calculator was used to determine the representative sample. The total number of small businesses in Nquthu, which is 223, was obtained from the local municipality. The sample size was calculated to be 143, with a confidence level of 95% and a margin of error of 5%. The study specifically targeted small business owners between the ages of 20 and 65 for ethical reasons.

### 3.3.9. Demographic information of the small businesses, owners, or managers.

A representative sample of 143 participants was selected for the study, and all participants agreed to participate in the structured questionnaires. Table 3-2 depicts the demographic information of small businesses and small business owners or managers in Nquthu, showing variables such as gender, age, level of education, employment type, business employee size, and monthly income.

**Table 3-1: Demographic information of small businesses and owners.**

Demographic information	Number of small business owners	Percentage (%)
<b>Gender</b>		
Male	32	22
Female	111	78
<b>Age</b>		
18-25	22	15
26-35	42	29
36-45	35	24
46-55	28	21
56-65	10	7
>65	6	4
<b>Level of education</b>		
Higher education	28	20
High/ Secondary School	91	63

<b>Demographic information</b>	<b>Number of small business owners</b>	<b>Percentage (%)</b>
Primary School	17	12
Never attended school	7	5
<b>Employee size</b>		
1	44	31
2-5	52	37
6-12	15	10
More than 12	32	22
<b>Nature of the small business</b>		
Furniture shop	4	3
Fruit and vegetable containers	30	20
Fast food containers	26	17
Street vendors	19	12
Hair or Nail salons	14	9
Clothing stores	51	33
Other	9	6
<b>Small business net monthly income</b>		
<R500	49	34
R501-R1 000	31	23
R1 001-R1 500	14	10
R1 501-R2 000	12	8
R2 001-R2 500	6	4
>R2 5000	15	10
Prefer not to say	16	11
<b>Total</b>		

### 3.4 Ethical considerations

Research studies should prioritise the safeguarding of human subjects during investigations. This is accomplished by adhering to a predetermined set of ethical norms that govern the research aims, methodology, and practices (Arifin, 2018). The ethical criteria encompassed in this study consist of informed permission, voluntary involvement, confidentiality, anonymity, potential damage, and effective communication between the researcher and the participants (Arifin, 2018). This study focused on small enterprises led by owners or managers, excluding businesses operated by minors, individuals with speech impairments, or elderly adults. A research proposal was submitted to the Faculty of Natural and Agricultural Sciences at the North-West University, Potchefstroom campus. The proposal sought approval from the Faculty of Natural and Agricultural Sciences Ethics Committee. The committee granted the researcher permission to conduct the study, assigning it the ethics number NWU-01214-23-A9. The research methods were accepted and adhered to the university's standards outlined in the academic norms that Masters and PhD students are obligated to follow. The study was deemed to have minimal risk as all participants were provided with consent forms and informed of freedom to withdraw from the trial at any time.

### **3.5 The development of the questionnaire**

The questionnaire was developed to determine the regulatory awareness and knowledge of small business owners regarding waste management regulations. The researcher used information from various legislation and guidelines, including the National Environmental Waste Management Act 58 of 2008, National Waste Management Strategy 2020, norms and standards for waste storage (GNR 926 of November 2013), and Municipal solid waste by-laws. These key points were identified from the waste management legislation and incorporated into the development of the questionnaire.

The identification of requirements: the questionnaire included items that explicitly referred to the specific requirements stated in the legislation and guidelines. For instance, the questionnaire examined small business owners about knowledge regarding responsibilities as waste generators, including the need to separate waste, keep it in specified containers, and ensure appropriate disposal.

The questionnaire evaluated the level of comprehension that small business owners had regarding the requirements and regulations outlined in the pertinent papers. This entailed inquiring about their understanding of waste management protocols, regulatory obligations, and consequences for failing to comply.

Questions also addressed the extent to which small business owners are cognisant of the norms and requirements outlined in the rules for waste storage. This may involve questions regarding their knowledge of trash container specifications, labelling regulations, and safe storage protocols.

The questionnaire investigated the extent to which small business owners were familiar with the waste management by-laws and the municipal solid waste by-laws that are relevant to the municipality.

Compliance Assessment, furthermore, the questionnaire contained elements designed to evaluate the endeavours of small business owners in adhering to waste management standards. This entailed inquiries regarding present waste management protocols, any actions made to comply with regulatory mandates, and obstacles encountered in achieving adherence to compliance standards.

An essential aspect for understanding and improving waste management outcomes is the relationship between the awareness, knowledge, and practices of small businesses regarding waste management. Awareness and knowledge are fundamental factors that shape the adoption

and execution of sustainable waste management strategies (Desa *et al.*, 2011). Small business owners that possess knowledge of waste management legislation, guidelines, and best practices, and can understand and comply with them, are more inclined to adopt suitable waste management methods in their operations (Desa *et al.*, 2011).

Furthermore, the questionnaire developed for this study was designed not only to assess small business owners' regulatory awareness and knowledge regarding waste management but also to investigate how this awareness influences their waste management practices. The study intended to detect any disparities or deficiencies between awareness and behaviour by analysing the correlation between awareness and real waste management methods. This analysis can offer significant perspectives on the factors that influence waste management practices among small businesses and identify specific areas where focused interventions or educational initiatives may be required to enhance waste management outcomes.

The researcher successfully assessed small business owners' comprehension and adherence to waste management requirements by ensuring that the questionnaire material was directly related to the aim of the study.

### **3.6 Methodological assumptions and limitations**

- **Participant Comprehension:** It is assumed that the participants possess a comprehensive knowledge of the questions presented in the questionnaires. It is presumed that the questions are formulated in a concise and comprehensible way, and that the participants have the relevant literacy and comprehension abilities to provide accurate responses.
- **Honest Responses:** It is expected that the participants provide truthful and precise answers to the questionnaire prompts. This presupposes that the participants are intrinsically driven to answer honestly and do not furnish answers that are influenced by personal biases or conforming to societal expectations.
- **Questionnaire Validity:** It is assumed that the questionnaire utilised in the study is a reliable tool for assessing regulatory awareness and knowledge among small business owners. It is presumed that the questionnaire items precisely capture the pertinent concepts and proficiently evaluate the targeted variables.
- **Response Bias:** There is a possibility of response bias, when participants may give answers that they believe are socially desirable or that match their perceived level of knowledge. This might lead to an overestimation or underestimating of regulatory awareness and knowledge.

- **Insufficient Contextual Comprehension:** Questionnaires may not possess the capacity to capture the contextual elements that influence the awareness and knowledge of regulations among small business owners. This strategy may not sufficiently address factors such as socio-economic background, educational attainment, and information accessibility.

### **3.7 Chapter summary**

In Chapter 3, the researcher outlined the methodology employed to accomplish the study's aim. The text included a concise summary of the study methodology employed—a mixed method approach—and elucidated the strategies employed. The rationale for employing this strategy in the investigation was accompanied by the research design. The study was conducted at Nquthu Town/Plaza, and selection criteria were applied to achieve a comprehensive investigation. The Nquthu local municipality and its annual waste services for both households and non-domestic clients were also discussed. The investigation implemented a mixed method as the research methodology, comprising open- and closed-ended questions distributed to small business owners or managers who participated. The collection of data spanned from April 2023 to June 2023, and it was subjected to analysis utilising descriptive statistics, which will be showcased in the subsequent chapter.

## **CHAPTER 4 RESULTS AND DISCUSSION**

### **4.1 Introduction.**

Chapter 4 presents the results of the study and the analysis of the results. Section 4.2 presents the findings of the awareness and knowledge of small business owners regarding the National Environmental Management Waste Act (Act 59 of 2008), and Section 4.3 presents the findings of the awareness and knowledge of small business owners regarding the National Waste Management Strategy 2020. The following section 4.4 discusses the results of the awareness and knowledge of small business owners regarding the norms and standards for the storage of waste (GNR 926 of November 2013). The following section 4.5 elaborates on the awareness and knowledge of small business owners regarding Municipal solid waste by-laws. The final section, Section 4.6, presents the awareness and knowledge of small business owners regarding municipal solid waste by-laws.

### **4.2 Results related to awareness and knowledge of small business owners regarding the National Environmental Management Waste Act (Act 59 of 2008).**

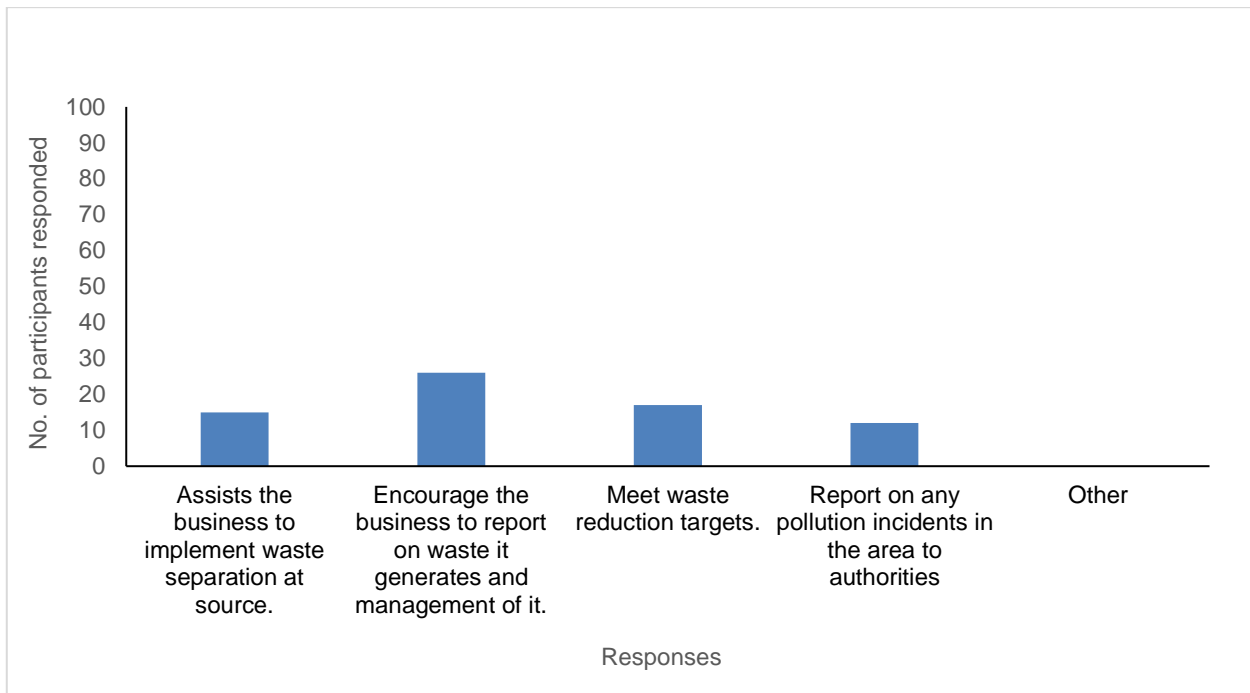
#### **4.2.1 Awareness and understanding of small business owners regarding the National Environmental Management Waste Act (Act 59 of 2008)**

The data indicated that 55% of small business owners were cognisant of and possessed knowledge about the National Environmental Management Waste Act. This implied that these business owners have familiarity with the legislation and comprehend its purpose, provisions, requirements, conscious of the responsibilities under the Act, such as waste management practices, compliance obligations, and environmental considerations associated with waste management. The awareness of the owners exhibited a proactive approach towards comprehending and adhering to the legal framework governing waste management. The results also revealed that 45% of the participants are unaware of or lack knowledge about the National Environmental Management Waste Act. This suggested that these business owners lack familiarity with the legislation and are not aware of its existence, purpose, or requirements, not be informed about the legal obligations and guidelines pertaining to waste management as outlined in the Act. The lack of awareness emphasises a potential gap in understanding the regulatory framework and the significance of complying with waste management regulations.

#### **4.2.2 Percentages of small business owners who possess knowledge of the impact of NEMWA (Act 59 of 2008) on the enterprise.**

The statistics revealed that 49% of small business owners were aware of how NEMWA influences businesses. This implied that these entrepreneurs possess understanding and awareness of the consequences of the Act on waste management practices and operations, conscious of the obligations, responsibilities, and the regulatory structure delineated in NEMWA. The awareness signified a proactive approach to comprehending and adhering to the Act to ensure appropriate waste management and environmental stewardship (Dube, 2017). Conversely, 51% of owner were unaware of how NEMWA affects businesses. This indicated that these business owners lack knowledge or comprehension of the Act and its impact on waste management practices, the owners are not aware of the legal responsibilities, obligations to comply, or the specific provisions outlined in NEMWA that relate to business operations. The lack of awareness highlighted a potential void in understanding the regulatory framework and the significance of adhering to waste management regulations as stipulated in the Act (Nkosi, 2014).

Figure 4-1 demonstrates the level of knowledge research participants have regarding specific elements of NEMWA (Act 59 of 2008) that impact businesses. This data serves as a follow-up result for those who responded affirmatively in the previous section. The findings revealed that 21% of the research participants were aware of the NEMWA's role in assisting businesses with waste separation at the source. This indicated familiarity with the provisions and requirements of the Act concerning waste segregation practices (Suchada *et al.*, 2003), acknowledged that the legislation offers guidance and support to businesses in implementing proper waste segregation and separation procedures within operations. Additionally, 37% of participants were aware that the NEMWA encourages businesses to submit reports pertaining to waste generation and management. This suggested comprehension of the Act's emphasis on transparency and accountability in waste management, recognised the significance of reporting and documenting waste generation and management practices to ensure compliance with the Act's requirements (Soundararajan *et al.*, 2018). The results further demonstrated that 24% of research participants were aware that the NEMWA establishes waste reduction targets for businesses. This indicated understanding of the Act's objective to decrease waste generation and promote sustainable waste management practices, comprehend that businesses are expected to strive towards achieving the waste reduction targets outlined in the Act. Furthermore, 17% of research participants were aware that the NEMWA mandates businesses to report any pollution incidents around the vicinity to the authorities. This indicates comprehension of the Act's provisions regarding pollution prevention and reporting obligations, acknowledged the importance of promptly reporting incidents to the relevant authorities to ensure environmental protection and adherence to regulations.



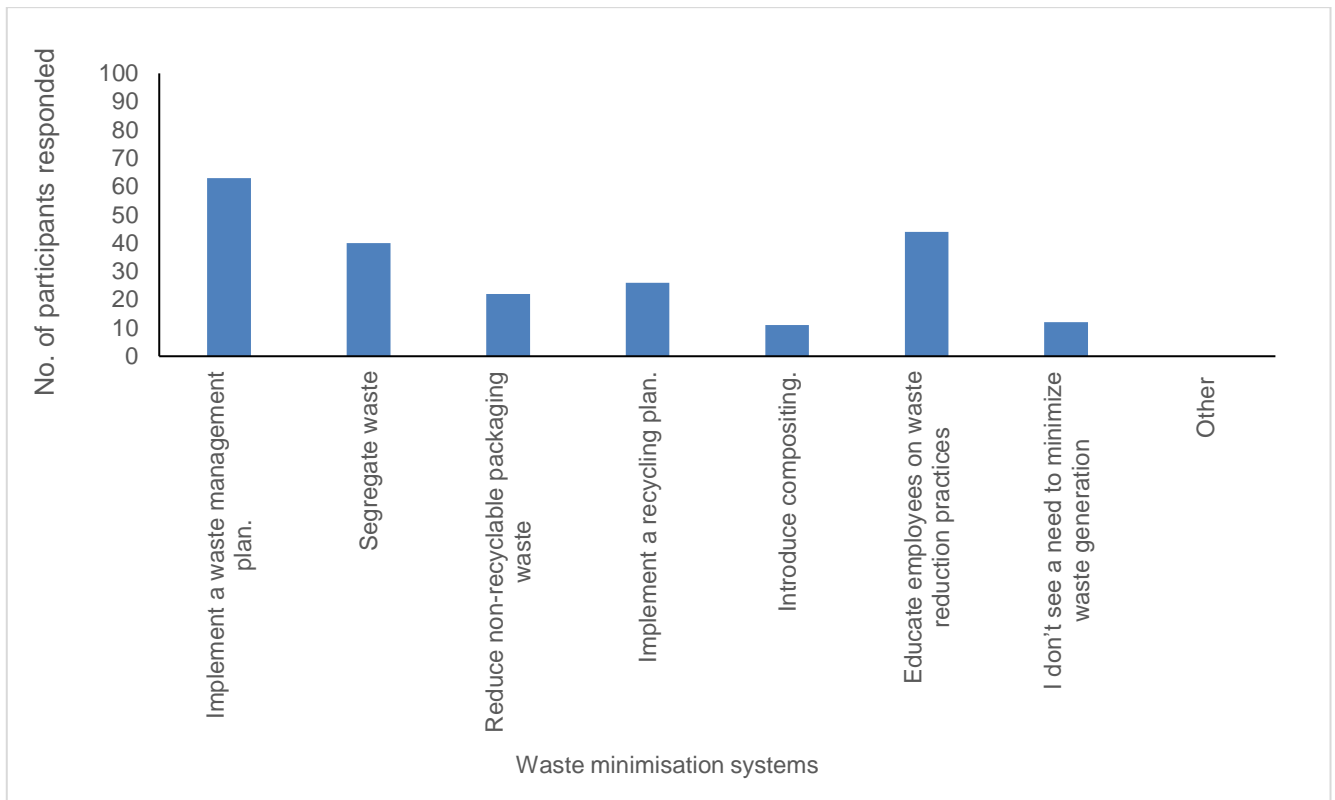
**Figure 4-1: Research participants’ awareness on which aspect of NEMWA (Act 59 of 2008) affects businesses.**

n=70, where the participants selected which aspect of NEMWA affects businesses as follows; assists the business to implement waste separation at source (15), encourage the business to report on waste it generates and management of it (26), meet waste reduction target (17), report on any pollution incidents in the area to authorities (12), other (0).

Figure 4-2 reveals the methods or approaches employed by small business owners to decrease waste production. The data demonstrated that 28% of small business owners have executed a waste control strategy. This suggests that these enterprises have devised and executed a comprehensive approach or strategy to effectively handle waste. A waste control strategy usually encompasses waste reduction tactics, waste separation practices, recycling campaigns, and proper disposal methods (Higgs & Hill, 2019). By having an organised strategy in place, these enterprises are actively striving to minimise waste production and embrace sustainable waste management practices (Higgs & Hill, 2019). 18% of the owners are segregating waste. This indicated that these enterprises have established a system to segregate different types of waste, such as recyclable materials, organic waste, and non-recyclables. Waste segregation allows enterprises to divert recyclable materials from the waste stream, thereby reducing the overall volume of waste sent to landfills and promoting recycling endeavours. 10% of small business owners are focusing on reducing packaging waste that cannot be recycled. This suggests that these enterprises are actively working to minimise the utilisation of packaging materials that cannot be recycled or are not environmentally friendly. By adopting alternative packaging options

or reducing excessive packaging, these enterprises aim to decrease the amount of waste generated from packaging materials (Song *et al.*, 2015).

The data reveals that 16% of small business owners have executed a recycling plan. This suggested that these enterprises have established procedures and practices to collect, sort, and recycle waste materials that can be recycled (Higgs & Hill, 2019). By actively participating in recycling programs, these enterprises contribute to the circular economy by diverting recyclable materials from landfills and promoting resource conservation (Woodard, 2021). 5% of the owners have implemented composting. This means that these enterprises are implementing composting systems to manage and recycle organic waste materials. Composting allows for the conversion of organic waste into nutrient-rich compost, which can be utilised to enhance soil and promote sustainable gardening or landscaping practices (Tognetti *et al.*, 2007). 20% of the participants are educating employees on waste reduction practices. This indicated that these enterprises recognise the importance of employee engagement and awareness in waste management endeavours. By providing education and training on waste reduction, these enterprises aim to cultivate a culture of sustainability, encouraging employees to actively participate in waste reduction initiatives (Andrews *et al.*, 2002). However, the data shows that 5% of small business owners do not perceive a need to minimise waste production. This suggests that these enterprises do not prioritise or acknowledge the significance of waste reduction effort and cannot comprehend the environmental or economic benefits of minimizing waste production.

