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PART 1 OF 3

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GENERAL NOTICES • ALGEMENE KENNISGEWINGS**GENERAL NOTICE 86 OF 2023**

Nelson Mandela Bay Municipality (EASTERN CAPE)

Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)

ERF 17655, UITENHAGE, EASTERN CAPE

Under Section 47 of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that condition III in Deed of Transfer No. T19767/98 applicable to Erf 17655 is hereby removed.

PROVINCIAL NOTICES • PROVINSIALE KENNISGEWINGS**PROVINCIAL NOTICE 526 OF 2023****Nelson Mandela Bay Municipality (EASTERN CAPE)****Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)****ERF 118, MANGOLD PARK, PORT ELIZABETH, EASTERN CAPE**

Under Section 47 of the Spatial Planning and Land Use Management Act, (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that conditions C. 6(b), (c) and (d) in Deed of Transfer No. T18090/1994CTN applicable to ERF 118, MANGOLD PARK, Port Elizabeth are hereby removed.

PROVINCIAL NOTICE 527 OF 2023**Kouga Municipality (EASTERN CAPE)****Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)****THE FARM OUDEBOCH KLOOF 159, KOUGA MUNICIPALITY, HUMANSDORP DIVISION, EASTERN CAPE**

Under Section 47 of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that condition 1. B. in Deed of Transfer No. T62008/2016 and any subsequent deed applicable to The Farm Oude Bosch Kloof 159 is hereby removed.

PROVINCIAL NOTICE 528 OF 2023

**Eastern Cape Provincial Integrated Waste Management Plan 2022 - 2026**

J37232

**Eastern Cape Provincial Integrated Waste Management Plan, 2022 - 2026
FINAL DRAFT**

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Executive Summary

Introduction

This is the second Integrated Waste Management Plan (IWMP) to be compiled for the Eastern Cape Province. The first Eastern Cape IWMP was completed in 2010 and defined the Department of Economic Development Environmental Affairs and Tourism's (DEDEAT) vision for solid waste management for the period 2010 to 2015. The 2010 IWMP has now been revised, and this second generation IWMP addresses the period 2022 – 2026. The Eastern Cape Provincial IWMP (PIWMP) is applicable to all areas falling within the Eastern Cape and covers all 6 district municipalities, 31 local municipalities and two metropolitan municipalities.

The objective of this PIWMP is to present a unified approach to waste management in the Eastern Cape. The PIWMP will cover a regional approach to waste management and identify projects on a regional level which can improve waste management in the province.

This IWMP consists of the following eleven sections:

Section 1:	Introduction
Section 2:	Environmental impacts associated with waste management
Section 3:	Approach and methodology
Section 4:	Legal requirements overview
Section 5:	Situation analysis
Section 6:	District and metropolitan municipality profiles
Section 7:	Gap analysis
Section 8:	Desired end state
Section 9:	Case studies
Section 10:	Implementation plan
Section 11:	Way forward

Policy and Legislation

In terms of Section 11(4)(a) of the National Environmental Management: Waste Amendment Act (26 of 2014) (NEMWA), all provinces are required to compile an IWMP, submit it to the Minister for endorsement. The contents of an IWMP are defined in NEMWA:

National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA): Section 12(1) of the NEMWA specifies the minimum content of IWMPs which includes:

- a Situation Analysis including, amongst other things, an analysis of waste types, a description of services, and an indication of the number of persons not receiving waste collection services
- An indication of how the local authority intends to give effect to, amongst others, the objectives of the NEMWA, to provide for implementation of waste minimization and recycling, and best environmental practice;
- Setting out of priorities and objectives for waste management;
- Establishing targets for collection, minimization, re-use and recycling;
- Setting the approach for the planning of new facilities;
- Indicating financial resources required for giving effect to the plan; and
- Describing how the authority will give effect to the plan.

Approach

The following approach was used for this PIWMP.

- Review of IWMPs – a total of 26 IWMPs
- Survey of municipalities – 23 responses received
- Meetings with municipalities:
 - All 6 district municipalities
 - Both metropolitan municipalities
 - 15 local municipalities
- Literature review – SAWIS records, previous PIWMP, waste facility permits, IWMPs, case studies
- Meetings with waste management and recycling companies
- Site visits to select waste management facilities
- Project steering committee meetings
- 7 workshops of the draft PIWMP

Situation Analysis and Gap and Needs Assessment

The following table provides a summary of the situation analysis and gap and needs assessment in terms of waste management in the Eastern Cape.

TOPIC	FINDING
INSTITUTIONAL ISSUES	
Capacity in DEDEAT and municipalities	<ul style="list-style-type: none"> • Only 47% of municipalities have designed waste management officers in terms of the NEM: WA • Experience of WMOs ranges from 1 year to 19 years • There is a lack of employees at DEDEAT and in municipalities to fulfil the required waste management functions • Municipal WMOs do not match the profile of a WMO as per the DFFE's guideline on the designation of WMOs • The DEDEAT organogram was last revised in 2016.
SERVICE DELIVERY ISSUES	
Recycling	<ul style="list-style-type: none"> • 43% of the domestic waste stream is potentially recyclables • There is a lack of information available in the province regarding current recycling rates • Neither of the metros are running separation at source programmes • 12/31 local municipalities are running separation at source programmes • There are 13 MRFs in the province
Collection services	<ul style="list-style-type: none"> • Only 41.3% of households have access to a weekly refuse collection service in the province • 44.3% of households use their own refuse dumps
Waste disposal	<ul style="list-style-type: none"> • There are 89 operational landfill sites in the province • There are 48 closed landfill sites in the province • There are 3 landfill sites currently under construction • There are 2 landfill sites in a planning phase • 23.6% operational landfill sites are not permitted • At least 7 operational landfill sites were permitted but the permits have expired

Waste information management	<ul style="list-style-type: none"> • There is no standard template for municipalities to report information back to DEDEAT • Only 16 municipalities, 25 waste disposal facilities and 12 recycling companies are registered and reporting on the SAWIS • Waste information such as details of awareness campaigns and audit reports are not being submitted to DEDEAT • Only 1 local municipality submits annual IWMP performance reports to DEDEAT • The majority of landfill sites do not have weighbridges and only limited manual capturing of waste disposal tonnages is occurring • Only 13 IWMPs have been submitted to DEDEAT for endorsement • 4 local municipalities do not have IWMPs and 9 IWMPs are out of date
Waste facility compliance	<ul style="list-style-type: none"> • Only 76.4% of operational landfill sites are permitted • The closure and rehabilitation of a number of landfill sites has not occurred within permitted timeframes • Municipalities have not registered waste transfer stations, MRFs or buy-back centres in terms of National Norms and Standards • DEDEATs landfill site audit template is not comprehensive • Internal and external audits of waste facilities are not occurring as per permit requirements • Landfill sites lack equipment and infrastructure such as signage, gates, fencing, ablution facilities, landfill site compactors and TLBs
PUBLIC AWARENESS AND COMMUNICATION ISSUES	
Public awareness campaigns	<ul style="list-style-type: none"> • Municipalities do not submit reports on waste awareness campaigns to DEDEAT • Not all municipalities are undertaking waste awareness campaigns • Illegal dumping and littering are prevalent in the province
FINANCIAL MANAGEMENT	
Funding for waste management	<ul style="list-style-type: none"> • WMOs are not ensuring that funding is correctly allocated to waste management e.g. equitable share and MIG funding • WMOs are not aware of the portion of equitable share which is allocated to waste management • Other services are prioritised in terms of the funding over waste management • Indigent registers in some municipalities are not up to date, this could result in municipalities missing out on equitable share
Tariffs	<ul style="list-style-type: none"> • Only one municipality has undertaken a full cost accounting exercise • There is low payment rate of waste management tariffs which ranges from 13% -80%
STRATEGIC PLANNING	
Future planning	<ul style="list-style-type: none"> • There is a lack of staff in municipalities with planning skills • There is a lack of funding available to address future planning, funding is diverted to operations • There is a lack of integration between IWMPs and IDPs

Objectives

Eight objectives were defined based on the results of the needs analysis namely:

1. Ensure sufficient institutional capacity to implement integrated waste management
2. Improved integrated waste management and future planning
3. Increased waste minimisation, re-use, recycling and recovery
4. Effective waste information management
5. Improved waste facility management
6. Provide effective and financially viable services
7. Improved education, awareness and waste information sharing
8. Effective compliance monitoring and enforcement

Actions and Targets	Comment
1. Ensure sufficient institutional capacity to implement integrated waste management	
1.1 All municipalities to have a designated WMO appointed by year 1	WMOs should be designated as per the DFFE guidelines for designation of WMOs
1.2 DEDEAT to develop WMO performance and development plan template based on the requirements of the DFFE Guideline for the designation of WMOs.	DEDEAT should develop a template to outline the duties, powers and profile of WMOs as outlined in the DFFE guideline for designation of WMOs. This may assist in clarifying some of the current confusion regarding this role.
1.3 All LMs to review performance of WMOs against the DFFE Guidelines on WMO appointments, using the above DEDEAT template.	All LMs should undertake a review of their WMOs to ensure that the appointed WMO conform with the DFFE guideline for the designation of WMOs. Where an appointed WMO does not meet all the specified criteria an action plan should be developed to address the gaps.
1.4 DEDEAT to develop a training guideline for municipalities	DEDEAT to develop and finalise a training guideline for municipalities. The guideline will identify training requirements for employees at different levels e.g.: <ul style="list-style-type: none"> • Refuse truck driver • Landfill site supervisor • Waste management officer
1.5 DEDEAT and municipalities to identify extra positions and resources required to implement this provincial PIWMP.	This PIWMP places a requirement on DEDEAT to provide a greater supporting role to municipalities. This PIWMP also includes responsibilities for district, local and metropolitan municipalities. Additional employees may therefore be required to ensure that the projects identified in this PIWMP are implemented.
2. Improved integrated waste management future planning	
2.1 Development of a provincial waste infrastructure masterplan for the Eastern Cape. This plan should cover regional landfill sites, MRFs, public drop-off facilities, composting facilities and construction and demolition waste crushing facilities.	This would involve a review of short, medium- and long-term waste infrastructure needs for all municipalities in the Eastern Cape. The report would: <ul style="list-style-type: none"> • Identify required infrastructure • Contain generic conceptual design for different facilities (composting, MRF, drop-off centre etc.) • Contain high level budget estimates for different facilities to enable municipalities to budget accordingly.
2.2 Both metros to develop a waste infrastructure masterplan by year 5.	The waste infrastructure masterplan would: <ul style="list-style-type: none"> • Identify the needs in terms of waste management infrastructure (MRF, composting, recycling drop-off facilities, anaerobic digestion, transfer stations etc.)

Actions and Targets	Comment
	<ul style="list-style-type: none"> Identify priority areas for the development of infrastructure Estimate budgets for the development of infrastructure Provide concept designs for infrastructure
2.3 Development of guidelines for challenging problematic waste streams as needed, for example <ul style="list-style-type: none"> E-waste Organic waste Domestic hazardous waste Abattoir waste 	The guideline would outline best management practices for the management of problematic waste streams. Specific examples of how these waste streams can be managed in the province is to be provided.
2.4 All municipalities to have current IWMPs which are endorsed by DEDEAT by year 5	All municipal IWMPs should be submitted to DEDEAT for endorsement.
2.5 All municipalities to have integrated IWMP projects into IDPs	Once the IDP and IWMP review timeframes are aligned municipalities will be able to incorporate IWMP projects into the IDP.
2.6 All municipalities to report on IWMP implementation on an annual basis to DEDEAT.	DEDEAT to prescribe a reporting format for IWMP progress reports. Municipalities to submit reports on an annual basis.
3. Increased waste minimisation, re-use, recycling and recovery	
3.1 DEDEAT quarterly Waste Management Forum: <ul style="list-style-type: none"> All municipal waste managers to attend Greater involvement of private recycling industry (e.g. PETCO, eWASA) at meetings. 	Greater interaction between municipalities and the private sector is required to identify and address waste management issues in the province. DEDEAT currently host quarterly Waste Management Forum meetings.
3.2 50% of urban households in the two metros to have separation at source programmes in place by year 5. Local municipalities to create an enabling environment for recycling in the main town in the municipality by year 5.	Neither of the metros have any municipal separation at source programmes in place. Operation Phakisa sets a target of 50% of households in metros to be separating waste at source by Year 5. Local municipalities also need to move towards separation at source.
3.3 Development of MRFs <ul style="list-style-type: none"> Both metropolitan municipalities to have at least one MRF operational by year 5 12 local municipalities to have MRFs in operation by year 5 	A MRF is required to support as separation at source programme in the metros. It is anticipated that municipalities will run a two bag/ bin system with one bin being dedicated to clean recyclables. Use of multiple bags/ bins for each waste stream e.g. plastic, paper. Cardboard, metal is not recommended as it complicates the system. The design of the MRF will be dependent on available land and funding. The design can vary from a mechanised MRF with conveyor belts to a facility where waste is sorted on sorting tables.
3.4 Municipalities to create an enabling environment for composting	The National Norms and Standards for Disposal of Waste to Landfill require a 25% diversion of green waste from landfill in 2018 and a 50% diversion by year 5. There are currently no municipal composting schemes in place in the province to address this requirement. Municipalities could undertake various programmes to reduce green waste to landfill including: <ul style="list-style-type: none"> Outsourcing of composting In-house composting of waste generated from municipal parks etc. Home composting programmes etc.
3.5 Both metros to investigate the feasibility of facilitating a programme for the crushing of construction and demolition waste (C&DW) by Year 3 and, if feasibility implement a programme by Year 4.	Construction and demolition waste disposal at landfill can be reduced through crushing C&DW into reusable components for re-use in the construction industry.
3.6 All municipalities to facilitate the development of at least	Public drop-off centres can be incorporated into existing

Actions and Targets	Comment
one recycling public drop-off centre in the main town by year 4.	infrastructure such as transfer stations.
3.7 All municipalities to implement an in-house waste recycling programme by year 1	Programmes for recycling of office paper, plastic etc. should be implemented. Local recycling companies can be contracted to collect the recyclables.
4. Effective waste information management	
4.1 DEDEAT to develop a written template or database to standardise information received from municipalities by year 1	DEDEAT to develop a standard template for use by municipalities to ensure uniformity of data received. The template will include: <ul style="list-style-type: none"> • WMO status • No. permitted and unpermitted landfills • Results of waste compliance audits • Recycling programmes • Training programme • Awareness campaigns etc.
4.2 At all waste facilities without weighbridges, the SAWIS manual system for estimating incoming waste is to be implemented, so as to allow waste disposal tonnages to be estimated.	The National Waste Information Regulations require all landfill sites over 200m ² in size to report tonnages on the SAWIS.
4.3 DEDEAT to develop a standard in-house e-filing system to ensure correct management of waste information and records. To be developed by year1.	The filing structure would contain individual files for: <ul style="list-style-type: none"> • IWMPs • Audit reports • Recycling data • Training materials etc.
4.4 All municipalities to be reporting on SAWIC/s by year 4	With the implementation of a manual system for collecting waste disposal tonnages in place, all municipalities should be able to report at least estimated waste data.
4.5 Ensure accurate data is reported on SAWIC through training and verification audits	Only 25 operational landfill sites in the province are reporting on SAWIS. In addition errors in SAWIS data were identified during a review of SAWIS data.
5. Improved waste facility management	
5.1 DEDEAT to develop basic guideline documents for the operation of small waste management facilities which do not trigger the requirement for a waste management license or registration in terms of the National Norms and Standards.	Guideline documents to be developed for the operation of: <ul style="list-style-type: none"> • Drop-off centres/ transfer stations • Material recovery facility
5.2 100% of landfill sites to be permitted by year 5	All operational landfill sites to be permitted by year 4. A review of the status of landfill site permits will also be required as a number of permits have expired.
5.3 All waste facilities to have operational plans in place by year 5. Where operational plans are in place these should be reviewed by year 4.	All waste management license applications and registration in terms of the National Norms and Standards for the Storage of Waste require an operational plan to be submitted as part of the application. Old landfill sites (permitted before the NEM: WA) may not have operational plans and operational plans for facilities may be out of date to align with changes in legislation,
6. Provide effective and financially viable services	
6.1 Development of service delivery guidelines for rural areas by year 3	Guidelines will be developed which identify methods for practical and efficient waste service delivery to rural areas.
6.2 Achieve at least a 10% increase in refuse collection rates or services in all municipalities by year 3.	This could be through the use of co-operatives for kerbside collection, provision of central waste drop-off facilities etc. The National Treasury is providing equitable share for provision of basic services. This funding should be directed to provision of waste collection services to rural areas.
6.3 Full cost accounting exercises to be undertaken by both	The DFFE have developed a Solid Waste Tariff Model. This

Actions and Targets	Comment
metropolitan municipalities by year 2, and all LMs by year 4.	model can be used by municipalities to assist with full cost accounting exercises.
7. Improved education, awareness and waste information sharing	
7.1 DEDEAT to hold annual technical workshops / engagements with all WMOs or waste managers	A technical workshop/ engagement should be hosted by DEDEAT on an annual basis. The workshop can be used to present: <ul style="list-style-type: none"> • New policy and legislation • New template • New reporting requirements • Waste management solutions e.g. new technology
7.2 DEDEAT to host annual workshops / knowledge updates for small companies involved in the waste industry	National recycling bodies (PETCO, POLYCO, The Glass Recycling Company) could be invited to present to EMEs and small recycling companies. DEDEAT could also present a summary of legislation applicable to small recycling companies such as the National Norms and Standards for Storage of Waste (GN 926 of 2013)
7.3 DEDEAT to publish an annual waste newsletter	A waste newsletter should be published annually and distributed to the public and stakeholders in the waste management industry electronically.
7.4 DEDEAT and municipalities to develop and implement awareness programme.	Awareness campaigns can include print based, radio advertising, road shows at taxi ranks, churches etc. workshops with communities or ward structures, door to door visits and school visits.
8. Effective compliance monitoring and enforcement	
8.1 DEDEAT to update their waste facility audit report template by year 1 to ensure all conditions of waste permits are audited and to include a scoring system.	A standard audit report template for the province should be developed. The template would require each permit condition to be audited and scored (compliant, partially compliant, non-compliant, not applicable).
8.2 DEDEAT waste officers and municipalities to receive training on performance auditing	An induction training session should be held for all persons who undertake waste facility audits.
8.3 DEDEAT regional offices to develop and implement auditing schedules for government and private waste facilities where DEDEAT is the competent authority (industry landfill sites, waste storage facilities and recycling facilities) and undertake audits as per the schedule.	DEDEAT should undertake audits of industry to determine: <ol style="list-style-type: none"> 1. if a registration of WML is in place 2. if the conditions of the norms and standards or WML are being complied with
8.4 All waste facilities to be audited at least annually by DEDEAT	This includes municipal and private waste facilities.
8.5 All municipal landfill facilities are to be audited internally by municipalities at least once per annum (or more frequently if required by license conditions).	Municipalities to audit using the audit template developed by DEDEAT.
8.6 DEDEAT to determine the baseline of enforcement actions taken against non-compliant waste facilities and increase the number of enforcement actions by 5% a year. Fines to be issued for all repeat non-compliances by year 5	DEDEAT is currently not focusing on enforcement. Municipalities are issued with non-conformance reports, but no action or limited action is taken by the municipality to remedy the non-compliance.

Implementation Plan

An implementation plan has been developed based on the 8 objectives. The plan contains a number of projects and initiatives which, if properly executed, should move the Eastern Cape Province towards improving waste management. The 39 projects listed below have been identified spanning a period of 5 years.

Actions	Period
Objective 1. Ensure sufficient institutional capacity to implement integrated waste management	
1.1 All municipalities to have a designated WMO appointed	Year 1 -Year 2
1.2 DEDEAT to develop WMO performance and development plan template based on the requirements of the DFFE Guideline for the designation of WMOs.	Year 2
1.3 All LMs to review performance of WMOs against the DFFE Guidelines on WMO appointments, using the above DEDEAT template.	Year 2-Year3
1.4 DEDEAT to develop a training guideline for municipalities	Year 1
1.5 DEDEAT and municipalities to identify extra positions and resources required to implement this provincial PIWMP.	Year 1
Objective 2. Improved integrated waste management future planning	
2.1 Both metros to develop a waste infrastructure masterplan for provision of public drop off facilities for recyclable material.	Year 5
2.2 DEDEAT to develop a provincial waste infrastructure masterplan for the Eastern Cape. This plan should cover regional landfill sites, MRFs, public drop-off facilities, composting facilities and construction and demolition waste crushing facilities. This plan should address short, medium- and long-term infrastructure needs.	Year 3- Year 4
Development of guidelines for challenging/ opportunistic waste streams (e.g. abattoir waste, nappies)	Year 4
2.3 All municipalities to have IWMPs which are current and endorsed by DEDEAT.	Year 5
2.4 All municipalities to have integrated IWMP projects into IDPs	Year 1 – Year 5
2.5 All municipalities to report on IWMP implementation on an annual basis to DEDEAT.	Year 1 – Year 5
3. Increased waste minimisation, re-use, recycling and recovery	
3.1 DEDEAT quarterly Waste Management Forum: <ul style="list-style-type: none"> - All municipal waste managers to attend - Greater involvement of private recycling industry (e.g. PETCO, eWASA) at meetings. 	Year 1 – Year 5
3.2 50% of urban households in the two metros to have separation at source programmes in place. Local municipalities to create an enabling environment for recycling in the main town in the municipality.	Year 5
3.3 Development of MRFs <ul style="list-style-type: none"> - Both metropolitan municipalities to have at least one MRF operational - 12 local municipalities to have MRFs in operation 	Year 5
3.4 Municipalities to create an enabling environment for composting.	Year 5
3.5 Both metros to investigate the feasibility of facilitating a programme for the crushing of construction and demolition waste (C&DW) and, if feasibility implement a programme	Year 1 – Year 2
3.6 All municipalities to facilitate the development of at least one recycling public drop-off centre in the main town.	Year 4
3.7 All municipalities to implement an in-house waste recycling programme.	Year 2
4. Effective Waste Information Management	
4.1 DEDEAT to develop a written template or database to standardise information received from municipalities	Year 1
4.2 At all waste facilities without weighbridges, the SAWIS manual system for estimating incoming waste is to be implemented, so as to allow waste disposal tonnages to be estimated.	Year 1
4.3 DEDEAT to develop a standard in-house e-filing system to ensure correct management of waste information and records. To be developed	Year 1
4.4 All municipalities to be reporting on SAWIC/s	Year 1
4.5 DEDEAT to ensure accurate data is reported on SAWIC through training and verification audits	Year 2 – Year 5
5. Improved waste facility management	
5.1 DEDEAT to develop basic guideline documents for the operation of small waste management facilities which do not trigger the requirement for a waste management license or registration in terms of the National Norms and Standards.	Year 2
5.2 100% of landfill sites to be permitted	Year 5

Actions	Period
5.3 All waste facilities to have operational plans in place. Where operational plans are in place these should be reviewed. DEDEAT to develop a generic template for each waste facility type e.g. landfill site, MRF, transfer station.	Year 2 – Year 4
6. Provide effective and financially viable services	
6.1 Development of service delivery guidelines for rural areas	Year 2
6.2 Achieve at least a 10% increase in refuse collection (% of households serviced) in all municipalities.	Year 5
6.3 Revision of waste tariffs to be informed by full cost accounting exercises to be undertaken by both metropolitan municipalities, and all LMs.	Year 2, Year 4
7. Improved education, awareness and waste information sharing	
7.1 DEDEAT to hold annual technical workshops / engagements with all WMOs or waste managers	Year 1 – Year 5
7.2 DEDEAT to host annual workshops / knowledge updates for small companies involved in the waste industry	Year 1 – Year 5
7.3 DEDEAT to publish an annual waste newsletter (electronic).	Year 2 – Year 5
7.4 DEDEAT and all municipalities to develop and implement awareness programme.	Year 1 – Year 5
8. Effective compliance monitoring	
8.1 DEDEAT to update their waste facility audit report template to ensure all conditions of waste permits are audited and to include a scoring system.	Year 1
8.2 DEDEAT waste officers and municipalities to receive training on performance auditing	Year 1
8.3 DEDEAT regional offices to develop and implement auditing schedules for government and private waste facilities where DEDEAT is the competent authority (industry landfill sites, waste storage facilities and recycling facilities) and undertake audits as per the schedule.	Year 3 – Year 5
8.4 All waste facilities to be audited at least annually by DEDEAT	Year 3 – Year 5
8.5 All municipal landfill facilities are to be audited internally by municipalities at least once per annum (or more frequently if required by license conditions), and audit reports to be submitted to DEDEAT.	Year 1 – Year 5
8.6 DEDEAT to determine the baseline of enforcement actions taken against non-compliant waste facilities and increase the number of enforcement actions by 5% a year. Determine baseline by 2012, 5% increase per annum thereafter. Fines to be issued for all repeat non-compliances	Year 1– Year 5

Way Forward

Public Participation Process

A public participation process (PPP) of the final draft of the PIWMP will be undertaken by DEDEAT.

Endorsement of Eastern Cape Provincial Integrated Waste Management Plan

Once this provincial IWMP is finalised it will be submitted to the Minister for endorsement. The endorsed IWMP will then be gazetted.

Regular and on-going monitoring of the IWMP is required to ensure the objectives of the IWMP are accomplished. Monitoring of the success of projects during the IWMP implementation phase will ensure that corrective action is taken when necessary.

Monitoring of the Provincial Integrated Waste Management Plan

Regular and on-going monitoring of the IWMP is required to ensure the objectives of the IWMP are accomplished. Monitoring of the success of projects during the IWMP implementation phase will ensure that corrective action is taken when necessary.

A close down report will be completed in 2027 at the end of this IWMP's 5 year lifespan. The closedown report will evaluate the successes and challenges associated with the proposed projects.

Review of the Eastern Cape Provincial Integrated Waste Management Plan

This provincial IWMP covers a five-year period, the plan needs to be revised every 5 years to ensure it remains current. It is recommended that the revision of the PIWMP commences at least 6 months prior to the PIWMP's lifespan being complete to minimise the gap between the 2022 – 2026 IWMP and the 2027 – 2031 IWMP.

1 Introduction

The Department of Economic Development Environmental Affairs and Tourism (DEDEAT) is required to develop a Provincial Integrated Waste Management Plan (PIWMP) as per the requirements of the National Environmental Management Waste Act (59 of 2008) as amended (hereafter referred to as the NEM: WA).

1.1 Contents of a Provincial IWMP

The NEM: WA outlines the requirements for a PIWMP. These requirements have been included in the table below along with a description of how this requirement has been met and details of where in this report that relevant information is located.

Table 1: The NEM: WA Requirements for a Provincial Integrated Waste Management Plan –

NEM: WA section no.	Requirement	Comments	Section in the PIWMP
12(1)(a)	Contain a situation analysis that includes-		
12(1)(a)(i)	A description of the population and development profiles of the area to which the plan related		Section 5.3
12(1)(a)(ii)	An assessment of the quantities and types of waste that are generated in the area		Section 5.7
12(1)(a)(iii)	A description of the services that are provided, or that are available for the collection, minimisation, re-use, recycling and recovery, treatment and disposal of waste		Section 5.8
12(1)(a)(iv)	The number of persons in the area who are not receiving waste collection services		Section 5.8
12(1)(b)	Within the domain of the provincial department or municipality, set out how that provincial department or municipality intends to:		
12(1)(b)(i)	To give effect, in respect of waste management, to chapter 3 of the National Environmental Management Act		Section 8.4 Objectives and targets & section 10 implementation plan
12(1)(b)(ii)	To give effect to the objectives of this Act		Section 8.4 Objectives and targets & section 10 implementation plan
12(1)(b)(iii)	To identify and address the negative impacts of poor waste management practise on health and the environment		Section 2 environmental impacts associated with waste management Section 8.4 Objectives and targets & section 10 implementation plan
12(1)(b)(iv)	To provide for the implementation of waste minimisation, re-use, recycling and recovery targets and initiatives		Section 8.4 Objectives and targets & section 10 implementation plan
12(1)(b)(vi)	To implement the Republic's obligations in respect of relevant international agreements		Section 8.4 Objectives and targets & section 10 implementation plan

NEM: WA section no.	Requirement	Comments	Section in the PIWMP
12(1)(b)(vii)	To give effect to best environmental practice in respect of waste management		Section 8.4 Objectives and targets & section 10 implementation plan
12(1)(c)	Set out how the provincial department intends to identify the measures that are required to support municipalities to give effect to the objectives of this Act.		Section 8.4 Objectives and targets & section 10 implementation plan
12(1)(d)	Set out the priorities of the provincial department in respect of waste management		Section 8.4 Objectives and targets
12(1)(e)	Establish targets for the collection, minimisation, re-use and recycling of waste		Section 8.4 Objectives and targets
12(1)(f)	Set out the approach for the planning of any new facilities for disposal and decommissioning of existing waste disposal facilities	The approach for planning new facilities will be determined through the development of a provincial waste infrastructure masterplan – refer to implementation plan	Section 10 implementation plan
12(1)(g)	Indicate the financial resources required to give effect to the plan		Section 10 implementation plan
12(1)(h)	Describe how the provincial department intends to give effect to its integrated waste management plan		Section 10 implementation plan
12(1)(i)	Comply with requirements prescribed by the Minister	The PIWMP has been developed in compliance with the NEM: WA. No specific requirements for the Eastern Cape PIWMP have been received from the minister	-

1.2 History of Provincial Waste Management Plans in the Eastern Cape

The first Eastern Cape PWIMP was developed in 2010 and covered the period 2010 -2015. This plan is now out of date and is hence being reviewed.

A review of implementation process of the 2010 IWMP is presented in the situation analysis section of this report.

1.3 Objectives of a Provincial Integrated Waste Management Plan

The objective of this PIWMP is to present a unified approach to waste management in the Eastern Cape. The PIWMP will cover a regional approach to waste management and identify projects on a regional level which can improve waste management in the province.

The National Waste Management Strategy of 2020 (NWMS) identifies the objective of integrated waste management planning as being to: “integrate and optimize waste management so that the efficiency of the waste management system is maximised and the impacts and financial costs associated with waste management are minimised, thereby improving the quality of life of all South Africans.” The PIWMP will take into consideration the principles as identified in the NWMS 2020.

The NWMS also presents the waste management hierarchy which outlines the preferred methods for management of waste. The waste hierarchy is presented below.

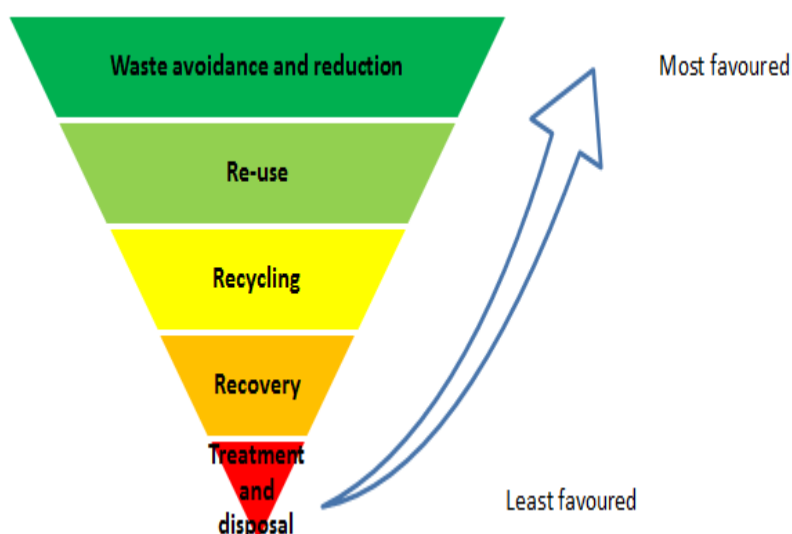


Figure 1: The waste hierarchy as per the National Waste Management Strategy (DFFE, 2011)

1.4 Integrated Waste Management Plan Development Process

The planning process for an IWMP is specified in the Guideline for the Development of Integrated Waste Management Plans (IWMPs) published by the Department of Forestry, Fisheries and the Environment (DFFE). The guideline outlines the following planning process.

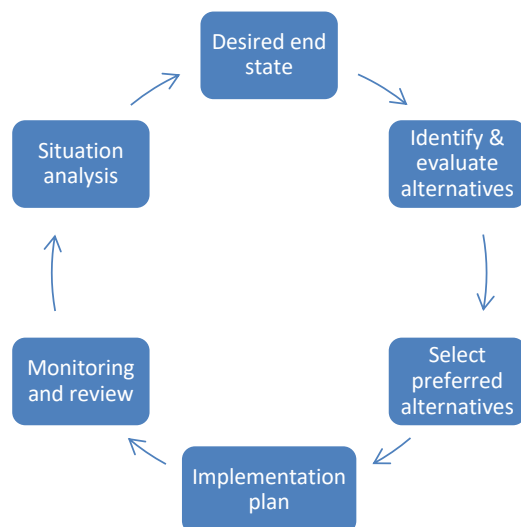


Figure 2: IWMP planning phases

This approach has been applied in the development of this IWMP.

1.5 Scope of Provincial Integrated Waste Management Plan

This PIWMP is limited to the Eastern Cape Province which consists of six district municipalities, two metropolitan municipalities and 31 local municipalities as listed in the table below.

