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From Waste to Resource:
Policy Pathways for Eco-Inclusive Enterprises in South Africa

Sectoral Business Condition Brief

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Executive Summary

South Africa's commitments towards the Sustainable Development Goals (SDGs) and the Paris Climate Agreement have been complemented with the Government's National Development Plan (NDP) Vision. Eco-inclusive enterprises, which include social, environmental and economic dimensions into their business models from the outset, hold the potential to secure the success of these frameworks. With their triple bottom line impacts, these enterprises contribute to a more green and inclusive economy. The waste sector is a strategic sector in the transformation to circular economies.

South Africa is characterised by the highest inequality rates worldwide. Its waste sector in particular reflects many social, environmental and economic challenges. While 90% of all waste is dumped on landfills, there is a large informal sector, which integrates little to not at all into formal waste management services. There are great options for improvement.

Various measures have been taken to shape the waste sector's development and various policies concerning waste legislation have been introduced. They have helped to raise awareness and the country to move towards a circular economy. The most important frameworks in South Africa are:

The *National Environmental Management: Waste Act (Act 59 of 2008)*[1] with its amendments, which governs waste management in South Africa until today. It introduced the concept of the 3Rs – reuse, recycle and recover – for the first time.

The *National Waste Management Strategy (2011)*[2], which specified waste management-related goals to be achieved by 2016, many of which provided an enabling framework for the development and implementation of green technologies.

The Government recognizes the importance of small and medium sized enterprises (SMEs). The NDP 2030 Vision identifies them as key catalysers for sustainable growth, job creation and the reduction of inequalities. For SMEs in the waste sector, funding is available from different sources:

The Department of Small Business Development (DSBD) is a newly formed ministry which stimulates entrepreneurship to contribute to economic transformation. With their *Co-operative Incentive Scheme (CIS)*, the ministry offers funding to registered co-operatives which are held by marginalised people.

The national *Green Fund* seeks to support green initiatives to assist South Africa's transition to a low-carbon, resource-efficient and climate-resilient development path delivering high-impact economic, environmental and social benefits.

Despite the efforts of the South African Government, challenges persist. Joint efforts from multiple stakeholders are required to support eco-inclusive enterprises and to leverage their potential.

Thus, the objectives of this Sectoral Business Condition Brief are to:

- Inform policy makers and other sector stakeholders about the challenges and barriers that eco-inclusive enterprises face in the waste management sector;
- Identify action fields, or focus areas, for the development of targeted support solutions, accelerating eco-inclusive enterprises in the waste management sector; and
- Support the development of tailored, customized and tested support instruments, which strengthen the role of eco-inclusive enterprises in the waste management sector to achieve a green, inclusive and circular economy.

The Brief is shaped out of two SEED Policy Prototyping Labs. These SEED Labs are a component of SEED's wider activities in South Africa aiming at shaping a conducive ecosystem for eco-inclusive enterprises and providing high-quality, accessible business development opportunities to entrepreneurs and the wider business community. The two SEED Policy Prototyping Labs brought together multiple stakeholders from the private, public and social sectors to design instruments that scale up eco-inclusive innovation in South African waste management.

1 Republic of South Africa. National Environmental Management: Waste Act 59 of 2008. Retrieved from: https://www.gov.za/documents/national-environmental-management-waste-act
2 Republic of South Africa. National Environmental Management: Waste Act (59/2008): National Waste Management Strategy 2011. Retrieved from: https://www.environment.gov.za/sites/default/files/docs/nationalwaste_management_strategy.pdf

1 The Future of Eco-Inclusive Waste Management Enterprises: Driving Green and Inclusive Economies

Waste management is an integral part of the 2030 Agenda of Sustainable Development and has strong linkages to a range of sustainability challenges to be tackled, including climate change mitigation, poverty reduction, food and resource security and sustainable consumption and production.

The disposal of (non-biodegradable) waste reinforces climate change through the emission of methane, a greenhouse gas (GHG), further exacerbated by GHG emissions created through the manufacture of new products and materials instead of reducing, reusing or recycling of virgin materials.[1] Estimates by the Ellen McArthur Foundation show that 95% of all plastics worldwide are disposed of after single use. This causes a loss to the economy of $80 billion to $120 billion every year, without considering negative externalities,[2] which includes impacts on public health and the environment. Two billion people are still without access to waste collection services.[3] Health costs linked to respiratory infections or other illnesses associated with air pollution alone are estimated at over $ five trillion per year. Annually, 4.3 million people die as a result of poor household air pollution. Open dumping or burning of waste leads to severe land, soil, freshwater and sea pollution. Research suggests that over six million tons of plastic make their way into our oceans every year. These problems are to become more pressing with both rising population numbers and a growing economy.

The importance of sustainable waste management services grows and there is a rising demand in the global waste market. A more sustainable approach to managing waste is urgently needed. Besides the enormous positive impacts on the environment, integrated waste management and innovative waste services can be used as a catalyst for sustainable livelihoods, job creation and economic development. The same applies to how resources are used. The idea of a circular economy has emerged as a beacon for moving away from the linear, single-use, resource inefficient economy and is based on concepts of reducing waste, reusing materials and redesigning how we create value from products and services. According to UN Environment (2015) estimations, there is a potential to create nine to 25 million new jobs in a globa circular economy.[4] In a circular economy, waste can be re-utilized as a resource. Thus, waste management and the circular economy are closely interlinked aspects.

The South African Government's signing of international conventions such as the Paris Climate Agreement[5] (signed in 2016) has demonstrated political commitment to climate-smart, sustainable development. However, existing initiatives around the Nationally Determined Contributions (NDCs) focus primarily on large-scale projects that have little impact on low-income individuals. The United Nations' Sustainable Development Goals (SDGs), adopted in 2015, list 17 goals towards improving the lives of all by 2030. The strategic importance of the waste sector is spelt out across several SDGs. The South African National Development Plan (NDP)[6] 2030 follows similar goals as it aspires to eliminate poverty and reduce the rate of unemployment by growing an inclusive economy. This clearly demonstrates the Government's commitment towards a greener and more sustainable economy. As resource use strongly relates to social issues, the sector holds great opportunities for more as-

1 ISWA World Congress (2015): Global Waste Management Outlook 2015. Retrieved from: https://www.iswa.org/fileadmin/galleries/Publications/ISWA_Reports/GWMO_summary_web.pdf.
2 Ellen MacArthur Foundation and McKinsey & Company (2016): The New Plastics Economy: Rethinking the future of plastics. Retrieved from: https://www.ellenmacarthurfoundation.org/publications/the-new-plastics-economy-rethinking-the-future-of-plastics.
3 ISWA World Congress (2015): Global Waste Management Outlook 2015. Retrieved from: https://www.iswa.org/fileadmin/galleries/Publications/ISWA_Reports/GWMO_summary_web.pdf.
4 UN Environment Assembly (2017): Towards a pollution-free planet. Report of Executive Director. Retrieved from: http://web.unep.org/environmentassembly/report-executive-director/.
5 195 countries all agreed to address the threat of climate change.
6 National Planning Commission (2011). The National Development Plan - Vision 2030. Retrieved from: http://www.gov.za/.

pects of sustainable development. In achieving the national and international targets, the waste sector has been identified as a high potential sector to drive South Africa's green economy, while offering solutions to various social, environmental and economic challenges the country is currently facing.

Globally, capacities to tackle waste management are unequally distributed. While the more privileged have access to technologies and innovative solutions, marginalized communities treat waste flows completely different. South Africa is characterised by the highest rates of inequality worldwide, which is increasingly driven by the labour market.[7] Especially in urban areas, the waste sector in South Africa is characterized by large amounts of informal waste pickers who collect recyclables off landfills. The South African Government estimates there are around 60,000-90,000[8], whereas other studies state there could be more than 200,000 waste pickers active at South African landfills.[9] These mostly low-skilled pickers risk their health in a labour-intensive and hazardous environment in order to make a living. The sector is especially unequal - although the industry relies heavily on the informal workers, national policies cover only the formal sector. Competition within the informally self-employed is high and they have to rely on prices which buy-back centres dictate them.[10] At the same time, landfills remain the primary method of waste disposal.

Through the NDP Vision 2030, the South African government has committed to an absolute reduction in the total volume of waste disposed to landfill each year. The Medium Term Strategic Framework (MTSF) from 2015 includes targets to license all landfills by 2019. Further, it aims to reach the target of 20% waste division (of total weight) by 2019.[11] With current amounts of waste, this is a big challenge.

Against this background, the industry wants to unlock support across the waste value chain. The South African Government has committed to promote small and medium sized enterprises (SMEs) and cooperatives as a vehicle of more decent and sustainable development. The National Waste Management Strategy (NWMS) of 2011, for example, set forth goals to create 69,000 new jobs and 2,600 additional SMEs and cooperatives participating in waste service delivery and recycling by 2016.[12] It is therefore clear that waste management enterprises shall increase in number and impact. However, the cooperatives in the sector, which operate based on a voluntary, open membership and are governed democratically by definition, are characterized by a high mortality rate and a high turnover rate of members.[13] Their fragility and vulnerability to external factors include the lack of a coherent business plan, poor management systems and disputes.[14] This is where eco-inclusive entrepreneurship can influence the sector.[15] They hold the opportunity to provide more viable and sustainable structures to plan and invest in their futures. Eco-inclusive enterprises[16] are enterprises that actively combine social, economic and environmental objectives in their business models. Therefore, their role goes beyond contributing to economic development. They have been identified as key catalysts which can significantly contribute to the transition to a green, inclusive economy.[17]

Eco-inclusive enterprises can make crucial contributions towards achieving social and environmental sustainability while ensuring economic growth.

As this Brief shows, political commitment can promote their success, on which the achievement of the NDP and the SDGs depend. However, their growth and scale requires the continued support of local, national and international stakeholders. More can be done to provide an enabling ecosystem for these innovators.