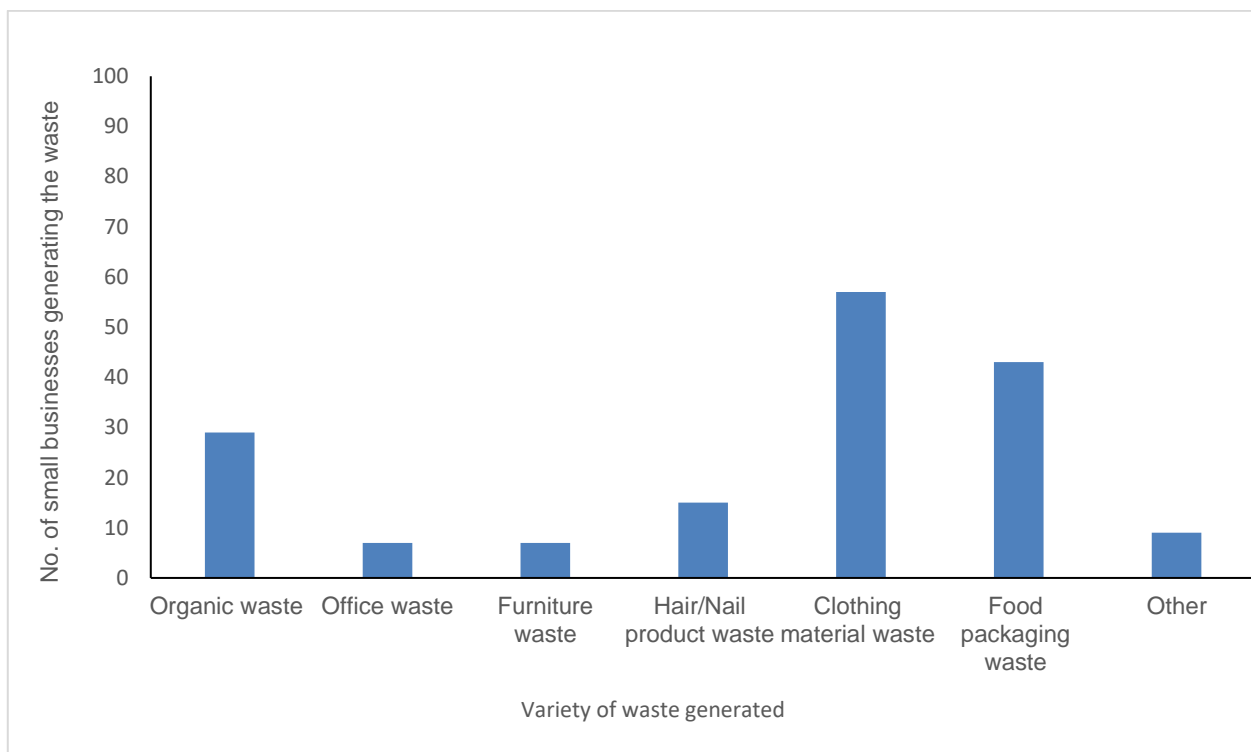


**Figure 4-2: Systems in place that small business owners utilise to minimise waste generation.**

n=143, where the research participants selected the systems utilised as follows; implement a waste management plan (63), segregate waste (40), reduce non-recyclable packaging waste (22), implement a recycling plan (26), introduce compositing (11), educate employees on waste reduction practices (44), I don't see a need to minimise waste generation (12), other (0).

Figure 4-3 illustrates the variety of waste that small businesses produce. The data revealed that 17% of small businesses produce organic waste. Organic waste commonly encompasses biodegradable substances such as leftover food, plant material, and other organic matter. Effective management of natural waste often involves composting or alternative methods of converting it into soil amendments rich in nutrients (Tognetti *et al.*, 2007). The data indicated that 4% of small businesses generate office waste, a low percentage of this type of waste arose from the minority of internet cafes in Nquthu that would generate office waste. The data revealed that 4% of small businesses generate furniture waste. Furniture waste refers to discarded or unwanted furniture items, such as chairs, tables, desks, or other furnishings that are no longer in use or have reached the end of lifespan. The data indicated that 9% of small businesses generate waste related to hair or nail products. This could include items such as hair trimmings, used nail polish bottles, nail filings, or other waste materials associated with hairdressing or nail salons. The data suggested that 34% of small businesses generate clothing material waste. Clothing material waste includes discarded or unwanted textiles, fabrics, or garments that are no longer in use,

damaged, or unsellable. The data showed that 26% of small businesses generate food packaging waste. Food packaging waste refers to waste materials generated from packaging used for food products, such as disposable containers, wrappers, packaging films, or bottles. The data indicated that 5% of small businesses generate waste categorized as other. Other refers to waste generated by the small businesses not listed by the researcher, which totalled 5%, and were from selling phytochemical products, Herbalife products, and lawn mowers.



**Figure 4-3: Variety of waste generated by small businesses.**

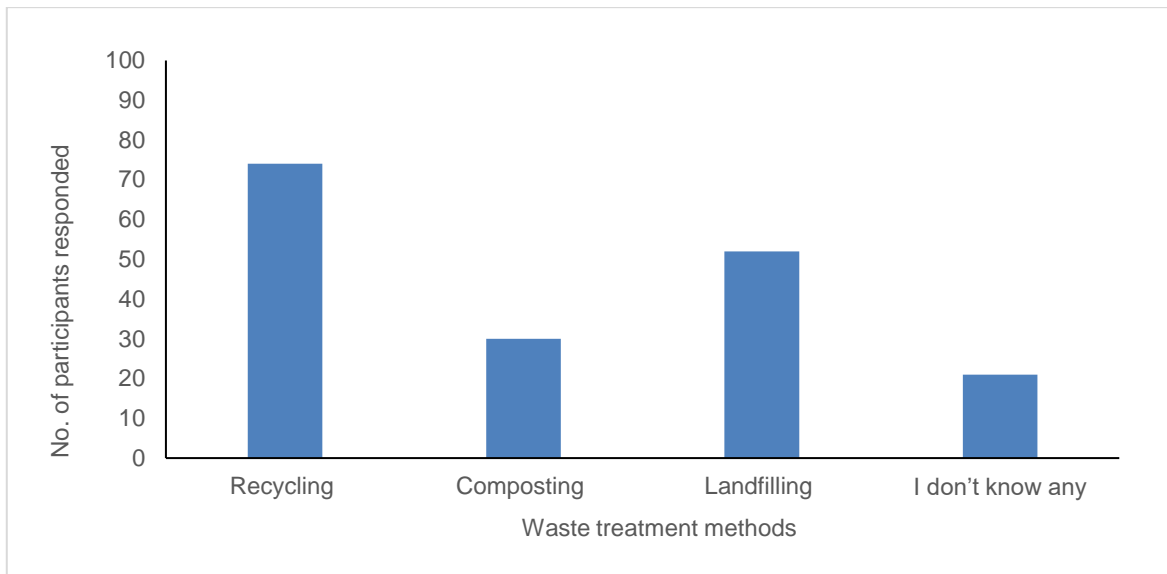
n=143, the data reflects the variety of waste generated by small businesses, highlighting different waste streams that require specific management strategies. Organic waste (29), Office waste (7), Furniture waste (7), Hair/Nail product waste (15), Clothing material waste (57), Food packaging waste (43) and Other (9).

#### **4.2.3 Regulatory awareness of small business owners in relation to waste disposal techniques**

The statistics reveal that 67% of small business owners possess knowledge about waste disposal methods. This implies that these entrepreneurs possess information and comprehension about the diverse techniques employed to manage waste, were cognisant of the various strategies and technologies accessible for waste disposal, such as recycling, composting, incineration, landfilling, or other treatment procedures (Perez-Sanchez *et al.*, 2003). The consciousness signified an understanding of the significance of appropriate waste disposal for environmental

sustainability and waste management practices. Conversely, 33% of small business owners lack awareness regarding waste disposal methods. This indicated that these business owners possess limited knowledge or understanding of the various techniques accessible for waste management, oblivious to the different disposal alternatives, advantages, or repercussions for waste management. The absence of awareness suggested a potential gap in comprehending the importance of proper waste disposal and the available choices for effectively managing waste.

Figure 4-4 below indicates the waste management techniques that small enterprises utilise in operations. The information revealed that 42% of small businesses employ recycling as a waste management technique. This implies that these businesses participate in recycling initiatives by collecting, categorizing, and processing recyclable materials. Recycling aids in diverting waste from landfills and encourages the reutilisation of materials, thereby reducing environmental impact and preserving resources (Higgs & Hill, 2019). The data indicated that 17% of small businesses utilise composting as a waste management technique. By composting organic waste, businesses can decrease waste volume, contribute to soil enrichment, and support sustainable waste management. The data suggested that 29% of small businesses resort to landfilling as a waste management technique. Landfilling involves disposing of waste in designated landfills or waste disposal sites. While landfilling is a customary waste disposal method, it is regarded as the least preferable option from an environmental perspective, as it can contribute to pollution and occupy valuable land resources (Nanda & Berruti, 2021). The data showed that 12% of small businesses were unaware of any waste management techniques. This implies that these businesses lack knowledge or awareness of accessible waste management alternatives or have not yet implemented specific waste management practices. Additionally, require education or information about waste management techniques to make knowledgeable decisions regarding waste management practices.



**Figure 4-4: Waste treatment methods small businesses apply in operations.**

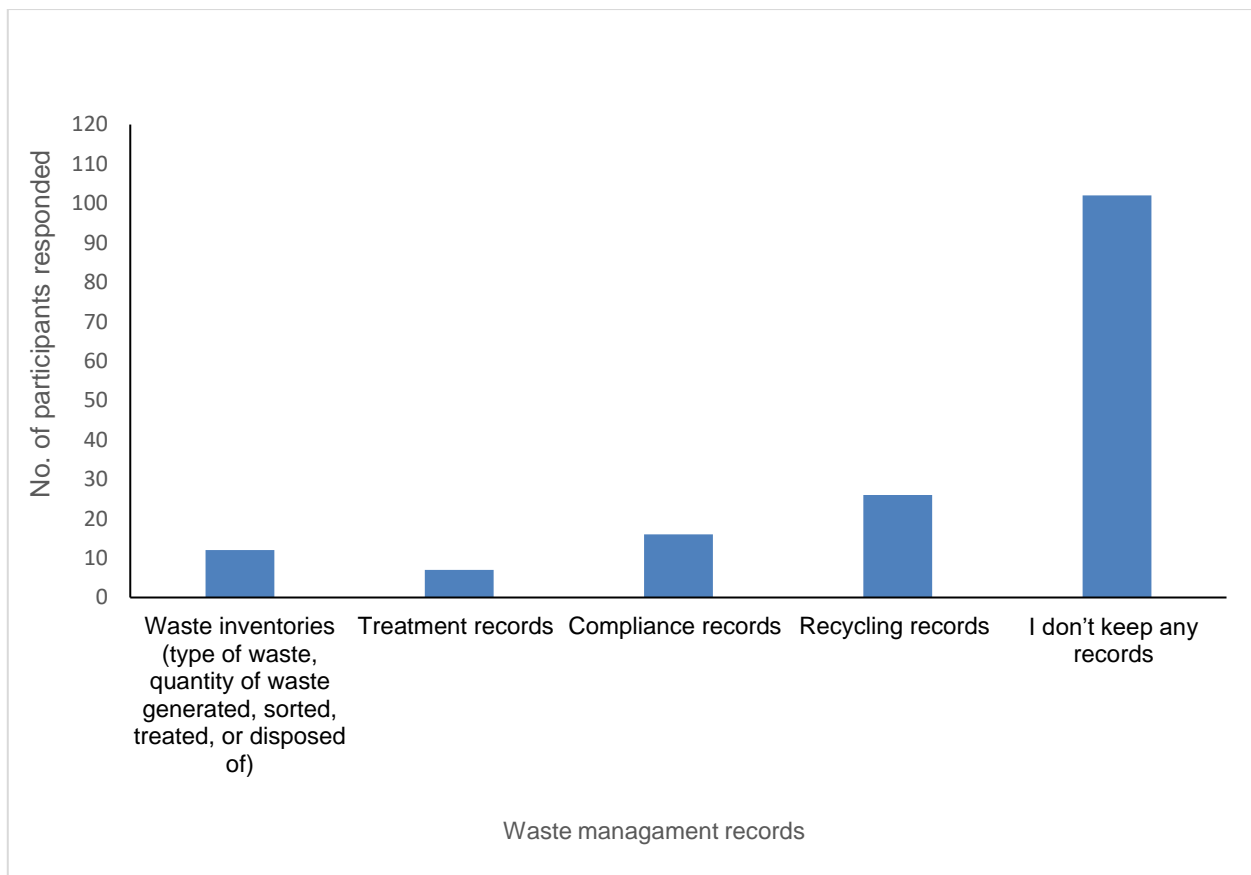
n =143, where the participants selected the methods applicable as follows; Recycling (74), Composting (30), Landfilling (52), I don't know any (21).

Figure 4-5 shows the waste management records kept by small business owners. The data revealed that 7% of small business owners maintain waste inventories. This implies that the owners keep records that provide details about the types and quantities of waste generated, as well as how it is managed, including sorting, treatment, or disposal methods. Maintaining waste inventories assists businesses in monitoring waste generation patterns, identifying opportunities for waste reduction or recycling, and ensuring compliance with waste management regulations (Aladejebi & Oladimeji, 2019). The data suggested that 4% of small business owners maintain treatment records. This indicated that these businesses keep records specifically related to the treatment of waste. Treatment records include information about the methods used to treat waste, such as recycling, composting, or other treatment processes. Keeping treatment records enables businesses to monitor and document waste treatment activities, ensuring proper management and compliance with relevant regulations (Aladejebi & Oladimeji, 2019).

The data revealed that 10% of small business owners maintain compliance records. This suggested that these businesses keep records to demonstrate adherence to waste management regulations and requirements. Compliance records include documentation related to permits, licenses, waste disposal certificates, or other relevant compliance documents. Maintaining compliance records helps businesses demonstrate commitment to fulfilling legal and regulatory obligations in waste management (Wilson *et al.*, 2015). The data indicated that 16% of small business owners maintain recycling records. This means that the owners keep records specifically related to recycling activities. Recycling records include documentation of recycling collection,

sorting, processing, or disposal methods for various recyclable materials. Keeping recycling records allows businesses to track recycling efforts, measure progress, and demonstrate commitment to sustainable waste management practices (Tennes, 1996).

The data also revealed that 63% of small business owners do not keep any records related to waste management. This suggested that these businesses have not established a systematic approach to record-keeping or do not recognise the importance of maintaining records in waste management. Without proper records, it is challenging for these businesses to track waste management practices, assess performance, or demonstrate compliance with regulations.



**Figure 4-5: Waste management records kept by small business owners.**

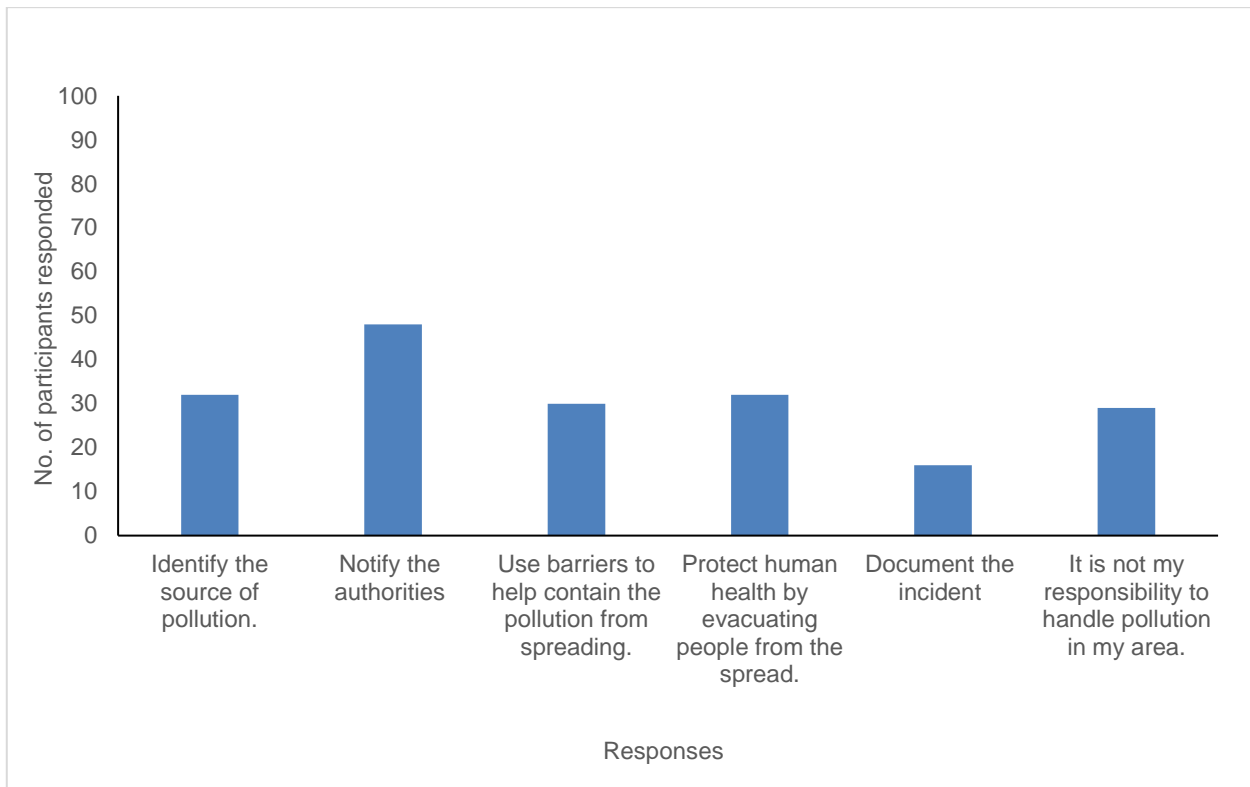
n = 143. 102 research participants do not keep records, 26 participants keep recycling records, 16 participants keep compliance records, 12 participants keep waste inventories, and 7 participants keep treatment records.

#### **4.2.4 Percentages of small business owners who report incidents of pollution or non-compliance with waste management legislation.**

The information revealed that 20% of small business owners disclose cases of pollution or failure to comply with waste management laws. Willingness to disclose such incidents demonstrates

dedication to environmental preservation, accountable waste management, and adherence to legal requirements. The data suggested that 80% of small business owners do not disclose cases of pollution or failure to comply with waste management laws. This implies that business owners do not take active measures to disclose such incidents. It is possible that owners are not aware of the reporting procedures, lack knowledge of legal responsibilities, or do not prioritise reporting as part of waste management practices.

Figure 4-6 below offers insights into various approaches regarding pollution reduction and control. The findings revealed that 17% identified the origin of pollution, which presents an opportunity to implement appropriate measures to mitigate or eliminate the pollution, addressing the underlying cause. Majority of the research participants, 25% of the participants, inform the authorities, enabling the municipality to take suitable action, investigate the situation, and enforce regulations to reduce the negative impacts. It was observed that 16% of small business owners utilise barriers to contain pollution from spreading and minimise its effects on the surrounding environment. 17% of the participants safeguard human health by evacuating individuals from incidents where pollution spills occur, thereby reducing the risk of exposure to hazardous substances and ensuring the safety of people in the affected area. 8% of the businesses document pollution incidents. Documentation provides valuable information such as the nature of the pollution, its consequences, and the steps taken, which helps to enhance future waste management practices (Hyder *et al.*, 2017). Although many small businesses implement strategies to reduce pollution and non-compliance, 16% of the participants disregard the responsibility of addressing pollution in the vicinity.



