

**PAPER 13**

# THE ROLE OF SMALL, MEDIUM, AND MICRO ENTERPRISES (SMME'S) IN WASTE MANAGEMENT

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**ABSTRACT**

The waste management sector and corporate enterprises, in support of corporate social and environmental responsibility have a critical function in sustainable development, especially in the context of South Africa, where the waste management hierarchy in its' approach to waste management legislation is supported, as well as the promotion of Small, Medium and Micro Enterprises (SMME's) and employment. SMME's are critical components in the creation of new job opportunities, maintaining the innovation cycle and strengthening regional economies (Silajdžić, 2015).

The role of SMME's in achieving sustainable and green development is increasingly becoming an important topic in developing economies. SMME's account for up to 99% of all enterprises and two-thirds of employment across the Organization for Economic Cooperation and Development (OECD) (Usui & Martinez-Fernandez, 2011), emphasizing the key role that they play in transitioning economies towards sustainable business practices.

The culture of outsourcing the waste management function in South Africa is evident, and SMME's are an important component of the waste management value chain. There is room for improvement in environmental responsibility amongst the SMME's in terms of their response to legislation pressure and supply chain requirements. Some challenges experienced include the bureaucracy of the waste sector legal requirements, uninformed business sector and public regarding environmental issues, and the competitive nature of the waste management sector.

In the 21st century, the unsustainable consumption of the earth's resources is an important matter (Godfrey et al., 2021), as well as the increase in waste generation because of this consumption. The generation of waste and wealth creation are linked, and waste has become one of the most controversial consequence of global market-driven economic development (Strange, 2002). The increase in waste generation should be managed to prevent public health, nuisance, and environmental degradation.

This paper explores the role that SMME's play in environmental responsibility from a waste management perspective in South Africa. It also looks into the challenges faced by SMME's in the implementation of environmental measures, as well as evaluating environmental responsibility in waste management.

**INTRODUCTION**

In the past, the waste management sector was mainly owned by the private sector, which made business sense since mostly paper, glass, tinplate and aluminium were recycled, while other waste streams estimated that up to 10.2 million tons were deposited in landfills (Manavhela, 2017). Sustainable enterprise and supplier development is important for the encouragement of creativity and innovation in the waste management sector (Silajdžić, 2015).

Entrepreneurship being the product of Small Medium Micro Enterprises is an important element in the creation of new job opportunities, strengthening regional economies as well as maintaining the innovation cycle (Silajdžić, 2015). Developing economies are increasingly prioritizing the role of SMME's

in achieving sustainable development. SMME's account for up to 99% of all enterprises and two-thirds of employment across the Organization for Economic Cooperation and Development (Muswema et al., 2021). In South Africa, SMME's often are made up of approximately 50 employees per enterprise, which creates twice the level of employment compared to businesses that are registered at largescale or the public sector. 91% of all formal entities in South Africa are SMME's, contributing 38% towards the GDP and 55% towards employment (Statistics South Africa, 2011).

Small enterprises have been identified as the drivers of sustainable and equitable growth in the country. These entities help to drive economic growth, create employment, and are sources of innovation and new ideas (Muswema et al., 2021). With unemployment as the country's central and most salient problem, a top priority for government is to grow small businesses in the formal sector, and particularly to provide appropriate support and a conducive environment for opportunity-driven entrepreneurs who establish new businesses that recognise and seize opportunities.

South Africa highly relies on natural resources to sustain its economic development. The patterns of our past and current production as well as consumption have supported substantial growth in wealth across the country. However, there are great concerns relating to the sustainability of these patterns, specifically about the implications associated to resource use and depletion.

Waste production is an unavoidable consequence of most processes. Waste management should be given special attention taking into account its environmental impacts at local, regional and global scales and its proximity to people and thus potential health impacts. This paper outlines the role and significance of Small, Medium and Micro Enterprises (SMME's) in Waste Management.

**SOUTH AFRICAN WASTE LEGISLATION AND THE ROLE OF SMME'S**

All spheres of government (local, district, provincial and national) are legally responsible for waste management, and for upholding the South African Constitution and the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) (NEMWA).

Environmental legislation, in particular the waste legislation, is relatively new in South Africa and majority of environmental legislation have only been passed since 1998 (Oelofse and Strydom, 2010). It has been fragmented historically and to some extent, still is (DEA, 2011). Nonetheless, South Africa has been progressing in addressing requirements, key issues, and challenges experienced in waste management.