7 World Bank (2018): South Africa Economic Update: Jobs and Inequality. Retrieved from: http://documents.worldbank.org/curated/en/368961522944196494/pdf/125011-REPLACEMENT-PUBLIC-SAEU-APRIL-2018-Edition-11.pdf.

8 DEA (Department of Environmental Affairs) (2016): Report on the Determination of the Extent and Role of Waste Picking in South Africa; DEA: Pretoria, South Africa. Available online: http://sawic.environment.gov.za/documents/5413.pdf.

9 Linzner, R.; Lange, U. (2013): Role and size of informal sector in waste management - A review. Waste Resource Management. 166, 69–83. Retrieved from: http://www.mdpi.com/2079-9276/6/4/57/htm.

10 Schenck, R. & Blaauw, P.F. (2011). The Work and Lives of Street Waste Pickers in Pretoria—A Case Study of Recycling in South Africa's Urban Informal Economy. Urban Forum, 22:411-430. Retrieved from: https://core.ac.uk/download/pdf/62633759.pdf.

11 SAWIC (2015): Our future – make it work. NDP and waste management. Retrieved from: http://sawic.environment.gov.za/documents/3963.pdf.

12 DEA (Department of Environmental Affairs) (2011): National Waste Management Strategy (NWMS) 2016 Targets. Retrieved from: https://cer.org.za/wp-content/uploads/2012/06/municipalwaste_sector-plan.pdf.

13 Godfrey, L., Muswema, A., Strydom, W., Mamafa, T. and Mapako, M. (2015): Evaluation of co-operatives as a developmental vehicle to support job creation and SME development in the waste sector. Green Fund, Development Bank of Southern Africa, Midrand. Retrieved from: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2016/04/GreenFund-Waste-co-operatives-report_CSIR-final.pdf.

14 Ibid.

15 SEED (2016): Replicating Eco-Inclusive Business Models: Retrieved from: https://www.seed.uno/images/documents/2436/seedstudy-replicatingeco-inclusiveenterprises.pdf.

16 The term eco-inclusive enterprise does not exclude cooperatives. Their business models explicitly focus on positive environmental impacts next to the aim of providing a more inclusive transformation of the economy.

17 SEED (2017). The Landscape of Eco-Inclusive Entrepreneurship Malawi, Mozambique and Namibia, Trends, Challenges and Opportunities. Retrieved from: https://www.seed.uno/seedsas17/.

About this Sectoral Business Condition Brief

This Brief analyses the business conditions faced by eco-inclusive enterprises in the waste management sector in South Africa. It begins by providing evidence and the latest insights into enabling conditions for and barriers faced by eco-inclusive SMEs in South Africa. This includes the identification of key political, regulatory, market-based, infrastructural and social conditions common to eco-inclusive SMEs operating within the waste management sector. Finally, the brief carves out action fields and instruments to promote these enterprises with regard to an inclusive, green economy transition.

The Brief serves as an introduction for various stakeholders (local national, and international) who support eco-inclusive enterprises in the waste management sector, with relevance across sectors. It shall inform these supporting actors on how to jointly shape a more enabling ecosystem, which aims at promoting the successful start-up and scale-up of enterprises with eco-inclusive business models.

The Brief builds upon two SEED Policy Prototyping Labs during which supporting strategies were formulated. Tailored, customized policy instruments were created which aim at promoting their success. The Labs engaged policy makers, sector experts, researchers and eco-inclusive enterprises from the South African waste sector to discuss challenges and prototype solutions to support these enterprises to grow and scale.

About SEED Policy Prototyping Labs

SEED Policy Prototyping Labs facilitate collaboration between policy-makers, financial institutions, sector experts, researchers and eco-inclusive enterprises to prototype instruments that promote eco-inclusive enterprises. The Policy Labs result in innovative, tailor-made instruments and interventions that enable small and growing eco-inclusive enterprises to successfully start-up, scale-up, and maximise their environmental, social and economic impacts.

During the Policy Labs, SEED provides participants with up-to-date, sector-specific insights into challenges and enablers of these enterprises, and facilitates a participatory and iterative process to design customised support tools and frameworks. SEED is committed to sharing lessons and replicating instruments and experiences that support SMEs to grow and scale.

Both the instruments and underlying assumptions developed during the two SEED Policy Labs were tested through a comprehensive literature review and expert interviews. This culminated in the identification of a set of targeted and customised recommendations and instruments to maximise the socio-economic and environmental impacts of eco-inclusive enterprises.

This Sectoral Business Condition Brief aims to:

- Inform policy-makers, sector experts, financial institutions, non-governmental organisations (NGOs), Business Development Support (BDS) providers and other ecosystem stakeholders about the challenges and barriers to eco-inclusive enterprise growth and scaling in the waste management sector in South Africa.
- Identify action fields for how these obstacles can be tackled through multi-stakeholder efforts while shaping an enabling environment for the success of aspiring and growing enterprises in the sector.
- Support the development of customised and tested policy, collaboration and financing instruments that strengthen the role of eco-inclusive enterprises in the waste management sector to the benefit of a green and inclusive South African economy.
- Outline the role that national and international governments can play in the design and implementation of the aforementioned instruments to support eco-inclusive enterprises in the sector.

The Brief reiterates the contributions of eco-inclusive SMEs to global development agendas and champions market-based solutions to achieve an inclusive, green economic future.

2 Scaling Up Eco-Inclusive Innovation: The Success of Triple Bottom Line Enterprises

Our global transition towards inclusive green economies necessitates focused, market-based approaches. Multi-stakeholder support on national and international scales must mobilise the transformative power of diverse small and growing eco-inclusive enterprises, in the South African waste management sector and beyond. Adopted approaches must actively fortify an ecosystem of policy, financing and multi-stakeholder collaboration instruments conducive to the establishment and long-term viability of these small and growing enterprises.

SMEs are the backbone of the global economy, contributing up to 40% of employment and up to 33% of GDP in emerging economies. These numbers are significantly higher when contributions to the informal sector are considered.[1] In addition to their economic significance, many of these smaller enterprises have adopted business models with a strong social and environmental mission. These eco-inclusive enterprises:

> Combat environmental degradation and pioneer business models based on environmental sustainability and the creation of responsible products, services and value chains to mitigate and/or adapt to climate change.

> Employ and incorporate low-income or vulnerable populations, including women and unemployed youth, in their value chains as suppliers, distributors and consumers.

Eco-inclusive enterprises alleviate poverty and eradicate hunger. They help communities to access stable household incomes and reduce household dependency on social grants, which are common in South Africa. These enterprises simultaneously reduce the negative environmental impacts of economic activities through closed-loop and less resource-intensive production processes. They often offer products that enable communities to adapt to and/or mitigate climate change. The success of South Africa's eco-inclusive SMEs in the waste management sector supports local economic stimulation, job creation – especially in rural communities where formal employment opportunities are particularly limited-, food security, natural resource conservation, and community empowerment.

Identifying eco-inclusive enterprises

Eco-inclusive enterprises are enterprises that integrate ecological and social inclusion objectives into their business model from the outset to generate green, inclusive economic growth:

> **Ecological** by using sustainable production methods; contributing to resource efficiency, waste reduction, or biodiversity conservation; and helping to mitigate or adapt to climate change.

> **Inclusive** by creating local jobs, particularly for deprived populations such as youth, women and low-income and rural households; and through integrating communities into the enterprise's local and global value chains as suppliers, distributors and customers.

Eco-inclusive enterprises in the waste management sector:

> Alleviate poverty and hunger through job creation and income generation through the sale of waste collected;

> Reduce the rate of dependency by individuals and households on government social grants due to unemployment;

1 International Finance Corporation (IFC)(2010): Scaling-Up SME Access to Financial Services in the Developing World. Retrieved from: http://www.enterprise-development.org/wp-content/uploads/ScalingUp_SME_Access_to_Financial_Services.pdf.

- Reduce the financial burden on municipalities associated with waste collection and management through the increased diversion of waste from landfills to recycling, reuse and reclamation sites;
- Tackle issues of climate change through diverting waste from landfills for reclamation and reuse purposes, thus reducing the pollution associated with both the manufacturing and discarding of waste into landfills;
- Contribute to the economic growth of the country through the sale and exportation of waste to international markets; and
- Reduce the environmental impacts associated with improper waste management and to contribute to positive health outcomes in society.

SAG-SEED AWARD WINNER 2017


Photo: http://ithemba-labantu.co.za/

Providing training and mobility to improve the lives of informal waste pickers: iThemba Phakama

The need to formally recognise informal waste pickers to ensure that their health and safety can be improved has been acknowledged by iThemba Phakama. Additionally, the need to reduce and eliminate waste in ways beyond burning or dumping in landfills is a key focus. The provision of locally manufactured tricycles and safety protection to informal waste pickers is one way iThemba Phakama has sought to address issues of poverty. The enterprise also encourages waste collection and recycling as a method for waste management. This results in an increased income as well as income security for the waste pickers involved. The enterprise is funded by advertising, which is provided on the sides of the tricycles used to collect the waste. Members pay a monthly contribution to use the tricycle (which reduces the physical labour of waste collection). Once they have enough money to buy their own tricycle, the opportunity to become an independent micro-entrepreneurs exists.

> The enterprise's activities avoid the combustion of waste, which reduces greenhouse gas emissions as the burning of waste is generally the norm in informal settlement areas and townships.

Enterprise impacts

Social impacts:

- Addressing poverty in surrounding townships by formally recognising informal waste pickers.
- Improving the health of members by providing safety gear and tricycles, which reduce the physical exertion of gathering waste.
- Building communal capacity on waste management through creative educational workshops.