Table 2: Eastern Cape Municipalities

District Municipality	Local Municipality	Municipal code
N/A	Nelson Mandela Bay Metropolitan Municipality	NMA
N/A	Buffalo City Metropolitan Municipality	BUF
Alfred Nzo District Municipality (DC44)	Matatiele Local Municipality	EC441
	Winnie Madikizela Mandela Local Municipality	EC443
	Ntabankulu Local Municipality	EC444
	Umzimvubu Local Municipality	EC442
Amathole District Municipality (DC12)	Amahlathi Local Municipality	EC124
	Great Kei Local Municipality	EC123
	Mbhashe Local Municipality	EC121
	Mnquma Local Municipality	EC122
	Ngqushwa Local Municipality	EC126
	Raymond Mhlaba Local Municipality	EC129
Chris Hani District Municipality (DC13)	Emalahleni Local Municipality	EC136
	Engcobo Local Municipality	EC137
	Enoch Mgijima Local Municipality	EC139
	Intsika Yethu Local Municipality	EC135
	Inxuba Yethemba Local Municipality	EC131
	Sakhisizwe Local Municipality	EC138
	Elundini Local Municipality	EC141

District Municipality	Local Municipality	Municipal code
Joe Gqabi District Municipality (DC14)	Senqu Local Municipality	EC142
	Walter Sisulu Local Municipality	EC145
OR Tambo District Municipality (DC15)	Ingquza Hill Local Municipality	EC153
	King Sabata Dalindyebo Local Municipality	EC157
	Mhlontlo Local Municipality	EC156
	Port St John's Local Municipality	EC154
	Nyandeni Local Municipality	EC155
Sarah Baartman District Municipality (DC10)	Blue Crane District Municipality	EC102
	Dr Beyers Naudé Local Municipality	EC101
	Kouga Local Municipality	EC108
	Koukamma Local Municipality	EC109
	Makana Local Municipality	EC104
	Ndlambe Local Municipality	EC105
	Sundays River Valley Local Municipality	EC106

Since the 2010 IWMP the number of municipalities has decreased from 39 to 31 and some municipalities have been renamed. The table below presents a summary of these changes.

Table 3: Summary of changes to municipalities since 2010

2010 municipality	Comments	2021 municipality
Camdeboo local municipality	Dissolved in August 2016	Merged to create Dr Beyers Naudé local municipality
Ikwezi local municipality		
Baviaans local municipality	Dissolved in August 2016	Merged to create Raymond Mhlaba local municipality
Nkonkobe local municipality		
Nxuba local municipality	Dissolved in August 2016	Merged to create Enoch Mgijima local municipality
Tsolwana local municipality		
Inkwanca local municipality		
Lukhanji local municipality		
Maletswai local municipality	Dissolved in 2016	Merged to create Walter Sisulu local municipality
Gariep local municipality		
Cacadu district municipality	Renamed in 2014	Renamed to Sarah Baartman district municipality
Mbizana local municipality	Renamed	Renamed Winnie Madikizela Mandela local municipality

The figure below shows the location of the present municipalities in the province.

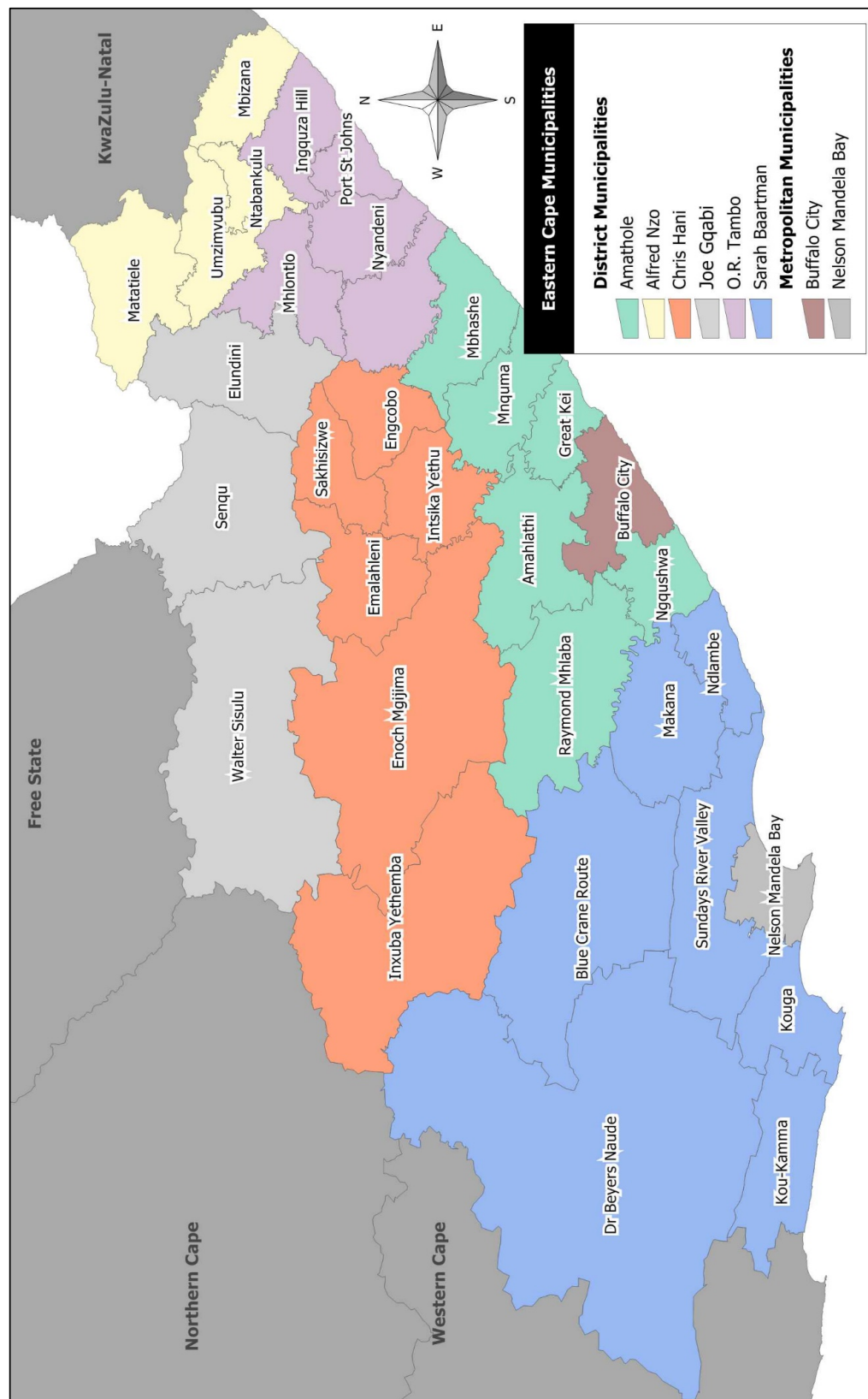


Figure 3: Eastern Cape Province showing the local, district and metropolitan municipalities

1.6 Alignment with other Strategic Plans

There are a number of strategic plans on a national, provincial and local level which have been taken into consideration during the developing this PIWMP. A summary of these is provided in this section below.

1.6.1 National Waste Management Strategy

The National Waste Management Strategy (NWMS) is structured around five key principles as seen in the table below.

Table 4:: Key Principles underpinning the NWMS 2020

PRINCIPLE	EXPLANATION
Waste Minimisation.	This refers to avoiding the amount and toxicity of waste that is generated and, in the event that waste is generated, the reduction of the amount and toxicity of the waste that is disposed.
Waste Prevention	This refers to avoiding the generation of waste and avoiding toxicity in waste.
Waste as a Resource	This refers to beneficiating waste through re-use, recycling, treatment and recovery to reduce the amount and the toxicity of waste disposed of.
Sustainable Strategic Partnerships	This refers to government establishing and sustaining collaborative working relationships with non-government role-players involved in the management of waste, i.e. private sector, academia, civil society organisations and other development funding institutions.
Environmentally sound socioeconomic growth and development	This refers to ensuring that the intent and commitments of the SDGs, NDP are continuously integrated and aligned to all environmental protection considerations, and that environmental protection programmes contribute to improving the socio-economic lives of people.

1.6.2 Operation Phakisa: Chemicals and Waste Phakisa

Operation Phakisa, an initiative which looks to unlock South Africa's economic potential, sets a number of waste-related national targets. These targets include:

- Reduce industrial waste to landfill by 75%
- Reduce municipal waste to landfill site 50%
- Move towards zero sewage sludge to landfill by 2023
- Move toward zero meat production waste to landfill by 2023

- Increase e-waste recycling from 7% to 30%
- Create 1,000 jobs through recycling and re-use of government computer
- 50% of households in metropolitan municipalities separating at source by 2023
- 8,000 direct and indirect jobs through plastic recycling
- Produce building aggregates and construction inputs from rubble and glass

1.6.3 Eastern Cape Provincial Development Plan

The theme of the Eastern Cape Provincial Development Plan is 'flourishing people in a thriving province'. The 2014 draft Eastern Cape Development Plan sets the following targets related to waste management.

- An inclusive, equitable and growing economy for the province
- An educated, innovative and empowered citizenry
- A healthy population
- Vibrant, equitably enables communities
- Capable agents across government and other institutional partners committed to the development of the Province.

The plan recognises that poor waste management results in environmental challenges and can cause health issues. Strategic objective 3.6 is titled "Address the social determinants that affect health and disease", and highlights the need for infrastructure to improve roads, water and sanitation supply, the safe disposal of refuse/ waster, and proper spatial planning of human settlements.

Goal 4 titled "Vibrant, equitably enables communities" identifies the need for safe disposal of refuse and waste and the need for universal access to waste management infrastructure.

1.6.4 Working on Waste

The Working on Waste programme is run by the Department of Forestry, Fisheries and the Environment and is implemented under the Expanded Public Works Programme (EPWP). The aim of the Working on Waste Programme is to work towards the achievement of goals of the NWMS.

1.6.5 National Development Plan

South Africa National Development Plan (NDP) was published in 2012 and outlined the required steps to eliminate poverty and reduce inequality by 2030.

The NDP sets the following objectives related to waste management:

- An absolute reduction in the total volume of waste disposed to landfill site each year through a national recycling strategy
- Carbon price, building standards, vehicle emission standards and municipal regulations to achieve scale in stimulating renewable energy, waste recycling and retrofitting buildings

- Consumer awareness initiatives and sufficient recycling infrastructure should result in South Africa becoming a zero-waste society
- Implement a waste management system through rapid expansion of recycling infrastructure and encouraging composting of organic domestic waste to bolster economic activity in poor urban communities

The NDP also recognises the opportunity for the manufacturing sector to reuse waste.

1.6.6 Youth Jobs in Waste

The Youth Jobs in Waste programme was launched in 2013. The project was launched in response to a high level of unemployment amongst the youth and a lack of service delivery and government capacity. The programme aimed to create job opportunities and provided on-the-job training and skills development. An estimated 3,577 jobs were created through the programme, 566 of which were in the Eastern Cape. The beneficiaries of the EPWP programme were largely employed as landfill site assistants, waste collectors, administrators and environmental awareness educators (web reference 2).

1.6.7 Back to Basics

The National Department of Cooperative Governance and Traditional Affairs (COGTA) show cases a new strategy at the Presidential Local Government Summit in 2014. The strategy was titled Back to Basics serving our communities better.

The strategy identified that although progress has been made with regard to service delivery since 1994 more actions are needed to support, education and where required enforce the government mandate for service delivery.

The Back of Basics programme is centred around five pillars:

1. **Put people and their concerns first** and ensure constant contact with communities through effective public participation platforms
2. **Create conditions for decent living** by consistently delivering municipal services to the right quality and standard. This includes planning for and delivery of infrastructure and amenities, maintenance and upkeep, including the budgeting to do this. Ensure no failures in services and where there are, restore services with urgency
3. **Be well governed** and demonstrate good governance and administration – cut wastage, spend public funds prudently, hire competent staff, ensure transparency and accountability
4. **Ensure sound financial management and accounting**, and prudently manage resources so as to sustainably deliver services and bring development to communities
5. **Build and maintain sound institutional and administrative capabilities**, administered and managed by dedicated skilled personnel at all levels

The Back of Basis pillars are all applicable to waste management within the province.

1.7 Status of Provincial Integrated Waste Management Plans in South Africa

The nine provinces of South Africa are in various stages of compiling or updating their provincial IMWPs. The table below details this progress.

Table 5: Summary of Provincial Integrated Waste Management Plans

Province	IWMP date	Comments
North West	2022	IWMP valid
Gauteng	2023	IWMP Valid
Limpopo	2025	IWMP valid
Mpumalanga	2024	Final Draft not yet endorsed
KwaZulu-Natal	No	Service provider appointed
Western Cape	2022	Under review
Northern Cape	No	To be reviewed
Free State	No	Under development

2 Environmental Impacts Associated with Waste Management

If waste is not managed correctly it can result in a variety of environmental impacts. This section is not intended to provide a detailed account of all waste related impacts, it instead serves as a summary of common impacts. Key impacts are summarised below.

2.1 Surface and Groundwater Impacts

2.1.1 Contamination of ground and surface water

Waste which is disposed of into unlined landfill sites or waste which is dumped illegally can generate organic-rich leachate which can cause the pollution of surface and groundwater or lead to eutrophication of watercourses. Leachate can also contain salts, heavy metals, pathogens, oils and other pollutants particularly if hazardous waste is disposed of. All of these pollutants can negatively affect both groundwater and surface water as well as potentially impact on downstream users.

2.1.2 Loss of ecological functioning and biodiversity

In addition to the contamination of surface water poorly managed waste can cause blockages in streams and rivers which impacts the functioning of the aquatic ecosystem. Valuable aquatic habitats can be lost when landfill sites or illegal dumping sites encroach onto riparian habitat or wetlands. Blockages of rivers, streams and stormwater system can result in flooding which can cause damage to property or infrastructure and pose a health and safety risk to those affected.



Figure 4: Illegal dump site located within a wetland

2.2 Soil Impacts

In addition to leachate from landfill sites polluting surface and groundwater, soil contamination can also occur in areas surrounding landfill sites. This contamination can affect soil fertility and vegetation growth.

2.3 Air Quality Impacts

2.3.1 Burning of Waste

Burning of waste occurs across the province, particularly in areas that do not have access to formal waste collection systems.

The table below details recorded waste fires at landfills and dumping sites in the province over the past 5 years. It is anticipated that the actual number of waste fires is significantly higher than the figures listed below, since not all fires are reported to the fire brigade.

Table 6: Number of waste fires recorded in the Eastern Cape (data source, Eastern Cape Department of Cooperative Government and Traditional Affairs, Fire Brigade Services)

Financial year	No. fires
2012/13	1,455
2013/14	740
2014/15	879
2015/16	652
2016/17	910
2017/18	1,072



Figure 5: Burning of waste at landfill sites

The burning of waste on landfill sites occurs for a number of reasons including poor management of the landfill site, burning by informal reclaimers to access valuable materials such as metal, unplanned fires from informal reclaimers residing on site who make fires for heat or cooking, and fires spreading to landfill sites from adjacent bush fires.

2.3.2 Dust

Fugitive dust emissions from landfill sites can impact on surrounding vegetation and cause health issues to surrounding receptors, particularly if the dust is contaminated with pollutants or other hazardous materials.

2.3.3 Emissions and release of Greenhouse Gases

As organic waste in landfill sites decomposes a mixture of gases is released. These include methane, carbon dioxide, carbon monoxide, nitrogen and hydrogen sulphide. Methane and carbon dioxide are greenhouse gases and their release can contribute towards climate change. Carbon dioxide emissions from vehicles and equipment used for the management of waste can similarly have climate impacts.

2.4 Health and Safety

Informal reclaimers operate on the majority of municipal landfill sites in the Eastern Cape. While informal reclaimers form an essential step in the waste recycling process, their presence on landfill sites represents a health and safety risk to the informal reclaimers, landfill site employees and users of the landfill sites. Informal reclaimers often operate without personal protective equipment and collect waste from areas where vehicles are active. Risks to informal reclaimers include collision with vehicles accessing the sites and landfill sites compactors, exposure to contaminated food, injuries from broken glass and sharp objects, exposure to HCRW such as nappies, sharps, and exposure to vermin such as rats.



Figure 6: Informal waste pickers operating and residing on landfill sites

Unfenced landfill sites are accessible to livestock. Risks to livestock include ingestion of plastic or contaminated waste which can result in death or injury, exposure to pathogens and risk of collision with vehicles on site.



Figure 7: Livestock on landfill sites

2.5 Loss of Biodiversity

The loss of biodiversity may occur when landfill sites disturb natural areas. For example, the development of a landfill may require vegetation clearing, or the illegal dumping of waste may also damage vegetation. Fires from the illegal burning of waste may also damage vegetation.



Figure 8: Loss of biodiversity from a landfill site encroaching of natural vegetation and from an illegal dumping site

2.6 Socio-economic Impacts

Illegal dumping of waste and littering can degrade the sense of place of an area and result in negative perceptions of tourists visiting the Eastern Cape. Persistent illegal dumping may also impact on house prices. The cost of cleaning up illegally dumped waste falls to the municipalities and removal of illegal dumping can consume significant portions of municipal budgets.

3 Approach and Methodology

3.1 Legislated Requirements for Integrated Waste Management Plans

The requirements of the National Environmental Management Waste Act (Act 59 of 2008, as amended) (refer to table 1) and the Department of Forestry, Fisheries and the Environment (DFFE) Guideline for the Development of Integrated Waste Management Plans were used to guide the development of this PIWMP.

3.2 Methodology

A phased approach was used to develop the IWMP, as detailed below.

3.2.1 Integrated Waste Management Plan Review

GIBB requested IWMPs from all local, district and metropolitan municipalities. The available IWMPs were reviewed and informed the situation analysis chapter of the PIWMP (including the outdated copies, due for review).

Table 7: Summary of integrated waste management plans received

Name of the Municipality	Date due for review	Comments	Endorsed by DEDEAT
METROPOLITAN Municipalities			
Nelson Mandela Metro	2020	Under review	No
Buffalo City Metro		Under review - Draft	No
Alfred Nzo DM	NO		No
Umzimvubu	2025	Valid	Yes
Matatiele	2015		No
Ntabankulu		Submitted for endorsement	No
Winnie Madikizela Mandela		Under review	No
Amathole DM	NO		No
Amahlathi, Great Kei, Mbhashe, Mquma, Ngqushwa		Under review	No
Raymond Mhlaba		No IWMP	No
Chris Hani DM		Under review	No
Engcobo		Under review	No
Intsika Yethu	2021	Outdated	No
Emalahleni		Service Provider appointed	No
Inxuba Yethemba		Under review	No
Sakhisizwe		Under review	No

Enoch Mgijima		Under development	No
Joe Gqabi DM	NO		No
Senqu	2020	Outdated	No
Elundini	2022	Valid	Yes
Walter Sisulu		Under development	No
OR Tambo DM		Under review	No
King Sabata Dalindyebo (KSD)	2024	Valid	Yes
Nyandeni	2027	Valid	Yes
Port St Johns (PSJ), Mhlontlo		Under review	No
Ingquza Hill	2027	valid	Yes
Sarah Baartman DM	NO		No
Makana		Under review	No
Dr Beyers Naude,		Under development	No
Blue Crane, Ndlambe, Kouga, Koukamma, Sundays River	No		No

3.2.2 Literature Review

A review of legislation was undertaken. This included the following key documents.

- Eastern Cape Integrated Waste Management Plan: General Waste, 2010
- Eastern Cape Integrated Waste Management Plan: Hazardous Waste 2010
- IWMPs for the local, district and metropolitan municipalities
- SAWIS statistics
- Waste facility permits
- Statistics SA Census 2011 and Community Survey 2016 data

A full list of documentation reviewed is available as the reference list at the end of this report.

3.2.3 Questionnaires

A questionnaire was developed to capture status quo information for the PIWMP. The questionnaire was issued to all local and district municipalities in the Eastern Cape. A total of 23 questionnaires were completed.

Table 8: Summary of completed surveys

Municipality	Survey completed	Comments
Metropolitan Municipalities		
Buffalo City	Yes	
Nelson Mandela Bay	Yes	
Alfred Nzo District Municipality	Yes	
Matatiele local municipality		
Winnie Madikizela Mandela local municipality		
Ntabankulu local municipality		
Umtzimvubu local municipality	Yes	
Amathole District Municipality	Yes	
Amahlathi local municipality	Yes	
Great Kei local municipality	Yes	
Mbashe local municipality	Yes	

Municipality	Survey completed	Comments
Mnquma local municipality		Municipality was visited and a survey was left with the municipality. No survey was returned following the visit.
Ngqushwa local municipality	Yes	
Raymond Mhlaba local municipality	Yes	
Chris Hani District Municipality		
Emalahleni local municipality		Municipality was visited and a survey was left with the municipality. No survey was returned following the visit.
Engcobo local municipality		
Enoch Mgijima local municipality	Yes	
Inxuba Yethemba	Yes	
Intsika Yethu local municipality	Yes	
Sakhisizwe local municipality		Municipality was visited and a survey was left with the municipality. No survey was returned following the visit.
Joe Gqabi District Municipality	Yes	
Elundini local municipality	Yes	
Senqu local municipality	Yes	
Walter Sisulu local municipality		
OR Tambo District Municipality	Yes	
King Sabata Dalindyebo		Municipality was visited and a survey was left with the municipality. No survey was returned following the visit.
Mhlontlo local municipality		
Ingquza Hill local municipality	Yes	
Nyandeni local municipality		
Port St Johns local municipality		
Sarah Baartman District Municipality	Yes	
Blue Crane Route local municipality	Yes	
Dr Beyers Naudé local municipality		
Kouga local municipality		
Kou-Kamma local municipality	Yes	
Makana local municipality		
Ndlambe local municipality	Yes	

3.2.4 Site Visits and Ground Truthing

(a) Engagements with Government Authorities

Meetings were undertaken with both of the metropolitan municipalities, all six district municipalities and a total of 15 local municipalities. A schedule of visits and meetings is provided below.

Table 9: Engagements with municipalities

Municipality	Date of visit/ meeting
Local Municipality	
Amahlathi Local Municipality	16 January 2018
Great Kei Local Municipality	16 January 2018
Raymond Mhlaba Local Municipality	18 January 2018
Ngqushwa Local Municipality	19 January 2018

Municipality	Date of visit/ meeting
King Sabata Dalindyebo Local Municipality	22 February 2018
Umkhumbi Local Municipality	26 February 2018
Senqu Local Municipality	27 February 2018
Walter Sisulu Local Municipality	27 February 2018
Sakhisizwe Local Municipality	28 February 2018
Emalahleni Local Municipality	28 February 2018
Intsika Yethu Local Municipality	28 February 2018
Blue Crane Route Local Municipality	28 February 2018
Inxuba Yethemba Local Municipality	01 March 2018
Kou-Kamma Local Municipality	22 March 2018
Mnquma Local Municipality	05 – 06 April 2018
District Municipalities	
Amathole District Municipality	25 January 2018
Sarah Baartman District Municipality	29 January 2018
OR Tambo District Municipality	22 February 2018
Alfred Nzo District Municipality	26 February 2018
Joe Gqabi District Municipality	27 February 2018
Chris Hani District Municipality	28 February 2018
Metropolitan Municipalities	
Buffalo City Metropolitan Municipality	25 January 2018
Nelson Mandela Bay Metropolitan Municipality	26 February 2018

(b) Engagements with Key Stakeholders in the Waste Management Industry

Private companies and other key stakeholder involved with waste management were engaged. Details of the engagements are present below.

Table 10: Stakeholders engaged

Company	Location	Date	Engagement
The Waste Trade Company	Port Elizabeth, Nelson Mandela Bay Metro	19 February 2018	Meeting
Greencycle	Port Elizabeth, Nelson Mandela Bay Metro	26 January 2018	Meeting
Cannibal Glass	Port Elizabeth, Nelson Mandela Bay Metro	02 February 2018	Meeting
EWASA	Durban	15 February 2018	Telephonic interview
Waste Takers	Port Elizabeth, Nelson Mandela Bay Metro	19 February 2018	Meeting
Blue Crane Recycling	Somerset East, Blue Crane Route LM	28 February 2018	Site inspection and interview
Middelburg Waste Management	Middelburg, Inxuba Yethemba LM	01 March 2018 & 07 March 2018	Facility inspection Telephonic interview
The Glass Recycling Company	National	16 March 2018	Telephonic interview
Collectall	Eastern Cape	05 April 2018	Site inspection and interview

Company	Location	Date	Engagement
DNF Waste & Environmental Services	Eastern Cape	05 April 2018	Site inspection and interview
Supreme Mouldings	East London	20 April 2018	Site inspection and interview
Coega SEZ	Nelson Mandela Bay Municipality	09 October 2018	Presentation of draft IWMP

3.2.5 Project Steering Committee

A meeting was held on 24 January 2018 to establish the project steering committee (PSC). The PSC consisted of DEDEAT, local authorities and SALGA. The details of the PSC are presented in the table below.

Table 11: Project Steering Committee Members

Name	Organisation
Lulama Daniels	DEDEAT
Tembela Mapukata	DEDEAT
Lyndon Mardon	DEDEAT
Gcobisa Mdoda	DEDEAT
Briant Noncembu	DEDEAT
Babane Thozamile	DEDEAT
Sinetemba Mduzana	DEDEAT
Hlomela Hanise	DEDEAT
Mxolisi Fulumente	DEDEAT
Walter Fyvie	GIBB
Kate Flood	GIBB
Thabisa Mkize	Amathole District Municipality
Bulelwa Dayimani	Amathole District Municipality
Archie Kama	Amathole District Municipality
Nqobile Ngcobo	Amathole District Municipality
Nosisa Tshika	Buffalo City Metropolitan Municipality
Honjiwe Mayapi	Department of Forestry, Fisheries and the Environment
Zona Cokie	SALGA
Yamkela Zitwana	OR Tambo District Municipality

Three PSC meetings have been held to date. Meeting details are presented below.

Table 12: Details of Project Steering Committee Meetings

Meeting no.	Date	Venue
1	24 January 2018	DEDEAT Offices, Bhisho
2	19 April 2018	SALGA Offices, East London
3	13 August 2018	DEDEAT offices, Bhisho

3.2.6 Workshops and Stakeholder Engagement

GIBB presented a brief overview of the PIWMP to the Eastern Cape Waste Management Officers (WMOs) at the Provincial Environmental Management Forum Meetings on 20 February 2018 and 14 August 2018.

A total of six workshops of the draft IWMP were held at DEDEATs regional offices and one workshop at GIBB's office in Port Elizabeth. A total of 106 stakeholders attended the IWMP workshops.

Table 13: Draft IWMP workshops

District	Date	No. attendees	Stakeholders in attendance
Chris Hani	15 October 2018	25	DEDEAT, Chris Hani DM, DFFE LGS, Emalahleni LM, Sakhisizwe LM, Inxuba Yethemba LM, GIBB
Joe Gqabi	16 October 2018	14	DEDEAT, Joe Gqabi DM, DFFE LGS, Walter Sisulu LM, GIBB
Alfred Nzo	17 October 2018	18	DEDEAT, Alfred Nzo DM, Matatiele LM, Ntabankulu LM, Umzimvubu LM, UmAfrica Recyclers, GIUBB
O.R. Tambo	18 October 2018	19	DEDEAT, DFFE, O.R. Tambo DM, Nyandeni LM, Ingquza Hill LM, GIBB
Sarah Baartman	22 October 2018	10	DEDEAT, Sarah Baartman DM, Blue Crane Route LM, SANRAL, GIBB
Amathole & BCMM	23 October 2018	17	DEDEAT, DFFE, Amathole DM, Raymond Mhlaba LM, Great Kei LM, Eastern Cape Parks and Tourism Agency, GIBB
NMBM	25 October 2018	3	NMBM, GIBB

3.3 Assumptions and Limitations

This situation analysis has drawn information from a number of sources including interviews with municipalities and stakeholders, IWMPs, SAWIS records, DEDEAT records and various literature sources. It is assumed that the information given verbally in interviews and documented information is accurate.

4 Legal Requirements Overview

A summary of how this PIWMP complies with the requirements of the NEM: WA is presented in Table 1.

A summary of key South Africa legislation governing waste management is presented in the table below. A more comprehensive summary of South Africa and international waste legislated in presented in **Appendix C**.

Table 14: Key waste legislation

Legislation/ guidelines	Summary
Constitution of the Republic of South Africa, 1996.	Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to their health or wellbeing; and to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures
National Environmental Management Act (Act 107 of 1998, as amended) known as NEMA.	The objective of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management.
National Environmental Management Waste Act (Act 59 of 2008, as amended)	The act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land.
National Pricing Strategy (GN 904 of 2016)	The strategy aims to fund re-use, recovery and recycling of waste through the extended producer responsibility principal.
National Waste Information Regulations (GN 625 of 2013)	These regulations give effect to the South African Waste Information System and specify registration and reporting requirements.
National Domestic Waste Collection Standards (GN 21 of 2011)	These specify methods for how domestic waste should be collected. Consideration is given to an appropriate level of service based on the nature (e.g. rural vs urban) of municipalities

5 *Situation Analysis*

5.1 *Scope and Purpose of the Situation Analysis*

The situation analysis is the first step of any IWMP. It is important to note that the situation analysis is a snap shot of the current status of waste management. Due to changes in legislation and the situation on the ground the situation analysis is constantly evolving. A detailed review of the situation analysis is therefore required at least in line with the five year review of the PWIMP.

The aim of the situation analysis is to determine the current status of waste management in the province. The situation analysis addresses all aspects of waste management from waste infrastructure to institutional capacity and funding of waste management services.

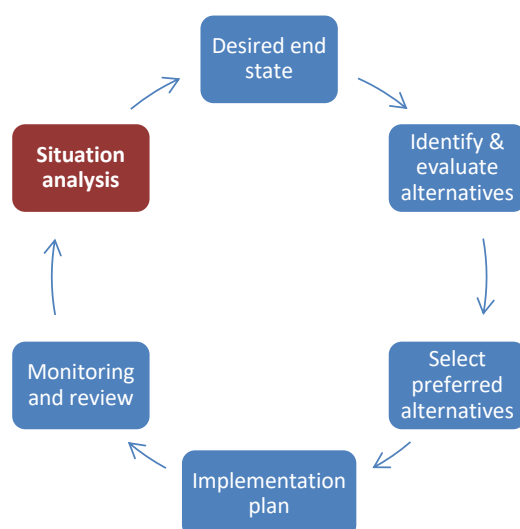


Figure 9: IWMP planning phases – situation analysis

5.2 Geographical Area

The Eastern Cape is the second largest province in South Africa in terms of geographical area covered. The Eastern Cape covers 168,966 km². It is comprised of six district municipalities, 31 local municipalities and two metropolitan municipalities.

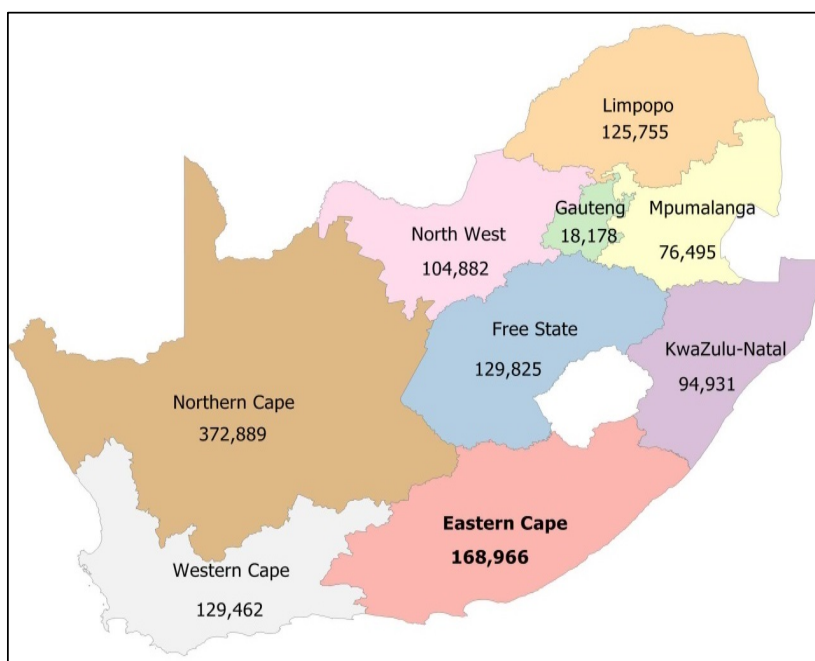


Figure 10: Geographical area of South Africa's nine provinces (km²)

5.3 Demographics

5.3.1 Population Profile

The Eastern Cape Province has the third largest population in South Africa. The Province with the highest population is Gauteng, followed by KwaZulu-Natal.

The population of the Eastern Cape is increasing more gradually than the population of South Africa as a whole. The population of the Eastern Cape increased by 14% between 1996 and 2016. This is relatively low compared to the national increase of 37%.

Table 15: Population overview

Year	EC Population	% change	SA population	% change
1996	6,147,244	-	40,583,573	-
2001	6,278,651	2.14%	44,819,778	10.44%
2007	6,527,747	3.97%	48,502,063	8.22%
2011	6,562,053	0.53%	51,770,560	6.74%
2016	6,996,976	6.63	55,653,684	7.50%

Of all the district municipalities and metros in the province, the O.R. Tambo district municipality has the largest population (20.8%) followed by the Nelson Mandela Bay Metropolitan Municipality (18.1%).