In South Africa, environmental concerns have been linked with the management and disposal of waste (economic value) rather than focusing on the law to prevent the generation of waste. As mentioned above, the waste hierarchy (prevent, reuse, recycle, recovery, and disposal) is important to protect and conserve the environment. However, since majority of the South Africans do not re-use or recycle their waste, it largely ends up being landfilled. SMME's have the potential to aid in the implementation of the waste management hierarchy (i.e. avoid, reuse, reduce, recycle, recover and disposal) (Manavhela, 2017).

### THE WASTE HIERARCHY AND INTEGRATED WASTE MANAGEMENT

Previously, the overarching goal of sustainable development has been one of the driving forces in shaping the waste policy (Muswema et al., 2021), which incorporates the important pillars of sustainability, which are environmental responsibility, economic growth and social justice (Banerjee, 2009). Waste management approaches have embraced the economic, social and environmental dimensions. Sustainable waste management has been linked with integrated waste management, which can be defined as the framework of reference for designing and implementing new waste management systems and for analysing and optimising existing systems, as defined by the United Nations Environmental Programme (UNEP) in 1996.

For effective implementation, businesses need to move to a service which focuses on the prevention of waste as well as the minimisation of waste as a by-product of production rather than the traditional “end of pipe” solutions that are based on the waste generated, for example, its ‘collection, transportation, the processing, recycling or disposal of waste. The National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) (NEM:WA, 2008) provides for integrated waste management and formalises the waste management hierarchy within the legislation of South Africa. Waste should be managed according to the waste management hierarchy, and also green building principles. It gives top priority to waste prevention, followed by reduce, re-use, recycling, recovery, treat and finally disposal.



FIGURE 1: Solid Waste Management Hierarchy

The waste management hierarchy can be viewed as a simple set of management plans for dealing with waste. The waste management hierarchy is implemented to promote the diversion of waste from landfill and make considerations for possible waste opportunities through using the waste as a resource. Waste solutions may include sorting of waste, recycling, re-use, composting/organic waste recycling/treatment and waste reduction.

### SMME'S IN THE CONTEXT OF A CIRCULAR ECONOMY

The emergence of SMME's is very effective for solid waste management (Godfrey et al., 2021). Unlike informal sectors, SMME's are registered business sectors which are registered and regulated/ governed by laws.

In most towns and cities, these businesses enter into contracts with the municipality and are remunerated to perform collection, processing, or cleaning services.

It is evident from the experience of cities within South Africa that the waste economy is a significant area for informal entrepreneurship. Nonetheless, it is viewed that majority of activities involved are not fully supported and exist at bare survival levels (Manavhela, 2017). There is great potential for the growth of SMME's in circumstances where the importance of informal recovery systems is accommodative and acknowledged. Opportunities for new businesses are emerging in the context of local initiatives that are within a changing environment for urban waste management. At the same time, there is a need to put support systems in place to assist in the growth of these emerging SMME's within the waste industry.

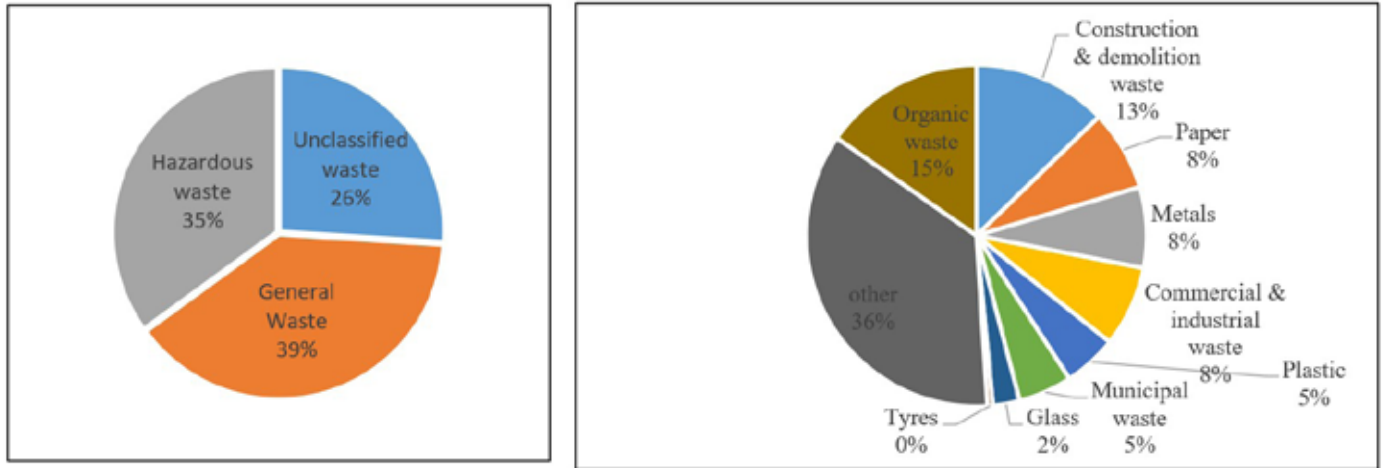
There are several circular economic activities taking place in the waste management industry in Africa such as reusing, refurbishing, repairing, and recycling of products and materials. Therefore, there is potential to increase employment and business opportunities through upscaling such activities. A review of literature indicates that many countries experience challenges in moving to sustainable waste management. These include the lack of awareness and knowledge by the public regarding waste management contributing to poor waste management practices such as illegal dumping and burning of waste; littering, poor management of the existing waste management facilities and unavailability of land for landfills; rapid waste generation which puts pressure on available infrastructure; poor waste collection; lack of effective waste management systems to support segregation, recycling, reuse and reduce; insufficient budget allocations for waste management especially infrastructure investments; enforcement of existing legal framework; and the lack of reliable and comprehensive data on waste (Muswema et al., 2021).