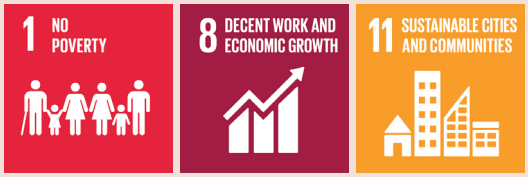
Environmental impacts:

- Encouraging waste collection instead of burning or littering through awareness-raising workshops and offering door-to-door waste collection.
- Reducing carbon emissions from burning and landfills by collecting waste for upcycling and recycling.
- Rehabilitating waterways through improved waste management and awareness-raising.

Economic impacts:

- Reducing the number of shopping trolleys stolen from retailers.
- Increasing income and income security of waste pickers – structured waste picking can increase daily income by 400%.
- Creating a local supply of sorted waste products – the first step of an integrated value chain.

iThemba Phakama
contributes to the achievement of the following Sustainable Development Goals:



SEED SOUTH AFRICA WINNER 2015

Implementing waste reduction and recycling measures by empowering women in semi-urban and rural areas: P.E.A.C.E.-Thinana Recycling Cooperative

P.E.A.C.E.-Thinana Recycling Cooperative focuses on promoting the reduction of waste through recycling, rather than methods harmful to the environment. This is achieved through utilising non-motorised trolleys and donkey carts for common waste disposal, which reduce greenhouse emissions. By training staff and community members on waste collection, the cooperative is able to generate an income. The cooperative focuses on promoting women's leadership and entrepreneurship, and 70% of the centre's employed staff are women.

> P.E.A.C.E.-Thinana Recycling Cooperative showcases a model for rural and semi-urban waste recycling that can be scaled and replicated throughout other local municipalities.

Enterprise impacts

Social impacts:

- Generating sustainable income for cooperative members and staff through permanent employment, and additional income for community members who collect and sell waste on an ad-hoc basis.
- Promoting women's leadership and entrepreneurship, as women occupy 70% of the jobs at the centre.

Environmental impacts:

- Promoting waste reduction through recycling, and discouraging waste burning and illegal dumping.
- Reducing greenhouse gas emissions from common waste disposal by reducing landfill, and utilising non-motorised trolleys and donkey carts.
- Fostering environmental understanding of students through recycling education programmes and a fresh produce permaculture training centre.

Economic impacts:

- Establishing an effective and profitable waste management network for the local municipality, and economically empowering community members.
- Increasing the value of donkeys by improving their health and expanding their contribution to generating an income.

P.E.A.C.E.-Thinana Recycling Cooperative
contributes to the achievement of the following Sustainable Development Goals:

2.1 South African Support for Eco-Inclusive Entrepreneurship

The South African government has recognised the importance and made significant efforts to support climate action and the green economy agenda, with a few initiatives tailored to these exemplary small and growing enterprises. The government's objective to establish a greener and more inclusive economy is evident in its commitment to international conventions, including the Paris Climate Agreement[1] as well as the NDP Vision 2030.[2]

South Africa's NDC, resulting from the Paris Agreement, outlines the country's strategy for climate change mitigation and adaptation. In its NDC, South Africa prioritises poverty and inequality alleviation, promotes inclusive economic growth, and aims to reduce unemployment while transitioning to a low-carbon and climate-resilient future.[3] The South African Government also acknowledges that "poor communities are particularly vulnerable to the adverse impacts of climate change, a challenge [South Africa] shares with many poor countries in Africa".[4] The importance of *"sustainable small, medium and micro businesses which will add to the common wealth of our country and the achievement of enhanced economic and social well-being of all South Africans"* is stressed in guidelines like the General Procurement Guideline issued by the Government of South Africa.[5] Although it does acknowledge cooperatives as they *"create and develop income-generating activities and decent, sustainable employment; reduce poverty, develop human resource capacities and knowledge; strengthen competitiveness and sustainability; increase savings and investment; improve social and economic well-being; and contribute to sustainable human development"* in an integrated strategy,[6] the South African NDC does not explicitly acknowledge the potential of small and growing eco-inclusive enterprises to reach the most vulnerable to climate change impacts. For policy support directed at cooperatives, see Godfrey et al. (2015).[7]

Various instruments have been adopted to shape the waste sector's future development and secure the success of eco-inclusive enterprises. These are:

The **White Paper on Integrated Pollution and Waste Management Act (2000)**[8], which provides a broad framework for integrated waste management. It introduced the principles of "cradle-to-grave" and "polluter pays".

The **National Environmental Management: Waste Act (Act 59 of 2008)**[9], which governs waste management in South Africa. It introduced the concept of the 3Rs – recover, recycle and reuse – for the first time.

The **National Waste Management Strategy (2011)**[10], which specifies waste management-related goals to be achieved by 2016, many of which provide an enabling framework for the development and implementation of green technologies.

The **National Environmental Management: Waste Amendment Act (Act 26 of 2014)**[11], which outlines amendments to the Waste Act (particularly relating to certain definitions, including the definition of "waste"), the drafting of a pricing strategy to guide the implementation of economic instruments in the waste sector, and transitional provisions in respect of existing industry waste management plans.

Further effort has been directed to the support of SMEs. The NDP 2030 aims to create eleven million new jobs by 2030, 90% of which shall be created in small and expanding firms. In 2014, the Department of Small Business Development (DSBD) was formed to address the lack of support to small businesses and cooperatives.

Despite government efforts in South Africa to ensure the success of SMEs within the waste sector, more support for such enterprises is required for continued growth and

1 195 countries all agreed to address the threat of climate change.
2 National Planning Commission (2011). The National Development Plan - Vision 2030. Retrieved from: http://www.gov.za/.
3 UNFCC (2015). South Africa's Intended Nationally Determined Contribution (INDC). Retrieved from: http://www4.unfccc.int/ndcregistry/PublishedDocuments/South%20Africa%20First/South%20Africa.pdf
4 Department of Environmental Affairs (2015). Discussion Document: South Africa's Intended Nationally Determined Contribution (INDC). Retrieved from: https://www.environment.gov.za/.
5 Government of South Africa (1999): General Procurement Guidelines. Retrieved from: http://www.treasury.gov.za/legislation/pfma/supplychain/General%20Procurement%20Guidelines.pdf.
6 DTI (Department of Trade and Industry) (2012): Integrated Strategy on the Development and Promotion of Co-operatives. Promoting an Integrated Co-operative Sector in South Africa, 2012 – 2022. Retrieved from: http://www.thedti.gov.za/economic_empowerment/docs/coops/legis_policy/Integrated_Strategy.pdf.
7 Godfrey, L., Muswema, A., Strydom, W., Mamafa, T. and Mapako, M. (2015): Evaluation of co-operatives as a developmental vehicle to support job creation and SME development in the waste sector. Green Fund, Development Bank of Southern Africa, Midrand. Retrieved from: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2016/04/GreenFund-Waste-co-operatives-report_CSIR-final.pdf.
8 Department of Environmental Affairs and Tourism (2000): White Paper on Integrated Pollution and Waste Management for South Africa . Retrieved from: https://cer.org.za/wp-content/uploads/2013/02/integrated_pollutionand_wastemanagement_0.pdf.
9 Republic of South Africa. National Environmental Management: Waste Act (59/2008). Government Gazette No.32000 GN. 278 of 10 March 2009. Pretoria, South Africa. Retrieved from: https://www.gov.za/documents/national-environmental-management-waste-act.
10 Republic of South Africa. National Environmental Management: Waste Act (59/2008): National Waste Management Strategy 2011. Retrieved from: https://www.environment.gov.za/sites/default/files/docs/nationalwaste_management_strategy.pdf
11 Republic of South Africa. National Environmental Management: Waste Amendment Act (Act 26 of 2014). Retrieved from: https://www.gov.za/documents/national-environmental-management-waste-amendment-act.

strengthening. This can be achieved not only through formal commitment to the role of SMEs in national development agendas, as expressed in South Africa's NDC and NDP, but also with complementary local and national policy instruments that translate these objectives into implementable measures. These instruments must be formulated to improve the profitability of SMEs and to optimise their environmental and social benefits. The instruments must also cater to the specific challenges and enablers of enterprise success within specific sectors. The following sections in this brief focus on the business conditions for SMEs in the waste sector, and how these conditions can be improved through multi-stakeholder collaboration.

2.2 A Snapshot of the Waste Management Sector in South Africa: Growing Need to Strengthen Eco-Inclusive Waste Management Enterprises

The Department of Environmental Affairs (DEA) in South Africa is responsible for environmental health and safety, including the regulation of the waste sector. The DEA has broadly classified waste into three categories, namely: general, unclassified and hazardous waste. At present, general waste is the most produced in the country (55%), followed by unclassified waste at 44% and finally hazardous waste at 1%.[12] The waste definitions are provided by the National Environmental Management Waste Act (Act 59 of 2008) as highlighted in Figure 1 below.

General Waste
Waste that does not pose an immediate hazard or threat to health or the environment, and includes domestic waste, building and demolition waste, business waste, and inert waste.

Hazardous Waste
Waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical, or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

Unclassified Waste
Waste streams that are listed both under general and hazardous waste in the Waste Information Regulations.

Figure 1: Definitions of waste classification

According to a 2011 World Bank Report on global waste management, South Africa produced an estimated 54,425 tonnes of solid waste per day and was ranked 15th among the countries that generate the most waste in the world in 2009.[13,14] The report further indicates that South Africa will be generating up to 72,146 tonnes per day by 2025.[15]

However, the Waste Baseline Study of 2012 highlighted that South Africa produced an estimated 108,000 tonnes of waste per day – equivalent to over 108 mega tonnes of waste per year[16] and an increase of 85% in waste generation than that anticipated in the World Bank Report. Such increases in waste generation are likely to be attributed to an increased rate of urbanisation, manufacturing, and spending in the economy.[17] Furthermore, in comparing estimated vs. actual waste generation figures, it is clear that South Africa needs to identify and implement alternative solutions focused on waste management in order to meet its commitments to the SDGs and the Constitution as it relates to the preservation of environmental health.