**Figure 4-6: Strategies to minimise pollution and non-compliance using waste management legislation.**

n= 143, research participants selected strategies implemented. Identifying pollution sources (32), notifying authorities (48), use barriers to contain pollution (30), protect human health (32), and documenting incidents (16), those who do not consider the responsibility to handle pollution in the area (29).

### **4.3 Results related to: Awareness and knowledge of small business owners regarding the National Waste Management Strategy 2020.**

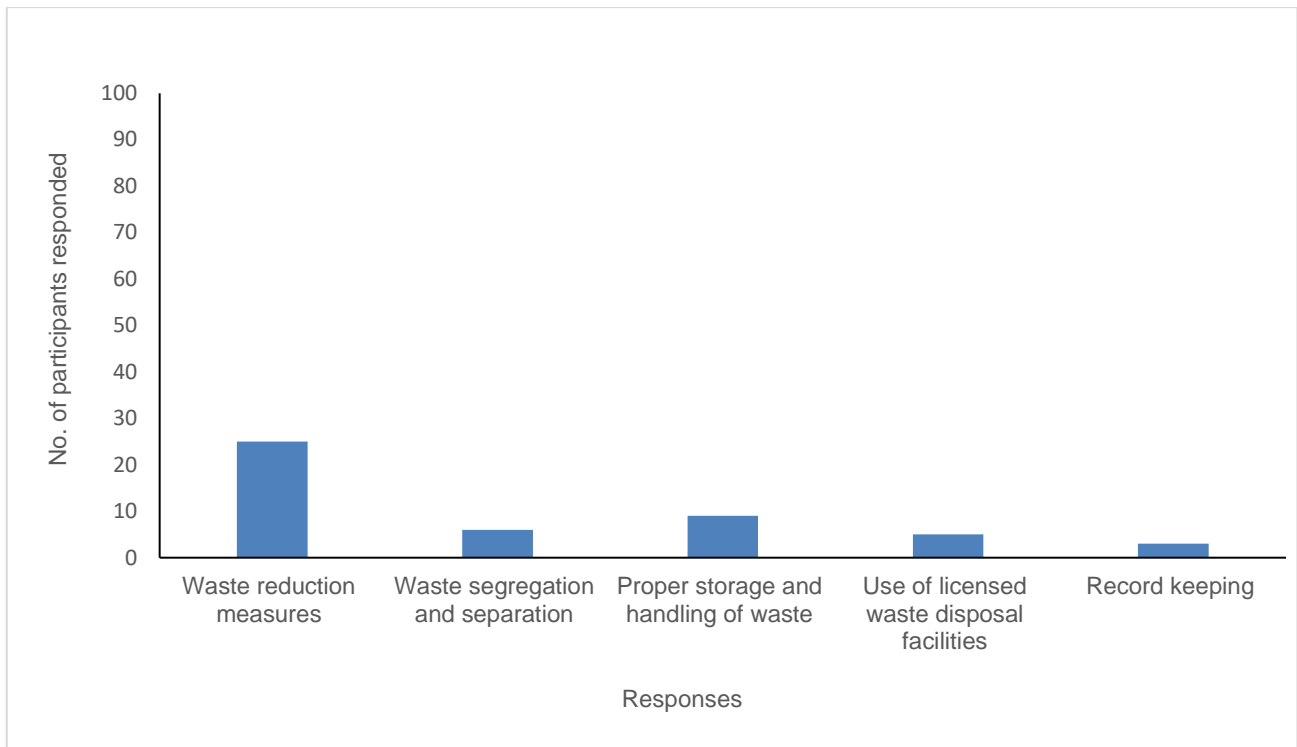
#### **4.3.1 Level of understanding among small business owners regarding the National Waste Management Strategy of 2020**

It was observed that 36% of small enterprises responded affirmatively, indicating familiarity with the strategy and its goals. However, majority of the participants, accounting for 64%, were not aware, either not informed or lack knowledge about the strategy and its contents. Despite a significant proportion of small business owners being unfamiliar with the strategy, it was heartening to note that a segment of the owners were aware, indicating a certain degree of involvement and comprehension within the group.

#### **4.3.2 Level of familiarity among small business owners regarding the application of the National Waste Management Strategy to the enterprises**

The findings revealed that 34% of the participants in the study possess knowledge and comprehension of how the strategy pertains to the businesses, indicating a clear understanding of the specific ways in which it impacts the operations. However, majority of business owners, 66%, lacked awareness or understanding of how the strategy was relevant and applicable to business activities. This deficiency in awareness implies a potential discrepancy in comprehending and executing waste management practices in accordance with the objectives of the strategy.

The results presented in Figure 4-7 depict the national waste management strategies implemented by small enterprises. The outcomes indicated that 52% of small businesses have integrated waste reduction measures as part of waste management strategies. Waste reduction measures encompass practices aimed at minimizing the quantity of waste generated initially (Jenkins, 1993). 13% of the research group engages in waste sorting and segregation. Waste sorting involves categorizing different types of waste to ensure proper handling, recycling, or disposal purposes, while segregation of waste streams allows for more efficient and effective waste management (Rousta *et al.*, 2017). It was observed that 19% adequately store and handle waste, which reduces the risks associated with waste management and ensures compliance with safety regulations. 10% of small businesses utilise authorised waste disposal facilities. Even though this is a minority, it indicates that some business owners recognise the importance of using authorised and regulated facilities to ensure safe and compliant disposal of waste. 6% of the participants maintain waste management records. This aids in monitoring waste management practices, demonstrating compliance, and identifying areas for enhancement.



**Figure 4-7: NWMS 2020 strategies small businesses apply.**

n = 143, the results demonstrate a range of approaches, including waste reduction (25), waste segregation and separation (6), proper storage and handling of waste (9), use of licensed facilities (5), and record keeping (3).

#### **4.3.3 Familiarity of small business owners with waste hierarchy principles**

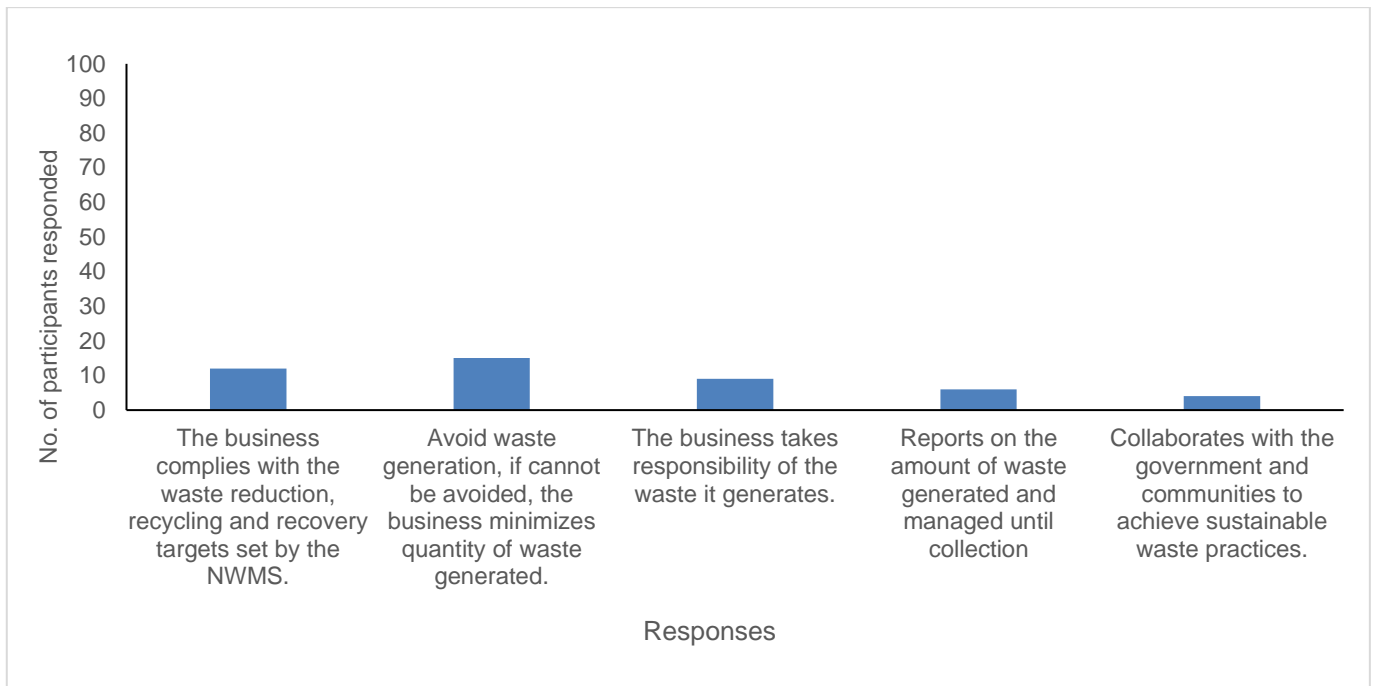
The data emphasised that majority of small business owners (64%) are uninformed about waste hierarchy principles. This implied a potential gap in understanding concerning the preferred methods for handling waste in an environmentally sustainable and responsible manner, as well as a lack of guidance when making decisions to minimise waste generation and maximize resource efficiency within business endeavours. 36% of the research participants indicated awareness of waste hierarchy principles, indicating that these individuals possess knowledge and comprehension of the waste hierarchy and its significance in waste management practices. This further enables small business owners to apply the fundamental concept of waste management that prioritises waste management strategies in the following sequence: prevention, reduction, reuse, recycling, recovery, and disposal.

#### **4.3.4 Utilisation of waste hierarchy principles by small-scale entrepreneurs.**

The findings revealed that 32% of small business owners have integrated waste hierarchy principles into waste management procedures. These individuals have made efforts to

synchronize waste management strategies with the principles of waste hierarchy, which prioritise prevention, reduction, reuse, recycling, recovery, and disposal in a specific sequence. On the other hand, 68% of small business owners have not embraced waste hierarchy principles. This implies that these individuals have not actively adopted or adhered to the waste hierarchy approach in waste management practices.

Figure 4-8 below illustrates the waste hierarchy strategies implemented by small enterprises and is a follow-up outcome of the research participants who responded positively in the previous section above. The findings indicated that 26% of the small businesses have adopted waste reduction, recycling, and recovery strategies in accordance with the targets established by the NWMS 2020, indicating that businesses are actively working towards achieving the specific waste reduction, recycling, and recovery objectives outlined in the strategy. 33% of the businesses prioritise waste prevention and minimisation. These businesses make deliberate efforts to decrease the amount of waste generated in operations. If waste generation is unavoidable, small business owners employ strategies to minimise the quantity of waste produced, thereby aiming to optimize resource utilisation and minimise environmental impact. The results showed that 20% of small businesses take responsibility for the waste generated. These businesses acknowledge the role in managing waste responsibly and ensure appropriate handling, disposal, and compliance with waste management regulations. On the minority side, 13% of the participants maintain records and report on the amount of waste generated and managed until collection, implying that the businesses monitor and document waste generation processes, providing valuable data on waste volumes, management practices, and adherence to waste management standards. Additionally, 8% of small businesses actively collaborate with government entities and local communities to promote and achieve sustainable waste management practices. The business owners recognise the importance of partnerships and collective efforts in achieving effective waste management outcomes.



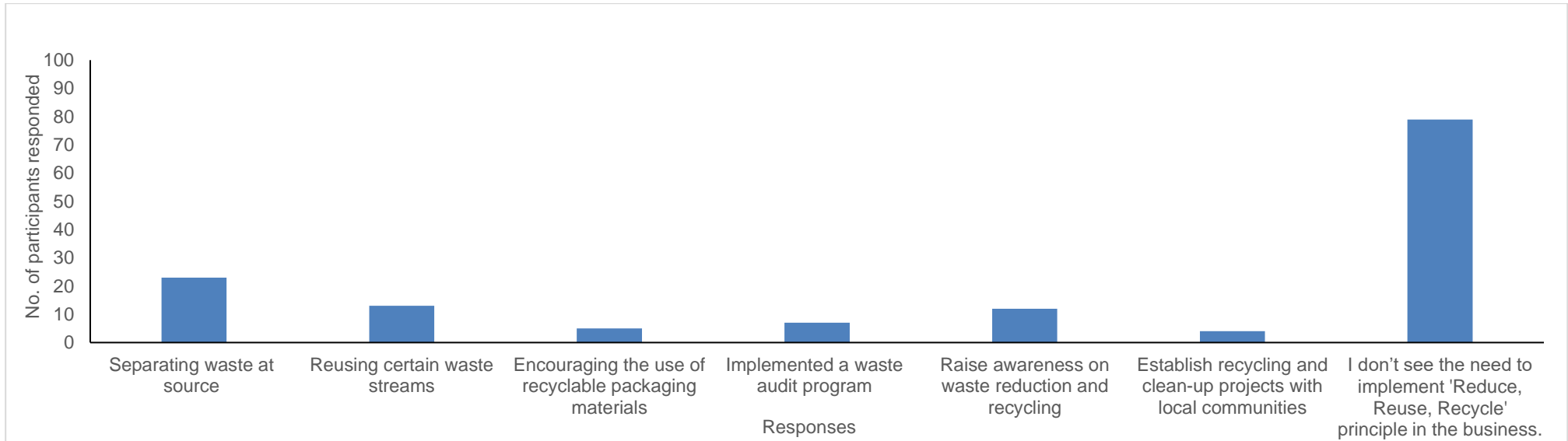
**Figure 4-8: Waste hierarchy strategy implemented by the small businesses.**

n = 46, where the research participants selected the strategies implemented. Waste reduction, recycling, recovery (12), avoid waste generation (15), take responsibility for waste generation (9), reports on the amount of waste generated (6), and collaboration with stakeholders (4).

Figure 4-9 illustrates the application of the reduce, reuse, and recycle principles by small enterprises. The findings indicated that 16% of small enterprises practice waste segregation at the origin, separate various forms of waste from the point of creation, enabling simpler and more effective recycling or appropriate disposal (Stoeva & Alriksson, 2017). 9% of the research participants engage in the reutilisation of specific waste streams. Instead of discarding certain waste materials, these enterprises discover ways to repurpose or reuse, decreasing the necessity for additional resources and minimizing waste generation. Moreover, 3% of small enterprises actively promote the utilisation of recyclable packaging materials. By encouraging the adoption of recyclable packaging, these enterprises contribute to waste reduction and support the recycling industry (Rousta *et al.*, 2017). The results indicated that 5% of small enterprises have implemented a waste assessment program. These enterprises conduct regular evaluations to assess waste generation and management practices and identify areas for improvement, enabling to make informed decisions to decrease waste and enhance efficiency. Regarding the significance of raising awareness about waste reduction and recycling, it was discovered that 8% of small business owners prioritise such educational activities.

Owners actively raise awareness about waste reduction and recycling practices, educate employees about the significance of waste reduction and recycling, encourage behavioural

changes, and promote sustainable practices. The findings further revealed that 3% of the research participants collaborate with local communities to establish recycling and clean-up projects. By engaging with the community, the enterprises contribute to environmental stewardship and foster a sense of collective responsibility for waste reduction and recycling (Njoroge *et al.*, 2014). Although there are business owners that have employed the reduce, reuse, and recycle principle, a substantial 55% of small business owners in Nquthu do not perceive the need to implement the decrease, reutilise, and recycle principle in operations. These enterprises have different perspectives or priorities regarding waste management practices.



**Figure 4-9: 'Reduce, reuse, recycle' principles applied by small businesses.**

n=143, where small business owners selected which principle applied to business operations. A portion of small businesses actively engage in waste separation (23), reuse (13), promoting recyclable packaging (5), waste auditing (7), awareness-raising (12), and community collaborations (4). However, it also highlights that some businesses do not currently see the need to implement these principles (7)

#### **4.4 Results related to: Awareness and knowledge of small business owners regarding Norms and Standards for storage of waste (GNR 926 of November 2013).**

##### **4.4.1 Knowledge of small business owners regarding the rules and guidelines for the retention of waste, referring to GNR 926 of November 2013.**

The data discloses that there is a moderately equal distribution between small business owners who are knowledgeable and those who are not knowledgeable of the rules and guidelines for the storage of waste. This indicated a notable gap in knowledge and understanding among a substantial number of small business owners regarding the regulations outlined in GNR 926 of November 2013. Specifically, the results indicated that 49% of the business owners are knowledgeable of the outlined rules and guidelines for the storage of waste, have information and comprehension of the requirements and regulations associated with waste storage practices. Knowledge of the rules and guidelines for waste storage is crucial for small business owners to ensure adherence, decrease environmental risks, and promote responsible waste management practices (Williams *et al.*, 2000). It was also observed that 51% are not knowledgeable about the rules and guidelines for the storage of waste as defined by GNR 926 of November 2013. These individuals lack knowledge and understanding of the requirements and regulations regarding proper waste retention. Lack of knowledge often leads to improper waste storage, potential dangers, and non-adherence with legal requirements (Marshall & Farahbakhsh, 2013).

The following data reflects the strategies implemented by small enterprises to conform to the regulations and standards for waste storage outlined in GNR 926 of November 2013 and is a follow-up result from the previous section, from those who responded being aware of the regulations and standards. The outcomes indicated that 17% of small enterprises possess a copy of the regulations (GNR 926 of November 2013) and take the initiative to acquaint with the requirements outlined in the regulations. These enterprises prioritise comprehending and adhering to the regulations to ensure appropriate waste storage practices. 7% of the participants perform risk assessments to identify any vulnerable areas or potential hazards in waste storage practices. By conducting these assessments, enterprises can identify areas that need improvement or corrective measures to ensure safe and compliant waste storage. The data shows that 10% of small enterprises provide training to staff members on the storage regulations, requirements, and best practices outlined in GNR 926 of November 2013. This training ensures that employees are knowledgeable about the correct storage procedures, safety protocols, and legal obligations related to waste storage. It was observed that 6% of small enterprises prioritise proper labelling of waste to indicate the specific type of waste being stored. Proper labelling assists in identifying and handling waste appropriately, preventing any confusion or mishandling (Rajendran *et al.*, 2019). 4% of small business owners maintain records of all the waste stored

on the premises. This practice helps track the quantity and types of waste being stored, ensuring accurate record-keeping, and facilitating compliance with waste management regulations.

The results also indicated that 21% of the participants designate specific areas on the premises for waste storage until it is collected by the municipality. This ensures that waste is separated and stored in designated areas, facilitating organised waste management and collection processes. 26% of business owners prioritise the safety of workers and society by ensuring that the waste storage area is secure, well-maintained, and does not pose any risks to human health or the environment. Furthermore, 9% of the participants conduct regular inspections of waste storage facilities to ensure proper functionality. Regular inspections help identify any maintenance or operational issues and enable prompt corrective action.