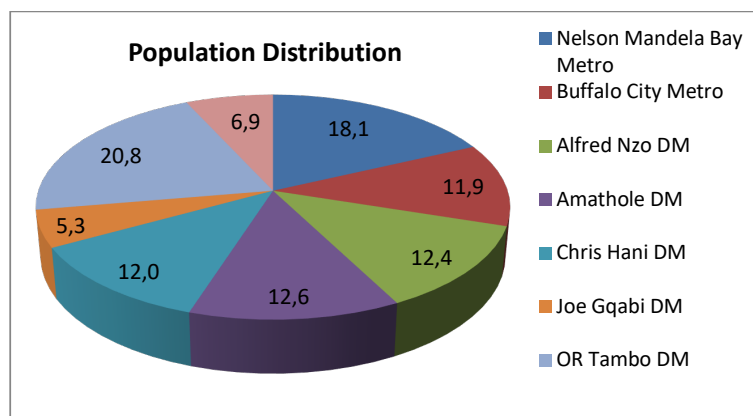


Figure 11: Eastern Cape population profile

5.3.2 Ethnic Profile

The majority of the population of the Eastern Cape are Black African (86.4%), followed by Coloured (8.6%), White (4.6%) and Indian/Asian (0.4%) (STATs SA, 2017).

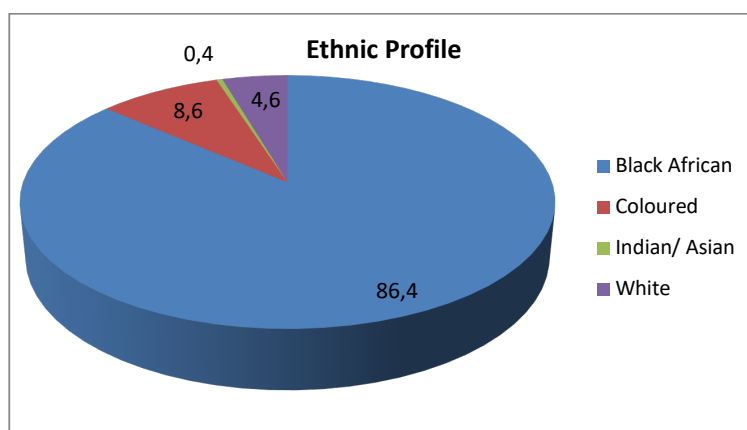


Figure 12: Eastern Cape ethnic profile

5.3.3 Language

All of the official languages of South Africa are represented in the Eastern Cape. IsiXhosa is the first language of the majority of the population (82.7%).

Table 16: Eastern Cape Language Profile

Language	No. person	% of population
IsiXhosa	5,666,891	82.7
Afrikaans	705,274	10.2
English	269,213	3.9
Sesotho	156,413	2.2
Other	20,761	0.3
IsiZulu	18,298	0.2
IsiNdebele	8,771	0.1
Setswana	1,616	0.02
Xitsonga	1,585	0.02
Sepedi	1,133	0.02
Tshivenda	573	0.01
SiSwati	563	0.01
Sign language	546	0.01
Khoi: Nama and San	385	0.01
Total	6,852,022	100

5.3.4 Local Economy

General government services is the largest contributor to the Eastern Cape GDP, followed by finance, real estate and business.

Table 17: Contribution to the Eastern Cape GDP by industry (figures are in millions of rands)

Industry	2011	2012	2013	2014	2015
General government services	46,229	46,465	46,515	47,033	47,291
Finance, real estate and business services	38,899	39,812	40,927	41,653	42,780
Wholesale & retail trade; hotels & restaurants	38,885	40,276	40,622	40,908	41,547
Manufacturing	28,266	28,782	28,918	28,748	28,771
Transport and communication	17,017	17,379	17,678	18,108	18,286
Community, social and other personal services	14,825	15,178	15,434	15,557	15,822
Construction	7,544	7,720	8,034	8,189	8,638
Agriculture, forestry and fishing	3,487	3,594	3,721	3,836	3,656
Electricity and water	2,666	2,679	2,561	2,541	2,536
Mining and quarrying	601	635	647	679	679
All industries at basic prices	198,421	202,520	205,057	207,250	210,006
-Taxes less subsidies on products	21,049	21,415	21,595	21,669	21,980
GDPR at market prices	219,470	223,935	226,652	228,919	231,987

5.3.5 Access of Households to Services

The table below provides a comparison of the percentage of houses which have access to different services.

Table 18: Percentage of households in the Eastern Cape which have access to basic services

Service	2011	2016
Refuse removal service from local authority or private company (weekly or less frequently)	43.4%	41.3
Electricity for lighting	75.0%	85.4%
Electricity for cooking	62.1%	76.8%
Electricity for heating	31.1%	73.4%
Access to piped water in dwelling/yard	49.5%	51.4%
Flush/ chemical toilet	46.0%	52.4%

As can be seen, waste collection services is slightly behind the other basic services with the exception of electricity for heating purposes.

The provision of all basic services has increased between 2011 and 2016 with the exception of refuse removal services. The provision of a refuse removal service decreased slightly from 43.4% in 2011 to 41.3% showed the lowest percentage increase (0.1% increase) between 2011 and 2016. The highest increase was the provision of electricity for heating purposes with an increase of 42.4%.

5.4 Implementation of 2010 Provincial Integrated Waste Management Plan

The 2010 PIWMP identified six priority areas namely:

- Priority 1: Improved strategic waste planning
- Priority 2: Improved waste services and facilities
- Priority 3: Improved recovery and recycling
- Priority 4: Improved institutional functioning
- Priority 5: Improved financial management for waste services
- Priority 6: Improved information management and monitoring

A total of 27 targets were identified under the six priority areas. A review of the implementation status of each of the 27 targets was undertaken to determine progress made with regard to Provincial Waste Management since the 2010 IWMP.

Projects have been classified as complete, in progress and incomplete. The timeframes for projects have not been considered, for example, if the deadline for a project was 2011 but it was only completed in 2013, it is still listed as complete.

Project status

- Complete: 5 projects
- In progress: 8 projects
- Incomplete: 14 projects

-

Table 19: Implementation status of the 2010 PIWMP targets

Objective	Targets	Status	Comment
Priority Area 1: Improved Strategic Waste Planning			
Legally compliant IWMP process	DEDEAT to develop standardised IWMP reporting framework for LAs by 2011	Incomplete	No IWMP reporting framework has been developed.
	DEDEAT to develop a LA IWMP reviewing and approval system by 2012	Complete	A framework for the review and approval of IWMPs has been developed by DEDEAT.
	All LAs to have current (i.e. reviewed within the last 5 years) IWMPs which meet requirements by end of 2011	Incomplete	Only 13 municipalities have submitted IWMPs to DEDEAT for endorsement.
Provide landfill facilities throughout the Province	Develop regional waste facilities in high priority areas as identified in this PIWMP	Incomplete	A regional site was recommended from the O.R. Tambo District Municipality. The O.R. Tambo DM's 2015 IWMP sets a target of investigating site for a regional landfill site by 2016. A regional site in O.R. Tambo DM has not yet been developed.
Priority Area 2: Improve Waste Services and Facilities			
Provide at least an acceptable minimum waste collection service in all areas	All residential areas within urban settlements receiving a weekly collection service	Incomplete	Based on a review of IWMPs not all municipalities are providing a weekly collection service to all households within urban areas.
	Defining a waste collection target and strategy for rural settlements	In progress	A framework to address the maintenance of waste management infrastructure networks for waste collection in rural areas will be developed as part of this IWMP.
	An acceptable basic level of waste services in priority areas by 2014	Incomplete	Priority areas were Matatiele (Winnie Madikizela Mandela LM), Butterworth (Mnquma LM), Dutywa (Mbashe LM) and Mthata (King Sabata Dalindyebo LM). According to STATs SA the following percentage of household receive a weekly collection service (1) and (2) use their own refuse dump for each of the priority LMs Winnie Madikizela Mandela: (1) 1.4%, (2) 88.0% Mnquma: (1) 18.1%, (2) 68.1% Mbashe: (1) 10.9%, (2) 73.2% King Sabata Dalindyebo: (1) 21.5%, (2) 64.7% The low percentage of weekly collection services and high percentage of use of their own refuse dump cannot be considered as an acceptable basic level of service.

Objective	Targets	Status	Comment
Achieve legal compliance of waste facilities	Compliance with national legal requirements for waste facilities	Incomplete	DEDEAT has made progress with regard to licensing of unlicensed landfill sites however the landfill sites in the province are largely not operated in compliance with their permit conditions.
	DEDEAT to undertake annual, Province-wide landfill compliance monitoring	Complete	DEDEAT undertake compliance audits of landfill sites. However in some cases these audits are not thorough and the audit reports are not provided to the local municipality.
Priority 3: Improved Recovery and Recycling			
Legal/ policy compliance in terms of recycling	LAs to assess feasibility of drop-off centres and if feasible, develop a rollout programme and commence rollout by 2013, in line with NEMWA and draft National Domestic Waste Collection Standards	Incomplete	A feasibility study for drop-off centres has not been developed.
Maximise recycling opportunities in the Province	Provincial recycling strategy to be developed by 2012	In progress	DEDEAT has appointed a service provider to assist with the development of a Provincial Recycling Strategy in December 2017. The recycling strategy will be completed in 2018.
	DEDEAT to develop and implement an annual recycling awareness programme	In progress	DFFE developed Waste Awareness Strategic Framework in 2016. DEDEAT is making use of this document. DEDEAT should develop their own recycling awareness programme which specifies the number and type of events and sets targets for awareness raising.
	LAs to develop a waste minimisation/ recycling plan by 2013	Incomplete	Not all local municipalities have developed waste minimisation and recycling plans.
Priority 4: Improved Institutional Functioning			
Develop appropriate capacity within DEDEAT to implement PIWMP	DEDEAT to acquire resources for implementation of this PIWMP by 2011	Incomplete	As evident from this review of projects DEDEAT did not have sufficient resources to implement the 2010 IWMP. DEDEAT's organogram was last revised in 2006. A review of the organogram is required to ensure adequate resources are allocated to the implementation of this IWMP.
Designate Waste Management Officers	Provincial Waste Management Officer by 2011	Complete	A Provincial WMO has been designated.
	WMOs to be designated in all applicable LAs by 2012	In progress	Only 47% of local municipalities have formally designated a WMO in terms of the NEM: WA. Neither of the two metropolitan municipalities and have formally designated WMOs.

Objective	Targets	Status	Comment
Institutional capacity building for WMOs	Waste Management Forum for WMOs to be established by 2012.	Complete	DEDEAT hosts quarterly forums with the municipal waste management officers.
Develop/ revise by-laws in line with NEMWA	All local authorities to adopt and enforce waste management by-laws by 2013 which include NEMWA requirements.	In progress	The majority of local municipalities have developed waste management by-laws. The enforcement of waste management by-laws is lacking. The key reasons is due to a lack of peace officers appointed to enforce by-laws.
Priority 5: Improved Financial Management			
Institutional capacity building for waste management financing	Prepare guideline by 2012	In progress	A guideline for institutional capacity building will be developed as part of this IWMP.
Improved waste budgeting process	All LAs to consider requirements of PIWMP in IDP budgeting processes.	Incomplete	The majority of local municipalities have not met targets stipulated in the 2010 PIWMP. The main reason given during interviews with LMs is a lack of budget.
Priority 6: Improved Information Management and Monitoring			
Establish a municipal waste reporting system	Develop an operational Municipal Waste Reporting System	Incomplete	The Eastern Cape does not have a municipal waste information system
	All local authorities to report using Municipal Waste report by 2013	Incomplete	No system has been developed
	All government organisations to report using National WIS by 2013	In progress	The number of municipalities that report on the SAWIS increased from 3 in 2010 to 16 in 2017.
Improve use of the National WIS	DEDEAT to undertake annual audits of government organisations reporting performance	In progress	Annual audits are undertaken of some municipalities with regard to reporting of the SAWIS. Audits are undertaken by DEDEAT and DFFE.
	DEDEAT to undertake annual audits of industry's waste registration and reporting performance.	Complete	DEDEAT and DFFE undertake annual audits of some industry which are reporting on SAWIS.
Improve management records	DEDEAT to develop an appropriate in-house e-filing and documentation management system by 2012.	Incomplete	DEDEAT has not developed an in-house e-filing system.
PIWMP monitoring to meet legal requirements	PIWMP annual performance report to be submitted to MEC and Minister for approval.	Incomplete	No reports on the implementation of the PIWMP have been submitted to DFFE.

5.5 Progress Towards Compliance with National Waste Management Strategy Goals

A review of the progress in the Eastern Cape with regards to the implementation of the NWMS 2011 goals and targets was undertaken as part of the PIWMP. Where information was available, an assessment of the compliance with each of the targets was undertaken and documented.

Table 20: National Waste Management Strategy Objectives

Goal	Targets for 2016	Progress to compliance with targets
1. Promote waste minimisation, re-use, recycling and recovery of waste.	<p>25% of recyclables diverted from landfill sites for re-use, recycling or recovery.</p> <p>All metropolitan municipalities, secondary municipalities, and large towns have initiated separation at source programmes</p> <p>Achievement of waste reduction and recycling targets as set in industry waste management plans for paper and packaging, pesticides, lighting (CFLs) and tyre industries</p>	<p>According to SAWIS data 3,935,488 tonnes of general waste was disposed of and 275,395 tonnes of general waste was recycled in the Eastern Cape in 2017. The recycling rate of general waste is therefore only 6.9%.</p> <p>Neither of the two metropolitan municipalities are currently running separation at source programmes.</p> <ul style="list-style-type: none"> A call for an IndWMP for the lighting industry and paper and packaging industry was made in December 2017. These plans are not yet finalised. The REDISA tyre IndWMP has been withdrawn, therefore the targets are no longer applicable.
2. Ensure the effective and efficient delivery of waste services.	<ul style="list-style-type: none"> 95% of urban households and 75% of rural households have access to adequate levels of waste collection services. 80% of waste disposal sites have permits. 	<ul style="list-style-type: none"> Only 41.3% of households in the Eastern Cape have access to a weekly waste collection service 76.4% of operational landfill sites are permitted
3. Grow the contribution of the waste sector to the green economy	<ul style="list-style-type: none"> 69,000 new jobs created in the waste sector. 2,600 additional SMEs and cooperatives participating in waste service delivery and recycling 	<ul style="list-style-type: none"> 29,833 people employed in the formal waste sector in 2012 (CSIR, 2012).
4. Ensure people are aware of the impact of waste on their health, well-being and the environment.	<ul style="list-style-type: none"> 80% of municipalities running local awareness campaigns 80% of schools implementing waste awareness campaigns 	<ul style="list-style-type: none"> 48% of municipalities are undertaking awareness campaigns 33% of municipalities are not undertaking waste awareness campaigns The status of awareness campaigns in 18% of municipalities is to be confirmed.

Goal	Targets for 2016	Progress to compliance with targets
5. Achieve integrated waste management planning.	<ul style="list-style-type: none"> All municipalities have integrated their IWMPs with their IDPs, and have met the targets set in IWMPs All waste management facilities required to report to SAWIS have waste quantification systems that report information to WIS 	<ul style="list-style-type: none"> Waste awareness programmes have been incorporated into the school curriculum Municipalities are not preparing annual performance reports to determine progress with IWMP targets. Not all municipalities have valid IWMPs and not all municipalities have incorporated the IWMP targets into their IDPs. A total of 25 of the 89 operational waste disposal facilities in the Eastern Cape are reporting on the SAWIS. 3 treatment facilities and 12 recovery/ recycling facilities are reporting on the SAWIS (SAWIS data June 2018). There are approximately 95 operational landfill site in the Eastern Cape
6. Ensure sound budgeting and financial management for waste services	<ul style="list-style-type: none"> All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs 	<ul style="list-style-type: none"> Only 1 municipality has undertaken a full cost account exercise. Most municipalities increase waste tariffs in line with inflation, approximately 6% per year
7. Provide measures to remediate contaminated land.	<ul style="list-style-type: none"> Assessment complete for 80% of sites reported to the contaminated land register Remediation plans approved for 50% of confirmed contaminated sites. 	<ul style="list-style-type: none"> The contaminated land register is not managed by the waste management section at DEDEAT
8. Establish effective compliance with and enforcement of the NEM: WA	<ul style="list-style-type: none"> 50% increase in the number of successful enforcement actions against non-compliant activities. 800 environmental management inspectors (EMIs) appointed in the three spheres of government to enforce the NEM: WA 	<ul style="list-style-type: none"> There were 2,294 EMIs appointed in 2017 (DFPE, 2018)

5.6 Integrated Waste Management Plans

All municipalities are required to develop an integrated waste management plan (IWMP) as per the requirements of the NEM: WA.

A total of 13 of current municipalities have submitted their IWMPs to DEDEAT for endorsement. Nkonkobe and Camdeboo local municipalities' IWMPs were also endorsed by DEDEAT, but these municipalities have since been amalgamated into newly formed local municipalities.

A request to provide IWMPs to GIBB was sent to all municipalities in the Eastern Cape. A total of 26 local municipality IWMPs and two district municipality IWMPs were received in response. An additional three municipalities (Raymond Mhlaba, Walter Sisulu and Dr Beyers Naude) do not currently have IWMPs. Raymond Mhlaba, Walter Sisulu and Dr Beyers Naudé local municipalities were formed in 2016 through the amalgamation of several local municipalities. The first generation IWMP for Walter Sisulu local municipality is currently being drafted. The Enoch Mgijima Local Municipality which was also formed in 2016 is in the process of developing its IWMP. Refer to the table below for details.

Seventeen IWMPs are out of date and are currently being revised.

Only three of the six district municipalities with IWMPs under review or under development, Amathole, Alfred Nzo, Chris Hani and O.R. Tambo District Municipalities. The DFFE has developed an IWMP toolkit and guideline to assist municipalities to develop IWMPs in-house. Feedback from the district municipalities in the Eastern Cape is that the DFFE IWMP tool and toolkit is designed for use by local municipalities and is not suitable for use by district municipalities.

Table 21: Status of Municipality integrated waste management plans

Municipality	IWMP Date	Comments	Endorsed by DEDEAT
Metropolitan Municipalities			
Buffalo City	2017	Under review	No
Nelson Mandela Bay	2016	IWMP out of date	No
Alfred Nzo District Municipality	2015	Under review	No
Matatiele local municipality	2015	Under review	No
Winnie Madikizela Mandela local municipality	2015	Under review	No
Ntabankulu local municipality	2014	Submitted for endorsement	No
Umzimvubu local municipality	2020	Valid	Yes
Amathole District Municipality	2017	Under Review	-
Amahlathi local municipality	2017	Under review	No
Great Kei local municipality	2011	Under review	No
Mbashe local municipality	2015	Under review	No
Mnquma local municipality	2012	Under review	No
Ngqushwa local municipality	-	Under development	-No
Raymond Mhlaba local municipality	-	No IWMP	-No
Chris Hani District Municipality	-	Underdevelopment	-No
Emalahleni local municipality	2016	IWMP out of date	No

Municipality	IWMP Date	Comments	Endorsed by DEDEAT
Engcobo local municipality	2011	Under review	No
Enoch Mgijima local municipality		Under development	No
Inxuba Yethemba	2011	under review	No
Intsika Yethu local municipality	2011	IWMP out of date	No
Sakhisizwe local municipality	2011	under review	No
Joe Gqabi District Municipality	-	No district IWMP	No
Elundini local municipality	2016	IWMP out of date	No
Senqu local municipality	2017	Valid	Yes
Walter Sisulu Local Municipality	-	Under developed	No
O.R. Tambo District Municipality	2015	Under review	No
King Sabata Dalindyebo	2021	Valid	Yes
Mhlontlo local municipality	2014	Under review	Yes
Ingquza Hill local municipality	2022	Valid	-
Nyandeni local municipality	2022	Valid	Yes
Port St Johns local municipality	2013	under review	Yes
Sarah Baartman District Municipality	-	No district IWMP available	No
Blue Crane Route local municipality	2017	IWMP out of date	No
Dr Beyers Naude local municipality	-	Under development	-No
Kouga local municipality	2016	IWMP out of date	No
Kou-Kamma local municipality	2017	IWMP out of date	No
Makana local municipality	2017	Under review	No
Ndlambe local municipality	2017	IWMP out of date	No

5.7 Waste Generation

5.7.1 Domestic Waste

(a) Hypothetical Domestic Waste Generation Rates

The South Africa State of Environmental Report, 2006 (SOER) calculated waste generation volumes per income level as follows:

- Low income 0.41 kg/ person/ day = 149.65 kg/ person/ year.
- Middle income 0.74 kg/ person/ day = 270.1 kg/ person/ year.
- High income 1.29 kg/ person/ day = 470.85 kg/ person/ year.

The SOER figures for waste generation are also used in the Department of Forestry, Fisheries and the Environment Guideline for the Development of Integrated Waste Management Plans (IWMPs). The DFFE IWMP guideline also presents the following income brackets:

- Low income R 0 – R 74,999 per year.
- Middle income R 75,000 – R 999,000 per year.
- High income R 1 million + per year.

The Eastern Cape income profile was determined based on STATs SA records and is presented in the table below.

Table 22: Theoretical calculation of domestic waste produced in the Eastern Cape

Income Group	Income	% of households	No. of households	No. of persons	Total waste generated (kg)
Low	R0	16.0%	280,168	1,117,417	2,420,659
	<R4 800	5.9%	103,367	412,122	
	R5k-R10k	9.9%	173,285	691,301	
	R10k-R20k	22.8%	399,372	1,592,512	
	R20k-R40k	20.2%	354,030	1,411,990	
	R40k-R75k	9.7%	170,144	678,707	
	Total	84.4%	1,480,366	5,904,048	
Middle	R75k-R150k	6.7%	117,986	470,896	788,055
	R150k-R300k	5.1%	88,736	354,047	
	R300k-R600k	2.7%	47,488	189,618	
	R600K-R1.2M	0.7%	12,560	50,378	
	Total	15.2%	266,770	1,064,940	
High	R1.2M-R2.5M	0.2%	4,028	16,093	37,007
	>R2.5M	0.2%	3,164	12,595	
	Total	0.4%	7,192	28,688	
Total		100.0%	1,754,328	6,997,675	3,245,721

Based on the above estimation, a total of 3,245.7 tonnes of domestic waste per day or 1,184,688.4 tonnes per year are generated within the Eastern Cape.

(b) South African Waste Information Centre Disposal Records

According to the South African Waste Information Centre (SAWIC) records 829,784 tonnes of waste (hazardous and general waste) was disposed of to landfill in 2017, in the province. These records are far below the estimated domestic waste generation rates but may be explained by the fact that not all local municipalities are reporting on the SAWIC, but more importantly that more than half the households in the province do not receive a waste collection service. Not all of the landfill sites which are reporting data have weighbridges or weighpads so data reported is based on estimated tonnages. A few landfill sites in the province were provided with weighpads, but most are not functional. Challenges encountered with the weighpads include a lack of electricity at landfill sites and weighpads being damaged.

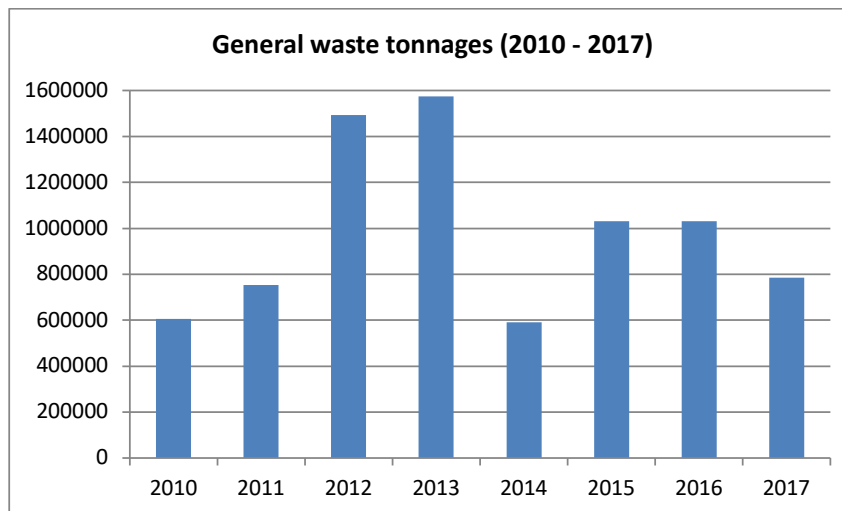


Figure 13: SAWIC waste disposal records (data source, SAWIC 2018)

5.7.2 Estimated Future Generation Quantities

Future domestic waste generation can be estimated based on projected population growth. The Eastern Cape population grew by an estimated 0.8% per year between 2006 and 2016. A 0.8% annual population growth was used to determine the population of the Eastern Cape in 2022.

Table 23: Estimated population and domestic waste stream growth of the Eastern Cape

Year	Population	Domestic waste generation (tonnes/ annum)
2016	6,997,675	1,184,688
2017	7,053,656	1,194,166
2018	7,110,085	1,203,719
2019	7,166,966	1,213,349
2020	7,224,302	1,223,056
2021	7,282,096	1,232,840
2022	7,536,970	1,275,990

5.7.3 Waste Stream Composition

During the review of IWMPs it was noted that only nine municipalities undertook waste characterisation as part of the development or revision of their IWMPs. A number of IWMPs contained hypothetical data for waste characterisation. It was also noted that the waste categories used for the exercises were not consistent across municipalities. For example Buffalo City Metro and Nkonkobe Local Municipality (now part of Raymond Mhlaba) did not differentiate between green waste (garden waste) and food waste. The results from these waste characterisations are presented below.

Table 24: Summary of domestic waste characterisations

Municipality	Organics - food waste	Organics - green waste	Organics - s	Paper	Cardboard	Plastic	Glass	Metal	Hazardous	HCRW	Nappies	e-waste	Construction waste	Fines	Other
Enoch Mgijima	18.1	17.6		10.7	6.6	13.7	6.9	2.4	0.1	0.5	3.3	0.6	0.5	14.7	4.1
Elundini	8.7	1.1		3.9	4.3	11.0	10.2	3.2	0.0	0.0	36.8	0.2	1.6	16.0	3.3
Nelson Mandela Bay	25.2	13.9		10.8	4.6	10.5	8.0	2.0	11.0			1.0	1.0	8.0	5.0
Kouga	20.5	11.7		7.3	6.5	10.7	7.4	3.6	0.2	0.1	12.8	0.2	0.1	3.3	15.6
Buffalo City			43.0	18.0	0.0	17.0	10.0	3.0	0.0	0.0	6.0	0.0	0.0	0.0	3.0
Nkokobe			18.7	15.8		16.4	5.0	3.3	0.1	0.2	16.2	0.6	0.2	4.9	18.7
Emalahleni	17.7	12.7		18.3		29.3	8.0	10.3							3.7
Amahlathi				30.0		24.0	10.0	20.0							16.0
Ntabankulu				30.0		24.0	14.0	20.0							12.0
Average*	18.04	11.4	29.8	15.77		15.5	7.9	4.0	1.9	0.2	10.7	0.4	0.5	6.7	7.6

*the average excludes Amahlathi and Ntabankulu data.

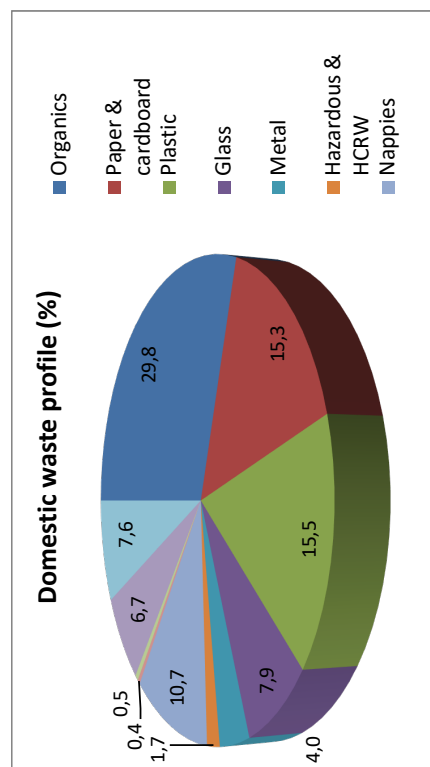


Figure 14: Domestic waste profile of the Eastern Cape* excludes data for Amahlathi and Ntabankulu (data sourced from IWMPs as detailed in the table above)

No organic waste is reported in the waste characterisations for Amahlathi Local Municipality and Ntabankulu Local Municipality. Due to the omission of organic waste the results from these two characterisations have not been included in the above chart which shows average waste composition in the Eastern Cape.

As can be seen from the above table the composition of waste varies between municipalities. An example is organic waste; in Buffalo City Metro 43% of domestic waste stream is composed of organic waste, whereas in Elundini Local Municipality, only 9.9% of the domestic waste stream is composed of organic waste.

Such variances in the domestic waste stream between different municipalities highlights the importance of each municipality undertaking its own waste characterisation instead of relying on generic data. Further analysis of the domestic waste stream is presented below.

(a) Recyclable Materials

Recyclables (paper, cardboard, metal, glass and plastics) were found to make up approximately 43% of the domestic waste stream.

Plastic is the largest contributor to the domestic waste stream followed closely by paper and cardboard.

1. Plastic – 15.5%
2. Paper and cardboard – 15.3%
3. Glass – 7.9%
4. Metal – 4.0%

(b) E-waste

The volume of e-waste in the domestic waste stream was low ranging from 0% to 1%. E-waste may also not be entering the domestic waste stream. It might instead be being diverted to e-waste recycling centres.

(c) Organic Waste

Organic material, which consisted mostly of kitchen and garden waste, which can be composted, made up a further 29.8% of the waste. Based on review of the available IWMPs and discussions with municipalities, there are no municipal owned composting facilities currently in operation in the Eastern Cape.

(d) Nappies

Nappies constitute a significant portion of the domestic waste stream, on average 10.7%, but varied from 36.7% in Elundini Local Municipality to 3.26% in Enoch Mgijima Local Municipality.

The variation in nappies in the two waste characterisations is most likely due to waste being collected from more households with babies or the effects of small sample sizes.

(e) Others

This category “others” covered textiles including clothing and shoes and old furniture. On average other accounted for 7.6% of the domestic waste stream.

5.7.4 Hazardous Waste

The focus of this PIWMP is on general waste. A brief summary of hazardous waste management is however included in the following section.

(a) Hazardous Waste Generation

According to SAWIS records 52,148.7 tonnes of hazardous waste was disposed, treated or recycled in the Eastern Cape in 2017.

Table 25: Summary of hazardous waste management methods in the Eastern Cape

Year	Disposal	Treatment	Recycling	Total
2012	0.0	43,559.6		43,559.6
2013	24,978.2	48,859.4		73,837.6
2014	31,877.6	21,443.9	970.1	54,291.6
2015	36,866.8	49,192.3	51.5	86,110.6
2016	165,596.3	30,157.7		195,754.0
2017	44,791.0	7,085.7	272.0	52,148.7

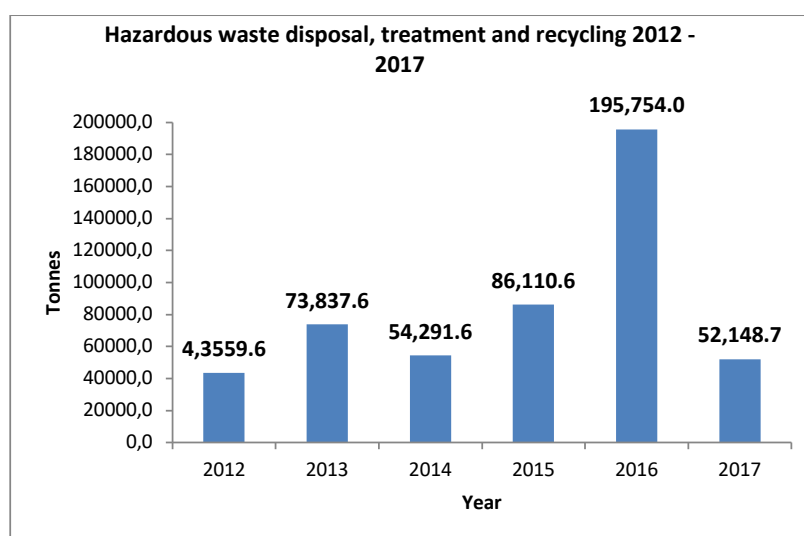


Figure 15: SAWIS hazardous waste disposal, treatment and recycling tonnages 2012 – 2017

(b) Hazardous Waste Stream Composition

The majority of the hazardous waste stream consists of solid inorganic waste (31.4%), followed by liquid and sludge organic waste (22.6%). The category “other” in the chart below consists of the following waste streams:

- Manganese dioxide and alkali batteries – 0.00038%
- Solvents containing halogens and/or sulphur – 0.00038%
- Miscellaneous hazardous waste – 0.52%
- Asbestos containing waste – 0.68%
- HCRW – chemical waste – 0.026%
- Solvents without halogens and sulphur – 0.74%
- Waste oils – 0.96%
- E-waste – 0.0053%

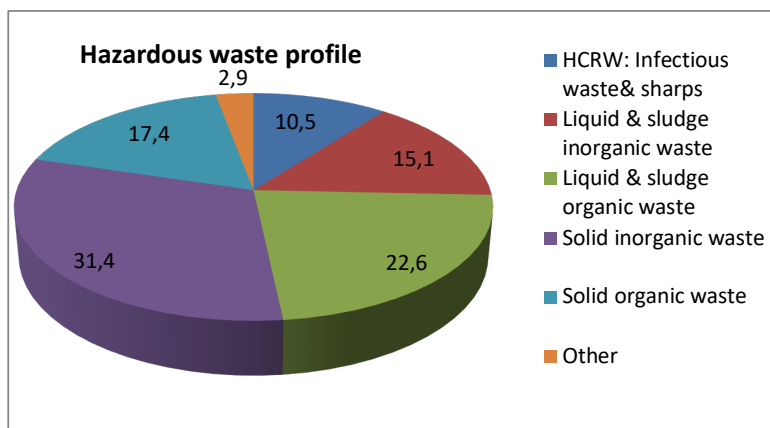


Figure 16: Hazardous waste stream profile (source, SAWIC accessed 26/03/2018)

(c) Hazardous Waste Treatment and Disposal Facilities

The table below presents a summary of hazardous waste treatment and disposal facilities in the Eastern Cape

Table 26: Summary of hazardous waste management facilities in the Eastern Cape (information sourced from SAWIS)

Facility name	Location	Facility Owner	Type of facility
Compass Waste Autoclave	Berlin, East London	Compass Waste	Autoclave (2x Bondtech autoclaves)
Aloes II	Nelson Mandela Bay Metropolitan Municipality	Enviroserv	Treatment of hazardous waste
Aloes II landfill site	Nelson Mandela Bay Metropolitan Municipality	Enviroserv	Disposal of hazardous waste
Koedoeskloof landfill site	Nelson Mandela Bay Metropolitan Municipality	Nelson Mandela Bay Metropolitan Municipality	Disposal of oil waste into ponds

Legal disposal of hazardous waste is limited to the Nelson Mandela Bay Metropolitan Municipality (NMBM). An estimated 44,791 tonnes of hazardous waste is disposed of in the NMBM in 2017 (SAWIC, 2018).