2.2.1 Waste management and disposal

The most commonly used final point for waste disposal is the landfill. In 2016, approximately 59% of households had their waste collected by local authorities, service providers or a community member whereas around 34% have disposed their waste in either an own dump or a communal dump.[18] An estimated 75% of the waste which made it into the waste management chain in 2016 ended up in landfills (with the remaining 25% either being recycled, beneficiated or used as agriculture organic waste composted at source).[19] Data shows that in 2012, 90% of all waste generated was disposed of in landfills and only 10% recycled[20] (refer to Figure 2). However, the goal is to raise this share to 20% by 2019.[21] It is estimat-

12 GreenCape (2017): Waste Economy 2017 Market Intelligence Report. Retrieved from: https://www.green-cape.co.za/assets/Uploads/GreenCape-Waste-MIR-2017-electronic-FINAL-v2.pdf.

13 The report notes the following regarding the reliability of the data used: "Solid waste data should be considered with a degree of caution due to global inconsistencies in definitions, data collection methodologies, and completeness. The reliability of the data is influenced by: undefined words or phrases; inconsistent or omitted units; dates, methodologies, or sources of data not indicated; estimates made without basis; incomplete or inconsistent data and information collected at a non-representative moment."

14 World Bank (2012): Urban Development Series – Knowledge Papers: Chapter 3: What A Waste: A Global Review of Solid Waste Management. https://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1334852610766/Chap3.pdf.

15 Ibid.

16 Department of Environmental Affairs (2012): National Waste Information Baseline Report. Department of Environmental Affairs. Pretoria, South Africa. http://sawic.environment.gov.za/documents/1880.pdf.

17 Department of Environmental Affairs (2018): South Africa State of Waste. A report on the state of waste, First Draft. Retrieved from: http://sawic.environment.gov.za/documents/8641.pdf.

18 Department of Environmental Affairs (2012): National Waste Information Baseline Report. Retrieved from: http://sawic.environment.gov.za/documents/1880.pdf.

19 Ibid.

20 Department of Environmental Affairs (2012): National Waste Information Baseline Report. Retrieved from:. http://sawic.environment.gov.za/documents/1880.pdf.

21 SAWIC (2015): Our future – make it work. NDP and waste management. Retrieved from: http://sawic.environment.gov.za/documents/3963.pdf.

ed that the country has the potential to divert over 65% of its waste into recycling or recovery[22], but this is currently being overlooked as landfills are regarded as more cost-effective compared to investing in other means of waste management such as recycling.[23]

Figure 2: Waste disposal in South Africa

This form of waste management has resulted in low sectorial contribution to the GDP of 0.51% (approximately R15 billion)[24], with the Waste Baseline Study highlighting that if 65% more of the waste produced in 2012 had been recycled or reclaimed, the sectorial contribution to the GDP would have been up to R32 billion. Such trends have resulted in government developing additional policies aimed at increasing the recycling and recovery of waste within the country, including the enactment of the National Waste Management Strategy of 2011 (NWMS). The strategy provides a hierarchal structure for waste management with the most important and desired level being the avoidance and reduction of waste generation (at the top of the pyramid) and the least desired outcome at the bottom level, as provided in Figure 3.

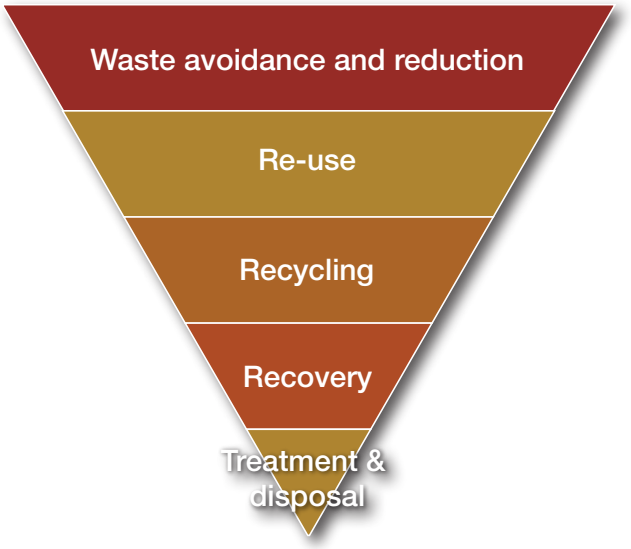


Figure 3: Waste hierarchy

22 GreenCape (2017): Waste Economy 2017 Market Intelligence Report. Retrieved from: https://www.green-cape.co.za/assets/Uploads/GreenCape-Waste-MIR-2017-electronic-FINAL-v2.pdf.
23 Department of Environmental Affairs (2018): South Africa State of Waste. A report on the state of waste, First Draft. Available from: http://sawic.environment.gov.za/documents/8641.pdf.
24 Godfrey, L., Strydom, W., Muswema, A., Oelofse, S., Roman, H. and Mange, M. (2014): Understanding the South African Waste Sector: The Economic and Employment Opportunities it provides. CSIR. Retrieved from: https://www.wasteroadmap.co.za/download/presentation_02.pdf

2.2.2 Types and distribution of waste management facilities

Furthermore, the NWMS requires that producers and management entities be registered and report on their waste management efforts in the South African Waste Information System (SAWIS). Although there are 791 licensed treatment facilities[25] in South Africa, currently there are only 611 of them registered on the SAWIS. 473 are for public use, 269 are non-accessible for the public and 49 are exclusively private onsite storage facilities. Of these, only 280 enterprises are reporting their waste management activities – in terms of management and methods, and including recycling, recovery, treatment and disposal.[26] The low numbers of enterprises reporting on the system has been attributed to regulatory requirements, i.e., enterprises that do not trigger certain listed activities in accordance with the law are not required to report as they are deemed to be operating below set thresholds. The figures below highlight the availability and distribution of waste management facilities in the country.

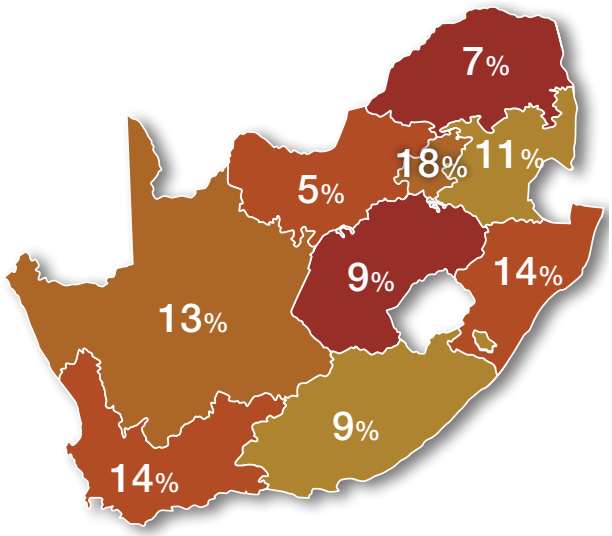


Figure 4: Share of waste treatment facilities by province (total of 791 licensed facilities)

25 This excludes facilities licensed only for storing waste.
26 Department of Environmental Affairs (2018): South Africa State of Waste. A report on the state of waste, First Draft. Retrieved from: http://sawic.environment.gov.za/documents/8641.pdf.

Nationwide, there are 66 licensed recycling and recovery facilities. A significant portion of all licensed waste recycling and recovery facilities (of 66) are located within the Gauteng (38%) and Western Cape (33%) provinces, with the remaining scattered across the other provinces as indicated in Figure 5 below.

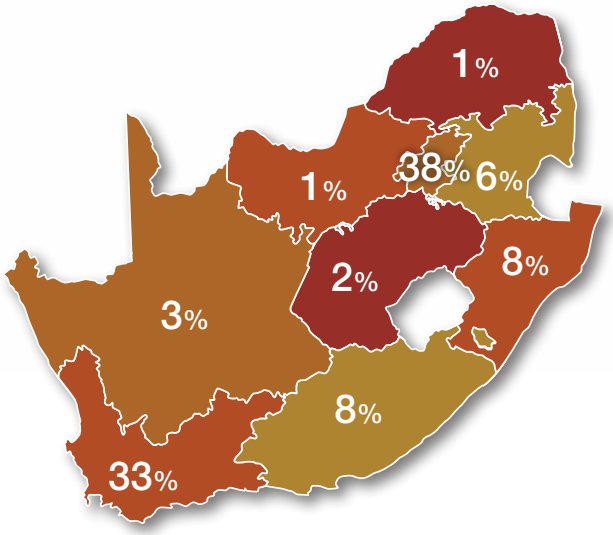


Figure 5: Share of recycling and recovery facilities by province (total of 66 licensed facilities)

Many facilities do not have a licencing status. Although there were a total of 1,548 facilities counted in 2015, including landfills but also storage and recycling facilities as well as transfer stations, 56% of all were not licensed. All of these have to be licensed until next year to achieve the NWMS Medium Term Goals.

2.2.3 Sector segmentation

Furthermore, the sector comprises two unique segments, the formal and informal sectors. The formal sector includes the public (local government) and private entities, while the informal sector comprises small, unregistered enterprises and individuals who mainly collect waste for the purposes of generating a daily income. The roles and responsibilities of local government (i.e., municipalities) are enshrined in the Constitution, which sets the mandate for municipalities to collect household waste. Municipalities can either provide this collection services directly or appoint private contractors, generally for three years. In turn, private entities, including industry bodies and producer responsibility organisations (PRO), are mostly involved in recycling, recovery and the safe disposal of waste. The formal segment of the sector employed an estimated minimum of 29,833 people, with 68% of those employed engaged by the public services and 32% working in the private sector.[27] Literature estimates that the informal waste sub-sector employs between 60,000 and 90,000 waste pickers, i.e., approximately 200% to 300% the number of people employed in the formal sector.[28] These people earn their livelihood harvesting recyclables across the country.