### CURRENT WASTE MANAGEMENT PRACTICES

Waste generators are solely responsible for the collection, storage, and disposal of their own commercial and industrial waste. The management of their waste is generally outsourced to private waste service providers, or alternatively done by local municipalities on request. Both these options will incur a service fee. In practice, municipalities do not involve themselves with hazardous waste due to the nature of its' hazardousness. Some of this waste need to be treated first before disposal and majority of municipalities lack the skills, sites or equipment to manage hazardous waste. SMME's play an essential role in this regard and are important in furthering growth, development, and innovation, which goes with a growing green building sector.

What is done by the private sector is still insufficient since most of the waste is disposed of at landfill sites due to nonefficient and effective collection of waste especially in the household areas. According to Ngadiman et al (2016), solid waste management is part of the most critical issues for municipalities, there are more costs and effort used by local authorities for collecting and disposing waste.

To divert recyclables from landfill, the South African recycling sector has mostly been active to recover recyclables from pre-consumer waste, i.e., the recovery of recyclable materials from commercial and industrial processes without a consumer being involved as the end-user (Strydom, 2018). The important role of the informal sector in postconsumer recycling is acknowledged, but postconsumer recycling should receive more attention to increase recycling rates on a national level, especially if the targets for diversion are to be reached. The most important barriers to recycling are lack of equipment and technology, lack of material to recycle and lack of consumer awareness.



**FIGURE 2:** Solid Waste Generated in South Africa in 2017 (Data Source: South African State of Waste Report)

### WASTE GENERATION

It is estimated that in 2017 South Africa generated 108.5 million tons of solid waste of which 42 million tons was general waste (South Africa State of Waste Report, second draft, first published in 2018). In this report it is estimated that plastics contributed 5% to general waste, or 2% to solid waste. Other, under general waste, comprises predominantly of biomass from the sugar mills, sawmills and paper and pulp industry. Unclassified waste include brine, slag, mineral waste, sewage sludge and waste electrical and electronic equipment (WEEE). Refer to Figure 2 For solid waste generation in South Africa during the year 2017.

#### Waste generation in South African business

The growing population of South Africa and its' economy have resulted in increased volumes of waste. According to the 2018 State of Waste Report, in the year 2017, South Africa generated 55 million tonnes of general waste, with only 11% being diverted from landfill. These trends, coupled with limited growth in the Gross Domestic Product (GDP), are associated with increases in waste generation" (National waste management strategy 2020).

South Africa is quickly running out of landfill sites. Across the Eastern Cape, Free State, North West and Western Cape, for the four provinces which reported operational and non-operational waste disposal facilities, more than 50% of the facilities were either closed or marked for closure. In addition to this, once land has been used for landfill sites, the use of surrounding land is limited as it should ideally not be used for residential, commercial, and institutional land uses. The national waste baseline report that was conducted in 2011 indicated that in South Africa, approximately 12 111 267 tonnages of commercial and industrial waste was generated. Just about 77% of this volume was recycled and the rest was disposed of at landfill sites (DEA, 2012). This suggests that there has been a significant increase in recycling since 2006/7.

With waste legislation in place, businesses should be fully committed to recycling, reducing, reusing, and the responsible disposal of waste (Worthington-Smith, 2009). The benefits of waste management in businesses include reduction in operating costs through treating waste as an intrinsic part of operations and gaining reputation from being perceived as an environmentally responsible business.

In 2018, United Nations Environmental Programme (UNEP) stated that sustainable waste management is one of the policy priorities for Africa, and various continental, regional, and country-specific policy initiatives and strategies are being implemented.