The Coega Development Corporation (CDC) was issued with an environmental authorisation for a regional general and hazardous waste facility in the NMBM (DFFE Ref: 14/12/16/3/3/3/106) in 2017. It is not envisaged that the facility will be constructed in the next 5 years as CDC would need to purchase land for the facility and detailed design would need to be undertaken.

5.7.5 Health Care Risk Waste

The Eastern Cape Department of Health (ECDoH) is responsible for the management of health care risk waste (HCRW) generated in government hospital and clinics.

Table 27: Summary of HCRW generated in the Eastern Cape (tonnes) for government health care facilities (data supplied by ECDoH and sourced from ECDC, 2017)

Waste type	Year		
	2013	2014	2015
Infectious non-anatomical	2,387.7	2,399.7	2,412.7
Anatomical waste	114.6	112.5	108.6
Sharps waste	220.5	231.8	235.3
Pharmaceutical waste	73.3	85.6	67.8
Total	4,809.3	4,843.8	4,839.5

The volume of HCRW has remained fairly constant for the period 2013 – 2015, it is therefore estimated that the tonnage of HCRW generated in 2018 will be approximately 4,840 tonnes. It should be noted that these records are only for government owned facilities, and HCRW generated at private clinics and hospitals is not included in these figures.

5.8 Waste Services

Waste services per municipality were determined based on Census 2016 data and data received from municipalities. According to the 2016 Community Survey only 41.3% of households in the Eastern Cape receive a weekly kerbside collection service.

Comment on Stats SA data sets

The table above presents two different Stats SA data sets.

1. The 2011 Census data
2. The 2016 Community Survey data

The 2011 Census surveyed all South African households. This data is 7 years old but as all households were surveyed it is accurate data for the time period.

The 2016 Community Survey data is more recent (2016), however only a sample (8.1%) of South African households were surveyed. The Community Survey was designed to be a representative sample of South African households. In the Eastern Cape a total of 195,301 households were surveyed (Stats SA, 2016).

The percentage of households receiving a weekly collection service has increased slightly from decreased from 41.0% in 2011 to 41.3% in 2016. A point of concern is that the number of people using their own refuse dump has increased from 41.7% in 2011 to 44.3% in 2016. These refuse dumps are anticipated to be poorly managed or controlled and could be associated with environmental impacts such as contamination of surface and ground water and air pollution through burning of the refuse dumps.

Table 28: Waste collection services in the Eastern Cape (data source Stats SA Census 2001 and 2011 and Community Survey 2016)

Waste Service	2001	2011	2016
Removed by local authority / private company at least once a week	37.0	41.0	41.3
Removed by local authority / private company less often	1.4	2.4	2.2
Communal refuse dump/ collection point	1.2	1.7	4.7
Own refuse dump	43.6	41.7	44.3
No rubbish disposal	16.8	11.3	6.0
Other	No data	1.9	1.5

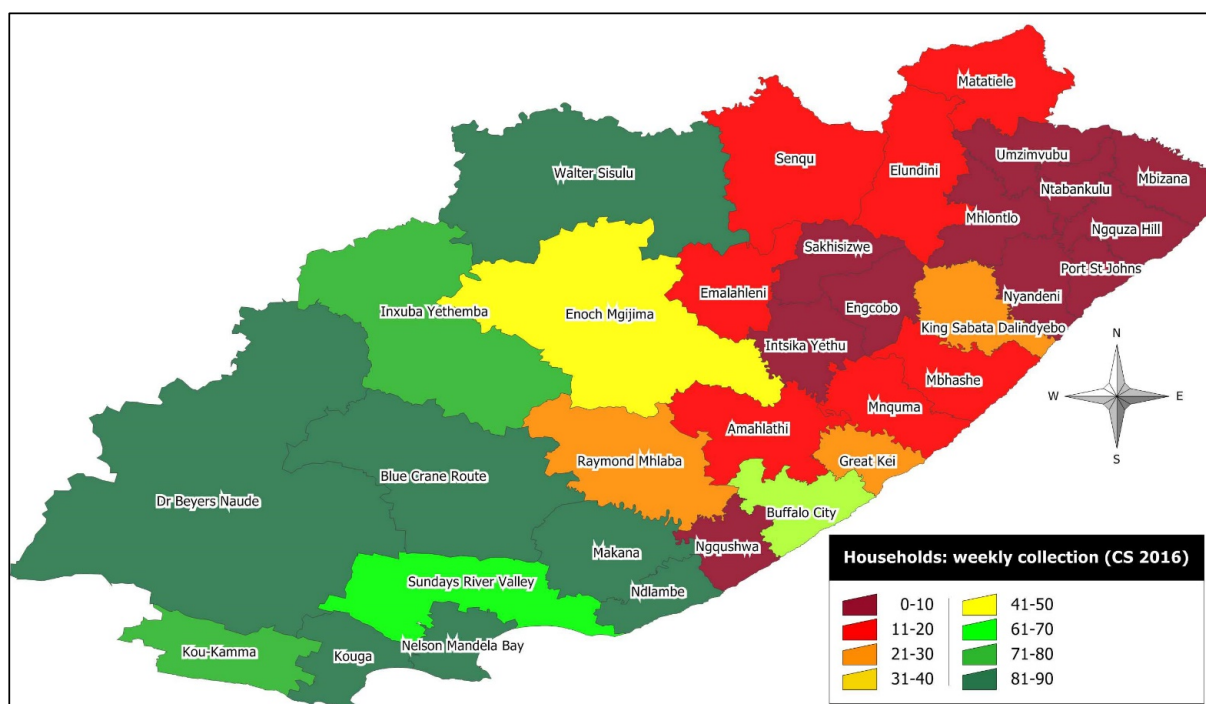


Figure 17: Percentage of households receiving a weekly waste collection service (STATs SA Community Survey 2016 data)

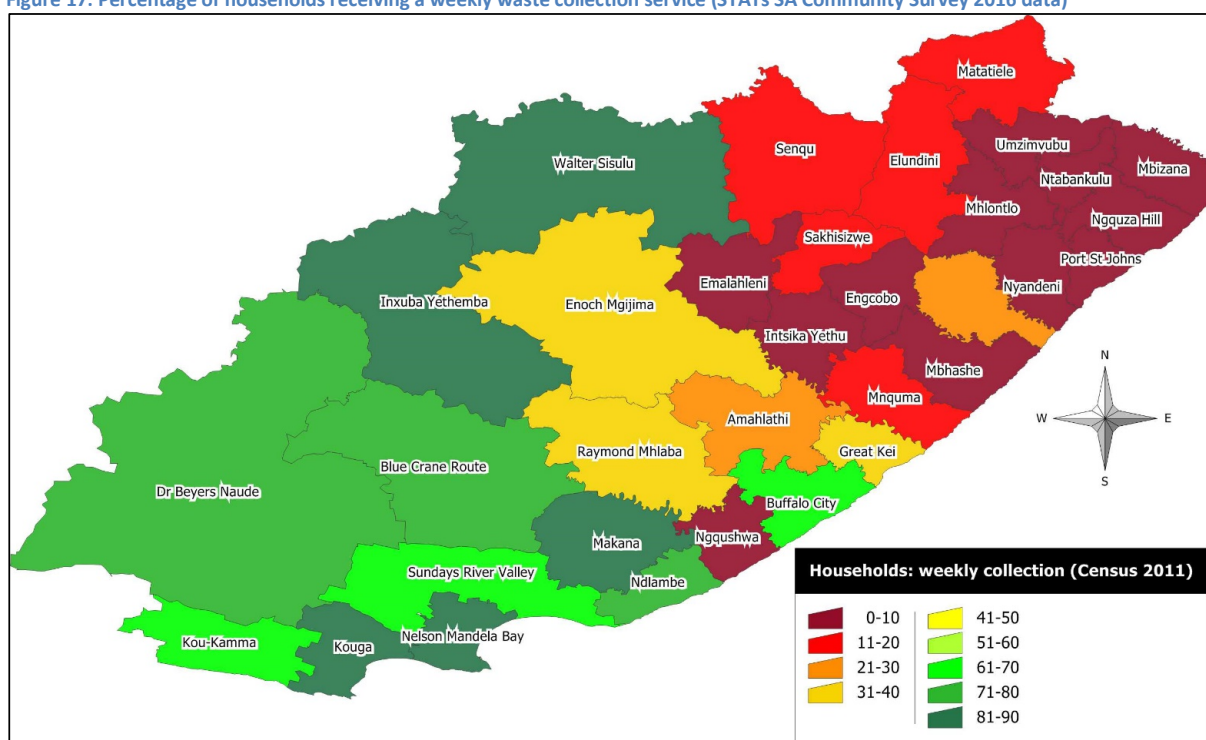


Figure 18: Percentage of households receiving a weekly waste collection service (STATs SA Census 2011 data)

Table 29: Waste service per local municipality (source, Community Survey 2016) municipality with a weekly collection service of less than 50% are shown in red

Municipality	Weekly collection service	Removed less often than weekly	Communal refuse dump	Communal container/central collection point	Own refuse dump	Dump or leave rubbish anywhere (no refuse disposal)	Other
Eastern Cape	41.3	2.2	3.5	1.2	44.3	6.0	1.5
Nelson Mandela Bay	84.8	5.6	2.6	1.4	2.5	2.0	1.1
Buffalo City	57.1	2.7	7.5	2.0	24.6	4.2	2.0
Sarah Baartman	83.0	1.3	3.2	0.7	8.3	2.1	1.4
Dr Beyers Naude	88.3	0.6	2.5		7.2	0.6	0.8
Blue Crane Route	86.1	0.4	4.3		6.4	2.6	0.1
Makana	90.1	1.0	0.5	3.4	2.3	1.5	1.2
Ndlambe	89.1	0.6	1.4	0.3	5.9	2.5	0.3
Sundays River Valley	61.6	2.1	2.1	0.2	25.7	2.3	6.0
Kouga	82.5	2.1	7.1	0.2	4.5	2.4	1.2
Kou-Kamma	79.0	1.5	1.8	0.3	13.9	3.1	0.3
Amathole	17.4	0.8	3.5	1.4	68.3	7.1	1.7
Mbhashe	10.9	0.6	3.4	0.9	73.2	10.8	0.2
Mnquma	18.1	0.1	3.0		68.1	8.5	2.2
Great Kei	26.7	1.2	4.9	0.5	50.9	13.0	2.9
Amahlathi	14.0	1.0	2.0	8.7	70.5	0.9	2.8
Ngqushwa	8.8	0.1	3.6	0.2	83.0	4.0	0.2
Raymond Mhlaba	29.2	2.1	4.8	0.4	57.9	3.1	2.5
Chris Hani	27.0	1.8	2.9	2.1	55.6	8.1	2.5
Inxuba Yethemba	74.1	10.1	1.5	0.4	12.6	0.9	0.3
Intsika Yethu	0.5	0.3	1.7	1.6	87.1	5.8	2.9
Engcobo	0.4	2.8	2.5	0.2	77.0	12.3	4.8
Sakhisizwe	7.1	0.2	3.5	0.1	61.8	23.7	3.6
Enoch Mgijima	49.8	0.9	3.9	4.2	33.3	5.5	2.4
Emalahleni	18.7	0.3	3.1	2.2	66.9	8.6	0.1
Joe Gqabi	28.0	1.1	1.8	46.0	4.1	14.8	4.3
Elundini	19.6	0.2	1.4	0.1	66.5	9.0	3.2
Senqu	10.6	0.9	2.5	0.8	83.7	1.4	0.0
Walter Sisulu	84.8	4.8	0.7	0.1	7.0	2.3	0.3
O.R.Tambo	9.0	0.7	3.0	0.8	75.7	10.4	0.6
Ingquza Hill	2.9	1.5	1.5	0.4	80.8	13.0	0.1
Port St Johns	0.5	0.2	2.3	0.1	75.6	19.2	2.2
Nyandeni	1.0	0.7	2.0	0.3	86.8	9.0	0.3
Mhlontlo	1.8	0.2	4.2	0.1	82.4	10.2	1.1
King Sabata Dalindyebo	21.5	0.6	4.0	1.8	64.7	7.2	0.3
Alfred Nzo	5.3	0.5	2.4	0.1	80.8	9.0	1.8
Matatiele	12.5	0.3	3.0	0.1	72.0	7.9	4.2
Umzimvubu	4.3	1.1	0.6	0.3	87.6	4.9	1.2
Winnie Madikizela	1.4	0.1	3.8	0.1	88.0	6.1	0.5
Ntabankulu	1.0	0.4	1.7	0.1	69.5	26.3	1.0

The two key indicators in the data set are the percentage of households receiving a weekly collection service and the percentage of households using their own refuse dumps. A comparison of the waste services by households in 2011 and 2016 is presented below.

Table 30: Changes in waste service per local municipality between 2011 and 2016 (source, STATs SA Census 2011 and Community Survey 2016). Red text indicates a decrease in weekly collection service or an increase in use of own refuse dump between 2011 and 2016

Municipality	Municipality classification	Weekly collection service (2011)	Weekly collection service (2016)	Own refuse dump (2011)	Own refuse dump (2016)
Alfred Nzo C2					
Matatiele	B3	10.9	12.5	70.7	72.0
Winnie Madikizela	B4	2.0	1.4	78.9	88.0
Ntabankulu	B4	4.0	1.0	60.0	69.5
Umzimvubu	B4	7.1	4.3	74.4	87.3
Amathole C2					
Amahlathi	B3	20.5	14.0	71.9	70.5
Great Kei	B3	33.6	26.7	54.8	50.9
Mbhashe	B4	3.1	10.9	55.0	73.2
Mnquma	B4	15.6	18.1	65.0	68.1
Ngqushwa	B4	6.7	8.8	85.1	83.0
Raymond Mhlaba	B3*	31.1	29.2	60.2	57.9
Chris Hani C2					
Emalahleni	B4	8.3	18.7	63.7	66.9
Engcobo	B4	2.9	0.4	62.9	77.0
Intsika Yethu	B4	2.8	0.5	62.9	87.1
Inxuba Yethemba	B3	83.2	74.1	10.1	12.6
Sakhisizwe	B3	14.5	7.1	61.7	61.8
Enoch Mgijima	B3*	34.6	49.8	19.7	33.3
Joe Gqabi C2					
Elundini	B4	12.3	19.6	64.5	66.5
Senqu	B4	12.5	10.6	69.6	83.7
Walter Sisulu	B3*	82.1	84.9	12.7	7.0
O.R. Tambo C2					
King Sabata Dalindyebo	B2	24.6	21.5	60.5	64.7
Mhlontlo	B4	4.8	1.8	61.6	82.4
Ingquza Hill	B4	3.2	2.9	74.5	80.8
Nyandeni	B4	1.8	1.0	68.3	86.8
Port St Johns	B4	3.1	0.5	64.4	75.6
Sarah Baartman C1					
Blue Crane Route	B3	80.3	86.1	14.8	6.4
Kouga	B3	83.5	82.5	10.2	4.5
Kou-Kamma	B3	64.2	79.0	19.6	13.9
Makana	B2	88.9	90.1	6.8	2.3
Ndlambe	B3	78.5	89.1	12.8	5.9

Municipality	Municipality classification	Weekly collection service (2011)	Weekly collection service (2016)	Own refuse dump (2011)	Own refuse dump (2016)
Sundays River Valley	B3	61.2	61.6	24.8	25.7
Dr Beyers Naude	B3*	77.9	91.4	17.2	5.6
Metropolitan Municipalities					
Buffalo City	A	70.4	57.2	21.0	26.2
Nelson Mandela Bay	A	82.9	85.4	3.3	2.5
Eastern Cape	N/A	43.5	36.6	41.7	49.4

* municipal categories were taken from the Community Survey 2016 results, where previous local municipalities were amalgamated the rating of the old municipalities were used to determine the rating of the new local municipality.

Data shown in *italics* is for municipalities formed in 2016, this data was calculated from Census 2011 data for the former local municipalities

In 2016 the Buffalo City Metropolitan Municipality's boundary was adjusted and new areas from the Great Kei, Amahlathi and Ngqushwa local municipalities were incorporated into the metro. The addition of these areas could be one of the contributing factors to a decrease in provision of weekly collection services from 70.4% in 2011 to 57.1% in 2016.

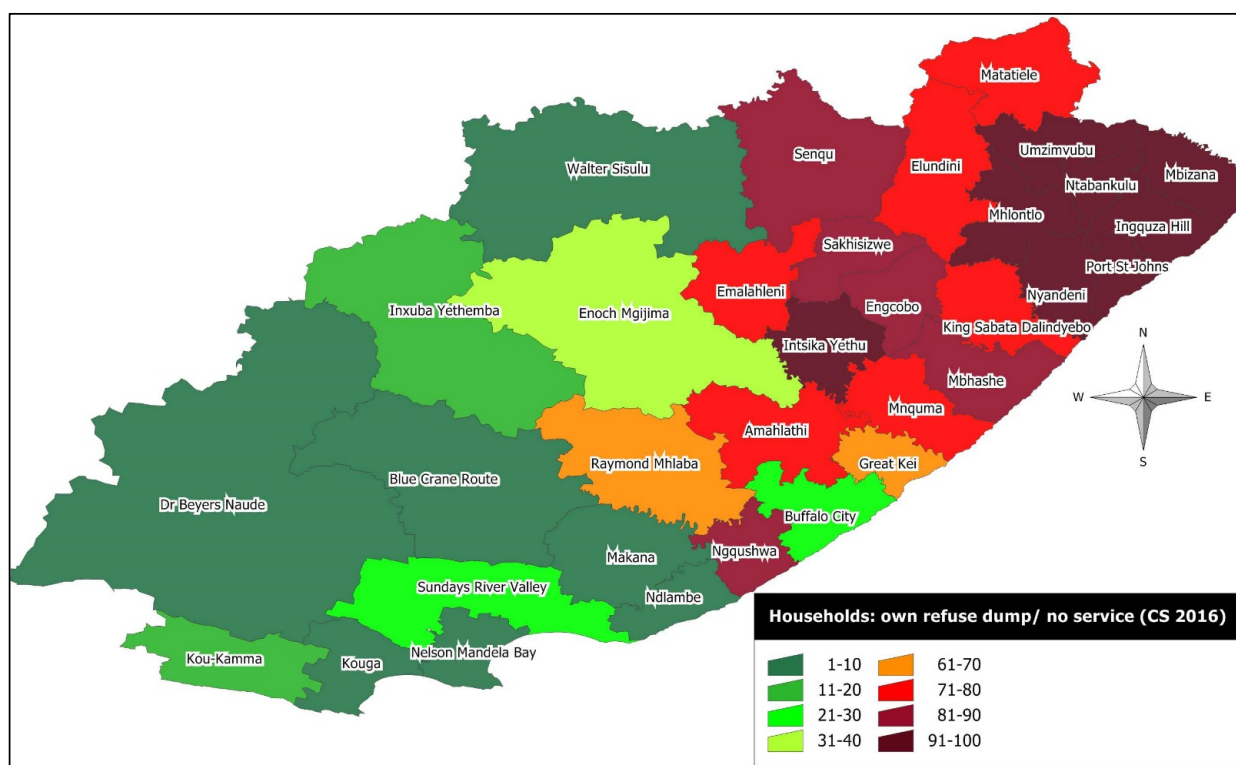


Figure 19: Percentage of households which use their own refuse dump or do not have refuse collection service (data source, Community Survey, 2016)

The map above shows the percentage of households per municipality which are using their own refuse dump or do not have access to refuse collection services. In the eastern region of

the province a high portion of households do not have access to even a basic waste management service.

Comment on Stats SA data sets

The table above presents two different Stats SA data sets.

1. The 2011 Census data
2. The 2016 Community Survey data

The 2011 Census surveyed all South African households, this data is 7 years old but as all households were surveyed it is accurate data for the time period.

The 2016 Community Survey data is more recent (2016), however only a sample (8.1%) of South African households were surveyed. The Community Survey was designed to be a representative sample of South African households. In the Eastern Cape a total of 195,301 households were surveyed (Stats SA, 2016)

When considering the level of refuse collection services in municipalities, the nature of the municipality needs to be considered. The Municipal Infrastructure Investment Framework of 2009 – 2010 (Development Bank of Southern Africa, 2011) divided local municipalities into four sub-categories (B1 – B4), district municipalities into two categories (C1 and C2) and metropolitan municipalities were all given the same classification (A).

The table below gives more details of these categories and presents the number of municipalities in the Eastern Cape per category.

Table 31: Municipality classification (categories and descriptions sourced from DBSA, 2011)

Category	Description	No. municipalities
A	Metropolitan municipalities	2
B1	Secondary cities, local municipalities with the largest budgets	0
B2	Local municipalities with a large town as core	2 (Makana and KSD)
B3	Local municipalities with small towns, with relatively small population and significant proportion of urban population but with no large town as core (e.g. most of the population within several towns)	14
B4	Local municipalities that are mainly rural with communal tenure and with, at more, one or two small towns in there are.	15
C1	District municipalities that are not water services authorities	1 (Sarah Baartman)
C2	District municipalities which are water services authorities	5

Over 48% of the local municipalities in the Eastern Cape are B4 municipalities. The rural nature of these municipalities presents challenges in terms of waste collection. A high percentage of the population will reside in small settlements, villages or towns which may be located far from

the main towns and poor road infrastructure may render some areas inaccessible by traditional refuse collection vehicles.

The below data are sourced from the Stat SA 2016 Community Survey.

It is expected that A, B1 and B2 municipalities should have the highest levels of weekly collection services in the Province. The two metropolitan municipalities Nelson Mandela Bay and Buffalo City Metro provide a weekly refuse collection service to 84.8% and 57.1% of their households respectively. There are no category B1 municipalities in the Eastern Cape. There is a significant difference in waste service provision between the two B2 local municipalities. Makana Local Municipality (88.9%) is the second-best performing municipality in terms of provision of a weekly collection service in the Eastern Cape. The other B2 local municipality, King Sabata Dalindyebo only provides a weekly collection service to 24.6% of households. The high level of service in Makana local municipality is achievable as the 62% of Makana's households are located in Makhanda (previously Grahamstown) and 21% are located in Rhini (web reference 3).

Dr Beyers Naudé Local Municipality is the best performing local municipality in terms of a weekly refuse collection service (91.4%), closely followed by Makana Local Municipality (90.1%), Ndlambe (89.1%) and Blue Crane Route Local Municipality (86.1%). All these municipalities are located within the Sarah Baartman DM.

The top performing B4 municipalities in terms of provision of a weekly collection service are King Sabata Dalindyebo Local Municipality (21.5%), Elundini Local Municipality (19.6%), Emalahleni Local Municipality (18.7%) and Mquma Local Municipality (18.1%).

5.8.1 Provision of Free Waste Management Services

The number of consumer units in the province which received free basic waste management services decreased from 275,222 households (31.0% of households) in 2016 to 273,365 households in 2017 (30.6% of households) (Stats SA, 2017). On a national basis, an average of 28.3% of households are receiving a free basic waste collection service (Stats SA, 2017).

Table 32: Percentage of households receiving a free solid waste collection service

Province	2016			2017		
	No. consumer units receiving solid waste services	No. consumer units receiving a free waste management service	% of consumer units benefitting	No. consumer units receiving solid waste services	No. consumer units receiving a waste management service	% of consumer units benefitting
Kwa-Zulu Natal	1,531,460	717,472	46.8%	1,645,858	733,824	44.6%
Western Cape	1,209,785	620,399	51.3%	1,243,913	544,498	43.8%
Eastern Cape	887,506	275,222	31.0%	892,166	273,365	30.6%
Northern	239,346	71,503	29.9%	247,068	61,267	24.8%

Cape						
Gauteng	3,307,566	693,632	21.0%	3,344,560	752,068	22.5
Free State	686,382	137,522	20.0%	685,424	143,362	20.6%
North West	563,035	92,404	16.4%	563,632	102,471	18.2%
Mpumalanga	645,051	102,708	15.9%	667,415	96,290	14.4%
Limpopo	466,365	65,393	14.0%	482,650	62,734	13.0%
South Africa	9,536,496	2,776,255	29.1%	9,782,686	2,769,879	28.3%

5.8.2 Level of Satisfaction with Waste Collection Services

The 2016 Community Survey also assessed the satisfaction of households with municipal waste collection services. The Eastern Cape has the highest percentage of households which rate their satisfaction of waste collection services as 'good' (78%), closely followed by the Western Cape (77%). The national average of households rating their waste collection service as good is 49%, significantly lower than the Eastern Cape. This indicates that in the Eastern Cape, a larger percentage of the households which are receiving a waste collection service, are satisfied with the service.

Table 33: Household satisfaction of waste collection services per province

	Eastern Cape	Western Cape	Northern Cape	Free State	KZN	North West	Gauteng	Mpumalanga	Limpopo	SA
Good	78	77	54	51	41	43	61	34	26	49
Average	7	16	15	22	24	23	20	21	20	21
Poor	6	6	12	17	16	15	14	20	17	15
No access	7	1	15	9	16	16	4	22	33	13
Do not use	2	0	3	1	2	3	0	2	4	2
Total	100	100	100	100	100	100	100	100	100	100

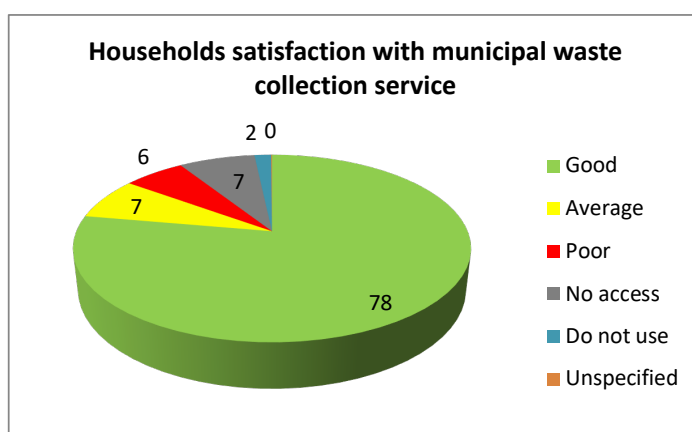


Figure 20: Household satisfaction levels of waste management in the Eastern Cape

5.9 Waste Services per Household across South Africa

The Eastern Cape has the third lowest percentage of households which receive a weekly refuse collection service (41.3%) and second highest percentage of households using their own refuse dump (44.3%). This is shown in the table below.

Table 34: Comparison of waste service provision across South Africa's Provinces (Community Survey, 2016)

Waste Service	South Africa	Eastern Cape	Free State	Gauteng	Kwa-Zulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Removed at least once a week		41.3	69.7	83.6	47.7	21.9	39.4	54.8	61.8	86.8
Removed less often		2.2	3.8	3.0	3.2	1.4	3.3	3.1	2.8	3.0
Communal refuse dump		3.5	3.6	3.4	2.8	3.2	4.3	3.2	3.6	1.9
Communal collection point		1.2	0.8	1.9	2.1	0.6	1.1	1.2	1.0	4.5
Own refuse dump		44.3	17.5	4.3	38.8	66.1	44.0	32.4	24.1	2.2
No rubbish disposal		6.0	3.9	3.1	4.1	5.6	6.5	3.9	5.0	0.9
Other		1.5	0.7	0.7	1.3	1.1	1.5	1.4	1.7	0.6

5.10 Waste Recycling

5.10.1 South African Waste Information System Records

According to SAWIS records, in 2017 a total of 245,923 tonnes of waste (5.8% of waste generated) was recycled in the Eastern Cape and there are 12 recycling facilities registered on the SAWIC. The table below presents a summary of the waste streams being recycled in the Eastern Cape. The estimated recycling rate of general waste nationally is 11% (DFFE, 2017).

Table 35: Summary of SAWIS recycling data for the Eastern Cape (data source, SAWIS, accessed 16/04/2018)

Waste stream	Tonnage	Percentage of EC total
Bottom ash	11,269.1	4.42
Commercial and industrial waste	648.3	0.25
Metals	8,674.2	3.40
Metals: ferrous	81,557.6	31.99
Metals: non-ferrous	15654	6.14
Paper	874.4	0.34
Paper: brown grades	4735.5	1.86
Plastic	343.4	0.13
Plastic: other	77.7	0.03
Plastic: polypropylene	345	0.14
Plastic: polystyrene	871.9	0.34

Waste stream	Tonnage	Percentage of EC total
Tyres	129,600	50.84
Hazardous: Miscellaneous	272	0.11
Total	254,923.1	100

5.10.2 Waste Separation at Source

Waste separation at source programmes are essential in increasing recycling in the Eastern Cape. Waste separation at source can prevent recyclable material from entering landfill sites and also improve the quality of recyclables through prevention of contamination of recyclables.

Twelve of the 31 local municipalities in the Eastern Cape have waste separation at source programmes in place, although most of these are small pilot programmes. The table below presents details of these programmes.

Table 36: Details of waste separation at source programmes (data collected from IWMPs and through interviews)

Local municipality	District municipality	Details of programme
Umzimvubu	Alfred Nzo	
Amahlath	Amathole	
Great Kei	Amathole	
Amahlath	Amathole	
Ngqushwa	Amathole	
Raymond Mhlaba	Amathole	
Elundini	Joe Gqabi	
Senqu	Joe Gqabi	
Blue Crane Route	Sarah Baartman	Separation at source programmes are in place in Cookhouse, Pearston and Somerset East. Recyclable waste is collected in blue bags and taken to the Somerset East landfill site.
Makana	Sarah Baartman	A voluntary pilot two bag system has been initiated.
Ndlambe	Sarah Baartman	Two wheelie bins are provided to select households in Station Hill township to allow households to separate waste at source. Integrated Waste and Recycling Services manage the pilot programme.
King Sabata Dalinyebo	O.R. Tambo	

The Blue Crane Route Local Municipality has experienced challenges with their separation at source programme as residents expect to be paid for separating their waste at source. In addition the programme experienced a shortage of coloured bags due to budgetary constraints.

5.10.3 Material Recovery Facilities

A material recovery facility (MRF) is a facility where waste is sorted and separated for recycling. The design of MRFs can vary from simple facilities where waste is sorted manually on a concrete slab to fully mechanised facilities with conveyor belts and automatic separating systems.

A further distinction can be made between MRFs based on the type of waste they receive; municipal MRFs can be either dirty MRFs or clean MRFs.

A dirty MRF is a facility which accepts an unsorted waste stream. In terms of the domestic waste stream this would be a mix of organic waste (kitchen) waste and recyclables (glass, paper, metal, plastic etc.). The recyclables separated at a dirty MRF are generally of lower value as they are typically contaminated with organic waste.

A clean MRF processes pre-sorted recyclables, and hence recyclables separated in such a facility have lower levels of contamination and have higher financial value. These pre-sorted recyclables are usually sourced through the use of a two bag system or from facilities where recyclable waste can be dropped off.

The recovery rate of material processed at a clean MRF is significantly higher than a dirty MRF. A dirty MRF typically recovers 10 -25% of recyclables as opposed to a clean MRF where 80% are recovered (DFFE, undated, Anél Blignaut Environmental Consultants cc, 2012).

According to IWMP reviews and interviews undertaken, few municipal MRFs are operational in the province. These are detailed in the table below.

Table 37: Summary of material recovery facilities in the Eastern Cape

Municipality	Location of MRF	Description of MRF	Owner
Elundini	Ugie Landfill site	A mechanised MRF with a raised conveyor belt sorting line and bailer. The MRF is enclosed in a building. The MRF has been vandalised and is not currently operational due to financial constraints	Municipal
Kouga	Humansdorp landfill site - Pending	Mechanised MRF with a sorting line.	Private
Intsika Yethu			Municipal
Nelson Mandela Bay	Port Elizabeth	Mechanised MRF with a raised conveyor belt sorting line and several bailers.	Private
Buffalo City	East London	The Buffalo City Buy-back centre includes an area where waste is stored and bailed.	The building is owned by Buffalo City but the equipment is owned by the service provider
Emalahleni	Lady Frere	A MRF will be constructed using funding from DFFE	Municipal
Walter Sisulu	Aliwal North		Municipal

Municipality	Location of MRF	Description of MRF	Owner
Umzimvubu			Municipal
Port St Johns	Port St Johns landfill site		Municipal
Mhlontlo	Qumbu landfill site		Municipal
Ndlambe	Alexandria	Construction completed but not yet operational	Municipal
Engcobo	Landfill site		Municipal

5.11 Buy Back Centres

Based on IWMP reviews and completed surveys there are four municipal buy-back centres in the Eastern Cape. Details of the buy-back centres are provided in the table below.