These two sub-sectors are interconnected as the formal private sector waste companies rely heavily on the informal sector as a source of waste stream. However, the relationship is exploitative in nature, with the informal sub-sector workforce being underpaid while bearing the most of the health and safety risks. Skills levels within the broader sectors are significantly low, with an estimated 70 to 80% of the workforce being unskilled. Furthermore, the sector remains significantly male-dominated, which could be attributed to the sector being too labour-intensive and dangerous, resulting in women limiting their involvement while male participation is driven by the need to support their households.

This chapter served to give a snapshot of the current sectorial activities. Based on the highlights, it is clear that the sector has plenty of potential to grow and develop. The subsequent chapters of this brief explore business conditions (both enablers and challenges) facing SMEs in the waste sector, and serve as the basis for identifying actionable areas where multiple stakeholders can design and implement instruments that promote eco-inclusive enterprises and maximise their sustainable development impacts.

27 Muswema, A.& Oelofse, SHH. (2016): Implementing small, and medium enterprises (SME) waste and recycling programmes. Proceedings of the 23rd WasteCon Conference. 17-21 October 2016, Emperors Palace, Johannesburg, South Africa.
28 Makhasana S., Sidondi N., Rule S, Richards R., Godfrey D. & Sibeko L. (undated). Report on the determination of the extent and role of waste picking in South Africa. Retrieved from: http://sawic.environment.gov.za/documents/5413.pdf.

3 Analysing Business Conditions of Eco-Inclusive Enterprises: An Ecosystem Framework Approach

Enterprises operate within an ecosystem. This ecosystem is a complex web of interconnected factors and actors, which enable these eco-inclusive SMEs to start-up, grow and scale. An entrepreneurial ecosystem framework ("the framework") has been developed in order to comprehensively identify and understand the business conditions required for successful eco-inclusive enterprises in the waste management sector in South Africa. The purpose of this chapter is to describe comprehensively the framework within which eco-inclusive enterprises in the waste management sector in South Africa operate, and identify the key factors (Table 1) and corresponding action fields required for enterprise success.

In conjunction, these eight pillars operate as an ecosystem framework (Figure 6), within which key stakeholders can employ their core competencies and leverage their institutional capacities to the benefit of eco-inclusive SMEs. Outlining these pillars helps to identify how to best advice and leverage key stakeholder groups to unlock the potential of eco-inclusive enterprises within the waste sector.

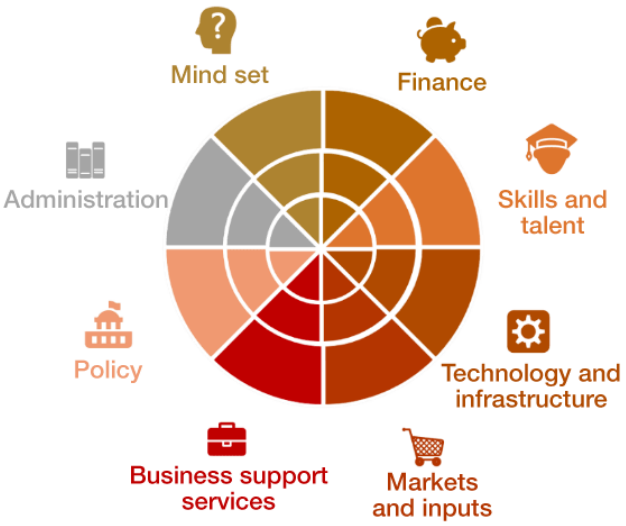


Figure 6: Ecosystem framework factors

Table 1: Dimensions of an entrepreneurial ecosystem framework

Dimension	Characteristics
Finance	> Ability to access and availability of public and private sector funding > Entrepreneurship / strategic capital
Skills and talent	> Skills levels (technical, business & leadership) > Competency / experience > Opportunities for women and youth
Technology and infrastructure	> Physical supporting infrastructure, R&D institutes and facilities > Availability of cost-effective technology
Markets and input	> Local and International markets > Availability of and access to inputs > Political risks / uncertainty
Business support services	> Networking / fostering partnerships, incl. strategic planning support, R&D commercialisation support, mentorship > Platform for knowledge sharing and awareness raising
Policy	> Regulatory framework > Small business and co-operative policies > Green economy strategy > Policy implementation performance > Incentives to stimulate the sector
Administration	> Ease of registration, compliance burden
Mindset	> Legitimacy of entrepreneurship as a career > Necessity-driven enterprises vs. opportunity-driven entrepreneur

Identifying ecosystem builders

Ecosystem builders construct an enabling environment, which is conducive to the success of eco-inclusive SMEs. The collaborative efforts of multiple stakeholders within this ecosystem are central to multiplying opportunities for eco-inclusive enterprise success in the South African waste sector.

Financial institutions, donors & investors include public and private sector actors that offer financing options to smaller enterprises through a range of financial instruments. These financial instruments are targeted or available to enterprises of varying sizes and at different stages of business development and profitability.

Business development services (BDS) providers extend non-financial services and products to enterprises with diverse needs and at various stages of development. Education and training providers equip enterprises, aspiring entrepreneurs and a network of trained BDS Providers with tools necessary to effectively start-up and scale-up an enterprise.

Policy-makers (local, provincial, and national) translate commitments to SMEs into policy commitments and instruments that are actionable and enforceable.

Industry bodies and producer responsibility organisations (PRO) which promote the recovery and recycling of recyclable materials in South Africa.

In coordination, these categories of actors possess tremendous potential to ensure that eco-inclusive enterprises receive the necessary finance, business development support, and physical and intellectual infrastructure to realise their social, economic and environmental objectives.

In the South African context, many ecosystem builders are already contributing to the efforts of SMEs to deliver environmental, social and economic benefits within the waste sector. The efforts of these actors can be strengthened with greater attention to the core characteristics of the ecosystem framework. Additionally, the support of multiple, active ecosystem builders can be mobilised more effectively once clear objectives and corresponding instruments are identified.

Using the eight pillars of the framework, this section describes the business conditions within which SMEs in the waste sector operate. The discussion is framed using publicly available information and insights from interviews with a number of industry experts and eco-inclusive enterprise owners operating within the sector.

3.1 Market and inputs

The waste sector has a vast number of opportunities that remain untapped due to the focus of waste sector businesses on conventional mainstream recyclables such as paper, glass, plastics and metal. A Market Intelligence Report by GreenCape highlighted the following as untapped waste resources: textile processing, cardboard core processing, cardboard core, containers, pallet recycling, wood chipping, on- and off-site paper pulp/effluent tech, contaminated bentonite processing, foundry sand value-add, as well as paper recycler/dehydration of waste streams.[1] However, even within the most recycled and recovered waste resources, there remain large volumes of waste to recover and recycle as indicated in the table below.

Table 2: PROs, waste generated, managed and remaining for diverting

Producer responsibility organisations	Type of material	Tonnes - generated	Tonnes - diverted	Tonnes - available for recycling
Paper Recycling Association of South Africa (PRASA)	Paper	2,200,000	1,100,000	1,100,000
Plastics SA	Umbrella organisation for all plastic types	1,400,000	315,000	1,085,000
The Glass Recycling Company (TGRC)	Glass	845,663	338,265	507,398
e-Waste Association of South Africa (eWASA) South African e-Waste Alliance (SAEWA)	e-Waste	322,000	45,000	277,000
Metal Recyclers' Association of South Africa	Scrap metal	3,121,000	2,497,000	624,000
REDISA	Tyres	270,000	109,906	160,094

Source: Short market analysis: waste management and recycling in South Africa, 2016

The table above illustrate two significant matters, namely: (i) Current waste recycling and recovery efforts are still low, even within mainstream waste recyclables. This means that there is still room for new entrant SMEs and

1 Southern African – Southern African-German Chamber of Commerce and Industry NPC (2016): Short market analysis: Waste management and Recycling in South Africa. Retrieved from: http://suedafrika.ahk.de/fileadmin/ahk_suedafrika/Waste_Management/Short_Market_Analysis_Waste_South_Africa_Final.pdf.

for existing SMEs to scale-up their activities. (ii) The majority of waste diversion efforts are driven by producer responsibility organisations (PRO).[2]

3.2 Finance, technology and infrastructure

The GreenCape Market Intelligence Report 2016 provides a non-exhaustive list of funding solutions available for organisations focused on green technology manufacturers and service companies, as well as those who use such services. The types of funders available include Development Finance Institutions (DFI), and local public and private sector financiers and investors. These funders offer a range of financial solutions including loans, grants, rebates, equity subsidies and loan guarantees.[3] These sources of funding are available at various stages and cycles of businesses, from ideation, proof of concept (seed), early (market entry), developmental (scale-up) and growth (later stage). Other notable funders within the South African markets include the National Green Fund. The fund seeks to support green initiatives to assist South Africa's transition to a low-carbon, resource-efficient and climate-resilient development path delivering high-impact economic, environmental and social benefits.[4] The fund is managed by the Development of Bank of South Africa (DBSA) on behalf of the DEA. Financial support provided by the fund includes grants, loans and/or equity.[5]

Another noteworthy funding programme for all enterprises in the country is the Critical Infrastructure Programme (CIP), a cost-sharing cash grant for projects aimed to improve critical infrastructure in South Africa. The grant generally covers qualifying development costs from a minimum of 10% to a maximum of 30% towards the total development costs of qualifying infrastructure. It is made available to approved enterprises upon completion of the infrastructure project. The type of infrastructure which is deemed critical, if the investment would take place without the said infrastructure or the said investment would not operate optimally. Through the fund, infrastructure obstacles are reduced comparatively for entrepreneurs and their competitive advantage is increased. Even though all these funding schemes and programmes exist, small enterprises do know about them or do not have access to them. This can be attributed to the limited skills enterprises have to undertake market due diligence prior to entering the sector, or a lack of access to business development service operators who can offer sound advice to new entrant enterprises.