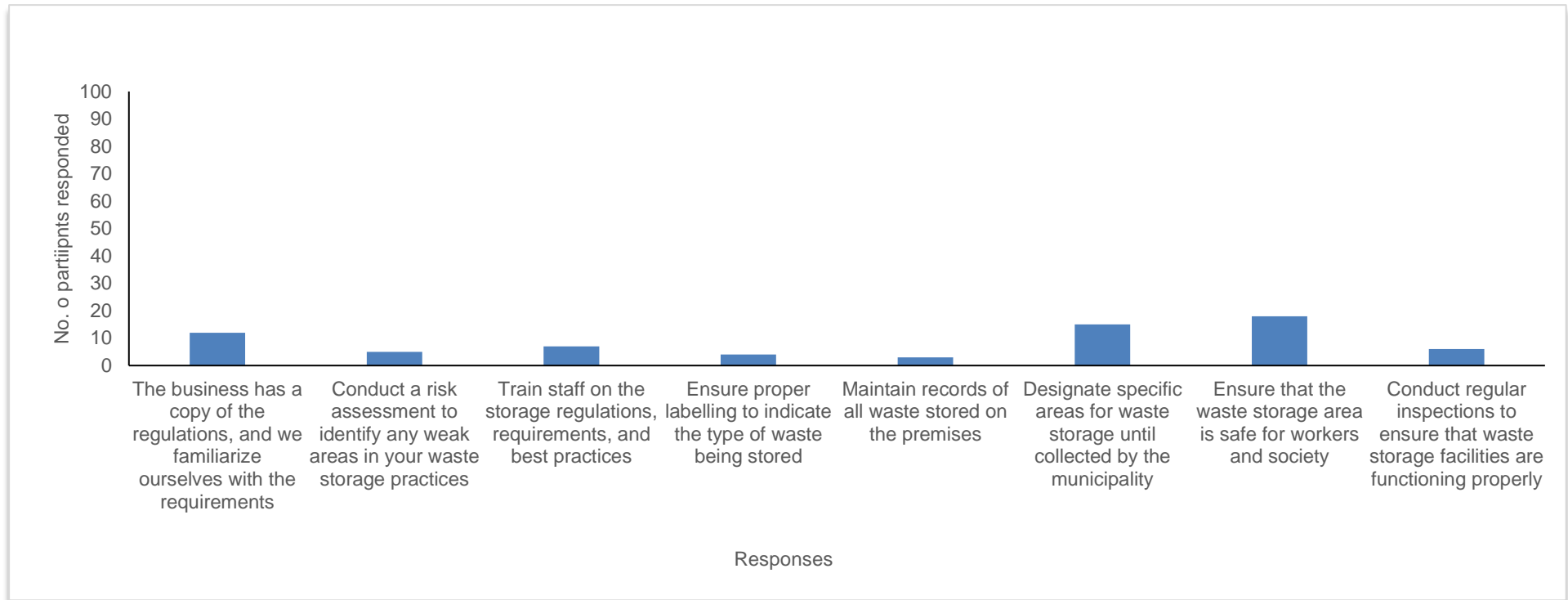
#### **4.4.2 Knowledge of small business owners regarding the rules and guidelines for the retention of waste, referring to GNR 926 of November 2013.**

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improvement or corrective measures to ensure safe and compliant waste storage. The data shows that 10% of small enterprises provide training to staff members on the storage regulations, requirements, and best practices outlined in GNR 926 of November 2013. This training ensures that employees are knowledgeable about the correct storage procedures, safety protocols, and legal obligations related to waste storage. It was observed that 6% of small enterprises prioritise proper labelling of waste to indicate the specific type of waste being stored. Proper labelling assists in identifying and handling waste appropriately, preventing any confusion or mishandling (Rajendran *et al.*, 2019). 4% of small business owners maintain records of all the waste stored on premises. This practice helps track the quantity and types of waste being stored, ensuring accurate record-keeping, and facilitating compliance with waste management regulations.

Figure 4-10 indicates that 21% of the participants designate specific areas on the premises for waste storage until it is collected by the municipality. This ensures that waste is separated and stored in designated areas, facilitating organised waste management and collection processes. 26% of the business owners prioritise the safety of workers and society by ensuring that the waste storage area is secure, well-maintained, and does not pose any risks to human health or the environment. Furthermore, 9% of the participants conduct regular inspections of waste storage facilities to ensure proper functionality. Regular inspections help identify any maintenance or operational issues and enable prompt corrective action.



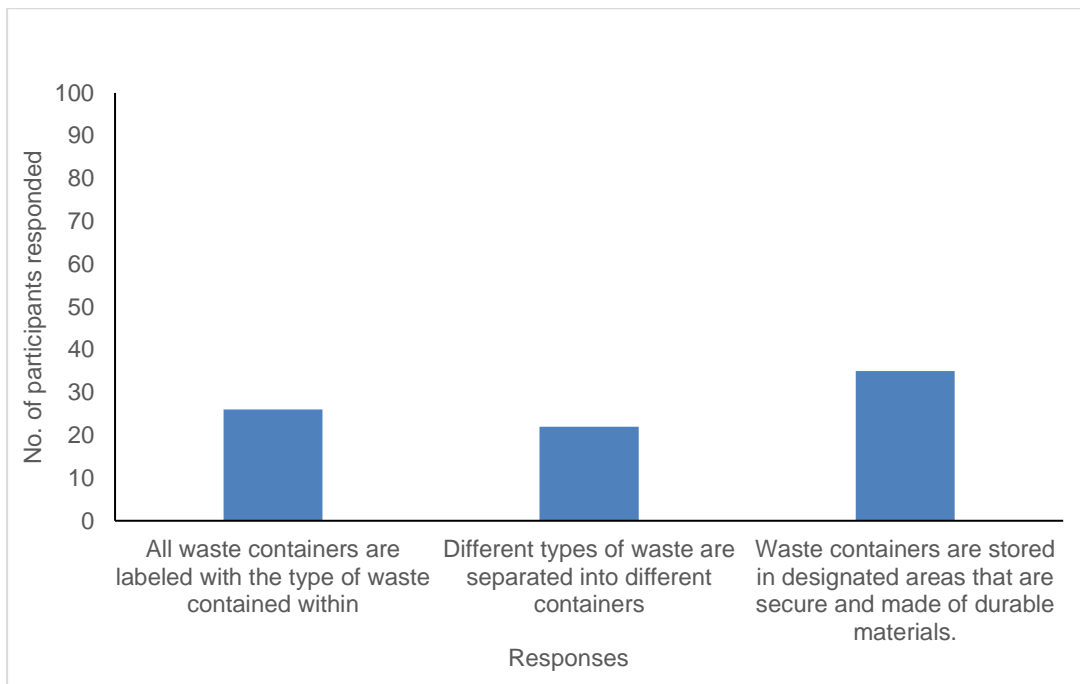
**Figure 4-10: Norms and standards for the storage of waste (GNR 926 of November 2013) practices applied by small businesses.**

n= 70 where the research participants selected the practices applied. These include obtaining and familiarizing with the regulations (12), conducting risk assessments (5), training staff (7), proper labelling (4), record-keeping (3), designated storage areas (15), safety considerations (18), and regular inspections (6). These actions contribute to ensuring safe, compliant, and efficient waste storage practices within the businesses' premises.

#### **4.4.3 Knowledge of small business owners regarding the obligations for marking, packaging, and segregating waste for storage**

The information demonstrated that 58% are cognisant of the obligations for marking, packaging, and segregating waste for storage, while 42% are not. The information revealed that a larger number of small business owners are familiar with the obligations for marking, packaging, and segregating waste for storage compared to those who are uninformed. Nonetheless, there are still a noteworthy number of small business owners who lack knowledge in this field. Familiarity with the obligations for marking, packaging, and segregating waste for storage is crucial for small business owners to ensure adherence to waste management regulations, promote safety, and minimise environmental impacts (Rajendran *et al.*, 2019). Appropriate labeling aids in determining the type of waste, packaging guarantees its containment and safeguarding, and segregation enables efficient handling and disposal. To tackle the deficiency in awareness, it is important to concentrate on education and training programs for small business owners.

Figure 4-11 reveals the approaches that small enterprises employ in accordance with the norms and standards for waste storage, as outlined in GNR 926 of November 2013. These findings are derived from the follow-up results of the previous section, which represented those who answered affirmatively to having knowledge about the requirements. The diagram below illustrates that 31% of small businesses guarantee that all waste receptacles are marked with clear indications of the specific type of waste contained within. Appropriate labeling aids in the identification and proper handling of waste, preventing any confusion or mishandling. Figure 6-4 also demonstrated that 27% of the participants segregate different types of waste into separate containers. Waste segregation is a crucial practice to prevent the mixing of different types of waste and enables the proper disposal or recycling of specific waste streams (Srinilta & Kanharattanachai, 2019). Lastly, 42% of business owners store waste receptacles in designated areas that are secure and constructed with durable materials. Storing waste in designated areas ensures organised waste management, prevents unauthorised access or tampering, and promotes safety and compliance with waste storage regulations. By adhering to these approaches, small businesses can improve waste management practices, reduce the risks associated with improper waste handling, and ensure compliance with regulatory requirements (Hillary, 2004).



**Figure 4-11: The strategies small businesses apply as per Norms and Standards for storage of waste (GNR 926 of November 2013) requirements.**

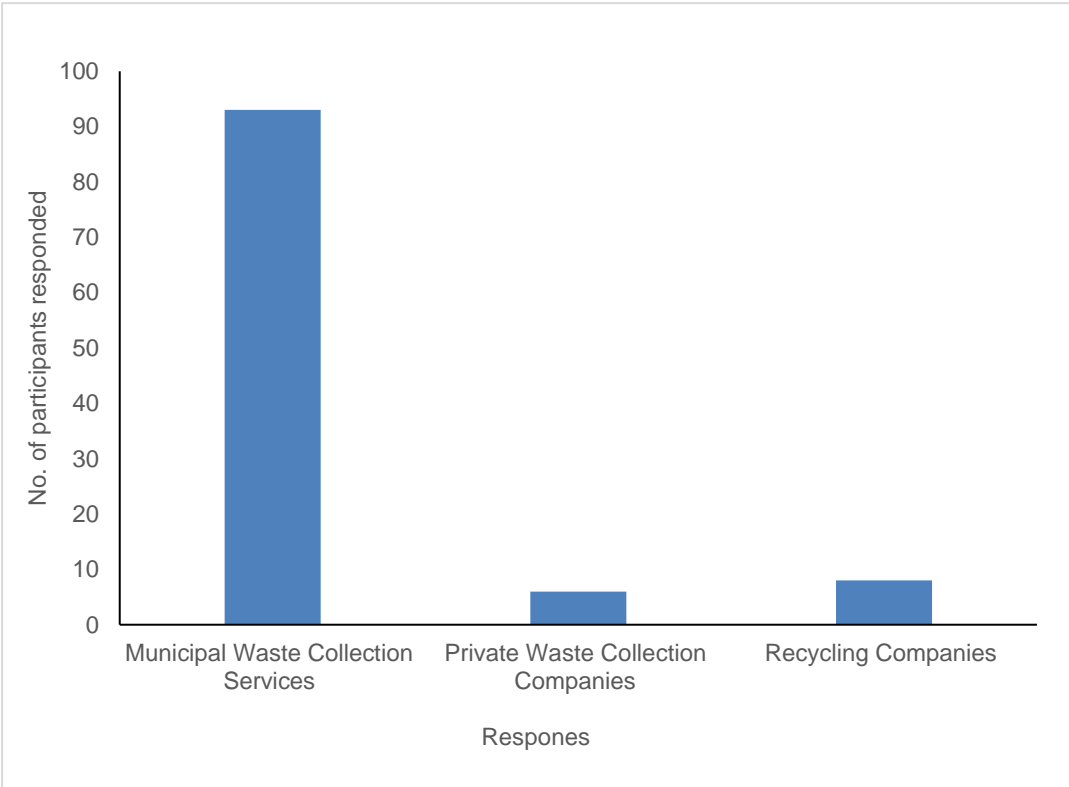
n = 143, where the participants selected labelling containers (26), waste separation (22), and waste container storage areas (35) contribute to maintaining a safe and organised waste management system.

#### 4.4.4 Knowledge of small business owners regarding waste disposal

The information indicated that majority of small business owners (75%) are conscious of waste disposal, suggested informativeness and comprehension of the procedures and methods involved in waste disposal. This include the regular collection of waste by authorised waste management services or designated collection points. On the other hand, a smaller percentage (25%) were unaware, do not possess knowledge and understanding of how waste should be disposed of, the appropriate methods for disposal, or the requirements for arranging waste disposal services. It was pleasing to note that a significant proportion of small business owners recognise the significance of proper waste disposal and are likely to practice responsible waste management.

Figure 4-12 illustrates the understanding of small business owners concerning the organizations accountable for waste collection and the follow-up outcomes from the 107 participants who responded affirmatively to being conscious of waste collection in the previous section. The results disclosed that majority of small business owners (87%) acknowledge that municipal waste collection services are responsible for waste collection. However, a smaller proportion of business owners are conscious of the involvement of private waste collection enterprises (6%) and

recycling enterprises (7%). This information emphasised the necessity for an increase in awareness among small business owners concerning the various organizations engaged in waste collection. The roles and responsibilities of municipal waste collection services, private waste collection enterprises, and recycling enterprises are essential for businesses to guarantee appropriate waste management practices. Awareness permits small business owners to make well-informed choices regarding the most appropriate waste collection services for specific requirements, ensure conformity with waste management regulations, and contribute to sustainable waste management practices (Sharma *et al.*, 2011).



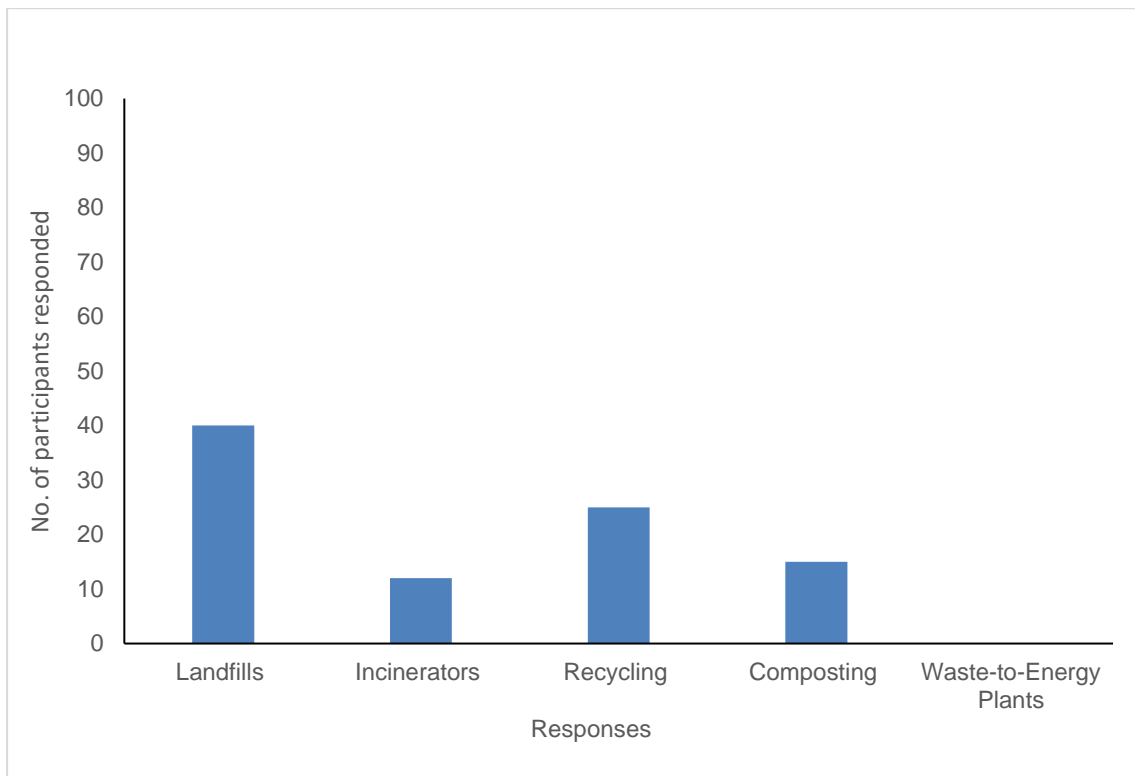
**Figure 4-12: Knowledge on who collects waste.**

n= 104, where 93 research participants selected that municipal waste collection services are responsible for waste collection, 6 were aware of private waste collection companies and 8 chose recycling companies.

The following results suggest that the majority of small business owners (64%) have knowledge about what happens to waste after it is collected, indicating that these individuals possess awareness and comprehension of the subsequent steps in the waste management process, which involve waste disposal, recycling, or other forms of waste treatment and management, while a smaller percentage (36%) are uninformed, suggesting that these participants lack knowledge and understanding of the destination or final disposal method for waste once it is collected. It was encouraging to note that a significant proportion of small business owners grasp

the importance of understanding the fate of waste after collection. Awareness of the destination and treatment methods for waste after collection is crucial for small business owners to ensure responsible waste management practices (Kilpeläinen & Happonen, 2021). Comprehending where waste goes enables businesses to make well-informed decisions regarding waste disposal, recycling, or other waste management alternatives available in the vicinity (Kilpeläinen & Happonen, 2021).

The given data in Figure 4-13 illustrates the knowledge of small business owners regarding the destinations or disposal methods for waste after it is gathered. The data demonstrated that 28% of small business owners are aware that waste frequently goes to landfills after it is collected. Landfills are designated areas where waste is discarded and buried. This technique is commonly employed for waste that is not suitable for recycling or other forms of treatment (O'Leary & Tchobanoglous, 2002). The results indicated that 8% of small business owners are aware that waste can be transported to incinerators after collection. Incineration involves the controlled combustion of waste, usually for the purpose of generating energy or reducing the volume of waste (Niessen, 2010). The data further suggested that 17% of the research participants are aware that waste can be sent for recycling after collection. Recycling involves the process of transforming waste materials into reusable materials, thereby diminishing the demand for new resources and minimizing environmental impacts (Manser & Keeling, 1996). It was observed that 10% of small business owners are aware that waste can be composted after collection, and the data shows that none of the small business owners are aware that waste can be sent to waste-to-energy plants after collection.



**Figure 4-13: Destinations of waste after collection.**

n=143, the data suggests that there is varying awareness among small business owners regarding the destinations or treatment methods for waste after it is collected. While a majority of small business owners are aware of landfills (40), incinerators (12), recycling (25), and composting (15), there is no awareness of waste-to-energy plants

#### **4.5 Results related to: Awareness and knowledge of small business owners regarding Municipal solid waste By-laws.**

##### **4.5.1 Knowledge of small business owners regarding the Municipal solid waste By-laws.**

The statistics revealed that 36% of small business owners possess knowledge about the municipal solid waste by-laws. This implied that these business owners have an understanding and awareness of the specific rules and requirements outlined in the by-laws concerning the handling of municipal solid waste, are likely to be acquainted with the duties as waste generators and cognisant of the legal obligations ought to fulfil. Additionally, the data indicated that 64% of small business owners were unaware of the municipal solid waste by-laws. This suggested that a significant portion of small business owners lack information or comprehension of the specific rules and requirements outlined in the by-laws regarding the management of municipal solid waste (Godfrey, 2008). The owners are unfamiliar with duties as waste generators and the legal obligations. The data implied that there is a necessity to enhance awareness and educate small business owners regarding the municipal solid waste by-laws. By raising awareness, businesses can gain a better understanding of roles and responsibilities in waste management, ensuring compliance with the regulations and contributing to sustainable waste practices.