Table 38: Summary of buy back facilities in the Eastern Cape

Municipality	Location of buy-back centre	Ownership
Winnie Madikizela Mandela	Flagstaff	
Port St Johns	Port St Johns landfill – in planning	A buy-back centre is planned for the Port St Johns landfill site
Walter Sisulu	Aliwal North	
Buffalo City	East London	The building is owned by Buffalo City but the equipment is owned by the service provider
Nelson Mandela Bay	Seaview	Private



Figure 21: Flagstaff buy-back centre (left), one of the compactors dedicated to the project (right)

5.12 Waste Treatment

Treatment of waste in the Eastern Cape occurs at three facilities. Details of waste treatment in the Eastern Cape are presented below. The majority of waste treated in the Eastern Cape (77%) is health care risk waste (HCRW). Compass Waste operates a HCRW treatment facility near

Berlin in East London and has contracts with the Eastern Cape Department of Health for management of HCRW from Government clinics and hospitals.

Table 39: Summary of SAWIS records for waste treatment (data source, SAWIS, accessed on 16/04/2018)

Waste stream	No. facilities	Tonnes	Percentage of waste stream
HCRW: infectious waste and sharps	1	5,463.5	77.11
Hazardous: Liquid and sludge organic waste	1	1,122.3	15.84
Hazardous: waste oils	1	499.9	7.06
Total	3	7085.7	100

5.13 Waste Composting

Based on interviews with municipalities, a review of IWMPs and a review of SAWIC records, there are only a small number of municipal composting facilities in the Eastern Cape. The Enoch Mgijima local municipality has a small composting facility at the Komai public gardens. The facility consists of several cages for composting of leaves collected from the public gardens and from leafs cleared in public road-ways. The compost is used at the municipality's nursery for growing trees and shrubs, for use in the gardens and for growing trees for the annual arbour day.

Numerous private composting facilities are in operation but at the time of this report, no data was available on the tonnage of organic waste being composted.

Table 40: Composting facilities in the Eastern Cape

Municipality	Location of composting facility	Owner of composting facility
Walter Sisulu	Aliwal North – currently being developed	Municipal
Kouga	Humansdorp	Private
NMBM	Motherwell	Private
Enoch Mgijima	Komani	Municipal
Great Kei	Komga	-
NMBM	Motherwell	Private
NMBM	-	Private

Two composting facilities are included in a list of waste management infrastructure provided by DEDEAT. These are:

- Komga Composting in Great Kei Local Municipality
- Venter Fert Composting and Fertiliser Plant in Nelson Mandela Bay Metropolitan Municipality

As illustrated in waste characterisation exercises, organic waste constitutes on average 29% of the domestic waste stream. Investment in composting facilities could contribute towards a reduction in waste to landfill.

5.13.1 Legal Drivers for the Development of Composting Facilities

The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) require a 25% reduction of garden waste to landfill by 2018 and a 50% diversion by 2023.

At present none of the municipalities in the Eastern Cape will meet the 25% diversion rate by August 2018. The development of composting facilities is one way to work towards diverting green waste from landfill. Diversion of green waste from landfill site can save landfill site airspace and allow waste beneficiation from the sale of compost.

5.14 Waste Treatment: Anaerobic Digestion

The National Norms and Standards for the Disposal of Waste to Landfill (GN 636 of 2013) prohibits the disposal of infectious animal carcasses and animal waste from being disposed of at landfill. An alternative to the landfill disposal of animal waste (manure) and carcasses is treatment in a biodigester and biogas plant. A biogas plant uses anaerobic digestion to generate gas. This gas can then be burnt in an engine to generate electricity or used as an alternative to diesel. Biodigesters reduce the volume of solid waste and reduces pathogens, worm eggs and flies. Biodigesters also reduce greenhouse gas emissions and odours. The nutrient content of the manure from the biodigester is not greatly reduced and it can be applied to farm land as a fertiliser. Anaerobic digestion typically reduces the mass of solid waste by 75%. The volume of water in the waste is however not reduced.

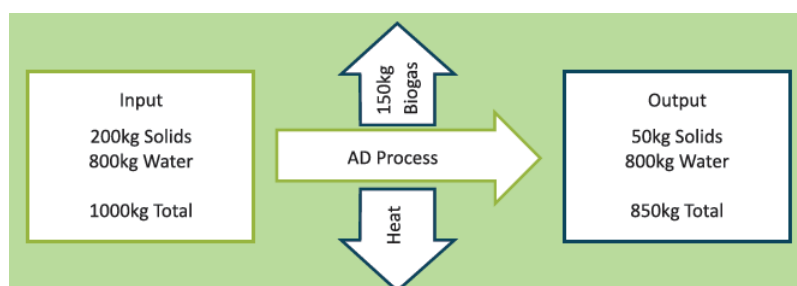


Figure 22: Inputs and outputs of a biodigester (source DFFE, undated)

The Peninsular Piggery in Komani (formerly Queenstown) has a biogas plant which receives 35 tonnes a day of pig manure. The biogas plant generates 190kW of energy per day, which is used to power the farm. The facility was installed for an estimated cost of R 6.3 million (Ibert, 2017).



Figure 23: Peninsular Piggery bio-digester (source ibert, 2017)

The outputs of a biogas facility are biogas (which can be converted into electricity or fuel), heat and fertilizer. The quality of gas produced by a biogas plant is directly linked to the quality of the feedstock.

5.15 Waste Disposal

5.15.1 South African Waste Information Centre Records

The SAWIC has waste disposal records for the Eastern Cape from 2004 to 2017. In 2004 the Nelson Mandela Bay Metropolitan Municipality was the only municipality reporting on the SAWIC. By 2017, the number of municipalities reporting has increased to 14 out of 33 municipalities. The SAWIC records however cannot be considered as an accurate representation of waste disposal in Eastern Cape as not all municipalities are reporting on the SAWIC. The SAWIC is also prone to data capturing errors, for example, the Intsika Yethu Municipality, which has a population of 152,159, has often reported waste tonnages greater than that of the Nelson Mandela Bay Metropolitan Municipality (population of 1,263,051). A comparison is provided in the table below.

Table 41: SAWIC records for general waste disposal tonnages at Intsika Yethu local municipality and Nelson Mandela Bay Metropolitan Municipality

Year	2010	2011	2012	2013	2014	2015	2016
Intsika Yethu LM	3,786,060	234,524	999,470	1,063,306	1,501	1,611	1,501
Nelson Mandela Bay Metro	592,754	512,318	481,429	494,650	568,493	625,975	641,748

5.15.2 Waste Disposal Facilities

Based on a literature review and completed municipal questionnaires there are approximately 144 landfill sites in the Eastern Cape. This includes operation, closed and sites which are in the planning phase. As part of this PIWMP review, a comprehensive database of landfill sites in the Eastern Cape was compiled by reviewing existing IWMPs, licences available on SAWIS and a database provided by DEDEAT. This newly developed database contains the following information for landfill sites:

- Name
- Local municipality
- Classification
- Permit status
- Type of permit
- Site status (operational, closed, rehabilitated)
- Permit number
- Year permitted
- Permit holder
- Co-ordinates of the site

Development of this database was an onerous task for a number of reasons:

- SAWIC does not hold licences for all landfill sites in the Eastern Cape
- Co-ordinates given on a large number of licences are incorrect
- The existing DEDEAT database of licensed landfill sites specifies the name, municipality and type of permit issued. No landfill co-ordinates are given
- No database of unlicensed sites was available
- Old permits do not list co-ordinates of sites, instead they list erf numbers or farm names. Over time land parcels are subdivided and farm names change. This makes locating sites difficult
- Not all IWMPs provide accurate or comprehensive information on landfill sites e.g. license status or co-ordinates are missing

This database is included with this PIWMP as Appendix A.

The database was circulated to all members of the PSC for comment on 12 April 2018, but at the time of this report comment had only been received from the Nelson Mandela Bay Metropolitan Municipality, Amathole District Municipality, Joe Gqabi District Municipality and Alfred Nzo District Municipality.

(a) Status of Landfill Sites

There are 143 landfill sites in the Eastern Cape, including operational sites, closed sites and sites in the planning phase.

The current status of these landfill sites is presented in the table below.

Table 42: Status of Eastern Cape landfill sites

Status	No. sites
Operational	89
Closed	48
In planning phase	3
Under construction	2
Unknown	1
Total	143

**unknown refers to a permitted site which is not mentioned in IWMPs nor could be located on satellite imagery due to co-ordinates not being available in the permit.*

(b) Permit Status of Operational Landfill Sites

The majority (76.4%) of the 89 operational landfill sites in the Eastern Cape are confirmed to be permitted with valid permits. The permit status of 2 sites is unknown, because the permits are not available on SAWIS and the IWMP for the municipality does not specify the permit status of the site. Nine landfill sites are not permitted. Permit applications for an additional two of which are currently underway.




All the permits which were available on SAWIS and provided by local municipalities and DEDEAT (103 permits) were reviewed to determine if the permits were valid. Of the permits which were reviewed, 7 were no longer valid e.g. the permit has been valid for 10 years and this period has passed and the site is still operational. A further 7 permits had requirements for closure and rehabilitation to happen in a specified time. An investigation is needed to determine if closure and rehabilitation did commence within permitted timeframes.

Table 43: Permit Status of Operational Eastern Cape landfill sites

Status	No. sites	% of sites
Permitted	68	76.4
No permit	10	11.2
Permit expired	7	7.9
Permit underway	2	2.2
Unknown	2	2.2
Total	89	100



The 2010 EC PIWMP reported that there were 117 landfill sites in the Eastern Cape and only 38.5% of the landfill sites were permitted. The Eastern Cape has therefore made significant progress with regard to the licensing of unpermitted sites.

Table 44: Details of unlicensed operational landfill sites

Satellite image	Site details
 A satellite image showing a residential area on the left with houses and a road labeled 'Ray Gable Crescent'. To the right is a large, irregularly shaped area of brown, cleared land labeled 'Beacon Bay' with a yellow pin. The surrounding area is green with trees.	<p>Site: Beacon Bay</p> <p>Municipality: Buffalo City Metropolitan Municipality</p> <p>Date of first operation (based on google earth imagery): Pre 2012 (note, there is an imagery gap between 2004 and 2012)</p>
Beacon Bay unlicensed landfill site (image source, Google Earth), image date 29/12/2018	
 A satellite image showing a large, irregularly shaped area of brown, cleared land labeled 'Riegerton' with a yellow pin. The surrounding area is green with trees and some buildings.	<p>Site: Riegerton</p> <p>Municipality: Buffalo City Metropolitan Municipality</p> <p>Date of first operation (based on google earth imagery): Pre 2004 (note, google earth imagery only goes back to 2004)</p>
Riegerton unlicensed landfill site (image source, Google Earth), image date 29/12/2018	
 A satellite image showing a large, irregularly shaped area of brown, cleared land labeled 'Kidd's Beach' with a yellow pin. The surrounding area is green with trees and some buildings.	<p>Site: Kidd's Beach</p> <p>Municipality: Buffalo City Metropolitan Municipality</p> <p>Date of first operation (based on google earth imagery): Pre 2002 (note, google earth imagery only goes back to 2002)</p>
Kidd's Beach unlicensed landfill site (image source, Google Earth), image date 29/12/2018	

Satellite image	Site details
	Site: Kayser Beach Municipality: Buffalo City Metropolitan Municipality Date of first operation (based on google earth imagery): Pre 2000 (note, google earth imagery only goes back to 2000)
Kayser Beach unlicensed landfill site (image source, Google Earth), image date 05/06/2018	
	Site: Seavale Municipality: Buffalo City Metropolitan Municipality Date of first operation (based on google earth imagery): Pre 2011 (note, there is a gap in satellite imagery between 2003 and 2011)
Seavale unlicensed landfill site (image source, Google Earth), image date 04/01/201	
	Site: Jansenville Municipality: Dr Beyers Naude Date of first operation (based on google earth imagery): Pre 2008 (note, google earth imagery only goes back to 2008)
Jansenville unlicensed landfill site (image source, Google Earth), image date 20/12/2018	

Satellite image	Site details
 A satellite image showing a large, irregularly shaped landfill site. The site is surrounded by a dirt road and a fence. A yellow pin is placed on the site, and the label 'Krakeelriver' is written next to it.	Site: Krakeelriver Municipality: Kou-Kamma Date of first operation (based on google earth imagery: Pre 2005 (note, google earth imagery only goes back to 2005)
Krakeelriver unlicensed landfill site (image source, Google Earth), image date 22/01/2019	
 A satellite image showing a large, irregularly shaped landfill site. The site is surrounded by a dirt road and a fence. A yellow pin is placed on the site, and the label 'Bizana' is written next to it.	Site: Bizana Municipality: Winnie Madikizela Mandela Date of first operation (based on google earth imagery: Pre 2013 (note, there is a gap in imagery between 2005 - 2013)
Krakeelriver unlicensed landfill site (image source, Google Earth), image date 22/01/2019	

Satellite image	Site details
	Site: Klipplaar Municipality: Dr Beyers Naude Date of first operation (based on google earth imagery): Pre 2012 (note, satellite imagery only goes back to 2012)
Klipplaar unlicensed landfill site (image source, Google Earth), image date 20/12/2018	
	Site: Willowmore Municipality: Dr Beyers Naude Date of first operation (based on google earth imagery): Pre 2003 (note, satellite imagery only goes back to 2003)
Klipplaar unlicensed landfill site (image source, Google Earth), image date 27/01/2019	

(c) Type of Permits

Of the permits available for review, the majority of operational landfill sites (78.9%) have permits which allow the development or continued operation of site. Only 21.1% of landfill sites have closure permits.

A number of landfill sites are permitted under the Environment Conservation Act (Act 73 of 1989) (ECA). DEDEAT has indicated that it is planning on undertaking a review of all landfill permits which were issued under ECA and, where appropriate, re-issuing permits under the NEM: WA.

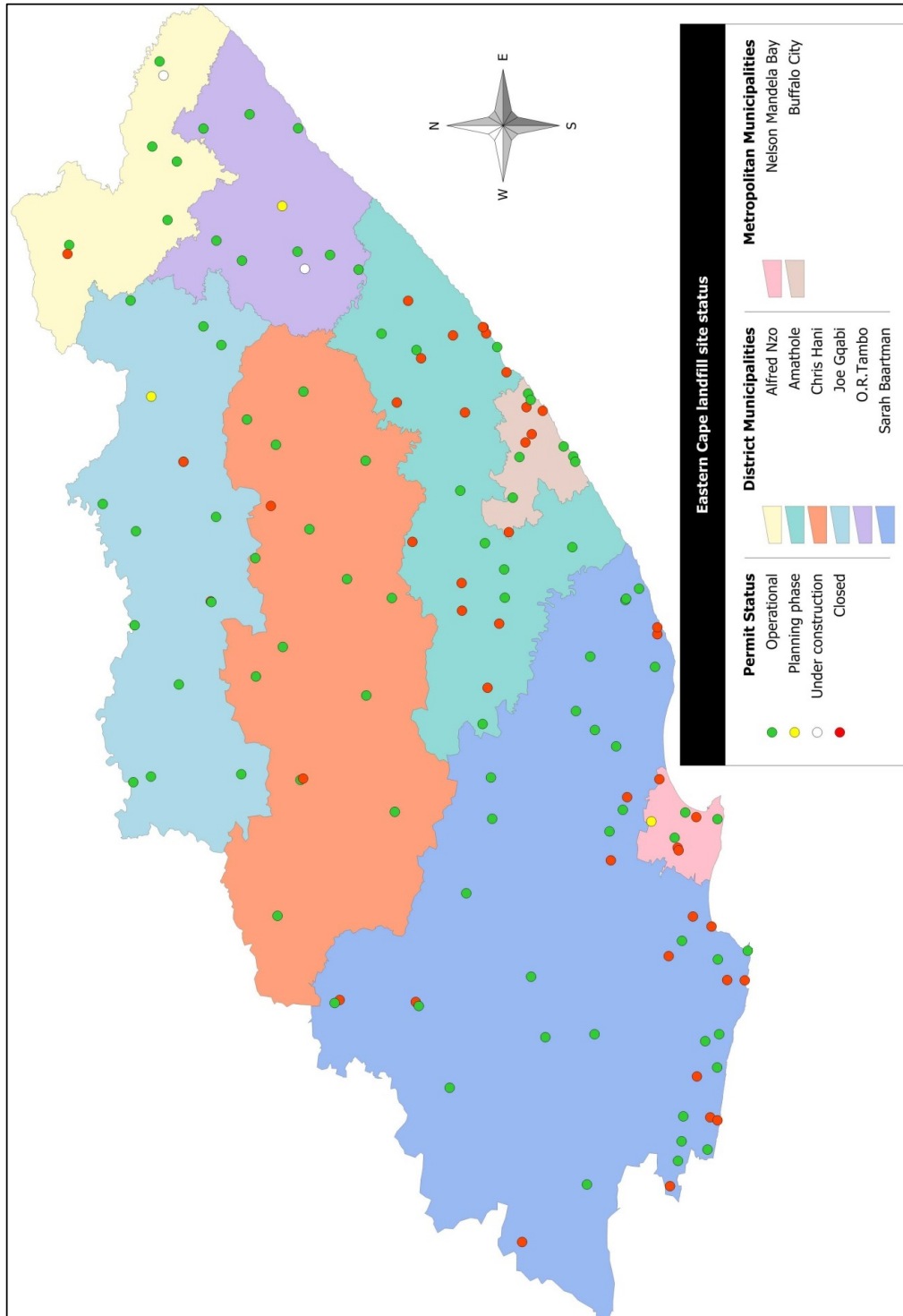


Figure 24: Eastern Cape operational landfill site status

5.16 Planned Landfill Sites

The Ingquza Hill Local Municipality is currently undertaking a site selection process for a new landfill site. Two potential sites for a new landfill site have been identified.

The Coega Development Corporation received a waste management license for a new regional general and hazardous waste landfill site in 2017. The project is currently in the appeals phase.

5.17 Waste Information Management

5.17.1 South African Waste Information Centre

In terms of the National Waste Information Regulations (GN 625 of 2012) all parties which operate a general landfill site in excess of 200m² in area are required to register and report on the South African Waste Information Centre (SAWIC). There are currently only 16 municipalities and 25 waste disposal facilities are reporting on the SAWIC (web reference 4).

5.17.2 Waste Records and Information Management

One of the key issues identified during this situation analysis is a lack of accurate, comprehensive data on the following:

- Waste generation
- Waste recycling records from municipal programmes and details of private recycling programmes
- Landfill site permits, not all municipalities have copies of the permit for their landfill sites

5.18 Monitoring of Waste Management Facilities in Eastern Cape

A number of local municipalities indicated that they do not undertake internal or external audits of their waste facilities. The requirement for audits is a standard condition in most waste licences.

External audits of waste facilities are undertaken by DEDEAT. A sample of eight DEDEAT audit reports were reviewed as part of this IWMP. All of facilities audited were noted as being non-compliant with permit conditions.

The following table summarises the key findings of audits undertaken by DEDEAT.

Table 45: Summary of DEDEAT waste facility audit findings

Key audit findings (DEDEAT)	Shorting comings of audits report and recommendations
<p>The following non-compliance were noted in the audit reports:</p> <ul style="list-style-type: none"> • Burning of waste • Lack of compaction and covering of waste • Dumping of waste outside the waste disposal site • Nuisance odours from the site • Waste volumes not being records • Lack of appropriate signage at the facility • Poor stormwater management systems • Lack of personnel on site • Lack of monitoring on site • Access road in poor condition • Windblown litter present on site 	<ul style="list-style-type: none"> • There is no audit checklist which assess compliance with each permit condition • Facilities are not given a compliance score, a simple scoring system (compliant 2, partially compliant 1, non-compliant 0) should be considered to allow auditor to quantitatively assess the compliance of site. This system would allow DEDEAT to compare compliance between sites • Although all the audit reports use the same template the reporting style, in particular the level of detail provided varies between audit reports. A new audit report template should be developed and all auditors should be trained on the template • Some audit reports do not provide recommendations are included to address non-conformances

5.19 Waste Management Officers

The NEM: WA requires that the province and all municipalities appoint a waste management officer (WMO) from its administration who is responsible for co-ordinating waste management in the municipality.

The Guideline for Designation of Waste Management Officers (WMOs) as provided for in section 10 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (hereafter referred to as DFFE guidelines for designation of WMOs) identifies the following requirements for WMOs:

Provincial WMO:

- Implementing national waste management strategies
- Monitor and enforce waste legislations
- Develop provincial legislation and waste implementation strategies and guidelines
- Monitor compliance with plans
- Coordinate implementation of the Act as provincial level
- Capacity building for local government
- Develop and implement provincial IWMP

Municipal WMO:

- **Policy development and by-laws** – develop appropriate tariffs, debt collection, procurement policy, development of by-laws to give effect to tariff policy
- **Financial planning and management** – determine full cost of provision of waste services, develop waste management series budget, determine tariffs, ensure financial statements for waste management are up to date
- **Integrated waste management plan and reporting** – development of an IWMP which complies with the NEM: WA and identifies infrastructure projects, implementation of the IWMP and preparation of annual reports on the implementation of the IWMP
- **Infrastructure development** – ensure there is a project management unit in place, ensure MIG projects are listed in the IDP, ensure MIG applications are compliant, undertake feasibility assessments for MIG projects, prepare 3 year capital and operational plans for MIG project, submit quarterly MIG reports, ensure implementing agents are in place
- **Waste services provision arrangements** – assist with review of institutional arrangements, hire qualified solid waste management officials, ensure contracts are in place when using service providers
- **Performance management and regulatory capacity** – monitor service providers performance on an annual
- **Health and hygiene protection** – establish a health, hygiene and safety promotion programme
- **Service authority structural and organisation issues (capacity building)** include waste management function in the municipal organogram, waste management authority functional areas addressed in job description

As can be seen from the above roles and responsibilities a WMO officer should be a qualified and experienced individual with an in-depth understanding of the day to day operational requirements of waste infrastructure, an understanding of the financing of waste service and experience in submission of MIG funding applications.

Based on reviews of IWMP and interviews only 47% of municipalities have formally designated a WMO. Neither of the two metropolitan municipalities have formally designed WMOs. The majority of municipalities have an employee fulfilling the WMO role, however this individual typically has not been formally designed as an WMO in terms of the NEM: WA.

The lack of designated WMOs is attributed to:

- A high staff turnover
- A lack of dedicated waste management staff
- Council not signing off on WMO designation due to a lack of understanding of the WMO role

5.20 Skills capital in Waste Departments in LMs

A section of the questionnaire which was given to municipalities requested information on the experience and qualifications of employees in the waste management department. The key findings from the survey are:

- None of the local municipalities have professional engineers (PrEng) as part of the waste team
- Some local municipalities lack dedicated waste management staff. The waste management role is included as a secondary role under other divisions
- The experience of the WMO or the person fulfilling the WMO role ranges from 1 year to 19 years

**Note, these findings are based on the information provided in the 19 completed surveys.*

5.21 Financial management in Waste Departments in Municipalities

In all IWMPs and interviews a lack of waste management budget was raised as a concern. A lack of budget prevents municipalities from complying with legislation and delivery of effective waste management services.

5.21.1 Waste Management Tariffs

One of the causes of a lack of budget in municipalities is the use of waste tariffs which are not cost reflective and a low collection rate on waste management tariffs. The Department of Forestry, Fisheries and the Environment has developed a tool and guideline to assist municipalities to undertake full cost accounting exercises and to develop cost reflective waste management tariffs. The DFFE provided training to Eastern Cape municipalities on the model in 2014 and 2018. Despite the presence of the model and DFFE training sessions, only one of the surveyed municipalities, Intsika Yethu Local Municipality, has undertaken a full costing accounting exercise. The Elundini Local Municipality is currently in the process of undertaking a full costing accounting exercise. The majority of municipalities simply increase their tariffs in-line with inflation or by a fixed percentage annually. The tariff increases range from 4.3% (Umzimvubu Local Municipality) to 8 -10% (Buffalo City Metro).

Typically, most municipal waste tariffs are well below the true cost of the waste management services and, depending on the size of the shortfall, the process of increasing tariffs to better reflect the costs needs to be staggered over a number of years.

Low tariff payment rates is a problem in the province. Payment rates vary between 13% - 80% of customers. Low payment rates are a concern as tariffs are one of the key mechanisms which municipalities use to fund waste management services. One of the reasons stated for a low payment of tariffs is that in some municipalities tariffs are shown on statement as a lump sum. In this case, even if a resident receives a waste collection service, they may not pay the tariffs

because they might not receive water from the municipality and therefore decide not to pay the municipal tariff.

5.21.2 Equitable Share

Equitable share is a grant from national treasury provided to municipalities to provide basic services to poor households and to assist municipalities with limited resources to perform basic core municipal functions.

For the 2018/19 financial year the equitable share is R383.12 per household per month. Of the total allocated equitable share value R80.28 is allocated to waste services; this is split between operations (R72.25) and maintenance (R8.30) (National Treasury, undated).

In practice this funding is not diverted to waste projects or waste service delivery but is instead diverted to fund other basic services such as water, sewage and electricity. Based on feedback from workshops with municipalities the loss of equitable share for waste management services is due to the waste manager or WMO not being aware of the value of equitable share apportioned to waste management, and a lack of commitment from the waste department to hold the municipality accountable for correct allocation of equitable share. Equitable share is calculated based on the number of indigent households per municipality. When indigent registers are out of date municipalities may underestimate the number of indigent households and therefore not receive the full equitable share due to them.

Table 46: Equitable share per Province (source, web reference 5)

Province	2018/19 Allocation	Forward Estimates	
		2019/20	2020/21
	R'000	R'000	R'000
Eastern Cape	65 499 660	69 807 213	74 411 439
Free State	26 178 043	28 071 076	30 108 091
Gauteng	93 384 285	100 923 135	109 092 089
KwaZulu-Natal	99 263 681	106 363 502	113 997 676
Limpopo	55 178 775	59 187 820	63 503 149
Mpumalanga	38 467 686	41 394 597	44 554 600
Northern Cape	12 475 021	13 403 527	14 404 557
North West	32 391 895	34 788 928	37 372 220
Western Cape	47 447 464	51 079 855	55 003 034
TOTAL	470 286 510	505 019 653	542 446 855

5.22 District Support

A rating of district support was included in the IWMP survey which all local municipalities were requested to complete. Local municipalities were requested to rate the level of support received from their relevant district municipality on a scale ranging from excellent to very poor. A total of 16 local municipalities rated their district municipality. The ratings are presented below.

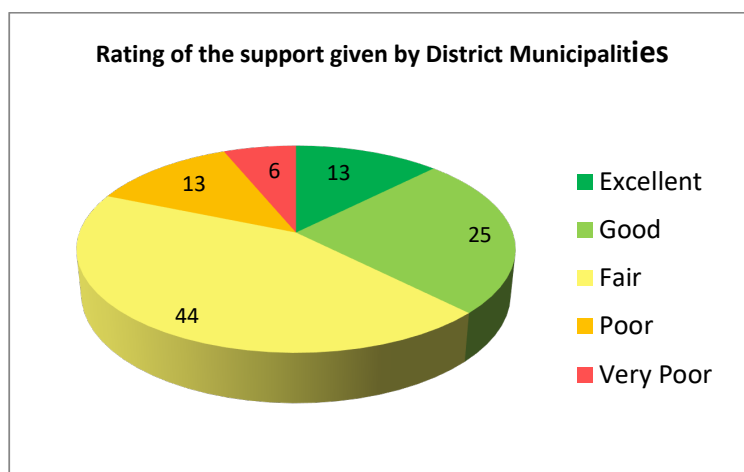


Figure 25: Level of support given by district municipalities, as rated by the local municipalities. Only 16 municipalities responded.

Local municipalities were also requested to identify positive support from district municipalities, shortcoming and areas for improvement with regard to support from district municipalities.

Table 477: Feedback from local municipalities in terms of district support

Positive feedback	Shortcomings	Areas for improvement
<ul style="list-style-type: none"> The district assisted with development of IWMPs 	<ul style="list-style-type: none"> Limited support from the district, their focus is on environmental health issues not waste management 	<ul style="list-style-type: none"> Provide more notice for quarterly forums Be more visible in the local municipalities Assistance with budgets for waste management projects Provide training sessions Increase budget to support waste management activities

5.23 Provincial Support

A rating of provincial support was included in the IWMP survey which all local and district municipalities were requested to complete. Municipalities were requested to rate the support received from the province on a scale ranging from excellent to very poor. A total of 17 municipalities rated the province. The ratings are presented below.

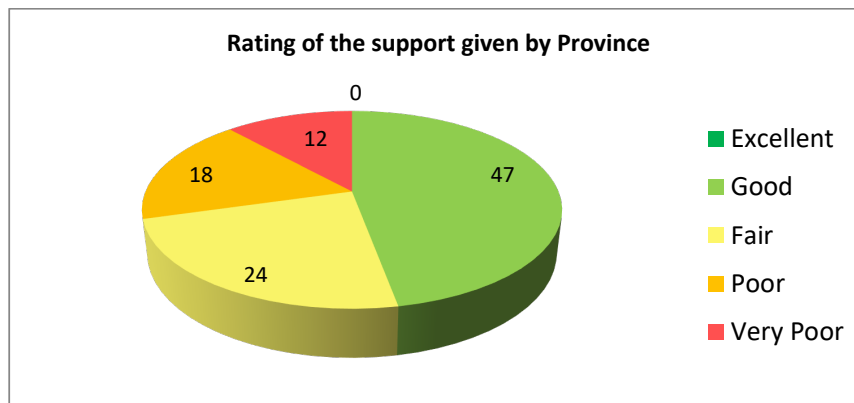


Figure 26: Level of support given by province, as rated by the local and district municipalities. Only 17 municipalities responded.

Municipalities were also requested to identify examples of positive support that had been received from the province and shortcoming and areas for improvement with regard to support from province.

Table 48: Feedback from municipalities in terms of provincial support

Positive feedback	Shortcomings	Areas for improvement
<ul style="list-style-type: none"> DEDEAT provides waste legislation training DEDEAT hosts quarterly meetings with municipalities 	<ul style="list-style-type: none"> No action results from quarterly meetings Poor follow up from DEDEAT when municipalities present challenges DEDEAT focuses on compliance not on supporting municipalities 	<ul style="list-style-type: none"> Stricter reporting requirements for municipalities are required in terms of IWMP performance Regular information sharing sessions are required to build knowledge and capacity DEDEAT should identify municipalities which require funding and assist with funding DEDEAT to provide technical assistance Provide waste management training DEDEAT to assist with funding of waste infrastructure projects

5.23.1 Provincial Waste Management Projects

Between 2013 and 2018 DEDEAT funded waste projects to the value of R 28,577,000. The budget for waste management projects varies year on year, for example R9 million was spend on waste projects in 2016 in seven local municipalities compared to only R 1.6 million in 2015 which was spent on one local municipality.

Table 4949: DEDEAT funded waste projects (data provided by DEDEAT)

Municipality	Project description	Project status	Budget
2018 projects			
Intsika Yethu	(Incentive Grant)		R 2 204 000
Great Kei			R 3 947 000
		Total	R 6 151 000
2017 projects			
Dr Beyers Naude	(Incentive Grant)		R 2 400 000
Intsika Yethu			R 2 554 000
		Total	R 4 954 000
2016 projects			
Mhlontlo			R 1 000 000
Ntabankulu			R 1 000 000
Maletswai			R 1 000 000
Makana			R 1 600 000
Ndlambe	(Incentive Grant)		R 2656 000
Amahlathi			R 770 000
Beyers Naude			R 1 000 000
		Total	R 9 026 000
2015 projects			
Nyandeni			R 1 800 000
2015 projects			
Emalahleni			R 1 623 000
2014 projects			
Emalahleni			R 1 623 000
Amahlathi			R 2 000 000
Camdeboo			R 1 000 000
		Total	R 4 623 000
2013 projects			
Gariep			R 2 023 000
		Total	R 2 023 000

An additional R1 million annual budget is provided by DEDEAT for the annual Greenest Municipality Competition.

5.23.2 Provincial Waste Management Forum

The municipal WMOs are invited to attend provincial waste management officers forums which are held on a quarterly basis.

The forums typically cover the

- Updates on policy and legislation
- Reports from local municipalities
- Waste management licensing and waste management facility registrations

There is currently standard presentation or template which WMOs use to provide feedback at these sessions.