The Department of Small Business Development (DSBD) offers funding to registered co-operatives which are held by marginalised people such as black people, disabled, women or youth. They can receive funding in form of a matching grant from the Co-operative Incentive Scheme (CIS), which is max R350 000 and includes multiple activities, for instance business development services.[6]

3.3 Regulation, policy and administration

The sector is regulated by several policies and regulations that are mainly developed and enforced by the DEA, with the assistance of provincial and local government departments. These are shown in Figure 7 and summarised briefly below. The policies presented below are only overarching, and provinces and local municipalities have their own policies and regulations for the sector based on national acts and policies.

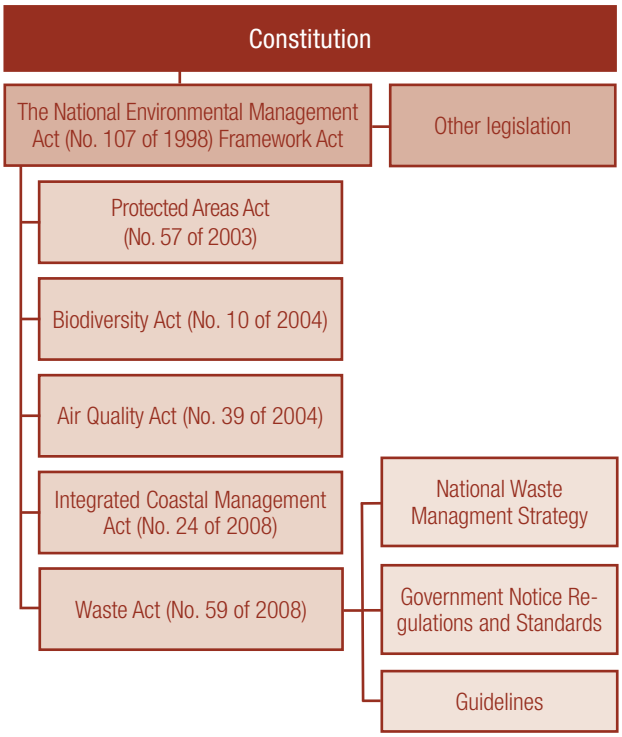


Figure 7: Legal Waste Management Framework

2 A PRO is generally a non-profit organisation funded by industry to promote the recovery and recycling of recyclable materials in South Africa.
3 GreenCape (2017): Waste Economy 2017 Market Intelligence Report. Retrieved from: https://www.green-cape.co.za/assets/Uploads/GreenCape-Waste-MIR-2017-electronic-FINAL-v2.pdf.
4 Department of Environmental Affairs (2014): Policy Brief 3: Mapping the green economy landscape in South Africa – Perspective from the green fund. Retrieved from: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2015/04/Mapping-the-Green-Economy-in-SA.pdf.
5 Department of Environmental Affairs (2017): South Africans green fund financing the transition towards an inclusive green economy. Retrieved from: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2017/09/Green-Fund-Impact-Study.pdf.
6 Department of Small Business Development (DSBD)(2018): Co-operative Incentive Scheme (CIS). Retrieved from: http://www.elsenburg.com/content/department-small-business-development-dsbd.

The National Environment Management Act (NEMA) No 107 of 1998 set the principles for environmental management in South Africa, and provides the legislative framework for protection of Constitutional rights. NEMA also defines the framework for a set of Special Environmental Management Acts, indicated above, including the National Environmental Management Waste Amendment Act (Act 26 of 2014) with some provisions made to the NEM: Waste Act (Act 59 of 2008).

White Paper on Integrated Pollution and Waste Management Act.[7] The White Paper on Integrated Pollution and Waste Management for South Africa, written in 1998 (RSA, 2000), provides a broad framework for integrated waste management. It introduced the principles of "cradle-to-grave" and "polluter pays".

National Environmental Management: Waste Act.[8] The National Environmental Management: Waste Act (NEM: WA) of 2008 is the primary piece of legislation governing waste management in South Africa. It introduced the concept of the 3Rs – reduce, recycle and reuse – for the first time.

National Environmental Management: Waste Amendment Act.[9] The National Environmental Management: Waste Amendment Act (NEM: WAA) of 2014 sets out amendments to the Waste Act (particularly relating to certain definitions, including the definition of "waste"), the drafting of a pricing strategy to guide the implementation of economic instruments in the waste sector, the establishment of the Waste Management Bureau, and transitional provisions in respect of existing industry waste management plans.

National Waste Management Strategy.[10] The National Waste Management Strategy specifies eight goals to be achieved by 2016, many of which provide an enabling framework for the development and implementation of green technologies. Examples include, goal 1: promote waste minimisation, reuse, recycle and recover waste; goal 3: grow the contribution of the waste sector to the green economy; goal 5: achieve integrated waste management planning; and goal 7: provide measures to remediate contaminated land.

SMEs and other waste sector enterprises have acknowledged the importance of having regulations in place. However, they all agree that the sector is over-regulated, which commonly impacts on business profitability. According to the SMEs, the most common unintended consequence of policy and regulation on their businesses is the delays in receipt of environmental authorisation and permits that often result in lost business opportunities, especially if the applications and paperwork required for either funding or potential work are not submitted. Literature and participants to the study highlighted that such constraints usually lead SMEs to choose to conduct their businesses under certain regulated thresholds in order to avoid triggering the licencing processes and the associated cost and loss of business. The downside to operating below the threshold, however, limits businesses' ability to grow – as growth means operating above the threshold, which automatically results in additional cost and time.[11] Some examples of the time lines and costs associated with compliance to regulations and policies within the waste sector are highlighted in Table 3 below – the application of some of these activities is also dependent on the listed activity triggered by the waste enterprise.

Based on the limited list below of regulated activities that need to be complied with in order to operate as a waste business, it is clear that the process is time-consuming and costly. New entrant SMEs need significant large capital to comply. This excludes the purchase of equipment and infrastructure, premises and other start-up costs.

7 Department of Environmental Affairs and Tourism (2000): White Paper on Integrated Pollution and Waste Management for South Africa . Retrieved from: https://cer.org.za/wp-content/uploads/2013/02/integrated_pollutionand_wastemanagement_0.pdf.
8 Republic of South Africa. National Environmental Management: Waste Act (59/2008): National Waste Management Strategy 2011. Retrieved from: https://www.environment.gov.za/sites/default/files/docs/nationalwaste_management_strategy.pdf.
9 Republic of South Africa. National Environmental Management: Waste Amendment Act (Act 26 of 2014). Retrieved from: https://www.gov.za/documents/national-environmental-management-waste-amendment-act.
10 Republic of South Africa. National Environmental Management: Waste Act (59/2008): National Waste Management Strategy 2011. Retrieved from: https://www.environment.gov.za/sites/default/files/docs/nationalwaste_management_strategy.pdf.

11 Oelofse, S.H.H. & Mouton, C. (2014): The Impacts of Regulation on Business on the Waste Sector: Evidence from the Western Cape. Proceedings of the 20th Waste Con Conference. Somerset West, Cape Town. Retrieved from: http://www.3smedia.co.za/infrastructurenews/wp-content/uploads/sites/4/2015/11/Oelofse-S.H.H.-and-Mouton-C.-57.pdf.

Table 3: Cost and time impacts of legislation and regulations on the waste sector

Activity	Cost	Timeframe
Outsourcing a municipal service (tender process)	R180,000 – typically for evaluation of a single facility or service Up to R10 million for full Section 78	14 months on average for full Section 78
Establish a public private partnership (PPP)	R2 million (typically for one facility/ property) per PPP established	Nine months minimum depending on complexity and size of PPP (this excludes tender process time described, which will be longer due to the complexity of the tender specification that increases when asking for transaction advisor services needed to complete the PPP process in terms of regulations)
Listed activity category A: Basic assessment	R45,000 to R180,000, excluding specialist studies	Seven to nine months (will depend on public participation and what effect comments will have on the process to do more studies or supply more information)
Listed activity category B: Full EIA	>R150,000 Up to R6 million per site	11 to 24 months (will depend on public participation and what effect comments will have on the process to do more studies or supply more information)
Water use licence DWA water use licence	R45,000	No time frame specified 2.5 year backlog in licence processing (mostly related to wastewater treatment works WWTWs)
Analysis, classification and compilation of Safety Data Sheet (SDS) for waste	R20,000 to R70,000 per sample	30 working days depending on the capacity of the lab to process the samples

3.4 Mindset

An entrepreneurial mindset – i.e., a strong interest in establishing one's own business, alongside relevant business skills – is central to taking the initiative to establish and to continue to put in the effort to maintain or scale-up a growing eco-inclusive enterprise. According to a study from 2012 on entrepreneurial mindsets, South African SMEs and potential entrepreneurs have low levels of entrepreneurial aspirations or drive, with the majority preferring employment by someone else. A low level of entrepreneurial spirit in South Africa has been linked with a 50 to 95% failure rate of SMEs within the first five years of starting a business and a 75% failure rate for new SMEs.[12] In part, this high rate of failure among South African entrepreneurs can be attributed to motivation. Many South Africans have indicated that they start their own businesses as a means of survival (i.e., to make money), with limited regard for or knowledge of how to sustain their business. The study also found that 53% of entrepreneurs who received entrepreneurial education proactively ran their businesses and took calculated business risks, and that 70.3% of these were growth-oriented, with clear objectives for growth, compared to those who had no entrepreneurial education.[13] Individuals with entrepreneurial mindsets are more aware of the context of their work and are able to detect and seize opportunities. For the establishment and success of SMEs in the waste sector, it is necessary to inspire entrepreneurship and increase entrepreneurial training in South Africa.