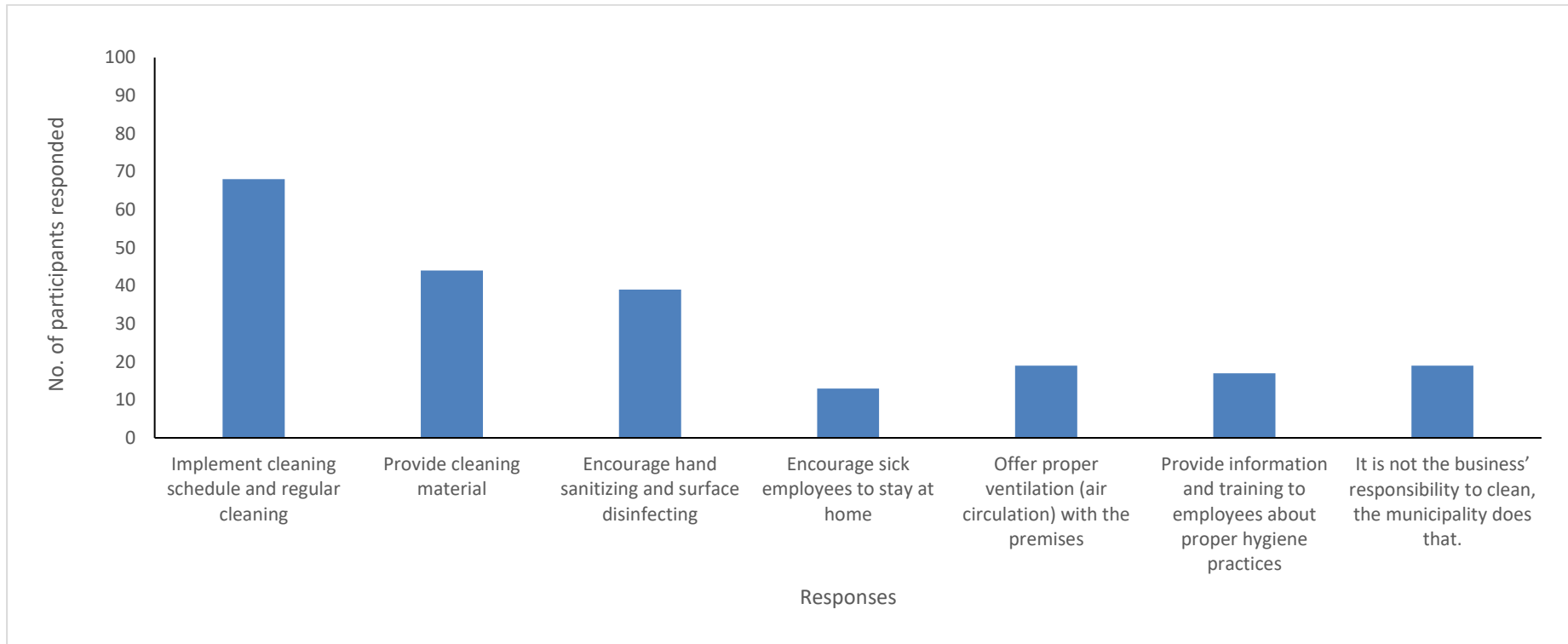
##### **4.5.2 Awareness of small business owners concerning the duties of waste generators to uphold cleanliness and hygiene on the premises.**

The statistics indicated that majority of small business owners (75%) are cognisant of the obligations as waste generators to maintain cleanliness and hygiene, comprehend the responsibilities and optimal practices associated with waste management to guarantee a clean and sanitary setting. However, there was also a notable portion (25%) who were unaware of these obligations, lack knowledge and comprehension of the specific duties and actions required to uphold cleanliness and hygiene standards in relation to waste management. Preserving cleanliness and hygiene in waste management is essential to prevent environmental contamination, public health hazards, and the transmission of diseases (Leas *et al.*, 2015). Waste generators have a duty to handle and manage waste in a manner that minimises adverse impacts on the surrounding environment and community (Leas *et al.*, 2015).

Figure 4-14 provides insights into the cleanliness and hygiene practices implemented by small businesses in the establishments. The information revealed that 31% of small businesses follow a cleaning schedule and regularly clean the premises. This indicated that these businesses acknowledge the significance of maintaining cleanliness and have established a systematic approach to ensure regular cleaning occurs. 20% of the participants supply cleaning material.

This means that these businesses equip employees with the necessary tools and products, such as cleaning agents, disinfectants, and equipment, to facilitate effective cleaning and hygiene practices (Leas *et al.*, 2015). It was observed that 18% of business owners promote hand sanitization and surface disinfection. These businesses prioritise preventing the spread of germs by encouraging the use of hand sanitizers and regular disinfection of surfaces in the establishments. 6% encourage unwell employees to stay at home. By doing so, these businesses prioritise the health and well-being of employees and help prevent the spread of illnesses within the workplace.

Furthermore, the results also indicated that 9% of the participants prioritised proper ventilation and air circulation within the premises. This suggested that these businesses take measures to ensure fresh and clean air is maintained, which contributes to a healthier environment. 8% of the owners provide information and training to employees about proper hygiene practices. These businesses take proactive steps to educate staff on effective hygiene measures, promoting awareness and knowledge about maintaining cleanliness and hygiene (Hitchens *et al.*, 2005). In contrast, 9% of the participants does not believe in the responsibility to clean and rely on the municipality for that purpose. These businesses have the perception that the local municipality is responsible for ensuring cleanliness and hygiene in public spaces.



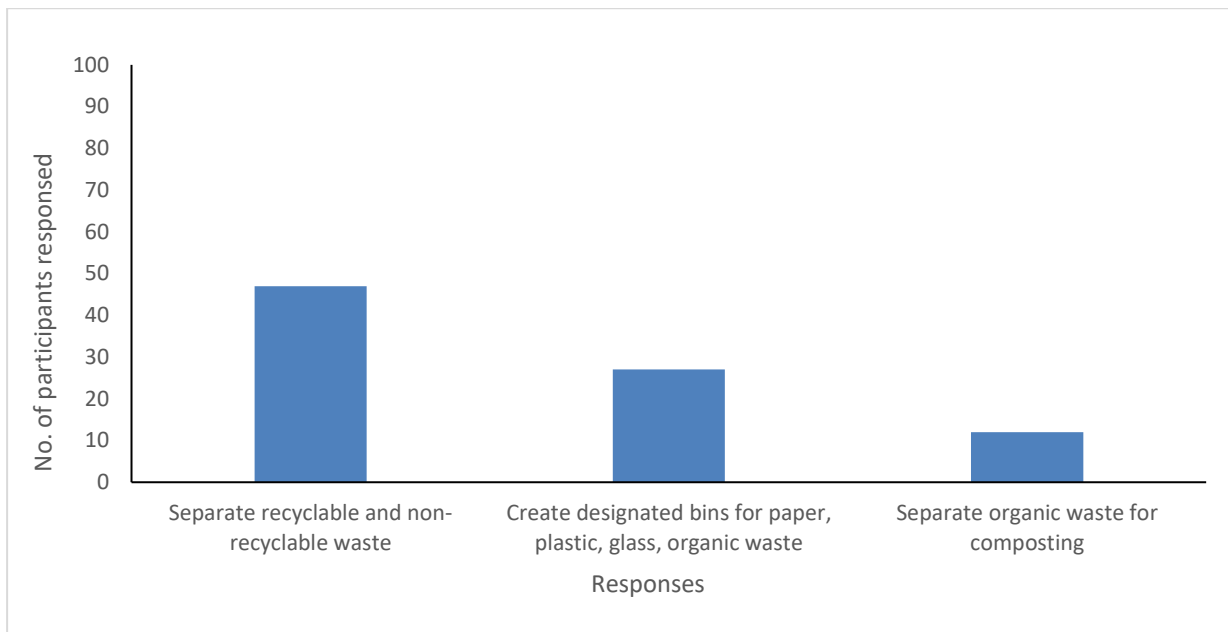
**Figure 4-14: Cleanliness and hygiene techniques applied by small businesses in the premises.**

n=143, where the participants selected the various techniques applied to ensure a healthy and safe working environment by keeping it clean and hygienic. Implement cleaning schedule and regular cleaning (68), provide cleaning material (44), encourage hand sanitizing and surface disinfecting (39), encourage sick employees to stay at home (13), offer proper ventilation (air circulation) with the premises (19), provide information and training to employees about proper hygiene practices (17), It is not the business' responsibility to clean, the municipality does that (19).

### **4.5.3 The adoption of waste segregation by small business owners**

The findings revealed that 60% of the participants have incorporated waste segregation at the point of origin. This indicated that these enterprises have established procedures to segregate different types of waste right from the moment it is generated. Acknowledged the significance of categorizing waste into distinct groups such as recyclable materials, organic waste, and general waste to facilitate proper disposal and recycling. On the other hand, 40% of the owners have not implemented waste segregation at the source, implying that these businesses lack procedures to separate waste into different groups at the point of origin. The data suggested that majority of small business owners have taken the initiative to implement waste segregation at source, contributing to more efficient waste management practices, recycling endeavours, and reducing the environmental impact of waste. Waste segregation at the source allows for easier and more effective recycling and proper disposal, which can aid in resource conservation and landfill waste reduction (Srinilta & Kanharattanachai, 2019). However, it is important to note that a significant portion of small business owners have not adopted waste segregation at the source. This highlighted an area for potential improvement in waste management practices. Encouraging these businesses to embrace waste segregation practices can promote a more sustainable approach to waste management and contribute to environmental preservation.

Figure 4-15 illustrates the adoption of waste segregation by small business owners. The findings revealed that 60% of the participants have incorporated waste segregation at the point of origin. This indicated that these enterprises have established procedures to segregate different types of waste right from the moment it is generated. Acknowledged the significance of categorizing waste into distinct groups such as recyclable materials, organic waste, and general waste to facilitate proper disposal and recycling. On the other hand, 40% of the owners have not implemented waste segregation at the source, implying that these businesses lack procedures to separate waste into different groups at the point of origin. The data suggested that majority of small business owners have taken the initiative to implement waste segregation at source, contributing to more efficient waste management practices, recycling endeavours, and reducing the environmental impact of waste. Waste segregation at the source allows for easier and more effective recycling and proper disposal, which can aid in resource conservation and landfill waste reduction (Srinilta & Kanharattanachai, 2019). However, it is important to note that a significant portion of small business owners have not adopted waste segregation at the source. This highlighted an area for potential improvement in waste management practices. Encouraging these businesses to embrace waste segregation practices can promote a more sustainable approach to waste management and contribute to environmental preservation.



**Figure 4-15: Waste separation techniques applied by small business owners in the premises.**

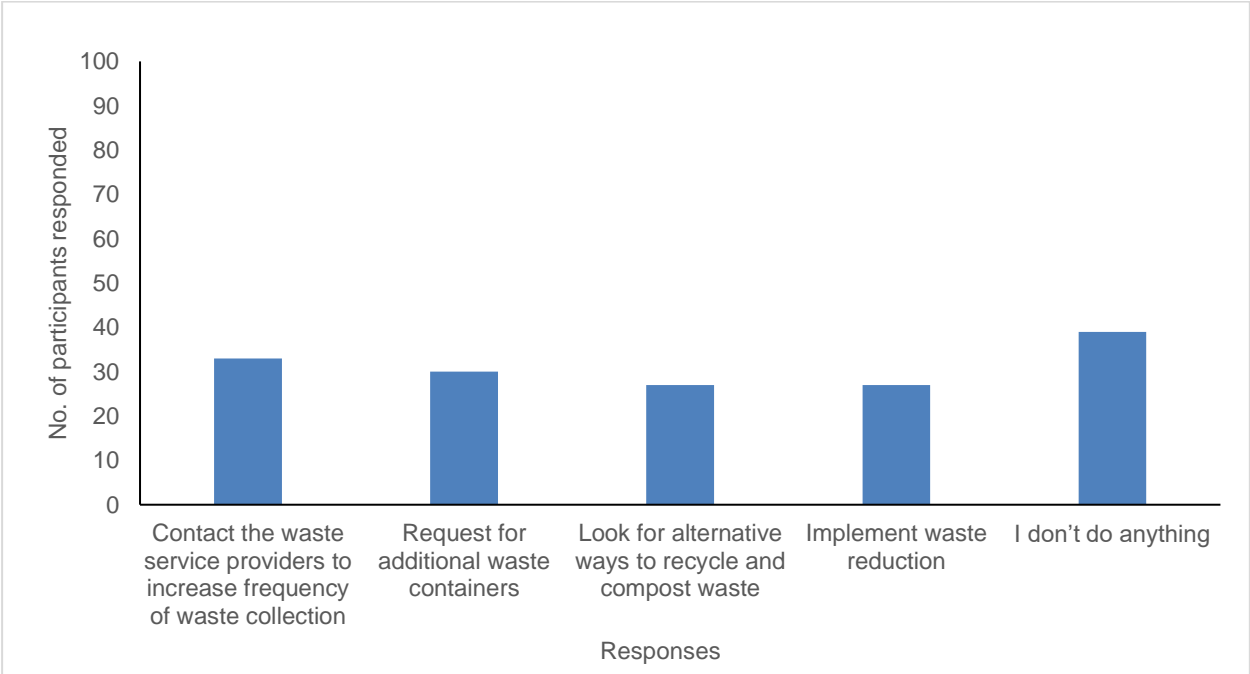
n=86, where participants who separate recyclable and non-recyclable waste were 47, those who create designated bins for paper, plastic, glass, organic waste were 27 and those that separate organic waste for composting were 12.

Figure 4-16 illustrates the actions taken by small business owners when waste containers become full. The findings indicated that 21% of these owners actively engage with waste service providers to request more frequent waste collection. When containers reach capacity, the owners take the initiative to guarantee timely waste collection, thus avoiding overflowing containers and potential waste management issues on the premises. 19% of the owners choose to request additional waste containers when existing ones are at maximum capacity. By doing so, the owners address the issue of limited space and ensure availability of sufficient containers to accommodate increased waste volume. This proactive measure helps maintain a well-organised waste management system and prevents overflow or improper waste disposal.

The results also suggested that 17% of the owners explore alternative waste management methods, particularly focusing on recycling and composting. When containers are full, the owners seek out options to divert waste from landfills by finding ways to recycle materials or compost organic waste. This step demonstrates a commitment to sustainable waste management practices and reducing environmental impacts. Another 17% of the owners take action to implement waste reduction strategies when containers reach maximum capacity. This involves identifying areas where waste generation can be minimised, such as through process changes, optimizing packaging, or providing employee training on waste reduction practices. By proactively addressing waste generation, these businesses aim to prevent containers from frequently

reaching maximum capacity (Dorland *et al.*, 1995). However, 25% of the participants do not take any specific actions when containers are full. This indicates a lack of proactive waste management practices in these businesses, potentially leading to issues such as overflowing containers, inefficient waste management, or improper waste disposal.

Overall, the data reflected the diverse approaches and attitudes of small business owners when faced with the issue of waste containers reaching maximum capacity. Some businesses take proactive measures, such as contacting waste service providers, requesting additional containers, exploring recycling and composting options, or implementing waste reduction measures. These actions demonstrate a commitment to responsible waste management practices, sustainability, and ensuring proper waste handling. However, a significant number of businesses do not take any specific actions, indicating a potential area for improvement in waste management practices.



**Figure 4-16: Steps taken by small business owners when waste reaches maximum capacity of waste containers.**

n=143, where the number of participants selected the steps taken as follows; contact the waste service providers to increase frequency of waste collection (33), request for additional waste containers (30), look for alternative ways to recycle and compost waste (27), implement waste reduction (27) and I don't do anything (39).

#### **4.5.4 Percentage of small business owners who have received education or information from the municipality regarding waste management.**

The data showed that 38% of the research participants have received education or information from the municipality regarding waste management. This suggests that these business owners have had access to resources, training, or communication from the municipality that provides guidance and knowledge on effective waste management practices, have participated in workshops, seminars, or received informational materials that assisted with understanding responsibilities as waste generators and how to properly manage waste in compliance with regulations and best practices (Burchett, 2015). The results also indicated that 62% of the participants have not received any education or information from the municipality regarding waste management. This indicated that a significant portion of small business owners have not had access to specific resources or training provided by the municipality to improve knowledge and understanding of waste management practices. The owners lack awareness of regulations, guidelines, and best practices related to waste management, which could lead to inefficient waste handling, improper disposal, or non-compliance with waste management requirements. The data suggested that there is a need for increased efforts from the municipality to provide education and information on waste management to small business owners. By offering training programs, workshops, informational materials, or other resources, the municipality can help improve the awareness and knowledge of small business owners, enabling to adopt proper waste management practices and comply with regulations.

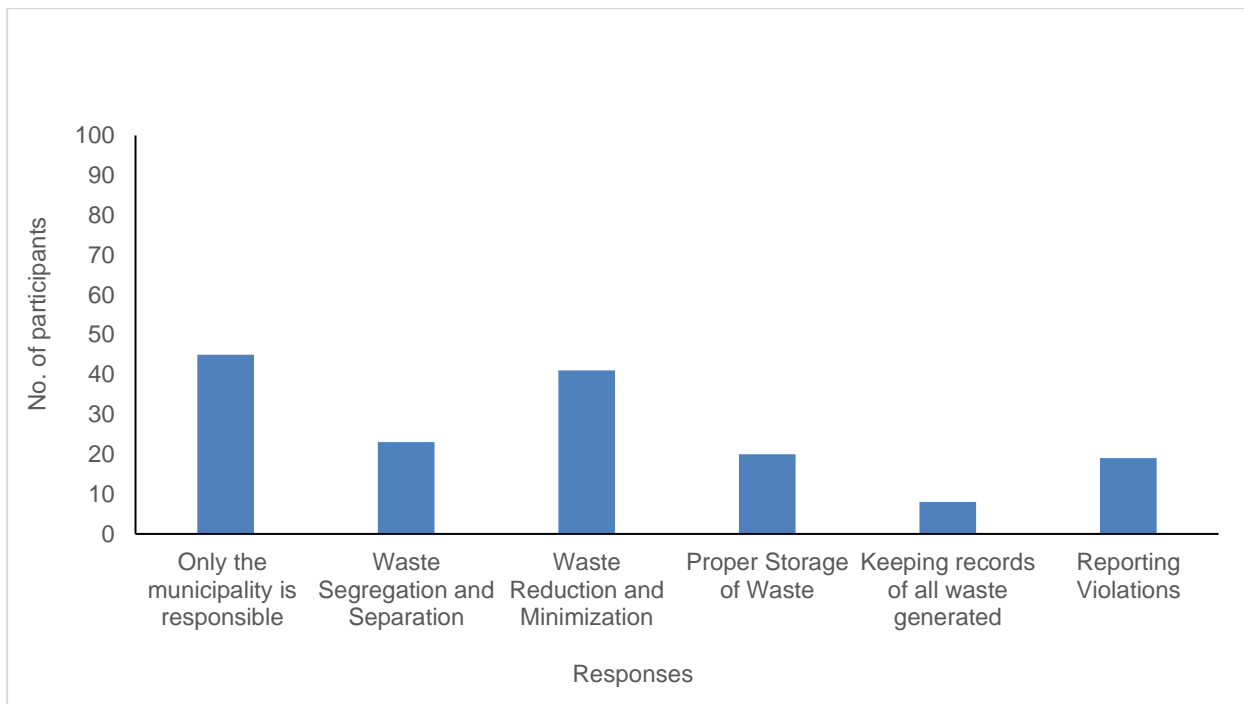
Figure 4-17 below illustrates the regulatory awareness of small business owners concerning the obligation of waste generators to ensure health and environmental safety. The information indicated that 29% of small business owners believe that only the local government is accountable for guaranteeing health and environmental safety in relation to waste management. This implies a lack of comprehension or awareness among these business owners regarding responsibility as waste generators, erroneously believe that the local government is exclusively responsible for managing waste and ensuring its safe disposal, without acknowledging role in proper waste segregation, reduction, storage, record-keeping, and reporting of infractions.

Secondly, 15% of the owners are conscious of the significance of waste segregation and separation. These business owners understand that separating different categories of waste at the source is crucial for effective waste management, likely recognise the need to separate recyclable materials from non-recyclable ones, as well as the potential benefits in terms of reducing environmental impact and promoting recycling. The results emphasised that 26% of the participants are aware of the importance of waste reduction and minimisation. These business owners comprehend that reducing the quantity of waste generated and implementing practices to minimise waste can have positive environmental and economic effects (Sarkis & Dijkshoorn,

2007), are mindful of strategies such as reusing materials, adopting sustainable packaging, or implementing efficient production processes to minimise waste generation.

The diagram below illustrates that 13% of small business owners acknowledge the significance of proper storage of waste. These business owners understand that storing waste in a safe and appropriate manner is essential to preventing environmental contamination, health hazards, and potential accidents (Periathamby, 2011). While the owners are aware of regulations and guidelines regarding waste storage, such as using suitable containers, labelling waste types, and designating specific storage areas, only 5% recognise the importance of maintaining records of all waste generated. Maintaining accurate records can help track the quantity and types of waste generated, monitor waste management practices, and demonstrate compliance with regulations (Wilson *et al.*, 2015). The owners recognise the value of record-keeping for reporting purposes and assessing the effectiveness of waste management strategies. Lastly, 12% of the participants are aware of the responsibility to report violations related to waste management. These business owners understand that reporting instances of non-compliance or improper waste disposal is crucial for maintaining health and environmental safety standards, likely recognise the importance of reporting violations to the relevant authorities or regulatory bodies to ensure appropriate actions are taken.