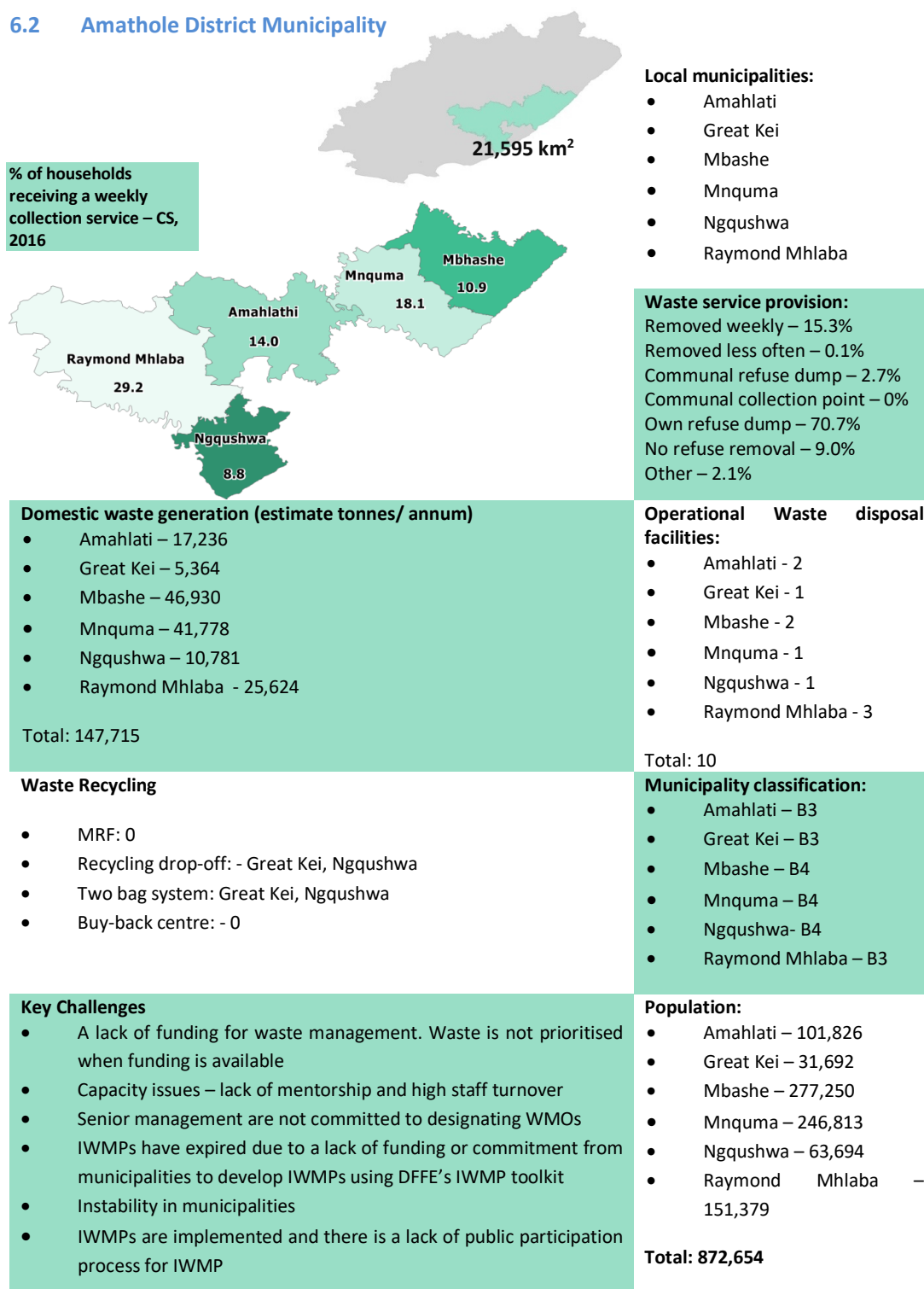
6 District and Metropolitan Municipality Profiles

This section provides one page summaries of the different districts in the Eastern Cape, as far as waste management is concerned.

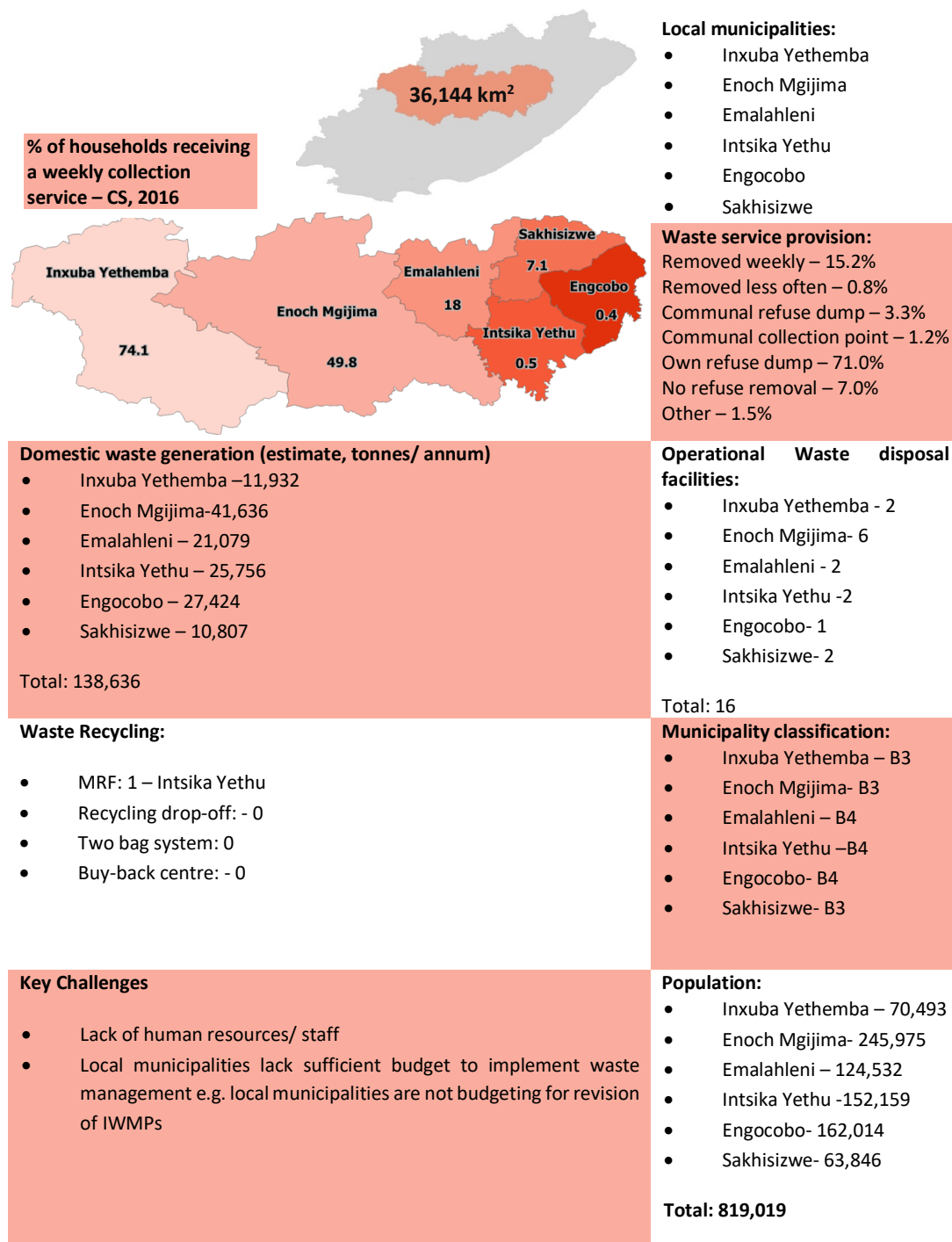
6.1 Alfred Nzo District Municipality



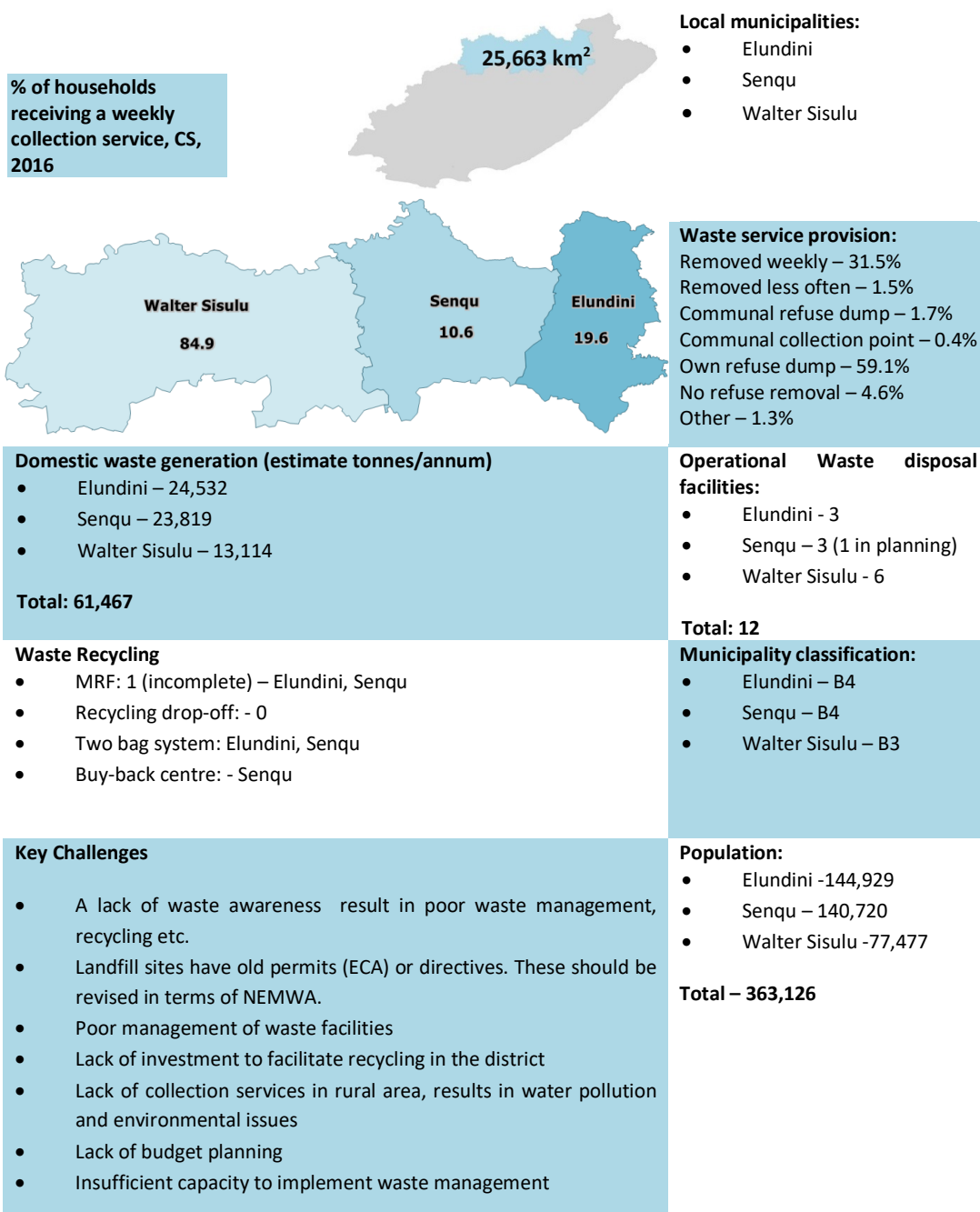
6.2 Amathole District Municipality



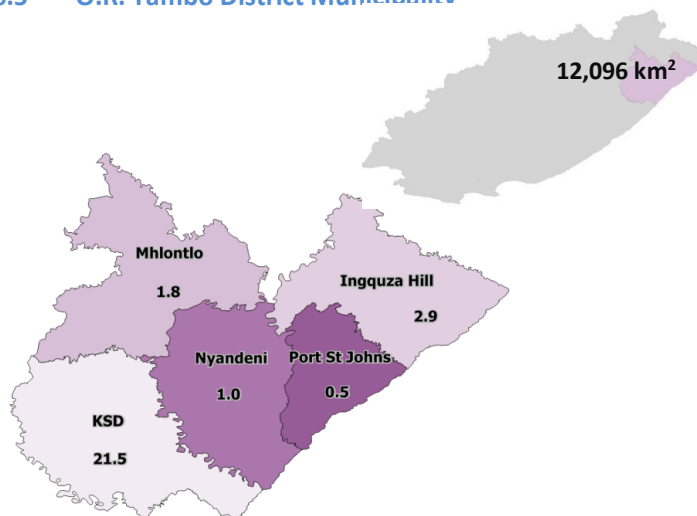
6.3 Chris Hani District Municipality



6.4 Joe Gqabi District Municipality



6.5 O.R. Tambo District Municipality



Local municipalities:

- King Sabata Dalindyebo
- Mhlontlo
- Ingquza Hill
- Nyandeni
- Port St Johns

Waste service provision:

Removed weekly – 5.9%
 Removed less often – 0.6%
 Communal refuse dump – 2.8%
 Communal collection point – 0.8%
 Own refuse dump – 78.3%
 No refuse removal – 11.1%
 Other – 0.6%

Domestic waste generation (estimate tonnes/ annum)

- King Sabata Dalindyebo – 82,664
- Mhlontlo – 32,022
- Ingquza Hill – 51,354
- Nyandeni – 52,424
- Port St Johns - 28,231

Total: 246,694

Operational Waste disposal facilities:

- King Sabata Dalindyebo – 2 (1 status unknown)
- Mhlontlo - 2
- Ingquza Hill - 2
- Nyandeni – 0 (1 in planning)
- Port St Johns - 1

Total: 7

Waste Recycling

Regional recycling programme

- MRF: Mhlontlo, Port St Johns
- Recycling drop-off: - 1 - Umzimvubu
- Two bag system: Umzimvubu
- Buy-back centre: - All local municipalities
- An additional R3.5 million has been allocated for the OR Tambo regional recycling scheme
- Two transfer stations planned in King Sabata Dalindyebo

Municipality classification:

- King Sabata Dalindyebo – B4
- Mhlontlo – B4
- Ingquza Hill – B4
- Nyandeni – B4
- Port St Johns – B4

Key Challenges

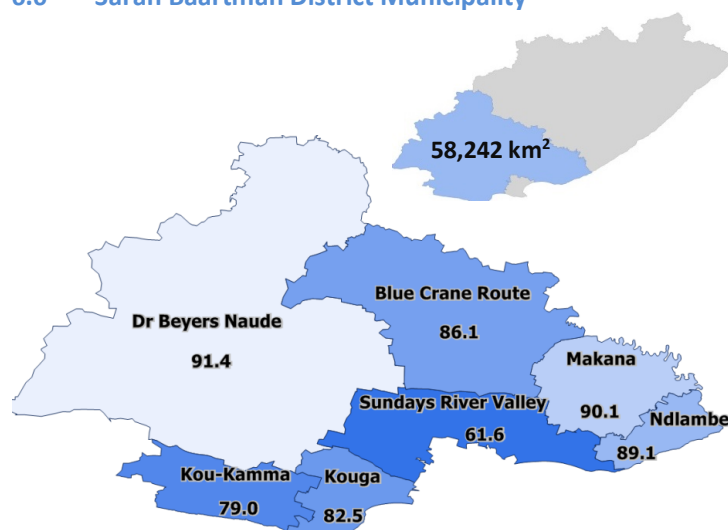
- Rural nature makes service provision difficult
- Lack of waste awareness in communities
- Development is occurring outside the urban edge, these areas should be serviced as they produce large volumes of waste but are not serviced as they are considered as peri-urban areas
- Landfill sites – lack of land available for new landfill sites
- Disposable nappies
- Servicing of indigents – registers are not finalised. Funding allocated in terms of equitable share and other funding streams are not used for waste management.
- WMO not influencing budgeting decisions- budget for waste not ring-fenced

Municipality population:

- King Sabata Dalindyebo – 488,349
- Mhlontlo – 189,176
- Ingquza Hill – 303,379
- Nyandeni – 309,702
- Port St Johns - 166,779

Total: 145,385

6.6 Sarah Baartman District Municipality



Local municipalities:

- Blue Crane Route
- Dr Beyers Naude
- Kouga
- Kou-Kamma
- Makana
- Ndlambe
- Sundays River Valley

Waste service provision:

Removed weekly – 86.2%
 Removed less often – 1.2%
 Communal refuse dump – 2.2%
 Communal collection point – 0.5%
 Own refuse dump – 6.7%
 No refuse removal – 1.8%
 Other – 1.3%

Domestic waste generation (estimate tonnes/annum)

- Blue Crane Route – 6,104
- Dr Beyers Naude – 13,422
- Kouga – 19,118
- Kou-Kamma – 7,395
- Makana – 13,890
- Ndlambe – 10,695
- Sundays River Valley – 10,121

Total: 80,745

Waste Recycling

- MRF: 1 - Ndlambe
- Recycling drop-off: - 0
- Two bag system: Blue Crane Route, Makana, Ndlambe
- Buy-back centre: - 0

Operational Waste disposal facilities:

- Blue Crane Route - 3
- Dr Beyers Naude - 7
- Kouga - 3
- Kou-Kamma - 7
- Makana - 3
- Ndlambe - 4
- Sundays River Valley - 3

Total: 30

Municipality classification:

- Blue Crane Route – B3
- Dr Beyers Naude – B3
- Kouga – B3
- Kou-Kamma – B3
- Makana – B2
- Ndlambe – B3
- Sundays River Valley – B3

Key Challenges

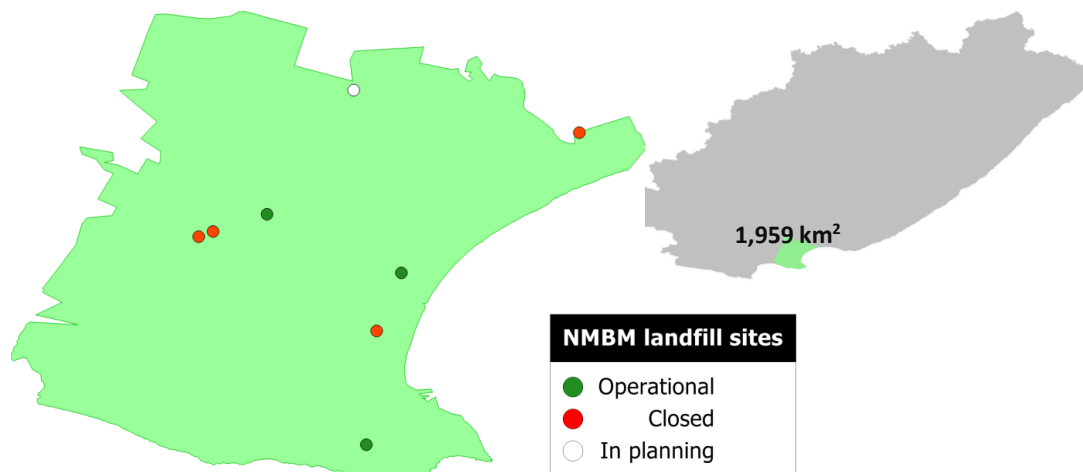
- Lack of funding directed to waste management. MIG funding is not distributed correctly. Waste is not prioritised
- WMOs are not designated, it is unclear who to engage with regarding waste management
- Lack of enforcement of by-laws due a lack of appointed peace officers
- Lack of support for DEDEAT regional offices
- Lack of personnel at landfill sites to issue safe disposal receipts

Population:

- Blue Crane Route – 36,063
- Dr Beyers Naude – 79,291
- Kouga – 112,944
- Kou-Kamma – 43,688
- Makana – 82,060
- Ndlambe – 63,180
- Sundays River Valley – 59,793

Total: 477,016

6.7 Nelson Mandela Bay Metropolitan Municipality



Domestic waste generation (estimate tonnes/ annum): 213,799 tonnes

Waste disposal tonnages

- Arlington – 348,216 (2016/17)
- Koedoeskloof – 309,702 (2016/17)
- Aloes (private) – 79,967 (2013/14)

Waste Recycling

- MRF: 1 – Private MRF in operation, no municipal MRF
- Recycling drop-off: - 2 formal municipal recycling drop-off centres, Kragga Kamma and Blue Horizon Bay
- Two bag system: No municipal system in place
- Buy-back centre: -No municipal buy-backs, private buy-back centres are in operation

Key Challenges

- Lack of funding direction to waste management projects. MIG funding is not correctly distributed and is used for other services
- No designated WMO
- Lack of enforcement of by-laws due to a lack of appointed peace officers
- Lack of support for DFFE Local Government Support
- Lack of implementation of plans such as IWMP
- Lack of technical information available to municipalities

Operational Waste disposal facilities:

- Arlington – general
- Koedoeskloof general & oil ponds
- Aloes – hazardous

Population by main area (Census 2011):

- Port Elizabeth – 312,392
- iBhayi – 237,799
- Bethelsdorp – 182,012
- Motherwell – 140,351
- KwaNobuhule – 107,474
- Uitenhage – 103,639
- Despatch – 39,319

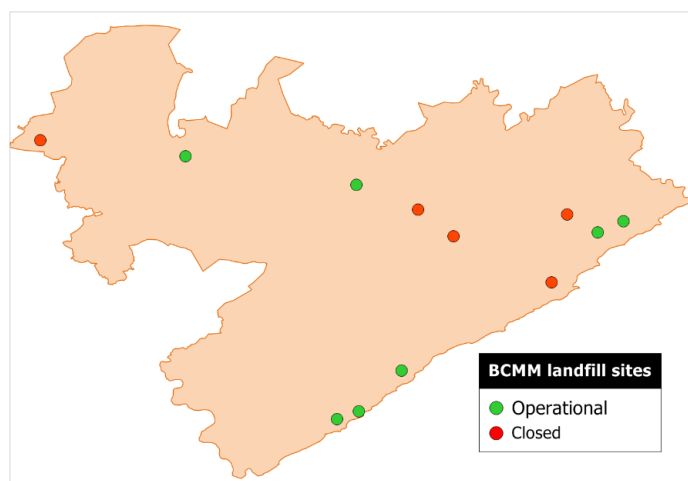
Total population : 1,152,115

Waste service provision:

Removed weekly – 84.8%
 Removed less often – 5.6%
 Communal refuse dump – 2.6%
 Communal collection point – 1.4%
 Own refuse dump – 2.57%
 No refuse removal – 2.0%
 Other – 1.1%

NOTE: NMBM provides a refuse collection service to 100% of formal households within the urban edge

6.8 Buffalo City Metropolitan Municipality



Waste disposal tonnages (BCMM, draft IWMP, 2017)

- Roundhill – 39,600
- King Williams Town – 5,000 – 6,000
- Riegers – 2,500

Operational Waste disposal facilities:

- Beacon Bay
- Kayser's Beach
- Kidd's Beach
- King Williams Town
- Roundhill
- Riegerton (private)
- Seavale

Waste Recycling

- MRF: – No municipal MRF
- Recycling drop-off: 3 converted shipping containers are in place for the public to drop-off recyclable waste (private)
- Two bag system: No municipal system in place
- Buy-back centre: -One municipal buy-back centre operated by a service provider

Population by main area (Census 2011):

- East London – 267,007
- Mdantsane – 156,835
- King Williams Town – 34,019
- Dimbaza – 21,783
- Zwelitsha – 18,189
- Pefferville – 16,380

Total population : 755,200

Key Challenges

- Lack of an IWMP to govern waste management in the metro

Waste service provision:

Removed weekly – 57.1%
 Removed less often – 2.7%
 Communal refuse dump – 7.5%
 Communal collection point – 2.0%
 Own refuse dump – 24.6%
 No refuse removal – 4.2%
 Other – 2.0%

7 *Gap Analysis*

The following section presents key issues which were identified during the situation analysis. These gaps have been used to develop the objectives and targets under section 8.

7.1 Institutional Functioning

Institutional functioning refers to staff, management and operational issues encountered at municipalities and within the province, within their waste management departments. The following key issues have been identified:

- The organogram for DEDEAT was officially revised in 2006. A full review of the organogram is required to ensure the necessary resources are available to implement this PIWMP
- Only 47% of municipalities have an appointed WMO. Without a designated WMO key decisions with regard to waste management are not being made. This is a legal requirement.
- There is a general lack of management and technical skills in the departments.
- There is little waste management planning capacity in municipalities, and very few municipalities have created positions for waste planners.
- Waste management employees lack training and there is no training plan to identify and drive training on a provincial level
- The experience of WMOs ranges from 1 year to 19 years.
- WMOs are not fulfilling all of the functions outlined in the DFFE's guideline for the designation of WMOs
- Local municipality employees lack the skills and experience to submit successful funding applications
- There are insufficient staff at local, district and provincial level to ensure effective waste management is practised in the province
- There are no guidelines for the appointment of key waste management employees at municipalities (WMO, landfill site manager etc.).
- There are a lack of EMIs dedicated to waste management to enforce compliance.

7.2 Waste Facility Compliance

Waste facility compliance refers to compliance issues identified at landfill sites, transfer stations and other waste management facilities.

The following key needs were identified in terms of waste facility compliance:

- Only 68 out of 89 (i.e. 76.4%) of operational landfill sites in the province are permitted with valid permits.
- Of the 89 permitted operational sites 7 of the reviewed waste management licenses have expired.

- The closure and rehabilitation of many landfill sites has not occurred within permitted timeframes, these permits are therefore considered as expired.
- Municipalities have not registered waste transfer stations, materials recovery facilities and recycling facilities in terms of the National Norms and Standards.
- DEDEAT's landfill compliance auditing system is not thorough and comprehensive.
- DEDEAT's landfill compliance auditing process is not exerting sufficient pressure on municipalities to improve performance.
- Many waste management facilities are not compliant with permit conditions.
- Internal and external audits of municipal waste facilities are not being undertaken or, where audit are undertaken, reports are not being submitted to DEDEAT.
- Poor waste management practices such as burning of waste are occurring on landfill sites.
- The majority of landfill sites do not have weighbridges and only a small number of landfill sites are recording vehicles entering the site.
- Landfill sites lack basic infrastructure such as fencing, gates, guard houses, and ablution facilities.
- Landfill sites lack equipment such as landfill compactors, dozers and TLBs to compact and cover waste.
- Uncontrolled informal reclaimers operate on landfill sites in dangerous working conditions.
- Management of waste disposal facilities is generally poor, and municipalities lack qualified and experienced employees to operate landfill sites.
- A lack of access control on landfill sites result in prohibited waste being disposed of.



Figure 27. A) Uncovered waste and burning of the landfill site at Cradock landfill site, B) Burning of waste at the Hofmeyr landfill site, C Hazardous waste at the Hankey landfill site, D) Informal reclaimers at the Humansdorp landfill site

7.3 Waste Service Provision

- Only 41.3% of households in the province receive a weekly collection service.
- The majority (44.3%) of households use their own refuse dump for disposing of their waste. These dumps are likely associated with negative surface and groundwater impacts as well as windblown litter and the potential burning of waste.
- Municipalities are unable to provide a suitable waste collection service due to unreliable fleet.
- In the Eastern Cape, 30 of the 33 local municipalities are either B2 (14 municipalities) or B3 (16 municipalities). These municipalities present a challenge to service provision as they are generally rural in nature and characterised by a high number of small settlements.

7.4 Financial Management

- Only one municipality has undertaken a full cost accounting exercise to inform waste management tariffs.
- Most municipalities increase tariffs by inflation.
- There is a lack of understanding of the actual value of landfill site airspace in terms of operational costs, rehabilitation costs and the costs associated with the development of new landfill sites.
- Some waste managers/ WMOs are not aware of the portion of Equitable Share which is allocated for waste management
- Indigent registers for some municipalities are not up to date. These municipalities may therefore not be receiving the full Equitable Share grant which is due to them.
- The equitable share allocation for waste management is not being correctly allocated for the provision of waste services

7.5 Waste Minimisation, Reduction and Recycling

- Only 20 municipalities are running waste recycling programmes.
- Only 33% of municipalities have separation at source programme in place, and most of these separation at source programmes are either pilot projects or restricted to certain areas.
- There is a lack of co-operation between municipalities and the private sector to increase recycling in the province.
- There is a complete lack of accurate data on the number of recycling companies in the Eastern Cape and the volumes of materials being reclaimed for recycling.
- Only limited recycling is occurring within the boundary of the Eastern Cape. The markets for the recyclables are generally outside the province's boundaries and this results in high transportations costs and reduces the economic viability of recycling.
- Most recycling companies are not reporting tonnages on the SAWIC or to municipalities.
- Informal reclaimers operate on the majority of Eastern Cape landfill sites in unsafe working conditions.

- Neither of the metropolitan municipalities are running co-ordinated recycling programmes.

7.6 Organic Waste Management

- The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) require a 25% diversion of green waste from landfill by 2018 and 50% by 2023. There are only a few municipal composting facilities in operation in the Eastern Cape and no meaningful efforts to divert green waste from landfill are being undertaken.
- There is no provincial guideline on the management of green waste or any provincial strategy to outline how the Eastern Cape will comply with these legislated requirements.

7.7 Information Management

- The level of waste information management at municipalities is generally extremely poor, and most municipalities are not gathering even landfill disposal tonnages
- For many municipalities, no regular waste characterisations are being undertaken.
- Most municipalities are not undertaking waste characterisations as part of the IWMP process; only 9 municipality IWMPs included a waste characterisation.
- The level of information available in IWMPs varies between plans and municipalities.
- Some municipalities do not have access to their own IWMPs
- Some District Municipalities do not have copies of the IWMPs for their local municipalities
- Only three district municipalities have IWMPs, one of which is out of date
- Many IWMPs lack basic information such as GPS co-ordinates for landfill sites
- A number of local municipalities have been amalgamated. Not all of the new municipalities have developed IWMPs
- A number of IWMPs have expired
- None of the municipalities are undertaking comprehensive annual reviews of the implementation of IWMPs
- There is a lack of information available on the number of recycling companies operating in the province and volumes of waste being recycled
- Most municipalities do not have skilled staff within the waste department that are capable of planning, executing and monitoring good data management.

7.8 South African Waste Information System

- Only 13 of the 31 municipalities are reporting on SAWIS.
- Reporting on the SAWIS is not accurate.
- Recycling companies have been requested by DFFE to report all waste collection from business and industry as general commercial and industrial waste instead of under individual categories e.g. plastic, paper.
- The database of waste facility licenses on SAWIS is incomplete.

7.9 Public Awareness

- Littering and illegal dumping occur across the Eastern Cape. A lack of public awareness contributes to this.
- Not all municipalities are undertaking public awareness campaigns.
- There is a general lack of public awareness materials and resources available in local municipalities.
- Most municipalities have sufficient designated staff responsible for the undertaking of awareness campaigns.



Figure 28: Examples of illegal dumping in the Eastern Cape

7.10 Strategic Planning

- The waste hierarchy approach (i.e. landfilling as a last resort) has not been embraced by most municipalities.
- There is a lack of staff in municipalities with planning skills, planning experience, and an understanding of the planning implications of changing waste legislation.
- There is a lack of funding available in municipalities to address future planning.
- There is a lack of research projects related to best practice for waste management.
- There is a lack of best practice guidelines to assist municipalities in the day-to-day management of waste facilities and for long term planning.
- There is a lack of integration between IDP planning and IWMP planning, resulting in uncoordinated waste planning.
- There is a lack of information publicly available for business and industry related to waste management.

8 *Desired End State*

8.1 Introduction

The aim of this section of the report is to address issues identified through the situation analysis and the gaps and needs assessment by defining waste management goals and targets. These

goals and targets outline the key achievements and the desired end state that the implementers of this plan would be aiming for through the implementation of this plan. The figure below shows where the “desired end state” occurs within the planning process of an IWMP review.

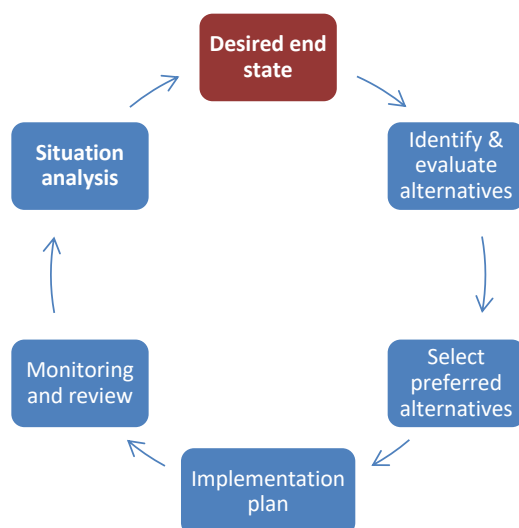


Figure 29: IWMP planning phases – desired end state

8.2 National Waste Management Strategy 2020

The goals of the Eastern Cape Provincial IWMP should be aligned with the goals of the NWMS 2020. This current NWMS 2020, which revises and updates the 2011 strategy, will also achieve three thematic areas. The three outcomes of the NWMS 2020 is a consolidation of the eight (8) goals that were in the 2011 NWMS. Likewise, the actions linked to achieving each outcome in the NWMS 2020 replaces the targets of the 2011 NWMS:

8.2.1 Waste Minimization

The strategic thrust of this pillar is:

- Minimising the impact of waste and especially plastic packaging in our coasts, rivers, wetlands and our human settlement environments, by amongst others, diverting waste away from landfill;
- Increasing re-use, recycling, recovery and alternative waste treatment; and
- Maximising the role of the waste sector in the circular economy.

A critical enabler of this pillar is the building of long-term collaboration and partnership between government and the private sector.

8.2.2 Effective and Sustainable Waste Services

The strategic thrust of this pillar is:

- Recognising and addressing the very different circumstances and waste management challenges that exist between local government authorities;
- Developing and implementing flexible approaches to service delivery that incorporates the informal sector while addressing local needs;
- Guiding public investment and partnerships with the private sector in waste management infrastructure and projects; and
- Ensuring that the delivery of waste services contributes to sustainable development.

A critical enabler of this Pillar is the building of strong co-operative governance relationship between the three spheres of government and specifically local government.

8.2.3 Compliance, Enforcement and Awareness

The strategic thrust of this Pillar is:

- Mitigating and preventing the environmental and social damage caused by waste due to non-compliance;
- Increasing compliance to local, provincial, national and international legislation and standards;
- Mitigating and preventing pollution, littering and illegal dumping of waste; and
- Improving the visibility and awareness of the socio-economic and environmental benefits of compliance, effective waste management and environmentally compliant infrastructure.