3.5 Skills and talent

As indicated in Section 2, skills levels within the sector are relatively low with 70 to 80% of the workforce being unskilled. The lack of skills can be attributed to the majority of the workforce working as waste pickers and sorters, which does not require significant levels of education but rather physical strength. Government, along with institutions of higher education and PROs, have embarked on multiple campaigns aimed at educating waste sector enterprises. According to research, there has been a slight increase in the number of students undertaking waste sector-specific degrees and courses. However, among those already operating in the sector (especially the informal segment), there has been little progress made. In the case of cooperatives, for instance, most members complain that government offers them limited training (short courses and one-day training). According to cooperative members, this form of training is inade-

12 Neneh, N.B. (2012): An exploratory study on entrepreneurial mindset in the small and medium enterprise (SME) sector: A South African perspective on fostering small and medium enterprise (SME) success. African Journal of Business Management. Vol. 6(9).

13 Ibid.

quate for the type of organisations they work in.[14] Additional training is needed if they are to be successful, including business, waste and cooperative management training.

3.6 Business support

Ongoing business support is an important vehicle for SMEs and many stakeholders are involved. Government related activities are connected to the NWMS, which has outlined the importance of SME development. Cooperatives in particular have profited from the 2012 *Integrated Strategy on the Development and Promotion of Co-operatives.* Local governments, South African Development Organisations and Non-Governmental Organisations (NGOs) are most often reported to have been involved in assisting with the registration of cooperatives.[15]

The provision of all types of funding, equipment, and business management training has involved municipalities, funding agencies, government departments, NGOs, buy-back centres, international funding organisations, and educational institutions.[16] Private sector related support also plays a role for co-operatives. Local businesses or larger recycling industry bodies such as PETCO have also provided equipment via needs-assessment for them.

An ANDE mapping of South Africa's entrepreneurial ecosystem found that 142 business development service (BDS) providers operate in South Africa in multiple areas for easy access to enterprises. Of these organisations, 82% are based in South Africa and the remaining 18% are international. These BDS organisations comprise government, public and private development finance, private support programmes, private sector funding and NGOs. However, awareness of these service providers remains low among enterprises due to various reasons, including a lack of access to technology such as the internet. The beneficiaries supported by BDS providers are mostly small enterprises. There is less support available for micro enterprises. Medium-size enterprises also do not receive much support, however, they are also less likely to require this support. Micro enterprises are possibly in the most need of BDS support, yet there is not a lot of support available in the ecosystem. BDS is typically offered over a set period of time. This ranges between short courses of five days to longer courses of a few years. The average duration of programmes of BDS providers that disclosed this information is one year. Some of the services provided by BDS providers include mentorship, networking opportunities, access to markets, business training, marketing and branding, financial management and market intelligence.[17]

14 Godfrey, L., Muswema, A., Strydom, W., Mamafa, T. and Mapako, M. (2015). Evaluation of co-operatives as a developmental vehicle to support job creation and SME development in the waste sector. Green Fund, Development Bank of Southern Africa, Midrand. Retrieved from: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2016/04/GreenFund-Waste-co-operatives-report_CSIR-final.pdf.
15 Ibid.
16 Ibid.

17 Aspen Network of Development Entrepreneurs (2017): South Africa's Entrepreneurial Ecosystem Map. Retrieved from: https://c.ymcdn.com/sites/www.andeglobal.org/resource/resmgr/sa_images/ANDE_SA_EcosystemMap_March20.pdf.

4 Challenges of Eco-Inclusive Waste Management Enterprises in South Africa

Based on Section 3, it is clear that enterprises operating within the sector face multiple challenges due to existing business conditions. The most prominent of these challenges are described in this section. These challenges serve as the basis for understanding and implementing targeted instruments to empower and enable eco-inclusive SMEs.

4.1. Limited access to infrastructure and services

The survival of waste enterprises is dependent on the volumes of waste collected, which means that businesses need to have adequate operating space, equipment and access to transportation in order to succeed. However, most SMEs view access to these resources as a challenge due to the costs involved. Access to operating space, especially within industrial zones, is costly and these costs are driven high by the amount of space that businesses require in order to operate efficiently. For instance, businesses need to have designated areas for waste receipt, sorting and handling, processing and pre-shipping storage – this excludes staff areas and offices. As a result, some enterprises resort to renting smaller spaces and running a portion of their business (such as storage and handling) from their residences in an attempt to reduce costs. However, this decision also comes with additional costs associated with transporting waste from residences to business premises.

Apart from the shortage of operational space, small enterprises also struggle to obtain the required equipment to run their waste business (such as compactors and weighing machinery) due to high procurement costs. Where equipment exists, it is either outdated, which makes its utilisation inefficient, or the equipment is new but the workforce does not know how to use it properly, resulting in constant breakdowns. In both instances, productivity is reduced, which in turn affects revenue generation.

Access to transportation is another challenge that enterprises face. In the absence of their own transportation facilities, enterprises often hire vehicles from different service providers. The service providers are expected to drop off and collect workers as well as transport the collected waste to operational offices. However, some service providers refuse to start work very early in morning (to beat the competitors to the waste sources), which affects the volume of waste collected by the enterprise. If the transport owner agrees to an early start, they charge exorbitant fees. Employees also often refuse to walk to collection sites. This results in the enterprises either investing in their own vehicles or paying the service providers more, all of which affect their bottom line.

Overall the lack of access to business operating resources such as facilities, equipment and transport results in poor financial and production performance.

4.2. Market concentration and high competition

Within the waste sector, market concentration is related to the high numbers of people engaged in the collection of waste – i.e., waste pickers and the middlemen (enterprises that purchase waste from the waste pickers with the intention to sell directly to buy-back companies). The main area of competition is related to access to waste sources and collection areas. Both formal and informal waste collection occurs in residential areas and landfill sites and is often unregulated. As such, both formal and informal waste collectors compete for the same resources, which often leads to conflict and tensions between the players. In some instances, there have been reports of waste theft by informal sector players who break into formal businesses to steal waste for the purposes of selling it. Alongside this challenge is the unfavourable payment received from buy-back companies.[1] Most informal waste collectors will accept low pay while formal collectors expect to be paid more. As such, some buy-back companies opt to buy from informal collectors who they can pay lower, rather than pay the higher prices of formal small enterprises. Buy-back companies are able to pay

1 A buy-back company is an enterprise that buys recyclable materials.

these low prices for waste due to a lack of standards regulating the fees that can be paid to collectors. This trend results in poor market access for small enterprises to sell their waste and creates financial vulnerability for these enterprises.

The challenges related to access to waste sources and markets is further compounded by the lack of knowledge of the various waste streams available to small enterprises. Most SMEs tend to focus on the collection of plastic, paper and glass waste. They do not investigate other waste streams that are under-explored, such as mining, agriculture and tyre waste. The lack of pursuing other waste streams may also be linked to low business mindsets and a lack of creativity and innovation, which prompts entrepreneurs to target business ideas with a proven success rate rather than investigating other solutions they can provide. Ultimately, this results in market concentration, low financial returns and eventually business closure.

4.3. Business development support

Business development support is readily available for all forms of enterprises through government agencies and private sector business development service organisations. However, a lack of knowledge of these service offerings often hinders the development and growth of small waste enterprises. The lack of knowledge may be attributed to a lack of access to the internet, especially in rural areas, poor research skills among entrepreneurs, or lack of education. In the absence of these, entrepreneurs are unable to access the help they need, and therefore fail to develop and grow their businesses. In the past, government has tried to offer business support to waste enterprises through the formation of cooperatives that were given financial and business management and assistance. However, the failure rate of these enterprises was as high as 91%, with those participating highlighting issues such as poor financial and business management, and access to waste among the top challenges that resulted in the failure of their cooperatives.[2]

4.4 Lack of skills

Research indicates that an estimated 70 to 80% of the waste sector workforce is unskilled – and this applies to both the formal and informal segments of the sector. This can be attributed to the perception that one does not need to have any form of education to be a waste collector or sorter. This perception is further compounded by a lack of capital to invest in training and developing the workforce by enterprises. However, the very lack of skills is contributing to the poor performance of small enterprises within the sector – including poor business decision-making, incorrect classification of waste, poor adoption of technologies and innovative solutions, as well as the poor handling and operation of equipment.

4.5 Regulatory environment

As indicated in Section 3, waste sector enterprises do not only have to attain regular business registration, but also require additional permits and licenses in order to operate within the realm of the law. This includes the completion and approval of environmental studies for the premises to be used for operations; the application and approval of waste handling licences; municipal services such as electricity, water and sanitation; health and safety approvals, and other permits. This does not include general business, tax and other registrations, which are easily attained. This results in delays in reaching certain business milestones and some potential enterprises choosing to work outside of the regulations, which results in limited business growth.

2 Godfrey, L., Muswema, A., Strydom, W., Mamafa, T. & Mapako, M., (2015): Evaluation of co-operatives as a developmental vehicle to support job creation and SME development in the waste sector. Retrieved from: http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2016/04/GreenFund-Waste-co-operatives-report_CSIR-final.pdf.

5 Action Fields: Seizing the Opportunities of Eco-Inclusive Enterprises

As evidenced in this Brief, eco-inclusive enterprises in the waste sector are pivotal in delivering innovative solutions for reducing waste, reusing materials and redesigning how we create value from products and services, while accelerating the transition towards an inclusive, green, circular economy. This chapter presents action fields for bringing together multiple private, public and social sector stakeholders (or, ecosystem builders) to shape an enabling environment for South African waste enterprises.

These action fields present focus areas for key stakeholders in their efforts to support eco-inclusive SMEs. They serve as the basis to better understand why and how specific instruments can be implemented to increase the positive impacts of SMEs. Several instruments are included here that were developed during SEED Policy Prototyping Labs.