Overall, the data emphasised various levels of knowledge among small business owners concerning the obligation of waste producers to ensure the safety of health and the environment. While some business owners display an understanding of crucial aspects such as waste classification, reduction, and reporting violations, a significant portion of business owners believe that the responsibility lies solely with the local government. Initiatives should be taken to enhance awareness among all small business owners about involvement in waste management and the significance of adopting appropriate methods to protect health and the environment (Weerasiri, 2012). Education, training programs, and enhanced communication can have a vital role in promoting responsible waste management practices among small businesses.



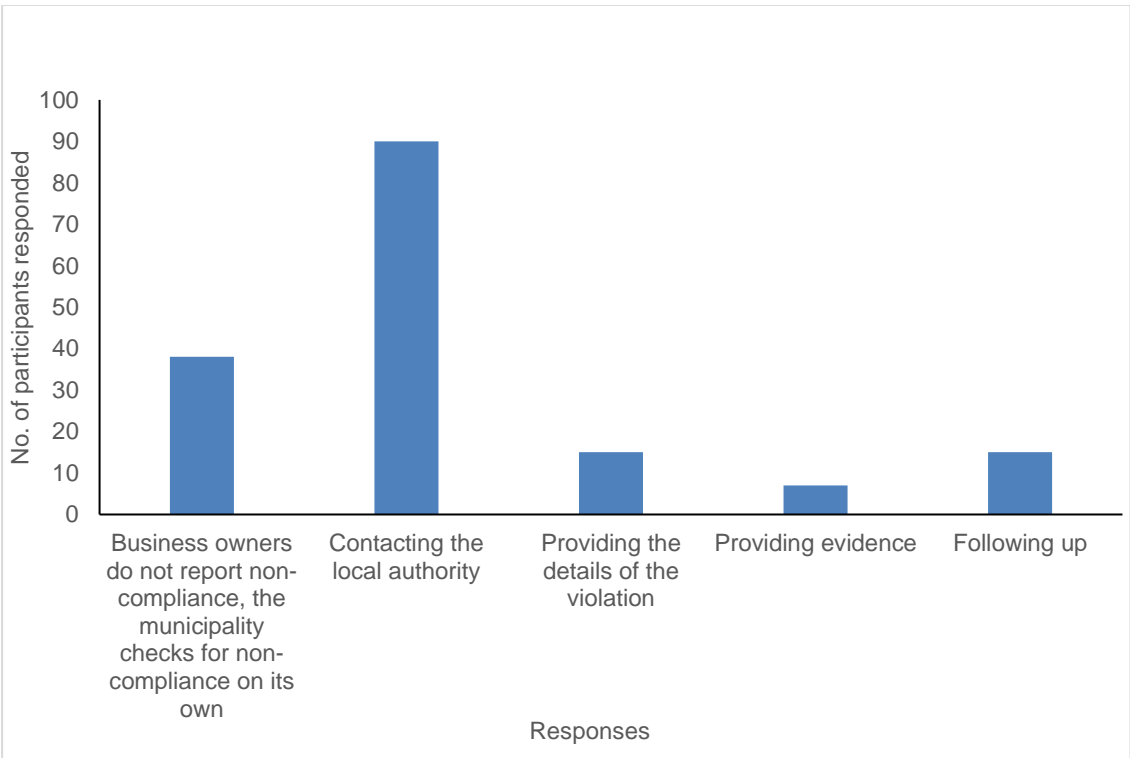
**Figure 4-17: Awareness on the responsibility waste generators must ensure health and environmental safety.**

n=143, where the participants selected on which responsibility is known to ensure health and environmental safety. Only the municipality is responsible (45), waste segregation and separation (23), waste reduction and minimisation (41), proper storage of waste (20), keeping records of all waste generated (8) and reporting Violations (19).

The provided data in Figure 4-18 illustrates the measures taken by small business owners to register non-adherence to waste management regulations. The findings revealed that 23% of small business owners do not proactively report instances of non-adherence to waste management regulations. Instead, the owners depend on the municipality or local authorities to autonomously identify and address non-adherence issues. This indicated a passive approach from these business owners, potentially due to a lack of awareness or confidence in the reporting process. 55% of the owners take the initiative of contacting the local authority upon non-adherence to waste management regulations. This demonstrated proactive behaviour, as these business owners acknowledge the importance of reporting violations to the appropriate authorities for investigation and enforcement actions; 9% of the owners provide particulars of the violation when reporting non-adherence. By providing specific information about the nature of the violation, these business owners assist authorities in comprehending the issue more accurately and taking appropriate action. This proactive measure enhances the efficacy of the reporting process (Weerasiri, 2012).

The data also suggested that 4% of the owners go a step further by providing substantiation to support reports of non-adherence. This could include photographs, documentation, or any other

form of evidence that bolsters the case against the violators. Providing evidence increases the credibility and efficacy of the reporting process, aiding in the enforcement of waste management regulations, and 9% of the owners take the initiative to follow up on reports of non-adherence. By doing so, the owners ensure that concerns are being addressed and that appropriate actions are being taken by the relevant authorities. Following up demonstrates a commitment to holding violators accountable and ensuring that proper waste management practices are upheld. The data reflected the different approaches and levels of engagement among small business owners when it comes to reporting non-adherence to waste management regulations. While some business owners rely on the municipality or local authorities to identify non-adherence, a significant number actively contact the local authority, provide particulars of the violation, provide evidence, and follow up on reports.



**Figure 4-18: Reactions of small business owners towards non-compliance with waste management Municipal By-laws.**

n=143 where the research participants selected the steps taken to report non-compliance. Business owners do not report non-compliance, the municipality checks for non-compliance on its own (38), contacting the local authority (90) providing the details of the violation (15), providing evidence (7) and following up (15).

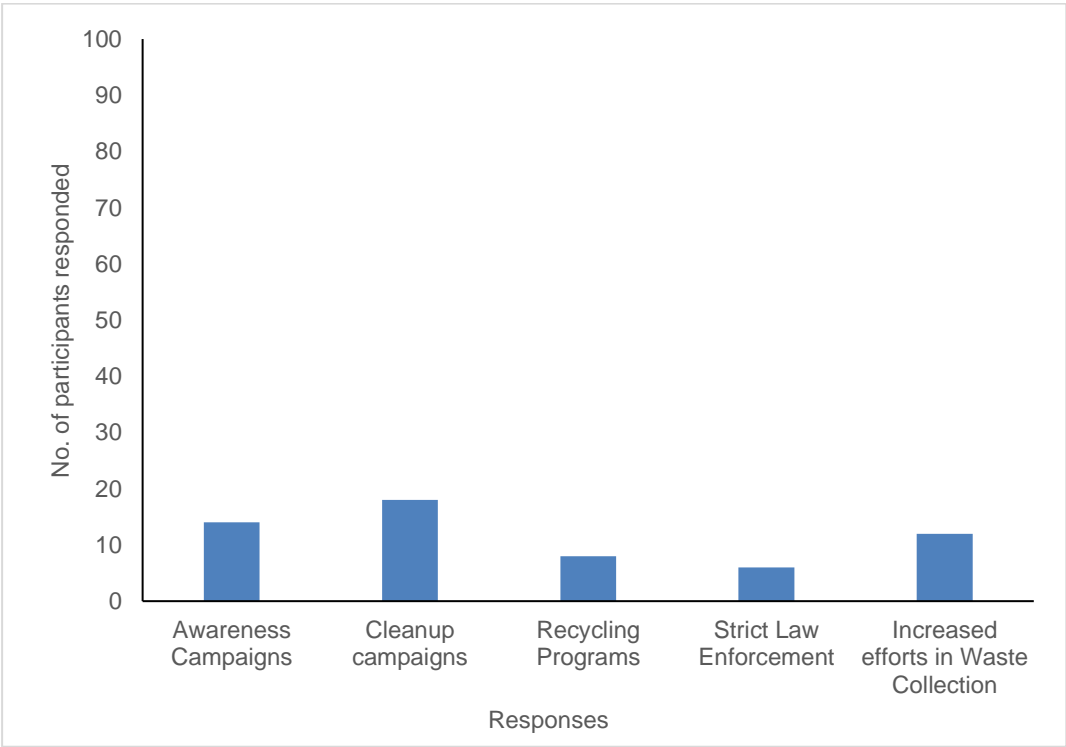
#### **4.5.5 Regulatory awareness small businesses possess regarding the occurrence of illegal dumping in the vicinity of the establishments.**

The data revealed that 59% of the participants in the study possess awareness regarding the presence of unauthorised waste disposal activities surrounding the premises. This implies that these businesses have either witnessed or possess information pertaining to instances of illegal dumping occurring near the business locations (Yousif & Scott, 2007). Acknowledge the existence of this problem and comprehend the necessity of addressing it. Conversely, 41% of the businesses are unaware of any illegal dumping activities surrounding the premises. This signifies that these businesses have not noticed or are oblivious to instances of unauthorised waste disposal near the establishments, are not actively monitoring or paying attention to such activities or may be situated in areas where illegal dumping is less common. The data suggested that majority of small businesses possess awareness regarding the issue of illegal dumping surrounding the premises, while a smaller proportion lacks this knowledge. Understanding the occurrence of illegal dumping is of utmost importance as it allows businesses to comprehend the environmental and social consequences associated with such activities (Abel, 2014). This awareness enables businesses to take appropriate measures to address and prevent incidents of illegal dumping.

Figure 4-19 demonstrates the knowledge of small business owners regarding programs organised by the local government to reduce unlawful dumping. It is a follow-up outcome from those who responded positively to the previous section above. The data revealed that 24% of small business owners are cognisant of consciousness campaigns carried out by the local government to tackle illegal dumping. This suggested that these businesses have been exposed to endeavours aimed at raising awareness about the consequences of illegal dumping and the significance of proper waste disposal. Awareness campaigns play a crucial role in educating the public and promoting responsible waste management practices (Kala & Bolia, 2020). 31% of the participants were aware of clean-up campaigns arranged by the local government. This indicated that these businesses have knowledge of initiatives that concentrate on physically cleaning up areas affected by illegal dumping. Clean-up campaigns help address existing dumping sites, enhance the aesthetics of the surroundings, and encourage community involvement in maintaining a clean environment (Rangeti & Dzwairo, 2021). 14% of small business owners are aware of recycling programs organised by the local government to mitigate illegal dumping. This indicated that these businesses have knowledge of initiatives aimed at promoting recycling and diverting waste from landfills. Recycling programs contribute to sustainable waste management practices by encouraging proper waste segregation and promoting the reuse of materials (Degli Antoni & Marzetti, 2019).

The data showed that 10% of the participants were aware of initiatives focused on strict law enforcement to combat illegal dumping. This suggested that these businesses have knowledge of efforts by the local government to enforce regulations and impose penalties on those involved in illegal dumping activities. Strict law enforcement serves as a deterrent and emphasises the consequences of illegal dumping.

Furthermore, the data indicated that 21% of the owners are aware of increased efforts in waste collection by the local government. This suggested that these businesses have noticed improvements or additional resources allocated to waste collection services, potentially aimed at addressing illegal dumping through more frequent or efficient waste collection practices (Mitchell, 2013). Although there were a total of 85 participants who acknowledged being aware of illegal dumping around business premises, the results further indicated that there were 27 owners who had knowledge about the illegal dumping but failed to provide further details regarding awareness of programs facilitated by the municipality to mitigate illegal dumping. The data emphasised the varying levels of awareness among small business owners regarding programs organised by the local government to mitigate illegal dumping (Yousif & Scott, 2007). While some businesses are aware of initiatives such as consciousness campaigns, clean-up campaigns, recycling programs, strict law enforcement, or increased efforts in waste collection,



**Figure 4-19: Awareness on programs facilitated by the Municipality to mitigate illegal dumping.**

n=85, awareness campaigns (14), clean-up campaigns (18), recycling programs (8), strict law enforcement (6), increased efforts in waste collection (12), I have not seen any action from the authorities to address illegal dumping in this area (27).

#### **4.5.6 Recognition of small business owners concerning public campaigns or educational initiatives endorsing waste reduction**

The findings revealed that 58% of small business owners are conscious of public campaigns or educational initiatives advocating waste reduction. This implied that these business owners possess knowledge of endeavours, campaigns, or initiatives executed by the municipality, organizations, or other entities to enhance consciousness about waste reduction practices (Weerasiri, 2012), have participated in or been exposed to educational materials, workshops, seminars, or media campaigns that highlight the significance of decreasing waste generation and embracing sustainable practices, whereas 42% of the participants are oblivious to public campaigns or educational initiatives promoting waste reduction. This signified that these business owners might not have been exposed to or possess knowledge of specific endeavours or initiatives aimed at promoting waste reduction practices (Yousif & Scott, 2007), might be less informed about the potential ecological, societal, and economic benefits of waste reduction and do not have access to resources or educational materials on the subject. The data implies that a noteworthy proportion of small business owners are aware of public campaigns or educational initiatives that support waste reduction. This indicates a degree of involvement and awareness among these business owners regarding the significance of decreasing waste and adopting sustainable practices.

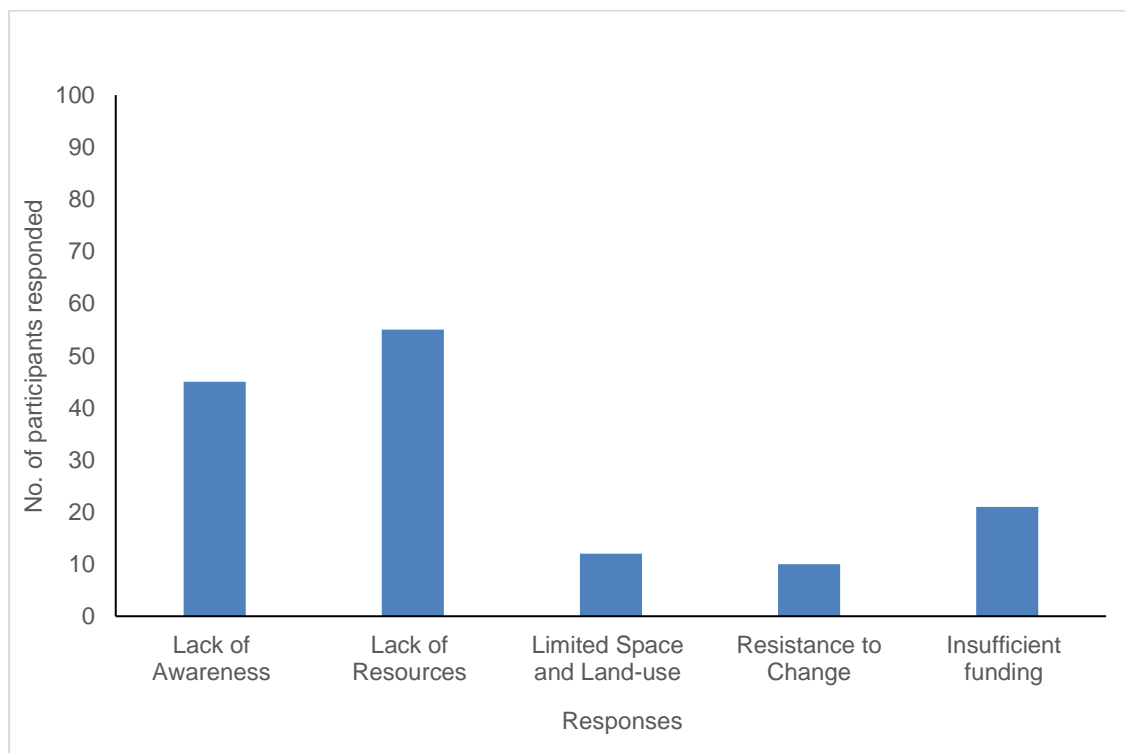
#### **4.5.7 Level of understanding among small business owners relating to the obstacles experienced in waste management.**

The data indicated that 52% of participants in the study are knowledgeable about the challenges businesses encounter in this area. This implies that these owners have successfully identified and acknowledged the specific issues or problems associated with waste management within the operations (Mitchell, 2013), have encountered difficulties such as improper waste disposal, inadequate waste infrastructure, limited resources for waste management, or struggles with adhering to waste regulations. The fact that the owners were aware of these challenges suggested that these business owners are taking a proactive approach to recognizing and addressing waste management issues. On the other hand, the results also indicated that 48% of participants are not aware of the waste management challenges faced by the businesses. This suggested that these owners have not identified or acknowledged the specific issues or difficulties related to waste management within the operations, have not encountered significant obstacles

or given much attention to waste management practices. However, it is also possible that businesses are facing waste management challenges but are not aware.

Figure 4-20 below depicts the awareness of small business owners concerning the hurdles encountered in waste management by the enterprises. The information revealed that 52% of the study participants are cognisant of the waste management challenges experienced by the businesses. This implies that these business owners have identified and acknowledged issues or obstacles related to waste management within the operations, have confronted hindrances such as improper waste disposal, inadequate waste infrastructure, limited resources for waste management, or difficulties in adhering to waste regulations (Hillary, 2004).

The awareness of these challenges indicated a proactive approach from these business owners to recognizing and addressing waste management issues. The results further indicated that 48% of the owners are not aware of the waste management challenges experienced by the businesses. This suggested that these business owners have not identified or recognised specific issues or difficulties related to waste management within the operations (Burchett, 2015), have not encountered significant obstacles or have not given much attention to waste management practices. However, it is also possible that businesses may be facing waste management challenges but are not aware.



**Figure 4-20: Waste management challenges preventing small businesses to properly handle waste.**

n=143, where lack of awareness (45), lack of resources (55), limited space and land-use (12), resistance to change (10), insufficient funding (21).

#### **4.6 Chapter summary.**

##### **4.6.1 Summary of awareness and knowledge among small business owners regarding the National Environmental Management Waste Act (Act 59 of 2008)**

This section depicts the regulatory awareness and understanding among small business owners regarding the National Environmental Management Waste Act. While certain business owners are well-versed in the Act and its consequences for waste management, others have not been introduced to the legislation or need more instruction and information. The information illustrated the different levels of consciousness and understanding among small business owners regarding how NEMWA impacts the business.

##### **4.6.2 Summary of the awareness and knowledge of small business owners regarding the National Waste Management Strategy 2020**

The information demonstrated the awareness of small business owners concerning the National Waste Management Strategy of 2020. The results revealed that a notable percentage of small business owners were unfamiliar with the strategy. However, it was encouraging to observe that a segment of small business owners were cognisant, indicating a degree of involvement and comprehension within that demographic. The findings further emphasised that a substantial proportion of small business owners were uninformed about how the National Waste Management Strategy pertains to the enterprises. This lack of awareness implies a potential deficiency in understanding and executing waste management procedures in line with the strategy's goals.

##### **4.6.3 Summary on the awareness and knowledge of small business owners regarding norms and standards for the storage of waste (GNR 926 of November 2013)**

The information depicted in this section suggests that there is an equal distribution between small business owners who are knowledgeable and those who are unaware of the guidelines and criteria for waste storage. This highlighted a notable disparity in awareness and understanding among a substantial number of small business owners concerning the precise regulations outlined in GNR 926 of November 2013.

#### **4.6.4 Summary on the awareness and knowledge of small business owners regarding Municipal solid waste by-laws.**

The data indicated that there is a requirement for enhanced endeavours from the municipality to offer education and knowledge on waste management to small business owners. Through providing training initiatives, seminars, informative materials, or alternative assets, the municipality can assist in enhancing the consciousness and understanding of small business owners, empowering to embrace appropriate waste management methods and adhere to regulations. Familiarity with waste management regulations is vital for small business owners, as it aids in guaranteeing adherence to legal obligations and encouraging conscientious waste management methods. Adhering to the by-laws enables small businesses to play a part in maintaining a more pristine environment, lessening ecological impact, and serving as a model for responsible waste management practices in the localities.