8.3 Review of 2010 Priority Areas

Six waste management priority areas were identified in the 2010 PIWMP. A review of these 2010 Priority Areas was undertaken to determine whether these priority areas are still valid. The results of this review are shown in the table below. For this 2018 PIWMP, priority areas have been replaced with objectives, to align the process with the IWMP guidelines.

Table 50: Review of 2010 Priority Areas

2010 Priority Area	Comment
Priority Area 1. Improved Strategic Waste Planning	Strategic waste planning is still lacking in the Eastern Cape. Few municipalities have seriously adopted the waste hierarchy approach to waste management and changed their practices accordingly. Management is largely reactionary and few municipalities have planned for their long-term waste infrastructure needs. There is little available guidance available to municipalities regarding waste minimisation or development of waste management infrastructure. Few LMs have staff within their waste departments with the appropriate skills to do strategic planning of this nature.
Priority Area 2. Improve	Only 36% of households in the Eastern Cape receive a weekly collection service.

2010 Priority Area	Comment
Waste Services and Facilities	Management of waste facilities, in particular landfill sites, remains poor.
Priority Area 3. Improved Recovery and Recycling	Recycling rates in the Eastern Cape are still low and measures are needed to increase the diversion of waste from landfill.
Priority Area 4. Improved Institutional Functioning	Only 47% of municipalities have a designated WMO. A lack of human resources is one of the reasons given for low levels of compliance at landfill sites. General institutional functioning remains poor with regards to waste, especially regarding financial control and skills.
Priority Area 5. Improved Financial Management	A lack of budget is the main reason given by municipalities for poor waste service delivery, non-compliant waste management facilities and a lack of recycling infrastructure.
Priority Area 6. Improved Information Management and Monitoring	Poor waste information management is one of the key issues facing the Eastern Cape.

8.4 Objectives and Targets for 2022 - 2026

Based on the situation analysis review and gap and needs assessment, the following 8 objectives have been defined.

1. Ensure sufficient institutional capacity to implement integrated waste management
2. Improved integrated waste management and future planning
3. Increased waste minimisation, re-use, recycling and recovery
4. Effective waste information management
5. Improved waste facility management
6. Provide effective and financially viable services
7. Improved education, awareness and waste information sharing
8. Effective compliance monitoring and enforcement

These objectives, as listed in the table below, are further broken down into specific targets.

The 2010 PIWMP presented six priority areas which were then further broken down into objectives. The 2022 PIWMP does not designate priority areas but instead identifies eight objectives which are then further broken down into targets.

The following table summarises changes between the 2010 "priority areas" and these latest objectives.

Table 501: Comparison of 2010 and 2022 IWMP objectives and 2020 NWMS Pillars

2010 Priority Area	2010 Objectives	2022 Objectives	2020 NWMS Pillars
1. Improved strategic waste planning	1. Legally compliant IWMP process 2. Provide landfill facilities throughout the province as appropriate	2. Improved integrated waste management and future planning	2. Effective and sustainable waste services
2. Improved waste services and facilities	1. Provide an acceptable minimum waste collection service in all areas Achieve legal compliance of waste facilities	5. Improved waste facility management 6. Provide effective and financially viable services 8. Effective compliance monitoring and	2. Effective and sustainable waste services 3. Compliance, enforcement and

2010 Priority Area	2010 Objectives	2022 Objectives	2020 NWMS Pillars
3. Improved recovery and recycling	1. Legal compliance in terms of recycling 2. Maximise recycling opportunities in the province	3. Increased waste minimisation, re-use, recycling and recovery	1. Waste minimisation
4. Improved institutional functioning	1. Develop appropriate capacity within DEDEAT to implement PIWMP 2. Designate waste management officers 3. Institutional capacity building for WMOs 4. Develop or revise by-laws in line with NEMWA	1. Ensure sufficient institutional capacity to implement integrated waste management. 7. Improved education, awareness and waste information sharing	3. Compliance, enforcement and awareness
5. Improved financial management of waste services	1. Institutional capacity building for waste management financing 2. Improved waste budgeting	6. Provide effective and financially viable services	2. Effective and sustainable waste services
6. Improved information management and monitoring	1. Establish a municipal waste reporting system for the Province 2. Improve use of the National WIS 3. Improve records management 4. PIWMP monitoring to meet legal requirements	4. Effective waste information management	1. Waste minimisation

The below table breaks down each of the eight objectives into different targets.

Table 512: Objectives and targets for the IWMP (as per Implementation Plan)

Objective	Actions and Targets	Comment
1. Ensure sufficient institutional capacity to implement integrated waste management	<p>1.1 All municipalities to have a designated WMO appointed by Year 2</p> <p>1.2 DEDEAT to develop WMO performance and development plan template based on the requirements of the DFFE Guideline for the designation of WMOs.</p> <p>1.3 All LMs to review performance of WMOs against the DFFE Guidelines on WMO appointments, using the above DEDEAT template.</p>	<p>WMOs should be designated as per the DFFE guidelines for designation of WMOs</p> <p>DEDEAT should develop a template to outline the duties, powers and profile of WMOs as outlined in the DFFE guideline for designation of WMOs. This may assist in clarifying some of the current confusion regarding this role.</p> <p>All LMs should undertake a review of their WMOs to ensure that the appointed WMO conform with the DFFE guideline for the designation of WMOs. Where an appointed WMO does not meet all the specified criteria an action plan should be developed to address the gaps.</p>

Objective	Actions and Targets	Comment
2. Integrated waste management future planning	1.4 DEDEAT to develop a training guideline for municipalities	DEDEAT to develop and finalise a training guideline for municipalities. The guideline will identify training requirements for employees at different levels e.g.: <ul style="list-style-type: none"> • Street sweeper • Refuse truck driver • Landfill site supervisor • Waste planner • Waste management officer
	1.5 DEDEAT and municipalities to identify extra positions and resources required to implement this provincial PIWMP.	This PIWMP places a requirement on DEDEAT to provide a greater supporting role to municipalities. This PIWMP also includes responsibilities for district, local and metropolitan municipalities. Additional employees may therefore be required to ensure that the projects identified in this PIWMP are implemented.
	2.1 Development of a provincial waste infrastructure masterplan for the Eastern Cape. This plan should cover regional landfill sites, MRFs, public drop-off facilities, composting facilities and construction and demolition waste crushing facilities.	This would involve a review of short, medium- and long-term waste infrastructure needs for all municipalities in the Eastern Cape. The report would: <ul style="list-style-type: none"> • Identify required infrastructure • Contain generic conceptual design for different facilities (composting, MRF, drop-off centre etc.) • Contain high level budget estimates for different facilities to enable municipalities to budget accordingly.
	2.2 Both metros to develop a waste infrastructure masterplan	The waste infrastructure masterplan would: <ul style="list-style-type: none"> • Identify the needs in terms of waste management infrastructure (MRF, composting, recycling drop-off facilities, anaerobic digestion, transfer stations etc.) • Identify priority areas for the development of infrastructure • Estimate budgets for the development of infrastructure • Provide concept designs for infrastructure
	2.3 Development of guidelines for challenging problematic waste streams as needed, for example <ul style="list-style-type: none"> • E-waste • Organic waste • Domestic hazardous waste • Abattoir waste 	The guideline would outline best management practices for the management of problematic waste streams. Specific examples of how these waste streams can be managed in the province is to be provided.
	2.4 All municipalities to have current IWMPs which are endorsed by	All municipal IWMPs should be submitted to DEDEAT for endorsement.

Objective	Actions and Targets	Comment
3. Increased waste minimisation, re-use, recycling and recovery	DEDEAT	Once the IDP and IWMP review timeframes are aligned municipalities will be able to incorporate IWMP projects into the IDP.
	2.5 All municipalities to have integrated IWMP projects into IDPs	DEDEAT to prescribe a reporting format for IWMP progress reports. Municipalities to submit reports on an annual basis.
	2.6 All municipalities to report on IWMP implementation on an annual basis to DEDEAT.	Greater interaction between municipalities and the private sector is required to identify and address waste management issues in the province. DEDEAT currently host quarterly Waste Management Forum meetings.
	3.1 DEDEAT quarterly Waste Management Forum: - All municipal waste managers to attend - Greater involvement of private recycling industry (e.g. PETCO, eWASA) at meetings.	Currently neither of the metros have any municipal separation at source programmes in place. The 2011 NWMS had a target that all metros, secondary municipalities and large towns would have separation at source programmes in place by 2016. The 2020 NWMS, targets related to separation at source will be considered when finalising this PWMP. Operation Phakisa sets a target of 50% of households in metros to be separating waste at source by 2023.
	3.2 50% of urban households in the two metros to have separation at source programmes in place. Local municipalities to create an enabling environment for recycling in the main town in the municipality.	Local municipalities also need to move towards separation at source. At present given the rural nature of B3 and B4 municipalities it may not be possible for municipalities to undertake separation at source in-house, however municipalities may be able to form partnerships with the private sector in this regard.
	3.3 Development of MRFs - Both metropolitan municipalities to have at least one MRF operational. - 12 local municipalities to have MRFs in operation.	A MRF is required to support as separation at source programme in the metros. It is anticipated that municipalities will run a two bag/ bin system with one bin being dedicated to clean recyclables. Use of multiple bags/ bins for each waste stream e.g. plastic, paper. Cardboard, metal is not recommended as it complicates the system. The design of the MRF will be dependent on available land and funding. The design can vary from a mechanised MRF with conveyor belts to a facility where waste is sorted on sorting tables.
	3.4 Municipalities to create an enabling environment for composting.	Currently 9 local municipalities have MRFs in operation. A target has been set to increase this status quo.
		The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) require a 25% diversion of green waste from landfill in 2018 and a 50% diversion by 2023. There are currently no municipal composting schemes in place in the province to address this requirement. Municipalities could undertake various programmes to reduce green waste to landfill including:

Objective	Actions and Targets	Comment
4. Effective waste information management		<ul style="list-style-type: none"> • Outsourcing of composting • In-house composting of waste generated from municipal parks etc. • Home composting programmes etc.
	3.5 Both metros to investigate the feasibility of facilitating a programme for the crushing of construction and demolition waste (C&DW) and, if feasibility implement a programme.	Construction and demolition waste disposal at landfill can be reduced through crushing C&DW into reusable components for re-use in the construction industry. Crushing equipment can be expensive for the metros to invest in. The metros could outsource crushing of C&DW at landfill sites through a tender process. Crushers typically only require space to operate and a relatively 'clean' source of C&DW. At the next review of the metros IWMPs projects to facilitate C&DW crushing must be included in the implementation plans. In meetings with NMBM raised concerns that they currently use all the C&DW which enters their two landfill sites as cover material.
	3.6 All municipalities to facilitate the development of at least one recycling public drop-off centre in the main town.	Public drop-off centres can be incorporated into existing infrastructure such as transfer stations.
	3.7 All municipalities to implement an in-house waste recycling programme.	Municipalities should lead by example in terms of recycling. Programmes for recycling of office paper, plastic etc. should be implemented. Local recycling companies can be contracted to collect the recyclables.
	4.1 DEDEAT to develop a written template or database to standardise information received from municipalities	DEDEAT to develop a standard template for use by municipalities to ensure uniformity of data received. The template will include: <ul style="list-style-type: none"> • WMO status • No. permitted and unpermitted landfills • Results of waste compliance audits • Recycling programmes • Training programme • Awareness campaigns etc.
	4.2 At all waste facilities without weighbridges, the SAWIS manual system for estimating incoming waste is to be implemented, so as to allow waste disposal tonnages to be estimated.	The National Waste Information Regulations require all landfill sites over 200m ² in size to report tonnages on the SAWIS. At present only 25% of operational landfill sites in the province are reporting. The majority of landfill sites in the province do not have weighbridges. Only 25 landfill sites are reporting on SAWIS. The regulations also require facilities which recycle waste with an operational area in excess of 500m ² to report. At present only 12 recycling facilities are reporting on the SAWIS in the province. DEDEAT should develop a manual system for collecting data waste tonnages and waste types. This system will not be compliant with the National Waste Information Regulations which requires facilities to report actual data but will be an improvement on the current situation.
	4.3 DEDEAT to develop a standard in-house e-filing system to ensure	The filing structure would contain individual files for:

Objective	Actions and Targets	Comment
	correct management of waste information and records. To be developed.	<ul style="list-style-type: none"> • IWMPs • Audit reports • Recycling data • Training materials • Documentation for Provincial WMO forums etc.
	4.4 All municipalities to be reporting on SAWIC/s	With the implementation of a manual system for collecting waste disposal tonnages in place, all municipalities should be able to report at least estimated waste data.
	4.5 Ensure accurate data is reported on SAWIC through training and verification audits	Only 25 operational landfill sites in the province are reporting on SAWIS. In addition errors in SAWIS data were identified during a review of SAWIS data.
	4.6 DEDEAT to develop standard editable waste awareness materials for use by municipalities	Local municipalities often lack the budget or skills to develop waste awareness materials. DEDEAT could develop a standard set of editable waste awareness materials which local municipalities can add their logo to and make minor changes to make the materials specific to their municipality. This would also assist in standardising the waste management message being given to the public in the province.
5. Improved waste facility management	5.1 DEDEAT to develop basic guideline documents for the operation of small waste management facilities which do not trigger the requirement for a waste management license or registration in terms of the National Norms and Standards.	Guideline documents to be developed for the operation of: <ul style="list-style-type: none"> • Drop-off centres/ transfer stations • Material recovery facility
	5.2 100% of landfill sites to be permitted.	All operational landfill sites to be permitted by Year 5. A review of the status of landfill site permits will also be required as a number of permits have expired.
	5.3 All waste facilities to have operational plans in place. Where operational plans are in place these should be reviewed.	All waste management license applications and registration in terms of the National Norms and Standards for the Storage of Waste require an operational plan to be submitted as part of the application. Old landfill sites (permitted before the NEM: WA) may not have operational plans and operational plans for facilities may be out of date to align with changes in legislation,
6. Provide effective and financially viable services	6.1 Development of service delivery guidelines for rural areas	Guidelines will be developed which identify methods for practical and efficient waste service delivery to rural areas.
	6.2 Achieve at least a 10% increase in refuse collection rates or services in all municipalities	Municipalities can use the guidelines under target 6.1 to identify mechanisms to increase service delivery to households. This could be through the use of co-operatives for kerbside collection, provision of central waste drop-off facilities etc. The National Treasury is providing equitable share for provision of basic services. This funding should be directed to provision of waste collection services to rural areas.
	6.3 Full cost accounting exercises to be undertaken by both metropolitan municipalities, and all LMs	The DFFE have developed a Solid Waste Tariff Model. This model can be used by municipalities to assist with full cost accounting exercises.


Objective	Actions and Targets	Comment
7. Improved education, awareness and waste information sharing	7.1 DEDEAT to hold annual technical workshops / engagements with all WMOs or waste managers	<p>A technical workshop/ engagement should be hosted by DEDEAT on an annual basis. The workshop can be used to present:</p> <ul style="list-style-type: none"> • New policy and legislation • New template • New reporting requirements • Waste management solutions e.g. new technology <p>The engagement could also be undertaken as a study tour.</p>
	7.2 DEDEAT to host annual workshops / knowledge updates for small companies involved in the waste industry	National recycling bodies (PETCO, POLYCO, The Glass Recycling Company) could be invited to present to EMEs and small recycling companies. DEDEAT could also present a summary of legislation applicable to small recycling companies such as the National Norms and Standards for Storage of Waste (GN 926 of 2013)
	7.3 DEDEAT to publish an annual waste newsletter	A waste newsletter should be published annually and distributed to the public and stakeholders in the waste management industry electronically. This newsletter could include case studies, contact details for other municipalities who can be considered as leading the way in terms of waste management, legislation updates etc.
	7.4 DEDEAT and municipalities to develop and implement awareness programme.	Awareness campaigns can include print based, radio advertising, road shows at taxi ranks, churches etc. workshops with communities or ward structures, door to door visits and school visits. Municipalities to keep records to allow them to quantify the number of households and schools reached by campaigns.
8. Effective compliance monitoring and enforcement	8.1 DEDEAT to update their waste facility audit report to ensure all conditions of waste permits are audited and to include a scoring system.	A standard audit report template for the province should be developed. The template would require each permit condition to be audited and scored (compliant, partially compliant, non-compliant, not applicable). A points system would be applied to allow the auditor to determine what percentage of the conditions have been complied with.
	8.2 DEDEAT waste officers and municipalities to receive training on performance auditing	An induction training session should be held for all persons who undertake waste facility audits. DEDEAT waste officers to be re-inducted annually. The focus of the training session would be on use of the template under target 8.1
	8.3 DEDEAT regional offices to develop and implement auditing schedules for government and private waste facilities where DEDEAT is the competent authority (industry landfill sites, waste storage facilities and recycling facilities) and undertake audits as per the schedule.	<p>There is a lack of knowledge in both the government and the private sector of the permitting and registration requirements for waste facilities. With the promulgation of the National Norms and Standards for the Storage of Waste (GN 926 of 2013) and the National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Bailing of General Waste (GN 1093 of 2017) many facilities may need to be registered. DEDEAT should undertake audits of industry to determine:</p> <ol style="list-style-type: none"> 1. if a registration of WML is in place

Objective	Actions and Targets	Comment
	8.4 All waste facilities to be audited at least annually by DEDEAT	2 if the conditions of the norms and standards or WML are being complied with
	8.5 All municipal landfill facilities are to be audited internally by municipalities at least once per annum (or more frequently if required by license conditions).	This includes municipal and private waste facilities. Municipalities to audit using the audit template developed by DEDEAT.
	8.6 DEDEAT to determine the baseline of enforcement actions taken against non-compliant waste facilities and increase the number of enforcement actions by 5% a year. Fines to be issued for all repeat non-compliances.	DEDEAT is currently not focusing on enforcement. Municipalities are issued with non-conformance reports but no action or limited action is taken by the municipality to remedy the non-comp

9 Case Studies

A review of several waste management case studies was undertaken to determine the most effective solutions to achieve the objectives of the PIWMP.

9.1 Waste Collection

Case study name	Mandeni Local Municipality, domestic waste collection in rural areas
Location	Mandeni Local Municipality, Kwa-Zulu Natal
Objectives	To provide refuse removal services in rural areas
Brief description of project	The Mandeni Local Municipality did not provide a door-to-door collection service to rural areas within the municipality. The municipality placed approximately 80 (7m ³) skips in low density and rural areas. Houses were requested to place their domestic waste in the skips. Skips were emptied by a rear end loaded with a hook and winch system, this allowed the skips to be emptied into the compactors and saved on transportation costs.
Success	The provision of the skips allowed the municipality to provide a basic service to previously unserved areas.
Lessons learnt	Skips can work in rural areas, however they must be used with caution as if they are not emptied frequently they can result in odour issues.
Photos	

9.2 Organic Waste Diversion from Landfill

Organic waste (kitchen waste and garden waste) comprises approximately 30% of the domestic waste stream in the Eastern Cape, based on hypothetical domestic waste generation rates in the province approximately 353,037 tonnes of organic waste is generated by households per year.

The City of Cape Town (CCT) initiated a two phased organic waste diversion programme in 2013 to divert organic waste from landfill. Details of the project are presented in the table below.

Case study name	The value of organic waste to households: A case study from Cape Town (2013) Phase 1: Individual Home Composting Research
Location	City of Cape Town
Objectives	<p>1. To determine whether organic waste diversion from landfill can be increased by providing households with composting containers and information as to why composting is beneficial.</p> <p>2. To determine, based on feedback from participating households whether this project would be sustainable for mass roll-out.</p>
Brief description of project	In 2013 700 households in the City of Cape Town were provided with composting containers for organic household and garden waste. Households were chosen in four representative areas of Cape Town, two low- and two middle-income areas. Participants were given training and various other information resources in order to make the project most effective.
Success	<p>A total of 616 of the 700 households reported data back during the course of the project, however not all households reported data each month. Site visits confirmed that all 616 households were actively using the composting bins. On average on 41% of households reports data on a monthly basis. The study ran for a period of 9 months, at the end of the study home composting bins were left with the households.</p> <p>A follow up survey was undertaken one year after the project. Of those who responded to the survey 78% stated that they were still diverting organic waste from landfill via home composting.</p> <p>It was determined that by using the home composting method approximately 20% (3.98kg/household/week) of weekly household generated general waste could be diverted from landfill.</p>
Lessons learnt	<p>Home composting (along with information packs) could significantly reduce the tonnage of organic waste sent to landfill, as well as change the perceptions of participants in regard to organic waste.</p> <p>Careful consideration should be made when deciding what geographic areas to include as well as the scale of such a project.</p> <p>Public awareness and education programs should accompany the introduction of a home composting initiative.</p> <p>The composting container utilised in this study was not suitable for cooked foods,</p>


	used oils and similar substances. This means further investigation into additional technologies is required to include more household organic waste for composting.
Reference	Johannessen & Davison (2014). The value of organic waste to households: A case study from Cape Town. The 20 th Waste Con Conference and Exhibition. Somerset West, Cape Town.

Case study name	The value of organic waste to households: A case study from Cape Town (2013) Phase 2: Organic Waste Drop-Off Points
Location	City of Cape Town
Objectives	To determine whether the provision of centrally located or community based organic waste drop off centres could assist in organic waste diversion from landfill.
Brief description of project	Two organic waste drop-off centres were developed at schools. Each school centre was provided with 20 compost containers, one set of scales and books and information packs. Both schools only used 12 of the 20 containers. Note: 20 containers were also issued to a non-governmental organisation, these containers were given to individual households. These containers have not been considered as part of this case study.
Success	On average 157.2kg of organic waste was received at each school per month.
Lessons learnt	The composting container utilised in this study was not suitable for cooked foods, used oils and similar substances. This means further investigation into additional technologies is required to include more household organic waste for composting.
Reference	Johannessen & Davison (2014). The value of organic waste to households: A case study from Cape Town. The 20 th Waste Con Conference and Exhibition. Somerset West, Cape Town.


Case study name	Waste to Food Creating economic opportunities by recycling food waste
Location	Philippi, Cape Town
Objectives	Develop a combination of technologies to overcome the widespread disposal of organic waste to landfills in South Africa, while at the same time contributing to employment and food security.
Brief description of project	Collect food waste from retailers and recycle into commercial high-quality vermicompost, which is sold to clients such as garden centres, seedling producers and farmers. Also applied to community gardens and W2F greenhouses to increase growth of vegetables for reselling to retailers. Founded in 2012
Success	<p>Social: Samarpan Foundation formed to train unemployed people of the area to recycle plastic while W2F provided food security. 12 jobs created through Samarpan Foundation, 4 through W2F. Created 25 jobs through CWP (Community Work Programme), which is programme to employ unemployed people to manage greenhouses and W2F premises. Trained 10 micro-entrepreneurs in vermicomposting and business management</p> <p>Economic: 3-4 tonnes of food waste processed per day, which reduces annual municipal waste management costs by R1.8 million. Sells 2,5 tonnes of vermicompost per day. Income for over 170 people in Philippi.</p> <p>Environmental: 1,400 tons of food waste diverted from landfill annually. CO₂ emissions reduced by 3,000 tons per year. Replaces 900 tons of non-organic fertilizer yearly. 500 units of 100%</p>

	biodegradable packaging sold.
Lessons learnt	A thorough separation at source programme is needed to avoid contaminants such as plastic in the organic waste.
Photos (if any)	
Reference	SEED (2016). Waste to Food – Creating economic opportunities by recycling food waste. SEED Case Study Series. Berlin, Germany.

9.3 Domestic Hazardous Waste Management

Case study name	Mossel Bay domestic hazardous waste management
Location	Mossel Bay, Western Cape
Objectives	To provide drop-off facilities for domestic hazardous waste.
Brief description of project	In order to address domestic hazardous waste the Mossel Bay local municipality installed drop-off facilities for used oil and e-waste at two transfer stations. The container for used oil is provided by the ROSE Foundation.
Success	The drop-off facilities are well used and in addition the municipality runs an annual e-waste awareness day.
Lessons learnt	If drop-off facilities for domestic hazardous waste are provided and awareness campaigns are run then the public will make use of such facilities.
Photographs	


9.4 Construction and Demolition Waste Recycling


Case study name	Stellenbosch construction and demolition waste crushing
Location	Stellenbosch Local Municipality, Western Cape
Objectives	To increase the lifespan of the Stellenbosch landfill site and divert construction and demolition waste away from landfill.
Brief description of project	<p>The Stellenbosch Landfill site was established in 1960's. There are currently only 17 months left of airspace at the landfill site. If an additional cell is constructed at the landfill an additional 18 years of airspace can be created, however the realignment of a powerline would be required to allow the new cell to be constructed.</p> <p>Approximately 3,845 tonnes of construction and demolition waste is disposed of at the site per month. The municipality appointed a service provider for on-site crushing of construction and demolition waste in January 2018.</p>
Success	<p>Between January and June 2018 a total of 18,200 tonnes of construction and demolition waste has been crushed. The material has been tested and is suitable for use for construction purposes.</p> <p>The crusher is crushing incoming material and historic material which results in increased landfill airspace.</p>
Lessons learnt	<p>The crusher can only utilise clean construction and demolition waste. The municipality charges a tipping fee of R450 per tonne for contaminated construction and demolition waste but clean material is accepted free of charge. Since the differentiated tariff system has been introduced contractors have been bring clean construction and demolition waste to the site.</p> <p>In order for a construction and demolition waste tender to be successful it should be set up so it is easy for the contractor and limits risk to the contractor. A differentiated tariff system should be employed to encourage the disposal of clean construction and demolition waste.</p>
	
Reference	Stellenbosch Local Municipality, 2017. Utter Rubbish, Newspaper of the Solid Waste Management Department, June 2017

9.5 Waste Diversion and Recycling

Case study name	Klapmuts Swap Shop
Location	Klapmuts and Kayamandi, Stellenbosch Local Municipality
Objectives	To address littering in Klapmuts and Kayamandi
Brief description of project	A swap shop was set up in Klapmuts and Kayamandi. Community members exchange bags full of recyclable materials for coupons. Coupons can be exchanged for items at the swap shop. Items at the swap shop include food products, second clothing, stationary, kitchen utensils, magazine etc.
Success	Community members approved of the swap shops and were more than willing to participate. Swap shops are held on a weekly basis. The total recyclables collected at the first swap shops in May 2016 was 280 kg, this increased to 2,400 kg at the latest swap shop in June 2017. The project resulted in a saving in landfill airspace and reduced littering and illegal dumping which results in financial savings to the municipality.
Lessons learnt	The swap-shop method of gathering recyclables appears very effective
Reference	Stellenbosch Local Municipality, 2017. Utter Rubbish, Newspaper of the Solid Waste Management Department, June 2017

Case study name	Polyco – Packa-Ching
Location	Langa, Cape Town
Objectives	“To increase household recycling rates and simultaneously uplift communities in South African informal settlements and lower-income areas by incentivising a change in behaviour. By tapping into a stream of recyclable material that is largely untouched, the project is educating consumers about recycling and showing them that waste has value”
Brief description of project	Mobile buy-back centre launched on the 21st of August 2017 that travels to 2 specific sites within a community weekly and either buys recyclables from community members or makes a trade, recyclables for items. Community members can register for a Kilorands card, which they need a cell phone for. Money is uploaded to the card for recyclables received at the mobile buy-back centre. The card can then be used at any MasterCard-accepting outlet. Community members bring already separated waste to the kiosk where it is weighed and money is then loaded onto their Kilorands card. The waste is then sold to WastePlan who recycle the material. Ethnographic research study also conducted to determine how community responds to project. Showed that stigma attached where people feel that recycling is “a dirty and poverty-associated activity”, but since the project started there seems to be a better understanding of recycling and more of a willingness to interact.
Success	In just six months over 100 tonnes of waste was bought from the community and R100 000 was paid back to them.
Lessons learnt	Training and public awareness is key in recycling as people have the wrong views of what waste recycling is and the benefits thereof.

Photographs	
Reference	Plastics-SA. (2018). News from Polyco: Packa-Ching. Retrieved on 23 July 2018 from Plastics-SA: http://www.plasticsinfo.co.za/tag/polyco/

Case study name	Kragga Kamma Drop-Off Centre, Nelson Mandela Bay Municipality
Location	Nelson Mandela Bay Municipality
Objectives	To provide recycling drop-off facilities for the public and increase waste diversion from landfill
Brief description of project	During the upgrade of the Kragga Kamma drop-off centre the NMBM incorporated facilities to drop off recyclable waste. The project was run as a pilot project by a service provider
Success	An average of 59.4 tonnes of recyclable material has been collected to date per month in 2018.
Lessons learnt	The model of a municipality providing a facility and outsourcing the management to the private sector can work successfully.
Photographs	

10 Implementation Plan

This section presents a plan by which DEDEAT aims to meet the objectives defined in the previous section of this report. The plan consists of a number of projects and initiatives which, if appropriately executed, should move DEDEAT and the Eastern Cape towards realising these objectives. An implementation programme is presented in the table below. It is however acknowledged that DEDEAT and municipalities in the Eastern Cape may face numerous challenges in the implementation of these projects including financial and human resource limitations. It is therefore expected that the implementation programme will be modified during the next 5-year period as resource allocation changes.