According to the first ten (10) Year Implementation Plan 2014-2023 of the agenda 2063: "The Africa We Want, by 2023 the targets for African countries include "At least fifty (50) per cent of urban waste is recycled and At least ten (10)% of waste-water is recycled for agricultural and industrial use".

#### ENVIRONMENTAL IMPORTANCE OF WASTE MANAGEMENT

With the increase in population, there is an increase in the consumption of natural resources, and consequently the quantity of waste generated. Effective waste management practices can improve the wellbeing of the public by reducing opportunities for diseases and improving environmental quality through preventing illegal dumping and littering, protecting watercourses and ground water. Waste generation in the form of packaging or disused products is a major issue that affects life on land and in the oceans. Waste generation occurs at every stage of the value chain of a service or product, during the processing and manufacturing of goods, extraction of raw resources as well as distribution and consumption. Solid waste management systems that are well-designed support economic activity and can directly contribute to poverty alleviation through the creation of jobs (National Treasury, 2011). Recycling of waste reduces the use of virgin material and promote saving of resources. Recycling also allows for possible revenue generation opportunities.

According to the Department of Forestry, Fisheries and the Environment (DFFE) (2017), the waste economy contributed approximately R24.3 billion to the South African GDP in 2016. It provided 36 000 formal jobs and supported an estimated 80 000 informal jobs/ livelihoods. A further R11.5 billion per year could be unlocked by 2023 by diverting up to 20 million tonnes of waste (DFFE 2017). The anticipated spin-offs could include 45 000 additional formal jobs and 82 000 indirect jobs, as well as the creation of 4300 Small Enterprises. The DFFE's overall target is to increase waste diverted from landfills from an estimated 13% (14 million tonnes) in 2016 to 25% (29 million tonnes) by 2023; hence greater business and job creation benefits are expected.

The DFFE also hosted a five-week chemical and waste economy Phakisa between July and August 2017 to discuss the state of waste in the country and to identify key work areas.

The participation by the government, civil society and businesses have identified 20 key initiatives across four work streams. Collectively, additional outcomes of the initiatives include:

- Landfill diversion: 20 million tonnes per year (75% industrial and 50% municipal)

- Jobs created: 127 000 (45 000 direct and 82 000 indirect)
- GDP contribution: addition R11.5 billion per year
- Small Enterprises created: 4 300
- To implement all the initiatives, R9.1 billion of investment over the next five years is required.
- Of this, it is expected that R7.3 billion can be attracted from private sources, while the remaining R1.8 billion will be used to provide critical infrastructure and awareness campaigns.

Industry-driven associations in South Africa provide support to the recycling sector and produce data on waste generated and recycled.

#### RECOMMENDATIONS AND FINDINGS FROM THE WASTE SECTOR

For SMME's that are non-environmentally certified, the main challenge is the variability of the market price of recyclables as well as the competition in the market for recyclable materials. Other challenges include sourcing volumes of postconsumer recyclables that are required to keep their businesses profitable.

Due to the ubiquitous nature of waste, there is a potential for growth of SMME's within the waste sector. However, the availability of waste that can be recycled is a significant challenge as high volumes of recyclable waste is being disposed of at municipal landfills (Oelefse, 2012). This can be attributed to the lack of knowledge by the public and businesses regarding environmental issues, especially the environmental benefits of responsible waste management and recycling (Oelefse, 2012; Godfrey et al, 2013).

Although private waste companies are generating profit from waste management, SMME's that process the waste in the supply chain are experiencing challenges with the availability of recyclables and as well as profitability. The degree to which a particular material is recycled depends on the existence of local and national markets, the need for secondary raw materials, the income levels, the degree of financial and regulatory governmental intervention as well as the cost of raw materials.

Regarding the environmental and extended producer responsibility of businesses from a waste management and recycling perspective, waste management is outsourced to waste management companies in majority of the manufacturing organisations which demonstrate their commitment to environmental responsibility through environmental certifications or group Safety Health and Environmental policies and requirements (Godfrey et al., 2021). It is evident that organisations in the manufacturing industry depend on the private waste management companies to evaluate or audit their waste contractors for environmental compliance, however, there is limited evidence of environmental responsibility in the supply chains of the SMME's (Godfrey et al., 2021).

SMME's require partners on the ground to continuously work with them to improve their practices and make them sustainable, to ensure long term and sustainable change and adoption of sustainable consumption and production practices. Knowledge sharing and capacity building is encouraged to cover suitable practices and technologies in alternative waste treatment and material recovery technologies. For SMME's to realize their role in the global economy, from an economic as well as sustainable perspective, social, economic and environmental practices will need to be adopted and embraced.