## **CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Introduction.**

The research aim was to determine the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu Municipality, KwaZulu-Natal according to the responses received, where the findings of the research were discussed in the previous chapter. In Chapter 5, conclusions were drawn based on the data provided by the small business owners, as shown in Section 5.2; thereafter, recommendations and areas for future research are discussed in Section 5.3.

### **5.2 Conclusions based on the aim and methodology of the study.**

The aim of this study was to evaluate the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu municipality. To achieve this, the researcher formulated both open and closed-ended structures questionnaires from existing literature. The questionnaires were subsequently disseminated to small business owners during Local Economic seminars held at the VA Makhoba Hall in Nquthu.

To ensure accessibility and comprehension, the questionnaires were translated into IsiZulu, the native language, enabling research participants to fully understand the material. The researcher collected the completed questionnaires and used Excel spreadsheets to categorize and record the data.

The data was analysed and interpreted using descriptive analysis techniques, with the results expressed in percentiles. The data were effectively communicated by visually displaying using bar graphs and a table, ensuring a clear and succinct presentation.

The results of this study revealed a significant gap in awareness and knowledge regarding waste management legislation among small business owners in the municipality. Although a minority of the participants demonstrated some level of awareness of waste management regulations and application to the businesses as a source of waste generation, most lack in-depth knowledge in this important area. The findings also highlighted the need for significant efforts to address existing knowledge gaps and increase regulatory awareness among small business owners in the municipality. Inadequate awareness of regulations not only hinders compliance but also affects overall environmental health and urban sustainability initiatives (Burchett, 2015). Local governments must take proactive steps to educate small business owners about waste management policies, responsibilities as waste generators, and the importance of waste management practices (Godfrey, 2008).

### **5.2.1 Conclusions relating to the National Environmental Waste Management Act 58 of 2008.**

The findings obtained from this section of the questionnaire indicated that a substantial number of small business owners are aware of the National Environmental Management Waste Act (Act 59 of 2008). However, a noteworthy portion of these business owners lacked knowledge on how to implement the Act's provisions in the businesses. The participants' inability to comprehend further inquiries regarding the Act in terms of how to collaborate and adhere as waste generators in the municipality is evidence of this lack of comprehension, which led to subpar waste management practices and non-compliance with the Act's requirements (Weerasiri, 2012). Addressing this knowledge gap is crucial for promoting responsible waste management and environmental sustainability among small enterprises (Yousif & Scott, 2007).

The absence of waste management awareness in rural small enterprises is a prevalent issue observed not only in specific regions but also globally. In rural areas of African nations, access to information and educational resources is often limited (Teshome, 2021). Many small enterprises do not have convenient access to environmental education programs; financial support, language, and literacy barriers can impede effective communication and dissemination of waste management information to rural small enterprises.

### **5.2.2 Conclusions relating to the National Waste Management Strategy 2020.**

The strategy outlines regulations and requirements for waste management that businesses must adhere to remain compliant with national laws. Following the strategy ensures that small businesses fulfil the legal obligations, implement sustainable waste management practices to have a positive impact on the communities and the broader environment, and avoid potential penalties for non-compliance (Oteng-Ababio *et al.*, 2013). The results indicated a concerning lack of awareness and knowledge among small businesses regarding the National Waste Management Strategy 2020. A significant portion of small businesses were unaware of the strategy's existence, and many lacked an understanding of how it applied to the operations. This lack of awareness and knowledge presents several challenges for small businesses. Firstly, it results in non-compliance with waste management regulations stated in the strategy, leaving businesses susceptible to legal liabilities and penalties. Secondly, the absence of knowledge about waste management best practices and sustainability principles lead to improper waste disposal methods, contributing to environmental pollution and public health risks.

Additionally, the results revealed a troubling lack of awareness and knowledge among small businesses regarding the waste hierarchy principles. A significant number of small businesses demonstrated unfamiliarity with the waste hierarchy's existence, and many lacked understanding

of how to implement these principles in waste management practices. This lack of awareness and knowledge presents significant challenges for small businesses. Without understanding the waste hierarchy principles, businesses may not prioritise waste reduction, recycling, and resource recovery (Gaines, 1991).

### **5.2.3 Conclusions relating to the awareness and knowledge of small business owners regarding Norms and Standards for storage of waste (GNR 926 of November 2013).**

In conclusion, the research findings revealed that approximately half of the research participants possessed awareness and understanding regarding the norms and standards for the storage of waste (GNR 926 of November 2013). This level of knowledge is encouraging, as it indicates that a significant portion of the participants are acquainted with the regulations and requirements for appropriate waste storage practices. This awareness and understanding are crucial for promoting responsible waste management and ensuring adherence to the relevant standards, which can result in improved protection of the environment, public health, and overall sustainability in waste management practices (Redmond *et al.*, 2008). The questionnaire also included follow-up questions concerning waste collection, including the destination of waste after collection, and the outcomes indicated that most small business owners recognise that the Nquthu Municipality is the waste service provider for the area and that most waste is transported to the landfill site in Nondweni after collection. However, the results also indicated the necessity for targeted awareness campaigns and educational initiatives to further enhance knowledge among the remaining participants and small businesses in general and improve waste storage practices.

### **5.2.4 Conclusions relating to Municipal solid waste By-laws.**

The research outcomes indicated a troubling lack of awareness and knowledge among most small business owners concerning municipal solid waste by-laws. This lack of awareness poses difficulties, as it might lead to non-compliance with waste management regulations and impede the adoption of responsible waste management practices (Ike *et al.*, 2018). It was observed that most small business owners have not received instruction from the municipality regarding waste management. This absence of education further contributes to the limited consciousness and comprehension of proper waste management practices and the relevant regulations (Kasim, 2009). Additionally, a significant number of small business owners believe that the municipality is mainly responsible for health and environmental safety regarding waste management. This misconception might result in a lack of proactive involvement from small businesses in managing waste responsibly, potentially leading to improper waste handling practices.

Additionally, majority of the participants have implemented cleanliness and hygiene measures in the establishments. This proactive approach to maintaining cleanliness and hygiene is not only important for waste management but also for the overall well-being of employees, customers, and the surrounding community (McKeiver & Gadenne, 2005). A significant number of participants reported implementing waste segregation at the source. This practice showcases a commitment to sustainable waste management by reducing waste generation and facilitating recycling and proper disposal, aligning with the principles of the waste hierarchy.

Overall, the research findings indicated a positive inclination towards responsible waste management practices among the participants. However, there is still scope for improvement, and further awareness campaigns and educational initiatives can be beneficial in promoting sustainable waste management practices among a larger proportion of small businesses and the wider community. Encouraging the adoption of these practices can contribute to environmental protection, public health, and overall sustainability, creating a positive impact on both business operations and the surrounding environment (Testa *et al.*, 2016).

The research demonstrated that many small business owners are aware of the unauthorised dumping around the businesses and have observed the municipality conducting clean-up programs. This awareness is crucial, as it highlights the presence of waste management issues that need to be addressed collaboratively between businesses and local authorities. Most small businesses face difficulties such as a lack of resources and waste management consciousness (Bhuiyan, 2010). These difficulties can impede the ability to adopt sustainable waste management practices, as limited resources hinder investments in proper waste handling infrastructure and education (Mireri, 2006).

Considering the findings, it is apparent that there is an urgent need for targeted consciousness campaigns, educational programs, and resource support to address the lack of knowledge and resources among small business owners regarding waste management. Engaging businesses in waste reduction, recycling, and responsible waste disposal practices is essential for environmental protection, public health, and the overall well-being of communities (Redmond *et al.*, 2008). Collaborative efforts between businesses, municipalities, and other stakeholders can contribute to overcoming these difficulties and promoting sustainable waste management practices in small businesses.

### **5.3 The relation between this research with previous studies and literature.**

Investigating the regulatory awareness and knowledge of small businesses in the Nquthu Municipality adds to the existing body of literature on waste management methods, specifically focusing on small businesses. Multiple studies have emphasised the significance of regulatory

awareness and knowledge in influencing waste management behaviours across diverse stakeholders, including businesses. Research conducted by (Patton & Worthington, 2003) revealed that a lack of awareness and comprehension of waste management legislation among small businesses in United Kingdom impeded the implementation of efficient waste management procedures. Similarly, studies have highlighted the significance of regulatory awareness in encouraging compliance and enhancing waste management outcomes among businesses in various locations (Hillary, 2004).

Moreover, the research conducted in Nquthu Municipality offered significant knowledge regarding the difficulties and possibilities associated with waste management techniques within a municipality setting. The study specifically targeted small businesses, which are frequently lacking in resources and knowledge when it comes to waste management.

Furthermore, the study's results provided valuable insights for policy and practice by pinpointing specific areas that require interventions to enhance regulatory compliance and waste management practices among small businesses. To enable small businesses to implement more sustainable waste management practices, policymakers and waste management authorities can create focused educational programmes, outreach campaigns, and support mechanisms by comprehending the elements that influence regulatory awareness and knowledge.

#### **5.4 Recommendations based on the research findings.**

##### **5.4.1 Raise Awareness:**

Increase public consciousness regarding the significance of waste management and the role of small enterprises in safeguarding the environment. This can generate a demand for environmentally conscious businesses, motivating small business owners to prioritise waste management practices (Debrah *et al.*, 2021).

##### **5.4.2 Educational Initiatives:**

Implement educational programs and workshops specifically tailored for small enterprise owners to enhance comprehension of waste management legislation. These initiatives should concentrate on elucidating the provisions of the Act, legal responsibilities, and optimal practices for waste management (Debrah *et al.*, 2021).

##### **5.4.3 Guidance and Resources:**

Furnish small enterprise owners with practical guidance and resources to aid in implementing the legal requirements in the businesses. This could involve providing templates for waste

management plans, guidelines for record-keeping, and checklists for compliance (Netherwood, 2016).

#### **5.4.4 Training and Workshops:**

Conduct training sessions and workshops that focus on waste segregation, recycling methods, composting techniques, and proper waste disposal. Practical training can equip business owners with the necessary skills to effectively execute waste management strategies (Anschütz *et al.*, 2004).

#### **5.4.5 Monitoring and Compliance Checks:**

Regularly supervise the waste management practices of small enterprises to ensure adherence to the legal requirements (Petts & Eduljee, 1994). Offer feedback and guidance to businesses found to be non-compliant, assisting in rectifying waste management processes.

#### **5.4.6 Incentives and Recognition:**

Introduce incentive and recognition programs to reward small enterprises that exhibit exceptional waste management practices and compliance with waste management legislation. Positive reinforcement can motivate others to enhance waste management endeavours (Daily & Huang, 2001).

#### **5.4.7 Continual Support:**

Establish long-term support mechanisms to ensure that small enterprise owners have ongoing access to information, guidance, and resources pertaining to waste management and compliance (Hillary, 2004).

### **5.5 Recommendations for future based on the limitations of the study.**

The inclusion of qualitative methodologies, such as interviews or focus groups, can provide more profound understanding of participants' perspectives and attitudes (Hignett & McDermott, 2015). This would enable researchers to effectively capture the intricate contextual elements that impact the awareness and knowledge of regulations among small business owners. Additional research is needed to examine the difficulties that rural municipalities encounter in delivering waste management services. This research should focus on identifying obstacles and deficiencies in infrastructure and resources. It is also important to assess the efficacy of current waste management laws and policies to encourage adherence and enhance practices.

## **5.6 Potential areas for future research.**

### **5.6.1 Identifying Obstacles to Awareness:**

Investigating the factors that impede the spread of waste management information in rural areas Understanding the hurdles, such as limited information access, language barriers, or cultural factors, can inform the development of effective communication strategies (Dasanayaka *et al.*, 2022).

### **5.6.2 Educational Interventions:**

Evaluating the impact of educational programs and awareness campaigns aimed at small business owners in rural communities Assessing the effectiveness of these interventions in enhancing waste management knowledge and practices can guide future educational efforts.

### **5.6.3 Role of Local Authorities:**

Investigating the role and capacity of local authorities in promoting waste management awareness in rural areas Understanding the challenges and opportunities faced by local governments in implementing waste management initiatives can inform policy recommendations (Hillary, 2004).

### **5.6.4 Community Participation:**

Studying and analysing successful community-driven initiatives can provide insights into effective approaches to promote sustainable waste management (Shandas & Messer, 2008).

### **5.6.5 Economic Incentives:**

Exploring the potential for economic incentives or grants to encourage small businesses in rural areas to adopt sustainable waste management practices (Daily & Huang, 2001). Assessing the impact of financial incentives on waste reduction and recycling efforts can guide future policy decisions.

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**ANNEXURE A- Structured questionnaire consent form for respondents. (Ifomu lemvolume yohlu lwemibuzo yocwaningo lwabaphenduli)**



**Determining the regulatory awareness and knowledge of small business owners regarding waste management in the Nquthu Municipality, KwaZulu-Natal.**

**Masters in Environmental Management specializing in Waste**

**North-West University (Potchefstroom)**

**Nontobeko Nolwandle Gumede**

**Overview of the research study (Isifinyezo socwaningo).**

Waste management challenges in small businesses stem from the lack of awareness and knowledge in handling waste accordingly (Battisti & Perry, 2011).

Izinselulo zokulawulwa kwemfucuzwa emabhizinisini amancane zisukela ngokungabi nalwazi nokuqashiswa lokusingatha udoti ngendlela efanele.

The aim of this study is to determine the regulatory awareness and knowledge of small business owners or managers regarding waste management and discover where the municipality can assist to ensure that, as waste generators, comply with the waste management laws in place. This will be done by participants answering the structured questionnaire issued by the researcher. The project was ethically approved by the Faculty of Natural and Agricultural Sciences Ethics Committee under ethics number NWU-01214-23-A9.

Inhloso yalolu cwaningo ukuthola ukuqwashisa ngolwazi lokulawula kanye nolwazi lwabanikazi bamabhizinisi amancane noma abaphathi mayelana nokuphathwa kwemfucuzwa ukuze bathole ukuthi umasipala ungasiza kuphi ukuqinisekisa ukuthi njengabaphehli bemfucuzwa bayayithobela imithetho yokulawulwa kwemfucuzwa ekhona. Lokhu kuzokwenziwa ngokuthi ababambiqhaza baphendule uhlu lwemibuzo oluhlelekile olukhishwe umcwaningi. Lolu cwaningo yagunyazwa ngokokuziphatha yiKomidi Lokuziphatha Lesayensi Yemvelo Nezolimo ngaphansi kwenombolo yokuziphatha ethi NWU-01214-23-A9

- Participation in this project is strictly voluntary; hence, informed consent is required. Personal information will be kept confidential.
- The questionnaire is to be answered by small business owners or managers.
- Participants have the right to withdraw from the study at any stage.

- Carefully read the questions and select the relevant response.
- Ukubamba iqhaza kulo msebenzi kungokuzithandela ngakho-ke kudingeka imvume unolwazi. Ulwazi lomuntu siqu luzogcinwa luyimfihlo.
- Uhlu lwemibuzo kufanele luphendulwe abanikazi bamabhizinisi amancane noma abaphathi.
- Abahlanganyeli banelungelo lokuhoxa ocwaningweni nganoma yisiphi isigaba.
- Funda ngokucophelela imibuzo bese ukhetha impendulo efanele.

Full names of the respondent:.....

Type of small business:.....

Signature:.....

Date:.....

.....**Thank you for participating in this study**.....

## ANNEXURE B- QUESTIONNAIRE.

### Section A: Socio-demographic information (Ulwazi lwenhlalo yabantu)

Please select one relevant box in section A.

*Khetha Okukodwa kuloluhlaka A.*

1. Gender?

Ubulili?

Male (Owesilisa)		Female (Owesifazane)	
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2. Age?

Iminyaka?

18 – 25	26 – 35	36 – 45	46 – 55	
56 – 65	>65			

3. Level of education?

Izinga lemfundo?

Primary school		High/ Secondary School		Tertiary/Higher education		Never attended school	
Other							

4. Employee size?

Inani labasebenzi?

1		2-5		6-12		>12	
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5. Nature of the small business?

Uhlobo lwebhizinisi?

Furniture shop (Isitolo sefenisha)		Fruit & Vegetable stands/containers (Izitolo zezithelo nemfuyo)		Street vendors (Abathengisi basemgwaqeni)		Hair/ Nail salon (Isaluni yezinwele nezinzipho)	
---------------------------------------	--	--	--	--	--	--	--

Clothing stores (Izitolo zezingubo)		Tuckshop (Istolo)		Fast food containers (Istolo sokudla)			
---	--	-------------------	--	---	--	--	--

6. Net monthly income?

Imali engenayo yanyanga zonke?

< R500		R501- R1000		R1001-R1500		R1501-R2000	
R2001-R2500		>R2500					

**Section B: Awareness and knowledge of small business owners or managers regarding waste management. (Ukuqaphela nolwazi lwabanikazi bamabhizinisi amancane mayelana nokuphathwa kwemfucuza)**

*Please select the relevant box, more than one box may be selected in Section B, unless stated otherwise. Sicela ukhethe ukuqondana nawe nebhizinisi lakho, ungakhetha kube kuningi kuloluhlaka B, ngaphandle uma umbuzo ucacisa uthi khetha okukodwa.*

**The National Environmental Management: Waste Act 59 of 2008 is a legislative framework that guides the management of waste in South Africa. Its role is to ensure that waste is managed in a way that protects human health, the environment, and natural resources.**

**Umthetho Kazwelonke Wokulawulwa Kwemvelo: Umthetho wama-59 wezi-2008 uwuhlaka lomthetho oluqondisa ukuphathwa kwemfucuza eNingizimu Afrika. Iqhaza layo wukuqinisekisa ukuthi imfucuza ilawulwa ngendlela evikela impilo yabantu, imvelo kanye nemithombo yemvelo.**

1. Are you aware of the National Environmental Management: Waste Act 59 of 2008?  
Ingabe uyawazi uMthetho Kazwelonke Wokuphathwa Kwemvelo: Waste Act 59 ka-2008?

Yes (Yebo)	No (Cha)
------------	----------

2. Do you understand how it affects your business?  
Uyakuqonda ukuthi kulithinta kanjani ibhizinisi lakho?

Yes (Yebo)	No (Cha)
------------	----------

3. If yes, how?  
Uma kunjalo, kanjani?

Assists the business to implement waste separation at source. Isiza ibhizinisi ukuthi lisebenzise ukuhlukaniswa kukadoti emthonjeni.	
Encourage the business to report on waste it generates and management of it. Ukhuthaza ibhizinisi ukuthi libike ngemfucuza eliyikhiqizayo kanye nokuphathwa kwayo.	
Meet waste reduction targets. Ibhizinisi lihlangana nezinhliso zokunciphisa imfucuza	
Report on any pollution incidents in the area to authorities Usiza ekutheni sibikele iziphathimandla nganoma yiziphi izigameko zokungcola endaweni	

Other

(Okunye):.....

.....

.....

4. Can you describe the systems you have in place to minimise waste at your facility or operation?  
Ungakwazi yini ukuchaza izinhlelo onazo zokunciphisa udoti endaweni yakho noma ekusebenzeni kwakho

Implement a waste management plan. Ukusebenzisa uhlelo lokulawula udoti.	
Segregate waste Ukuhlukanisa udoti	
Reduce non-recyclable packaging waste. Ukunciphisa udoti wokupakisha ongaphinde usetshenziswe.	
Implement a recycling plan. Ukuqalisa uhlelo lokugaywa kabusha kuka doti	
Introduce composting. Ukwethula umquba	
Educate employees on waste reduction practices. Ukufundisa abasebenzi ngezindlela zokunciphisa udoti	
I don't see a need to minimise waste generation. Angisiboni isidingo sokunciphisa ukukhiqizwa kukadoti.	

Other

(Okunye):.....