Defining action fields

An action field is a targeted area of needed support for eco-inclusive SMEs. These focal points result from discussions with ecosystem stakeholders at the SEED Policy Labs and have been selected from the more extensive list of enterprise challenges within the ecosystem framework (Chapter 4). The identification of selected action fields for multi-stakeholder engagement helps to frame core objectives and align the interests of ecosystem builders with those of enterprises in the design and implementation of effective instruments, which multiply opportunities for eco-inclusive enterprises and increase their chances of successful growth and scale.

In the light of the challenges identified previously, the following action fields have been identified:

5.1 Formation of a multi-stakeholder forum

Establish a sector-wide multi-stakeholder forum to tackle strategic sector issues and enhance distribution of information within the sector. Strategic issues that the forum could address include a reduction of the policy and regulation burden while not compromising the natural environment; access to waste streams, such as streamlining local government procurement process; skills sharing/transfer and development within the sector; knowledge-sharing on industry developments; and general business support and mentorship. The forum will, in all, act as vehicle for support within the sector and will ensure that all sector stakeholders have better access to information that is crucial to their businesses.

Existing initiatives

PETCO, the PET Recycling Company NPC, is an initiative to represent the South African PET plastic industry's joint effort to self-regulate PET recycling. PETCO's model is built on the simple principle of an industry-driven and -financed environmental solution for post-consumer PET plastic. By taking responsibility for post-consumer PET recycling, PETCO imposes accountability over the entire life cycle of PET products and packaging. Ongoing consumer and public education and awareness activities promote environmental responsibility and encourage PET recycling.

To achieve this, everyone involved, from the raw material producers, the converters, brand owners, retailers, consumers and recyclers are playing their part in the solution, with PETCO fulfilling the PET industry's role of Extended Producer Responsibility (EPR).

PETCO works in partnership with the South African government to build policy frameworks that support and grow the green economy, with local industries to harness knowledge, build common interests and increase waste innovation, as well as international industries and agencies to gather knowledge on best practice on how to generate and sustain a creative contribution to innovation and development locally.[1]

1 PET Recycling Company NPC (2018): Retrieved from http://petco.co.za/.

Instrument prototype: Bridging the information gap in the waste collection sector

In order to support the formalisation of reclaimers and to build the capacity for compliance with legislation and regulations, stakeholders like industry associations, ministries, initiatives like CONSOL, PETCO and research institutions could team up to increase transparency and share knowledge, e.g. prices of buy-back centres. Programmes or platforms to bridge the information gap in the waste management sector could thus contribute to the achievement of fair, encouraging prices along the waste value chain.

5.2 Promote the establishment of waste cooperatives

The establishment of waste cooperatives could be an effective tool in integrating informal waste sector players into the formal sector and promoting the sharing of resources such as equipment and skills. Lessons learnt from previous cooperatives, both unsuccessful and successful, could be utilised to form long-lasting cooperatives. This could be achieved through improved (i) access to materials (whether through integration with municipal solid waste management systems, or with material organisations responsible for the management of waste), (ii) access to markets (linking co-operatives with markets for all materials collected), and (iii) business development (ongoing mentorship on the business of running a cooperative).

5.3 Increase sectorial skills

In order to successfully address issues of skills shortages, research could be undertaken to determine which critical skills are lacking amongst the waste sector enterprises and develop programmes tailored to addressing the skills shortage. The programmes developed should consider adopting international models that have proven successful in enhancing the skills of waste sector enterprises in other developing countries, such as the SEED Replicator (see the box below). The implementation of these programmes could be undertaken in partnership between government agencies, NGOs, BDS providers, buy-back companies and academic institutions. The programmes could encourage mentorships and joint ventures between different sector stakeholders for better results, as well as showcase success stories that emanate from the programmes. This could encourage other enterprise owners to partake in the skills enhancement programmes.

Existing initiatives

The **SEED Replicator Programme** aims at promoting the increased replication of high-potential eco-inclusive business models in developing countries and emerging economies. Within this programme, SEED conducts research on the performance of various high-impact eco-inclusive enterprises to identify the most promising business models and their experiences, challenges and success factors. The SEED Replicator is built upon SEED's understanding that local ownership and multi-stakeholder partnerships, in combination with BDS support, are the ingredients for ensuring successful replication of eco-inclusive businesses models. To this end, SEED's toolkit-based BDS concept and the upskilling of local BDS providers strives to provide an enabling environment for the uptake and scale-up of replication-prone eco-inclusive business models.

Instrument prototype:
Assist enterprises in diversifying their waste streams

The value creation of waste begins at diversifying and / or identifying new business cases. In order to support SMEs to diversity their waste streams, Chambers of Commerce could collaborate with municipalities and sector experts to provide capacity building for entrepreneurs in order to create an understanding for waste streams, processing and recycling technologies, showcasing business opportunities and developing supply and value chains.

Improvement of sector skills is likely to result in increased innovation within the sector, facilitate the growth and development of small enterprises and foster healthy competition among sector stakeholders, while contributing to environmental, social and economic impacts.

5.4 Increase sectorial awareness

The sector still has a significant number of waste streams that remain untapped. By improving sectorial awareness, more waste enterprises can be established to tackle waste. Showcasing waste management as a driver of resource efficiency and cost reduction would promote sustainable waste management and stimulate a changing mindset from "waste to resources". In collaboration with economic sectors that are underserviced in terms of sustainable waste management, government and other sector stakeholders could embark on roadshows and multi-media awareness campaigns aimed at increasing awareness and information-sharing about business opportunities that exist within the sector, as well as the various support services that are available.

Instrument prototype:
Embarking on campaigns to increase sector knowledge and participation

Campaigns to increase sector knowledge and participation could:

- Highlight various waste streams and untapped market opportunities
- Provide access to information for entrepreneurs to participate or cooperate with eco-inclusive enterprises
- Contribute to the professionalization and economic development of the market
- Increase the quality of waste management

These campaigns could promote eco-inclusive entrepreneurship and increase knowledge on circular economy concepts among (aspiring) entrepreneurs.

5.5 Streamline regulatory processes

Government should engage sector stakeholders in order to determine interventions that will reduce the burden of regulatory compliance. Part of the engagement process could be:

- To explore and redress issues of conflicting and/inconsistencies in existing regulations.
- To reduce the cost and time implications associated with applications and the issuing of environmental authorisations, permits and other sector-related licenses.
- To address issues related to access to waste, especially residential waste, in order to increase the amount of waste recycled and contribute to the growth of small waste enterprises.
- To interrogate the ways to which municipal waste procurement contracting processes can be fast-tracked.

Finally, government could consider establishing one-stop-shops where entrepreneurs can access information, permits, and licenses related to the sector. This one-stop-shop could be situated within the Department of Environmental Affairs for easy access. Within the one-stop-shop, entrepreneurs could also be advised on sector business incubators and funders.

6 Call to Action: Next Steps for Ecosystem Builders

Eco-inclusive enterprises are at the centre of global sustainable development initiatives through their resource-efficient and socially inclusive value chains and low-carbon products and services, which help communities to adapt to and mitigate the impacts of climate change. In coordination, ecosystem builders – key stakeholders from the private, public and social sectors – possess tremendous potential to ensure that eco-inclusive enterprises receive the necessary support to realise their social, economic and environmental objectives and drive the global transition to an inclusive, green economy. Some key actions required to foster eco-inclusive enterprises within the sector include:

- Formation of a multi-stakeholder forum that will provide support to sector stakeholders by tackling issues of strategic importance, such as the regulatory space, and promote information-sharing and support.
- Increase sectoral awareness and knowledge by providing tailored capacity building for eco-inclusive enterprises.
- Promote the establishment of waste sector cooperatives to promote resource-sharing among small enterprises and to promote the integration of informal waste sector stakeholders into the formal sector, thereby promoting the sharing of resources and skills for the growth and development of SMEs.

The actions of key ecosystem supporters will optimise the social, environmental and economic impacts of SMEs in the waste sector and enable these enterprises to be successful long into the future.

Imprint

SEED c/o adelphi research gGmbH
Alt-Moabit 91
10559 Berlin, Germany
www.seed.uno | info@seed.uno

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Authors: Meyer, Christine; Mkhabela, Janet

If you want to learn more about SEED activities in South Africa, please contact:

SEED South Africa c/o Indalo Inclusive South Africa NPC
The Innovation Hub, 1 Mark Shuttleworth Street
0081 Lynnwood, Pretoria

southafrica@seed.uno

About SEED

SEED
promoting entrepreneurship
for sustainable development

Founding Partners
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SEED is a global partnership for action on sustainable development and the green economy. Founded by the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and IUCN (International Union for Conservation of Nature) at the 2002 World Summit on Sustainable Development in Johannesburg, SEED supports innovative small scale and locally driven enterprises around the globe which integrate social and environmental benefits into their business model. SEED is hosted by adelphi research gGmbH, based in Berlin, Germany. adelphi research is a leading think tank for policy analysis and strategy consulting. The institution offers creative solutions and services regarding global environment and development challenges for policy, business, and civil society communities.

About Greater Impact

Greater > Impact

Greater Impact is a South African incorporated entity and a member of the African Management Services Company (AMSCO) group. As an active role-player in the development sector for over a decade, we have a deep understanding of the needs and aspirations of communities and civil society organisations, as well as the corporate social investment and finance sectors. We help our clients integrate social impact and value creation practices into their core business strategy so that, together, we are growing an inclusive African economy. We partner with our clients to ensure that their social and economic development programmes are high impact and sustainable and we do this through trusted partnerships and using our experience and expertise in a broad range of strategic impact advisory services that help clients map, design, assess and enhance their development impact. We work with funders, regulators and implementers of social and economic development programmes, and have the knowledge and experience to offer solutions that are tailored to meet their specific needs.

Belle Verte Ltée, Mauritius
SAG-SEED Winner 2016

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