Challenges experienced by SMME's in terms of market access and competitiveness of green products have been expressed. An appreciation for green products by consumers must be developed (both public and private consumers). Supporting awareness of sustainable development and sustainable public procurement policies and products is important.

SMME's experience challenges regarding finance due to a lack of collateral and high cost of borrowing. As a result, green financing mechanisms are

required for small enterprises, including support for SMME's to aid them to develop sustainable business models and bankable proposals for implementing identified green options in their enterprises.

#### CONCLUSION

Entrepreneurs in the waste management industry require the focus and energy of SMME entrepreneurs who need to bring their enthusiasm, creativity, and innovative thinking to this important work. Addressing the challenges that lead towards sustainable development practices will require the attention of multiple stakeholders and a plan that considers the South African context and a range of interventions and initiatives. There is a need for strategies to address the environmental problems of small business and more detailed studies are required to identify specific policy mechanisms for sound environmental management in SMME's (Godfrey et al., 2021).

From experience in cities, it is evident that the waste economy is a significant area for informal entrepreneurship. Overall, it is viewed that majority of activities lack support and are existing at bare survival levels. The most promising areas for SMME growth appear in circumstances in which the importance of informal recovery systems is acknowledged, and is accommodative rather than undertaking prohibitive policy interventions. Opportunities in entrepreneurship are rising in the context of local initiatives that are embedded within a changing environment for urban waste management. Yet, a critical lesson learnt from the developing world is of the need for a set of support interventions to assist the growth of these emerging SMME's in the waste economy, not least through the innovation of programmes of micro-credit support and business development services. The involvement and support of the local governments, NGOs and all relevant stakeholders are required for the role of waste recovery as an important element for livelihood creation.

#### REFERENCES

- Amiruddin, M. H., Ngadiman, N., Kadir, R. A., & Saidy, S. (2016). Review of soft skills among trainers from Advanced Technology Training Center (ADTEC). *Journal of Technical Education and Training*, 8(1).
- Banerjee, B. (2009). Corporate environmental management. PHI Learning Pvt. Ltd.
- Godfrey, L., Roman, H., Smout, S., Maserumule, R., Mpofu, A., Ryan, G., & Mokoena, K. (2021). Unlocking the Opportunities of a Circular Economy in South Africa. In *Circular Economy: Recent Trends in Global Perspective* (pp. 145-180). Springer, Singapore.
- Rogerson, C. M. (2001, April). The waste sector and informal entrepreneurship in developing world cities. In *Urban forum* (Vol. 12, No. 2, pp. 247-259). Springer-Verlag.
- Karani, P., & Jewasikiewitz, S. M. (2007). Waste management and sustainable development in South Africa. *Environment, Development and Sustainability*, 9(2), 163-185.
- Manavhela, V. (2017). Going green saves SMMEs money. *CSIR Science Scope*, 11(2), 44-45.
- Mueller, A., Kelly, E., & Strange, P. G. (2002). Pathways for internalization and recycling of the chemokine receptor CCR5. *Blood, The Journal of the American Society of Hematology*, 99(3), 785-791.

Muswema, A. P., Oelofse, S., Nahman, A., Forsyth, G., Stafford, W., Mapako, M., ... & Manavhela, V. Multi-Criteria Analysis for Sustainable Decision Making: Opportunities for Waste and Recycling SMMES (Including Cooperatives) in Kwazulu-Natal. In *Conference on Cooperatives and the Solidarity Economy (CCSE)* (p. 8).

Naumann, C. (2017). *"Where We Used to Plough": 100 Years of Environmental Governance, Rural Livelihoods and Social-Ecological Change in Thaba Nchu, South Africa* (Vol. 37). LIT Verlag Münster.

Oelofse, S. H., & Strydom, W. F. (2010). Trigger to recycling in a developing country: in the absence of command-and-control instruments.

Silajdžić, I., Kurtagić, S. M., & Vučijak, B. (2015). Green entrepreneurship in transition economies: a case study of Bosnia and Herzegovina. *Journal of Cleaner Production*, 88, 376-384.

Strydom, W. F. (2018). Applying the theory of planned behavior to recycling behavior in South Africa. *Recycling*, 3(3), 43.

Thaba, S. C., Chingono, T., & Mbohwa, C. Enterprise development in the waste management sector.

Usui, K., & Martinez-Fernandez, C. (2011). Low-carbon green growth opportunities for SMEs. *Asia-Pacific Tech Monitor Journal*, 12-18.

Worthington-Smith, R. (2009). *The sustainability handbook*.