.....

5. What kind of waste do you generate?  
Hlobo luni lwemfucuzo olwenzayo?

Organic waste (Imfucuzo yezinto eziphilayo)	
Office waste (imfucuzo yehhovisi)	
Municipal solid waste (Imfucuzo kamasipala)	
Hair/Nail product waste (Imfucuzo yezinwele/izinzipho)	
Clothing material waste (Imfucuzo yezinto zokugqoka)	
Food packaging waste (Imfucuzo yokupakisha ukudla)	
Other (Okunye)	

6. Are you aware of any waste treatment methods the business can use?  
Ingabe uyazazi izindlela zokuhlaza udoti ibhizinisi elingazisebenzisa

Yes (Yebo)	No (Cha)
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7. Which of the following waste treatment can the business make use of?  
Yikuphi kokulandelayo ukulahlwa kukadoti ibhizinisi elingakusebenzisa?

Recycling (Ukugaywa kabusha kukadoti)	
Composting (ukwenza umquba)	
Landfilling (Ukulahla udoti emhlabeni ogunyazelwe ukulahla udoti)	
I don't know any (Angazi lutho)	

8. What kind of records do you keep about the waste that you generate and manage?  
Hlobo luni lwamarekhodi olugcinayo mayelana nemfucuzo oyikhiqizayo noyilawulayo?

Waste inventories (type of waste, quantity of waste generated, sorted, treated, or disposed of) Uhlobo lwemfucuzo (uhlobo lwemfucuzo, ubungako bemfucuzo ekhiqizwayo, ehlukwe, ephathwayo, noma elahlwayo)	
Treatment records (Amarekhodi okuhlola imfucuzo)	
Compliance records (Amarekhodi okuhambisana nomthetho)	
Recycling records (Amarekhodi okugaya kabusha udoti)	
I don't keep any records (Angiwagcini amarekhodi)	

9. Have you ever reported any incidents of pollution or non-compliance with waste management regulations to the relevant authorities?  
Wake wabika noma yiziphi izigameko zokungcoliswa komhlaba noma zokungalandeli imithetho yokulawulwa kwemfucuza kuziphathimandla ezifanele?

Yes (Yebo)	No (Cha)
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10. Can you explain how you would handle such incidents in the future?  
Ungachaza ukuthi ungazisingatha kanjani izigameko ezinjena esikhathini esizayo?

Identify the source of pollution. (Ukuthola umthombo wokungcola)	
Notify the authorities (ukwazisa iziphathimandla)	
Use barriers to help contain the pollution from spreading. Ukusebenzisa imigoqo ukusiza ukuqkatha ukungcola okungabhebhetheki	
Protect human health by evacuating people from the spread. Ukuvikela impilo yabantu ngokukhipha abantu ekubhebhethekeni	
Document the incident (ukubhala isigameko)	
It is not my responsibility to handle pollution in my area. Akuwona umthwalo wami ukuphatha ukungcola endaweni yami	

**The National Waste Management Strategy 2020 is a policy framework that sets out the goals, objectives, and targets for waste management in South Africa to achieve sustainable development and environmental protection.**

**Isu Likazwelonke Lokulawulwa Kwemfucuza 2020 wuhlaka lwenqubomgomo olubeka izinjongo, izinjongo, kanye nemigomo yokulawulwa kwemfucuza eNingizimu Afrika ukuze kuzuzwe intuthuko esimeme kanye nokuvikelwa kwemvelo.**

1. Are you aware of the National Waste Management Strategy 2020 document?  
Ingabe uyazi ngombhalo Wesu Lokulawulwa Kwemfucuza Kazwelonke 2020?

Yes (Yebo)	No (Cha)
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2. Do you know how it applies to your business operations?  
Uyazi ukuthi kusebenza kanjani ekusebenzeni kwebhizinisi lakho

Yes (Yebo)	No (Cha)
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3. If yes, how?  
Uma kunjalo, kanjani?

Waste reduction measures (Izinyathelo zokunciphisa imfucuza)	
Waste segregation and separation (Ukuhlukaniswa kwemfucuza)	
Proper storage and handling of waste (Ukugcinwa nokuphathwa kwemfucuza ngendlela efanele)	
Use of licensed waste disposal facilities (Ukusetshenziswa kwezindawo zokulahla imfucuza ezinelayisensi)	
Record keeping (Ukugcinwa kwamarekhodi)	

4. Are you familiar with the principles of the waste management hierarchy?  
Ingabe uyayazi imigomo yezigaba sokuphathwa kwemfucuza

Yes (Yebo)	No (Cha)
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5. Do you implement any of these strategies in your business?  
Ingabe uyalisebenzisa noma yiliphi kulawa masu ebhizinisini lakho

Yes (Yebo)	No (Cha)
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6. If yes, how?  
Uma kunjalo, kanjani?

The business complies with the waste reduction, recycling and recovery targets set by the NWMS. Ibhizinisi lihambisana nokuncishiswa kwemfucuza, ukugaywa kabusha kanye nokubuyiswa kwemfucuza okuhloswe yi-NWMS	
Avoid waste generation, if cannot be avoided, the business minimises quantity of waste generated. Ukugwema ukukhiqizwa kwemfucuza, uma kungenakugwenywa, ibhizinisi linciphisa ubuningi bempfucuza ekhiqizwayo.	
The business takes responsibility of the waste it generates. Ibhizinisi lithatha umthwalo wempfucuza eliwukhiqizayo	
The business reports on the amount of waste it generates and how it manages the waste until it's collected. Ibhizinisi libika ngenani lemfucuza eliyikhiqizayo nokuthi liyiphatha kanjani imfucuza ize iqoqwe	
The business collaborates with the government and communities to achieve sustainable waste practices.	

Ibhizinisi lisebenzisana nohulumeni nemiphakathi ukuze kuzuzwe izinqubo zokumosha esimeme	
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7. What measures have you put in place to recycle or reuse waste in your operations, in line with the 'Reduce, Reuse, Recycle' principle of the National Waste Management Strategy?

Yiziphi izinyathelo ozifakile zokuphinda usebenzise kabusha noma ukuphinda usebenzise imfucuza emisebenzini yakho, ngokuhambisana nomgomo othi 'Nciphisa, Sebenzisa Kabusha, Kabusha' wesu Likazwelonke Lokulawulwa Kwemfucuza?

<p>The business has implemented a system for separating waste at source to facilitate recycling.</p> <p>Ibhizinisi lisebenzise uhlelo lokuhlukanisa imfucuza emthonjeni ukuze kube lula ukugaywa kabusha.</p>
<p>We have identified certain waste streams that can be reused within the business instead of disposed.</p> <p>Sihlonze imifudlana ethile yemfucuza engasetshenziswa kabusha ngaphakathi kwebhizinisi esikhundleni sokulahlwa</p>
<p>The business has engaged with suppliers to reduce the amount of waste generated by encouraging the use of recyclable packaging materials.</p> <p>Ibhizinisi lihlanganyele nabahlinzeki bempahla ukunciphisa inani lemfucuza ekhiqizwa ngokukhuthaza ukusetshenziswa kwezinto zokupakisha ezigaywa kabusha.</p>
<p>The business has implemented a waste audit program to identify opportunities to reduce waste generation and increase recycling rates.</p> <p>Ibhizinisi liqalise uhlelo lokuhlola imfucuza ukuze lihlonze amathuba okunciphisa ukuphehlwa kukadoti kanye nokwenyusa amanani okugaywa kabusha.</p>
<p>We work with our employees to raise awareness of the importance of waste reduction and recycling.</p> <p>Sisebenzisana nabasebenzi bethu ukuqwashisa ngokubaluleka kokuncishiswa kwemfucuza nokugaywa kabusha</p>
<p>The business collaborates with local communities to establish recycling initiatives and clean-up projects to promote sustainable waste management practices.</p> <p>Ibhizinisi lisebenzisana nemiphakathi yendawo ukusungula izinhlelo zokugaywa kabusha kanye namaphrojekthi okuhlaza ukuze kugqugquzelwe izindlela ezisimeme zokulawulwa kwemfucuza.</p>

I don't see the need to implement 'Reduce, Reuse, Recycle' principle in the business.

Angisiboni isidingo sokusebenzisa umgomo othi 'Yehlisa, Sebenzisa Kabusha, Usebenzise kabusha' ebhizinisini.

**The Norms and Standards for the storage of waste (GNR 926 of November 2013) provide guidelines for the safe and proper storage of waste in South Africa to protect human health and the environment.**

**Imithetho Nemigomo Yokugcinwa Kwemfucuza (GNR 926 of November 2013) ihlinzeka ngemihlahlandlela yokugcinwa kwemfucuza ngendlela ephephile futhi efanele eNingizimu Afrika ukuze kuvikelwe impilo yabantu kanye nemvelo.**

1. Are you familiar with the Norms and Standards for the storage of waste (GNR 926 of November 2013)?  
Ingabe uyayazi Imithetho Nemigomo Yokugcinwa Kwemfucuza (GNR 926 of November 2013)?

Yes (Yebo)	No (Cha)
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2. If yes, how do you ensure that your waste storage facilities and practices are compliant with these regulations?  
Uma kunjalo, uqinisekisa kanjani ukuthi izindawo ogcina kuzo udoti kanye nezinqubo zakho ziyahambisana nale mithetho?

The business has a copy of the regulations, and we familiarize ourselves with the requirements. Ibhizinisi linekhophi yemithethonqubo, futhi siyajwayelana nezimfuneko	
Conduct a risk assessment to identify any weak areas in your waste storage practices. Ukwenza ukuhlolwa kobungozi ukuze kutholakale noma yiziphi izindawo ezibuthakathaka emisebenzini yakho yokugcina udoti	
Train staff on the storage regulations, requirements, and best practices Ukuqeqesha abasebenzi ngemithetho yesitoreji, izimfuneko, kanye nemikhuba engcono kakhulu	
Ensure proper labelling to indicate the type of waste being stored. Ukuqinisekisa ukulebula okufanele ukukhombisa uhlobo lwemfucuza egcinwayo	
Maintain records of all waste stored on the premises. Ukugcina amarekhodi ayo yonke imfucuza egcinwe emagcekeni	
Designate specific areas for waste storage until collected by the municipality.	

Ukuqoka izindawo ezithile zokugcina imfucuza ize iqoqwe ngumasipala	
Ensure that the waste storage area is safe for workers and society. Ukuqinisekisa ukuthi indawo yokugcina udoti iphephile kubasebenzi nomphakathi	
Conduct regular inspections to ensure that waste storage facilities are functioning properly. Ukuhlola njalo ukuqinisekisa ukuthi izindawo zokugcina imfucuza zisebenza ngendlela efanele	

3. Are you familiar with the requirements for labeling, packaging, and separating of different types of waste for storage?  
Ingabe uyazazi izidingo zokulebula, ukupakishwa, nokuhlukaniswa kwezinhlobo ezahlukene zemfucuza ukuze zigcinwe?

Yes (Yebo)	No (Cha)
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4. If yes, how do you ensure that these requirements are met?  
Uma kunjalo, uqinisekisa kanjani ukuthi lezi zidingo ziyahlangatshezwa?

All waste containers are labelled with the type of waste contained within Zonke iziqukathi zikadoti zibhalwe ngohlobo lwemfucuza equkethwe ngaphakathi	
Different types of waste are separated into different containers. Izinhlobo ezahlukene zemfucuza zihlukaniswa zibe iziqukathi ezahlukene	
Waste containers are stored in designated areas that are secure and made of durable materials. Iziqukathi zemfucuza zigcinwa ezindaweni ezikhethiwe ezivikelekile futhi ezenziwe ngezinto ezihlala isikhathi eside	

5. Do you know who collects the waste?  
Uyazi ukuthi ubani oqoqa udoti?

Yes (Yebo)	No (Cha)
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6. If yes, who?  
Uma kunjalo, ubani?

Municipal Waste Collection Services (Izinsiza Zokuqoqwa Kwemfucuza Kamasipala)	
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Private Waste Collection Companies (Izinkampani Ezizimele Zokuqoqwa Kwemfucuza)	
Recycling Companies (Izinkampani Zokugaywa kabusha kukadoti)	

7. Are you aware of where your business waste goes to after being collected?  
Ingabe uyazi ukuthi imfucuza yebhizinisi lakho iya kuphi ngemva kokuqoqwa?

Yes (Yebo)	No (Cha)
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8. If yes, where does it go?  
Uma kunjalo, uyaphi udoti?

Landfills (Izindawo zokulahla udoti)	
Incinerators (Izishisi)	
Recycling (Ukugaywa kabusha kuka doti)	
Composting (Ukwenza umquba)	
Waste-to-Energy Plants (Isikhungo se-Waste-to-Energy)	

**Municipal Solid waste by-laws provide a legal framework for the collection, transportation, and disposal of solid waste, with the aim of promoting sustainable waste management practices and protecting public health and the environment.**

**Imithetho kamasipala yokulahlwa kwemfucuza eqinile ihlinzeka ngohlaka olusemthethweni lokuqoqwa, ukuthuthwa, nokulahlwa kwemfucuza eqinile, ngenhloso yokugqugquzela izindlela ezisimeme zokulawulwa kwemfucuza kanye nokuvikela impilo yomphakathi kanye nemvelo.**

1. Are you aware of the Municipal Solid Waste By-law in this area?  
Uyawazi yini uMthetho kaMasipala weNkunkuma eqinile kule ndawo?

Yes (Yebo)	No (Cha)
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2. Do you know that it is your responsibility as a waste generator to maintain suitable cleanliness and hygiene on your business premises?

Ingabe uyazi ukuthi kuwumthwalo wakho njengejeneretha udoti ukugcina inhlanzeko efanele kanye nenhlanzeko emagcekeni ebhizinisi lakho?

Yes (Yebo)	No (Cha)
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3. How do you maintain suitable cleanliness and hygiene on your business premises?

Uyigcina kanjani inhlanzeko efanele kanye nenhlanzeko emagcekeni ebhizinisi lakho?

Implement cleaning schedule and regular cleaning. Ukusebenzisa uhlelo lokuhlanya nokuhlanya njalo	
Provide cleaning material. Ukuhlizeka ngezinto zokuhlanya	
Encourage hand sanitizing and surface disinfecting. Ukugqogquzela ukuhlanzwa kwezandla kanye nokubulala amagciwane endaweni	
Encourage sick employees to stay at home. Ukugqogquzela abasebenzi abagulayo ukuthi bahlale ekhaya	
Offer proper ventilation (air circulation) with the premises. Ukuhlizeka ngokungena komoya ngendlela efanele	
Provide information and training to employees about proper hygiene practices. Ukuhlizeka ngolwazi nokuqeqeshwa kubasebenzi mayelana nezindlela ezifanele zokuhlazeka	
It is not the business' responsibility to clean, the municipality does that. Akuwona umsebenzi webhizinisi ukuhlanya, umasipala uyakwenza lokho.	

4. Are you separating your waste into different categories?  
Ingabe uhlukana imfucuzo yakho ngezigaba ezahlukene?

Yes (Yebo)	No (Cha)
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5. How do you separate your waste?  
Uyihlukanisa kanjani imfucuzo yakho?

Separate recyclable and non-recyclable waste Ukuhlukana imfucuzo esebenzisekayo nengaphinde isetshenziswe	
Create designated bins for paper, plastic, glass, organic waste. Ukwakha imigqomo eqokelwe iphepha, ipulasitiki, ingilazi, imfucuzo yezinto eziphilayo	
Separate organic waste for composting Ukuhlukana imfucuzo yezinto eziphilayo ukuze kwenziwe umquba	

6. What do you do when the waste generated exceeds the volume of the waste containers?  
Wenzani uma udoti okhiqizwayo weqa umthamo weziqokathi zemfucuzo?

Contact the waste service providers to increase frequency of waste collection. Ukuthintana nabahlinzeki bensizakalo yokulahlwa kwemfucuza ukwandisa imvamisa yokuqoqwa kwemfucuza	
Request for additional waste containers Ukufaka isicelo sokwengezwa kweziqukathi zikadoti	
Look for alternative ways to recycle and compost waste. Ukubheka ezinye izindlela zokugaywa kabusha kanye nemfucumfucu	
Implement waste reduction. Ukuqalisa ukuncishiswa kwemfucuza	
I don't do anything. Angenzi lutho	

7. Have you received any education or information from your municipality about how to properly manage your waste?  
Ingabe ikhona imfundo noma ulwazi olutholile kumasipala wakho mayelana nendlela yokuphatha kahle imfucuza yakho?

Yes (Yebo)	No (Cha)
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8. What are the responsibilities of waste generators under this Municipal solid waste by-laws to ensure health and environmental safety?  
Yimiphi imithwalo yemfanelo yabakhiqizi imfucuza ngaphansi kwalo mthetho kamasipala wokulahlwa kukadoti ukuqinisekisa ukuphepha kwezempilo kanye nemvelo?

Only the municipality is responsible for health and environmental safety, not the business. Umasipala kuphela obhekele ezempilo kanye nokuphepha kwemvelo, hhayi ibhizinisi	
Waste Segregation and Separation Ukuhlukaniswa Kwemfucuza	
Waste Reduction and Minimisation Ukuncishiswa Kwemfucuza	
Proper Storage of Waste Ukugcinwa Okufanelekile Kwemfucuza	
Keeping records of all waste generated Ukugcina amarekhodi ayo yonke imfucuza ekhiqizwayo	
Reporting Violations Ukubika Ukwepulwa komthetho	

9. How can waste generators report non-compliance with the Municipal solid waste by-laws in this area?  
Abaphehla udoti bangabika kanjani ukungahambisani nemithetho kamasipala kadoti kule ndawo?

Business owners do not report non-compliance, the municipality checks for non-compliance on its own. Abanikazi bamabhizinisi ababiki ngokungahambisani nomthetho, umasipala uyazihlolela wona ngokwawo ukuthi awuhambisani nemithetho	
Contacting the local authority Ukuxhumana nomkhandlu wendawo	
Providing the details of the violation Ukunikeza imininingwane yokwephulwa komthetho	
Providing evidence Ukunikeza ubufakazi	
Following up Ukulandelela	

10. Have you seen any illegal dumping around your premises?  
Uke wakubona ukulahlwa okungemthetho endaweni yakho?

Yes (Yebo)	No (Cha)
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11. If yes, are you aware of what measures have been put into place to address illegal dumping by the local authorities?  
Uma uthi yebo, uyazi ukuthi yiziphi izinyathelo esezibekiwe zokubhekana nokulahlwa kwempahla ngokungemthetho yiziphathimandla zendawo?

Awareness Campaigns Imikhankaso yokuqwashisa	
Cleanup campaigns Imikhankaso yokuhlansa	
Recycling Programs Izinhlelo Zokugaywa kabusha kuka doti	
Strict Law Enforcement Ukugcinwa Komthetho Okuqinile	
Increased efforts in Waste Collection Imizamo eyengeziwe ekuqoqweni kukadoti	

12. Have you seen any public awareness campaigns or education programs aimed at promoting waste reduction and recycling in your community?

Ingabe usuyibonile imikhankaso yokuqwashisa umphakathi noma izinhlelo zemfundo ezihloselewe ukukhuthaza ukuncishiswa nokugaywa kabusha kwemfucuza emphakathini wakho?

Yes (Yebo)	No (Cha)
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13. Are there any obstacles that prevent you from properly managing your waste?  
Ingabe zikhona izithiyo ezikuvimbela ukuthi ulawule kahle imfucuza yakho?

Yes (Yebo)	No (Cha)
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14. If yes, what are those challenges?

Uma kunjalo, yiziphi lezo zinselele?

Lack of Awareness (Ukuntula Ukuqwashisa)	
Lack of Resources (Ukushoda Kwezinsiza)	
Limited Space and Land-use (Isikhala Esinomkhawulo kanye Nokusetshenziswa Komhlaba)	
Resistance to Change (Ukumelana Nokushintsha)	
Insufficient funding (Imali enganele)	