Table 523: Implementation Plan

No.	Actions	Priority Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Budget	Funding source	Responsibility for implementation
Objective 1. Ensure sufficient institutional capacity to implement integrated waste management										
1.1	All municipalities to have a designated WMO appointed by	HIGH						Nil if a current employee designated as WMO	N/A	Municipalities
1.2	DEDEAT to develop WMO performance and development plan template based on the requirements of the DFFE Guideline for the designation of WMOs.	MEDIUM						Nil if undertaken internally by DEDEAT.	N/A	DEDEAT
1.3	All LMs to review performance of WMOs against the DFFE Guidelines on WMO appointments, using the above DEDEAT template.	MEDIUM						Nil if undertaken internally by LM	N/A	Municipalities
1.4	DEDEAT to develop a training guideline for municipalities	MEDIUM						Nil if undertake internally by DEDEAT	N/A	DEDEAT
1.5	DEDEAT and municipalities to identify extra positions and resources required to implement this provincial PIWMP.	HIGH						Nil to identify positions. Salary costs will be determined based on the number and type of new positions required.	N/A	DEDEAT
Objective 2. Improved integrated waste management future planning										
2.1	Both metros to develop a waste infrastructure masterplan for provision of public drop off facilities for recyclable material..	MEDIUM						R 500,000 per plan	TBC	Metros
2.2	DEDEAT to develop a provincial waste infrastructure masterplan for the Eastern Cape. This plan should cover regional landfill sites, MRFs, public drop-off facilities, composting	MEDIUM						R 2 million	TBC	DEDEAT

No.	Actions	Priority Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Budget	Funding source	Responsibility for implementation
	facilities and construction and demolition waste crushing facilities. This plan should address short, medium- and long-term infrastructure needs.									
2.3	Development of guidelines for challenging/ opportunistic waste streams (e.g. abattoir waste, nappies)	MEDIUM						Nil if undertaken internally, approximately, R 300,000 if outsourced	TBC	DEDEAT
2.4	All municipalities to have IWMPs which are current and endorsed by DEDEAT	HIGH						R 250,000/IWMP if undertaken externally. Nil if undertaken internally	TBC	Municipalities & DEDEAT
2.5	All municipalities to have integrated IWMP projects into IDPs	HIGH						Nil, internal process	N/A	Municipalities
2.6	All municipalities to report on IWMP implementation on an annual basis to DEDEAT.	MEDIUM						Nil, internal process	N/A	Municipalities
3. Increased waste minimisation, re-use, recycling and recovery										
3.1	DEDEAT quarterly Waste Management Forum: - All municipal waste managers to attend - Greater involvement of private recycling industry (e.g. PETCO, eWASA) at meetings.	MEDIUM						No cost. Existing initiative.	N/A	DEDEAT & Municipalities
3.2	50% of urban households in the two metros to have separation at source programmes in place Local municipalities to create an enabling environment for recycling in the main town in the municipality.	MEDIUM						TBC. The cost will be programme dependant	Municipal budgets	Municipalities
3.3	Development of MRFs - Both metropolitan municipalities to have at least one MRF operational - 12 local municipalities to have MRFs in operation.	MEDIUM						R 20M for a large MRF for a metro, R8M for a small MRF for a local municipality	Municipal budgets /funding applications	Metros
3.4	Municipalities to create an enabling environment for composting	HIGH						Programme dependant	TBC	Municipalities
3.5	Both metros to investigate the feasibility of facilitating a programme for the crushing of construction and demolition waste (C&DW) and, if feasibility implement a programme by the following year.	MEDIUM						Nil, metros to undertake feasibility assessment in house. The crushing service can be put out on tender. Municipality to	N/A	Metros

No.	Actions	Priority Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Budget	Funding source	Responsibility for implementation
								provide land and material free of charge to crushers.		
3.6	All municipalities to facilitate the development of at least one recycling public drop-off centre in the main town	MEDIUM						Programme dependant.	Municipal budgets /funding applications	Municipalities
3.7	All municipalities to implement an in-house waste recycling programme by.	LOW						Nil, municipalities to arrange with a local recycler to collect recyclable free of charge	N/A	Municipalities
4. Effective Waste Information Management										
4.1	DEDEAT to develop a written template or database to standardise information received from municipalities	MEDIUM						Nil if undertaken internally. R20,000 if outsourced	TBC	DEDEAT
4.2	At all waste facilities without weighbridges, the SAWIS manual system for estimating incoming waste is to be implemented, so as to allow waste disposal tonnages to be estimated.	HIGH						This cost should be nil as all landfill sites should be manned and completing of a manual register could be added to the responsibilities of landfill staff. In the event that landfill sites are not manned there would be an increased labour cost through appointing a site supervisor.	N/A	Municipalities
4.3	DEDEAT to develop a standard in-house e-filing system to ensure correct management of waste information and records. To be developed..	HIGH						Nil if undertaken internally. R15,000 if outsourced	N/A	DEDEAT
4.4	All municipalities to be reporting on SAWIC/s	HIGH						Nil	N/A	Municipalities
4.5	DEDEAT to ensure accurate data is reported on SAWIC through training and verification audits	MEDIUM						TBC, additional employees may be required at DEDEAT to fulfil this role	TBC	DEDEAT
4.6	DEDEAT to develop standard editable waste awareness materials for use by municipalities	LOW						Nil if undertaken internally. R100,000 if outsourced	TBC	DEDEAT

No.	Actions	Priority Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Budget (excluding publishing)	Funding source	Responsibility for implementation
5. Improved waste facility management										
5.1	DEDEAT to develop basic guideline documents for the operation of small waste management facilities which do not trigger the requirement for a waste management license or registration in terms of the National Norms and Standards.	MEDIUM						Nil if undertaken internally. R100,000 if outsourced	N/A	DEDEAT
5.2	100% of landfill sites to be permitted	MEDIUM						R 350,000/ application. Cost will vary depending on required specialist studies and engineering design work.	Municipal budgets /funding applications	Municipalities & DEDEAT
5.3	All waste facilities to have operational plans in place. Where operational plans are in place these should be reviewed. DEDEAT to develop a generic template for each waste facility type e.g. landfill site, MRF, transfer station.	MEDIUM						Nil, plans to be developed in-house by municipalities	N/A	Municipalities & DEDEAT
6. Provide effective and financially viable services										
6.1	Development of service delivery guidelines for rural areas	MEDIUM						Nil, appointment has already been made for the development of these guidelines	N/A	DEDEAT
6.2	Achieve at least a 10% increase in refuse collection (% of households serviced) in all municipalities by Year 5	HIGH						TBC – all municipalities will need to calculate the costs individually.	Municipal budgets /funding applications	Municipalities
6.3	Revision of waste tariffs to be informed by full cost accounting exercises to be undertaken by both metropolitan municipalities by Year 2, and all LMs.	HIGH						Nil if undertaken internally. R130,000/ study if outsourced	N/A	Municipalities
7. Improved education, awareness and waste information sharing										
7.1	DEDEAT to hold annual technical workshops / engagements with all WMOs or waste managers	MEDIUM						R 20,000 per workshop for venue hire and catering	DEDEAT budget	DEDEAT
7.2	DEDEAT to host annual workshops / knowledge updates for small companies involved in the waste industry	MEDIUM						R 20,000 per workshop for venue hire and catering	DEDEAT budget	DEDEAT
7.3	DEDEAT to publish an annual waste newsletter (electronic).	LOW						R20,000 for outsourcing graphic design and publishing.	DEDEAT budget	DEDEAT

No.	Actions	Priority Rating	Year 1	Year 2	Year 3	Year 4	Year 5	Budget	Funding source	Responsibility for implementation
7.4	DEDEAT and all municipalities to develop and implement awareness programme.	HIGH						Nil to develop awareness programmes if undertaken in house. The cost will be programme dependant.	DEDEAT budget and municipal budget	DEDEAT & municipalities
8. Effective compliance monitoring										
8.1	DEDEAT to update their waste facility audit report template by Year 1 to ensure all conditions of waste permits are audited and to include a scoring system.	MEDIUM						Nil if undertaken internally	N/A	DEDEAT
8.2	DEDEAT waste officers and municipalities to receive training on performance auditing	LOW						Nil if undertaken as part of the annual technical workshop under 7.2	N/A	DEDEAT
8.3	DEDEAT regional offices to develop and implement auditing schedules for government and private waste facilities where DEDEAT is the competent authority (industry landfill sites, waste storage facilities and recycling facilities) and undertake audits as per the schedule.	MEDIUM						Nil if regional offices currently have sufficient staff to implement	N/A	DEDEAT
8.4	All waste facilities to be audited at least annually by DEDEAT	HIGH						Nil if DEDEAT have sufficient resources to undertake audits	N/A	DEDEAT
8.5	All municipal landfill facilities are to be audited internally by municipalities at least once per annum (or more frequently if required by license conditions), and audit reports to be submitted to DEDEAT.	HIGH						Nil, internal audits	N/A	Municipalities
8.6	DEDEAT to determine the baseline of enforcement actions taken against non-compliant waste facilities and increase the number of enforcement actions by 5% a year. Fines to be issued for all repeat non-compliances by Year 5.	HIGH						Nil	N/A	DEDEAT

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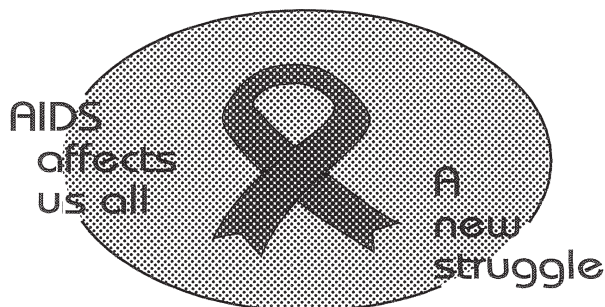
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11 Way Forward

11.1 Public Participation Process

A public participation process (PPP) of the final draft of the PIWMP will be undertaken by DEDEAT. Once the PPP is complete the PIWMP will be submitted to DFFE for endorsement.

11.2 Endorsement of Eastern Cape Provincial Integrated Waste Management Plan

Once this provincial IWMP is finalised it will be submitted to the MEC for endorsement. Following the endorsement of the plan it will go through another series of reviews. The endorsement process will following the below stages.

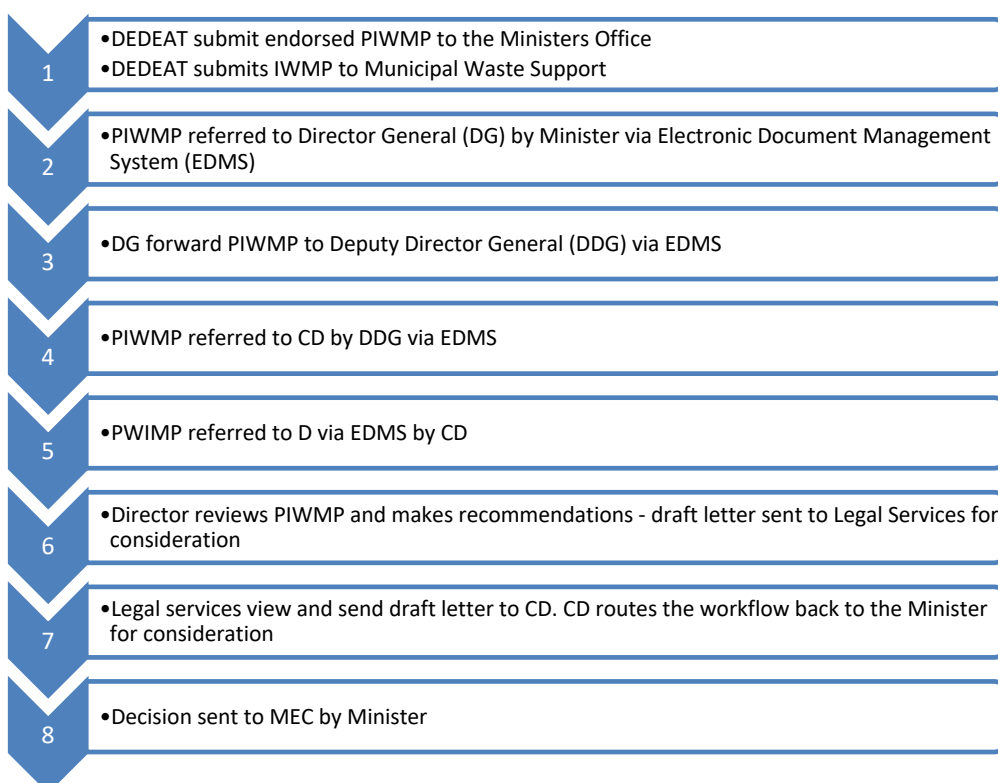


Figure 30: IWMP endorsement process

The above process should take approximately 30 days.

11.3 Implementation of Eastern Cape Provincial Integrated Waste Management Plan

Once the IWMP is a finalised DEDEAT and the municipalities in the Eastern Cape will be responsible for its implementation.

The finalised Provincial IWMP can also be incorporated into relevant provincial plans by DEDEAT.

11.4 Monitoring of Eastern Cape Provincial Integrated Waste Management Plan

In terms of section 13 of the NEM: WA DEDEAT must prepare and submit annual performance reports to the MEC for approval and the Minister for endorsement.

The annual performance report must detail the following:

- The extent to which the plan has been implemented during the period
- The waste management initiatives that have been undertaken during the reporting period
- The delivery of waste management services and measures taken to secure the efficient delivery of waste management services
- The measures taken to secure compliance with waste management standards
- The waste management monitoring activities
- The actual budget expended on implementing the plan
- The measures that have been taken to make any necessary amendments to the plan
- The extent to which municipalities comply with the plans and, in the event of non-compliance with the plan, the reasons for such non-compliance
- Any other requirements as may be prescribed by the minister

11.5 Review of Eastern Cape Provincial Integrated Waste Management Plan

This provincial IWMP covers a five-year period from 2022 – 2026, the plan needs to be revised every 5 years to ensure it remains current. It is recommended that the revision of the PIWMP commences at least 6 months prior to the PIWMP's lifespan being complete to minimise the gap between the 2022 – 2026 IWMP and the 2027 – 2031 IWMP.

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Introduction

South Africa has a host of legislated acts, policies and guidelines relating to waste management, the most significant of these being the newly promulgated National Environmental Management: Waste Act (58 of 2008) which is now the country's central piece of legislation dealing with waste management. There are also certain relevant international conventions to which South Africa subscribes. This section discusses these acts, policies, guidelines and conventions thereby providing a context to waste policy and legislation. Where applicable it highlights aspects of these acts and policies which apply specifically to the local government authorities.

This section is not exhaustive but presents the broader legislative framework and highlights the more important aspects thereof.

International conventions

Basel Convention on the control of trans-boundary movement of hazardous wastes and their disposal

The Basel Convention (1989) is a global agreement which seeks to address the trans-boundary movement of hazardous waste. The convention is centred on the reduction of the production of hazardous waste and the restriction of trans-boundary movement and disposal of such waste. It also aims to ensure that strict controls are in place when any trans-boundary movement and disposal of hazardous waste does occur, and ensures that it is undertaken in an environmentally sound and responsible manner.

The Basel Convention, held on 22 March 1989, came into effect during May 1992 after ratification by the prerequisite number of countries. South Africa ratified the Convention in 1994, with DFFE being the focal point for the convention.

Whilst South Africa subsequently acceded to this Convention, no legislation was passed at the time to give effect to it. The second Basel convention, held on 8 October 2005, set standards for the control of trans-boundary movements of hazardous wastes and their disposal, setting out the categorization of hazardous wastes and the policies for their disposal between member countries. South Africa accedes to this convention and implements its provisions.

The key objectives of the Basel Convention are:

- To minimise the generation of hazardous wastes in terms of quantity and hazardousness.
- To dispose of hazardous waste as close to the source of generation as possible.
- To reduce the movement of hazardous wastes.
- Locally, draft regulations are being prepared in an effort to control the movement of such waste.

The most significant provisions of the Convention relate to the ban on certain importations and exportations; illegal traffic, bilateral, multilateral and regional agreements and the control system of the Convention.

The Basel Convention contains specific provisions for the monitoring of implementation and compliance. A number of articles in the Convention oblige parties (national governments which have acceded to the Convention) to take appropriate measures to implement and enforce its provisions, including measures to prevent and punish conduct in contravention of the Convention.

Rotterdam Convention

The Rotterdam Convention was held in September 1998 to promote shared responsibilities in relation to importation of hazardous chemicals. One of the key provisions is the Prior Informed Consent procedure, which lists information on hazardous chemicals in Annex III. It became legally binding for its parties in 2004. The convention promotes open exchange of information and calls on exporters of hazardous chemicals to use proper labelling, include directions on safe handling, and inform purchasers of any known restrictions or bans. Parties can decide whether to allow or ban the importation of chemicals listed in the treaty, and exporting countries are obliged to make sure that producers within their jurisdiction comply. From this convention a PIC circular is distributed every

six months giving updated information on the listed chemicals, member compliance and sources of supporting information.

Stockholm Convention

In 1995 the United Nations Environment Programme called for global action to be taken on persistent organic pollutants (POPs), which pose a threat to both health and the environment. As a result, the negotiations for the Stockholm Convention on POPs were initiated and culminated in May 2001, with the convention enforced in May 2004. South Africa accedes to this convention, whereby member countries have agreed to phase out POPs, and prevent their import or export. It imposes restrictions on the handling of all intentionally produced POPs, i.e. identified highly toxic, persistent chemicals.

The 12 POPs that have been identified under the convention are aldrin, chlordane, dieldrin, dichloride-diphenyl-trichloroethane (DDT), endrin, Hexachlorobenzene (HCB), heptachlor, mirex, polychlorinated biphenyls (PCBs), toxaphene, dioxins, and furans. Of the aforementioned substances, two are still used in South Africa today (DDT and PCBs), although their use is restricted under the 'Fertiliser Act' as administered by the Department of Agriculture. The above list of chemicals is relevant, especially where there is any management of obsolete and banned pesticides.

South Africa negotiated the continued use of DDT, as it has proved critical in the fight against malaria, and PCBs will be phased out as the electrical appliances that contain them become obsolete.

In 2005 South Africa, at the Reduce, Reuse and Recycle Ministerial Conference, became one of 7 countries to sign an agreement for the African Stockpile Programme, a project aimed at recovering and the appropriate disposal of obsolete pesticides. With funding (\$1,7million) from the World Bank, government began implementing the programme.

The country is also developing guidelines for the implementation of the Globally Harmonised System of Classification and Labelling of Chemicals. The funding was for the disposal of obsolete pesticides as part of the African Stockpile Programme. The department has begun implementing this programme throughout the country. Further work on training workers to handle chemicals was rolled out.

By mid-2007, a pilot project for the collection of all obsolete pesticides possessed by farmers in the Limpopo Province had begun, and this involved, amongst others, identification of collection points and collection of obsolete pesticides within the province. These stocks were further consolidated from various collection points to a central collection point and ultimately safeguarded and shipped to Holfontein Waste Disposal Site for temporary storage. The inventory of pilot project stocks has been undertaken. About 100 tons of labelled and unlabeled stocks of obsolete pesticides have been collected through this pilot project. The pilot project is expected to serve as a benchmark for the roll-out of projects in other provinces.

However, as the amount of obsolete pesticide stocks collected from the Limpopo pilot project is significantly higher than what was anticipated, it has become apparent that the remaining funds in the World Bank African Stockpile Programme budget will not be sufficient for national rollout of the programme. The African Stockpile Programme Project Management Unit has had numerous deliberations in an effort to come up with a sustainable solution for management of pesticides in the country.

London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matters

The London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter, 1972, aims to prevent marine pollution by preventing the dumping of wastes such as industrial waste, sewage sludge, dredged material and radioactive waste at sea, as well as incineration at sea. South Africa is a signatory to the convention and the associated 1996 Protocol.

This convention and its various protocols were incorporated into the following South African legislation:

- Prevention of Pollution from Ships Act (Act 2 of 1986), and the regulations concerning the Prevention of Pollution by Garbage from Ships Regulations (GN R1490, published in Government Gazette No. 14000, dated 29 May 1992).
- The Dumping at Sea Control Act (Act 73 of 1980).

The primary responsible agency is the DFFE Sub Directorate of Marine and Coastal Pollution Management who issue permits for dredge spoils and sinking of old vessels. It occasionally issues permits for ships in trouble, typically grounded, to release their cargo into the sea.

Local Agenda 21

Agenda 21 is a comprehensive document for global action on the environment and sustainable development, to take the world into a more sustainable 21st century. It is probably the most important document to be adopted by the UN Conference on the Environment and Development (UNCED) at the Rio de Janeiro Summit in June 1992. The 40 chapters covered a wide range of issues including the atmosphere, oceans, land resources, poverty, etc.

It was important for each nation to develop its own local Agenda 21, in order to translate and interpret the principles of sustainable development to local areas. Local Agenda 21 focuses on developing partnerships involving the public, private and community sectors that together can resolve urban environmental management problems and strategically plan for long term sustainable environmental management.

One of the key features of sustainable development is the requirement to integrate economic and environmental factors into all decision-making processes. Applications of these criteria to waste management require a new emphasis on resource and energy conservation, ensuring that supplies of raw materials, sources of energy and the quality of the physical environment can be maintained. Agenda 21 initiatives are considered to be an essential vehicle for the implementation of various aspects of the IWMP.

The key goals of Agenda 21 are:

- Sustainable development.
- Eradication of poverty.
- Elimination of threats to the environment.
- To ensure a sustainable environment.
- Creation of sustainable job opportunities.

The focus of the IWMP is to strive to attain the above goals in all facets thereof. The following seven key activities require attention in order to satisfy Local Agenda 21.

(a) Activities within the Local Authority

(i) Garnering local political support

- Information sessions and workshops.
- Reports and presentation to committees.
- Physical involvements in projects.

(ii) Managing and improving local authorities own environmental performance.

- Corporate commitment.
- Staff training and creating awareness.
- Environmental management systems.
- Budgeting for environmental processes.
- Policy integration across all sectors.

(iii) Integrating sustainable development aims within local authorities' policies and activities

- Economic development.
- Tendering and purchasing.
- Tourism and visitor strategies.
- Health strategies.

- Welfare, equal opportunities and poverty strategy.
- Focused environmental services.

(a) Activities within the wider community

(i) Awareness raising and education

- Support for environmental education.
- Awareness-raising events.
- Visits and talks.
- Support for voluntary groups.
- Publication of local information.
- Press releases.
- Initiatives to encourage behavioural change and practical actions.

(ii) Consulting and involving general public

- Public consultation processes.
- Interaction with NGO's/forums.
- Focus groups.
- Feedback mechanisms

(iii) Forging partnerships with other interest groups and activities, such as:

- Meetings, workshops and conferences.
- Working groups/advisory groups.
- Round table discussions.
- Comprehensive Urban Plan.
- International and regional partnerships.

(iv) Measuring, monitoring and reporting on progress toward sustainability

- Environmental monitoring.
- Sustainability indicators.
- Targets.
- Environmental Impact Assessments.
- Strategic Environmental Assessment.

South African Legislation

Constitution of the Republic of South Africa

The Constitution of the Republic of South African (referred to as the Constitution) is the supreme law of South Africa. Any law or conduct that is inconsistent with it, is invalid, and the obligations imposed by it must be fulfilled. Therefore, as such, all law, including environmental and waste management planning must consider compliance with the Constitution.

The Constitution contains a Bill of Rights, set out in Sections 7 to 39. The Bill of Rights applies to all law and binds the legislature, the executive, the judiciary and all organs of state. A provision of the Bill of Rights binds a natural or a juristic person if, and to the extent that it is applicable, taking into account the nature of the right and the nature of the duty imposed by the right.

Section 24 of the Constitution guarantees everyone the right to:

An environment that is not harmful to their health or wellbeing; and to have an environment protected for the benefit of present and future generations, through reasonable legislative and other measures that:

- Prevent pollution and ecological degradation.
- Promote conservation. and

- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic or social development.

The environmental rights (section 24), is strengthened by other relevant fundamental rights, such as the rights of access to information and administrative justice.

(b) National and Provincial authority competence

General obligations imposed by the constitution on national and provincial government institutions are adjudicated, as the Constitution establishes an administrative framework for all organs of state. The national and provincial governments are concurrently entitled to legislate on matters stipulated in Schedule 4 of the Constitution. Both spheres of government have legislative competence over areas that will impact on management in the natural/urban interface, like environment, disaster management, nature conservation and pollution control, and would therefore also frame related matters such as waste management. It should also be noted that the Constitution contemplates the assignment, from national Government to the provinces, of functions that would normally be the exclusive preserve of the former.

Subsection 24(b) of the Constitution relates to the constitutional imperative requiring government to enact appropriate environmental law reform legislation. This led to the promulgation of the National Environmental Management Act (Act 107 of 1998 and the National Water Act (Act 36 of 1998)¹ amongst others. More specifically to the objective of this framework is the National Environmental Management: Waste Act, which was recently enacted².

Important to the development of a local integrated waste management strategy and plan is that in accordance with Section 155(6) of the Constitution each provincial government must establish municipalities in its province and, by legislative or other measures, must –

- (1) provide for the monitoring and support of local government in the province; and
- (2) promote the development of local government capacity to enable municipalities to perform their functions and manage their own affairs.

Furthermore in according to Section 155(7) the national government and the provincial governments have the legislative and executive authority to see to the effective performance by municipalities of their functions in respect of matters listed in Schedules 4 and 5, by regulating the exercise by municipalities of their executive authority referred to in section 156 (1).

(c) Local authority competence

National and provincial government are both obliged, by legislative and other measures, to support and strengthen the capacity of municipalities to manage their affairs, to exercise their powers and perform their functions within the individual municipal jurisdiction. This responsibility is covered in Chapter 7:

In terms of section 152 of the Constitution the objects of local government are to:

- Provide democratic and accountable government for the local community.
- Ensure the provision of services to communities in a sustainable manner.
- Promote social and economic development.
- Promote a safe and healthy environment. and
- Encourage the involvement of communities and community organisations in the matters of local government.

A municipality must in terms of section 153 structure and manage its administration and budgeting and planning processes to give priority to the basic needs of the community and participate in national provincial development programmes.

National and provincial government are also obliged to assign to a municipality, by agreement and subject to any conditions, the administration of matters listed in the relevant parts of Schedules 4 and 5 and any other matter which would be most effectively administered locally, provided that the municipality has the capacity to administer it. A municipality has the right to exercise any power concerning a matter reasonably necessary for, or incidental to, the effective performance of its functions.

Those areas of the urban/natural interface zone that fall within the legislative and jurisdictional competence of provincial or local authorities (for example a road reserve or urban areas that border a park) fall to be regulated by those authorities. The Constitution aims to co-ordinate the different levels of government and the management of the issues which the public institutions constituted or confirmed by them are charged with governing. This requires co-operation on the part of different organs of state. The above statements become pertinent to waste management as it sets the context of the administrative activities convened at the Local government level. In addition, related to local government in terms of section 152(1)(d) of the constitution, one of the objectives of local government is “to promote a safe and healthy environment”.

Municipalities are further charged with making, administering and enforcing by-laws for the effective administration of the matters of which they have the right to administer. Any bylaw that conflicts with national or provincial legislation is deemed invalid. In accordance with Section 160(4) no bylaw may be passed by a Municipal Council unless all the members of the Council have been given reasonable notice; and the proposed by-law has been published for public comment. Furthermore, in accordance with Section 162 no bylaw may be enforced unless it has been published in the relevant official provincial gazette and the bylaw must be accessible to the public.

National Environmental Management Act

The National Environmental Management Act (Act 107 of 1998) commonly known as “NEMA” gives effect to the “Environmental Right” of the Constitution and is South Africa’s overarching framework for environmental legislation. The objective of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state. An important function of the Act is to serve as an enabling Act for the promulgation of legislation to effectively address integrated environmental management.

NEMA sets out a number of principles that aim to implement the environmental policy of South Africa. These principles are designed to serve as a framework for environmental planning, as guidelines by which organs of state must exercise their functions and to guide other laws concerned with the protection or management of the environment.

The principles include a number of internationally recognized environmental law norms and some principles specific to South Africa. These core principles include:

- Accountability.
- Affordability.
- Cradle to Grave Management.
- Equity.
- Integration.
- Open Information.
- Polluter Pays.
- Subsidiary.
- Waste Avoidance and Minimisation.
- Co-operative Governance.
- Sustainable Development.
- Environmental Protection and Justice.

Chapter 2: Sections 3 to 6 of NEMA, make provision for the establishment of the Committee for Environmental Co-ordination. The objective of the committee is to promote the integration and co-ordination of environmental functions by the relevant organs of state and in particular to promote the achievement of the purpose and objectives of environmental implementation plans and environmental management plans.

Chapter 5: Sections 23 to 24 of NEMA is designed to promote integrated environmental management and provide tools for integrating environmental activities. Environmental management must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural and social interests equitably. This chapter of NEMA requires any activity that can potentially impact on the environment, socio-economic conditions and cultural heritage require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by the law with authorising, permitting or otherwise allowing the implementation of an activity. Development must be socially, environmentally and economically sustainable. Sustainable development therefore requires the consideration of all relevant factors, some of which include the following:

- The disturbance of ecosystems and loss of biological diversity is to be avoided, or, minimised and remedied.
- The pollution and degradation of the environment are to be avoided, or, minimised and remedied.
- Waste is to be avoided, or, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
- A risk-averse and cautious approach is to be applied.
- Negative impacts on the environment and on the people's environmental rights must be anticipated and prevented, and where they cannot be altogether prevented, must be minimised and remedied.

Section 24(5) of NEMA was enacted through the promulgation of the Environmental Impact Assessment (EIA) Regulations published in 2006 and revised in 2010. The construction of facilities or infrastructure including associated structures or infrastructure for the recycling, re-use, handling, temporary storage or treatment of general waste and hazardous waste, were originally listed in these regulations and therefore required either a Basic Assessment or a Scoping and EIA Process to be followed depending on specific listed criteria. However, the above mentioned waste activities have now been repealed and instead require a license application under the NEM: WA.

Chapter 7: Sections 28 to 30, imposes a duty of care in respect of pollution and environmental degradation. Any person who has caused significant pollution or degradation of the environment must take steps to stop or minimise the pollution. Where an incident occurs that is potentially detrimental to the environment, the person who is responsible for the incident or the employer must, within 14 days of the incident, report to the Director-General, provincial head of department and municipality. The relevant authority may specify measures to address the problem and remediate the area within 7 days. The Acts also attach consequences for breaching the duty of care, namely that government authorities are empowered to issue directions and to remediate the situation and recover costs where the directions are not complied with.

Chapter 8: Sections 35, provides that the Minister and every MEC and municipality may enter into an environmental management co-operation agreement with any person or community for the purpose of promoting compliance with the principals laid down in NEMA. Environmental Co-operation Agreements may contain an undertaking by the person or community concerned to improve the standards laid down by law for the protection of the environment and a set of measurable targets and a timeframe for fulfilling the undertaking.

Chapter 9 allows the Minister to make model By-Laws aimed at establishing measures for the management of environmental impacts of any development within the jurisdiction of the municipality, which may be adopted by the municipality as By-Laws. Any municipality may request the Director-General to assist it with its preparation of By-Laws on matters affecting the environment and the Director-General may not unreasonably refuse such a request. The Director-General may institute programmes to assist municipalities with the preparation of By-Laws for the purposes of implementing this Act.

Environment Conservation Act

The Environment Conservation Act (Act 73 of 1989) (ECA) predates the Constitution and, although many sections have already been repealed, certain sections are still in place.

The objectives of the ECA are to provide for the effective protection and controlled utilisation of the environment. Several sections of the ECA were repealed through the enactment of NEMA and certain responsibilities were assigned to the provinces.

The NEM: WA has repealed sections of the ECA dealing with waste management. More specifically these repealed sections are:

- 19: Prohibition of littering. This is now dealt with under Section 27 of the NEM: WA.
- 19A: Removal of litter.
- 20: Waste Management. This section dealt with permitting of waste facilities, but is now replaced by Chapter 5 (Sections 43 – 59) of the NEM: WA.

Waste management, more specifically with regard to landfill disposal site permitting and related matters, was until its recent repeal through the NEM: WA, coordinated and controlled under Section 20 of the ECA, as follows.

In order to implement section 20 of the ECA, DWS previously issued the above mention permits subject to specified conditions stipulated in the DWS Minimum Requirements: Waste Management Series3.

- 24: This section provided the framework for waste regulations to be formulated. This issue is now covered by Chapter 8, Part 1 (Regulations) (Sections 69 – 71) of the NEM: WA.
- 24A, 24B and 24C: Similarly, these sections which dealt with regulations regarding littering, products, and procedures for making regulations respectively are now addressed by Chapter 8, Part 1 of the NEM: WA.
- 29: Sections (3) and (4), which deal with Offences and Penalties have been substituted by the NEM: WA.

Despite the fact that the NEM: WA repeals section 19, 19A, 20, 24, 24A, 24B, and 24C of the ECA, it should be noted that in accordance with Section 80(2) of the NEM: WA, any regulations or directions made in terms of these repealed sections of the ECA, remain in force and are considered to have been made under the NEM: WA.

National Environmental Management: Waste Act, 2008

(a) Overview

The National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA) was promulgated on 01 July 2009, marking a new era in waste management in South Africa (with the exception of a number of sections which will be brought into effect at dates still to be gazetted). The act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land.

However, South African waste management legislation is still fragmented. Mining; radio-active waste; disposal of explosives; and disposal of animal carcasses, which are covered by specific other regulations is not addressed by the act. The NEM: WA does however constitute South Africa's overarching primary waste legislation.

(b) Objectives of the NEM: WA

The National Environmental Management: NEM: WA's objectives are -
To protect health, well-being and the environment by providing reasonable measures to -

- Minimising the consumption of natural resources.
- Avoiding and minimising the generation of waste.
- Reducing, re-using, recycling and recovering waste.
- Treating and safely disposing of waste as a last resort.
- Preventing pollution and ecological degradation.
- Securing ecologically sustainable development while promoting justifiable economic and social development.
- Promoting and ensuring the effective delivery of waste services.

- Remediating land where contamination presents, or may present a significant risk of harm to health or the environment. and
- Achieving integrated waste management reporting and planning.
- To ensure that people are aware of the impact of waste on their health well-being and the environment.
- To provide for compliance with the measures set out in paragraph (a) and
- Generally, to give effect to section 24 of the Constitution in order to secure an environment that is not harmful to health and well-being.

The Chapters and topics of the NEM: WA are as follows:

Chapter 1 - Interpretation and Principles

Chapter 2 - National Waste Management Strategy, Norms and Standards

Chapter 3 - Institutional and Planning Matters

Chapter 4 - Waste Management Measures

Chapter 5 - Licensing of Waste Management Activities

Chapter 6 - Waste Information

Chapter 7 - Compliance and Enforcement

Chapter 8 - General Matters.

(c) Roles and Responsibility

The Act establishes a national framework for waste planning, regulation and management with roles for all spheres of government, specifically:

- National government is tasked with establishing a national waste management strategy, including norms, standards and targets. National norms and standards may cover all aspects of the waste value chain, from planning to service delivery. Of particular importance from an intergovernmental perspective are the powers of national government with respect to norms and standards for:
- The regionalization of waste management services.
- Tariffs for waste services provided by municipalities, including providing for tariffs to be imposed to provide for waste management infrastructure or facilities and ensuring that funds obtained from the provision of waste services are used for the delivery of these services.
- Provincial governments are tasked with the implementation of the national waste management strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The NEM: WA notes that these norms and standards must amongst other things facilitate and advance regionalization of waste management services.
- Local governments are required to ensure the universal and sustainable delivery of services, subject to national and provincial regulation. In particular, they are required to maintain separate financial statements, including a balance sheet of the services provided.

The table below lists sections of the act which make specific demands on Local (municipal) government: Tasks falling under sections of the act which have yet to be enacted have not been listed. While certain sections of the text are taken verbatim from the Act, interpretation has been added.

Figure 31: Tasks required by governmental entities in terms of NEM:WA.

TOPIC	SECTION	REQUIREMENT
General duty	3	The state must put in place measures that seek to reduce the amount of waste generated, and where waste is generated, ensure that it is re-used, recycled and recovered in an environmentally sound manner.
Waste service standards	9 (1) & (2)	The municipality must deliver waste management services, including waste removal, storage and disposal services in adherence to the national and provincial norms and standards (section 7 and 8 of the Act); whilst: <ul style="list-style-type: none"> • Integrating the IWMP and IDP • Ensuring access to services • Ensuring affordable service delivery • Ensure effective and efficient Sustainable and Financial management

TOPIC	SECTION	REQUIREMENT
	9 (3)	The Municipality may furthermore set local standards: <ul style="list-style-type: none"> • For separating, compacting and storing waste • Management of solid waste, i.e.: Avoidance, Minimisation, Recycling • Coordination of waste to relevant treatment or disposal facilities • Litter control
Designation of Waste Management Officers	10(3)	The Municipality must designate in writing a waste management officer from its administration to be responsible for coordinating matters pertaining to waste management in that municipality
Integrated Waste Management Plans	11 (4) & (7)	<ul style="list-style-type: none"> • The Municipality must submit an IWMP to the MEC for approval (response from the MEC must be given within 30 days) • Include the approved IWMP into its IDP • Follow the consultative process in section 29 of the Municipal Systems Act (separately or as part of IDP)
	12	Contents for IWMP's, includes: <ul style="list-style-type: none"> • A situational analysis • a plan of how to give effect to the NEM: WA • municipal waste management and services obligations • prioritisation of objectives • setting of targets • planning approach to any new disposal facilities; and • Financial resourcing.
	13	An annual performance report prepared in terms of section 46 of the Municipal Systems Act must contain information on the implementation of the municipal IWMP.

(d) Industry Waste Management Plans

For industries, the NEM: WA states that either the Minister or the relevant provincial MEC may under certain conditions and by written notice or by notice in the Gazette require a person or industry to prepare and submit an Industry Waste Management Plan.

(e) Waste Licensing for listed Activities

The Minister has subsequently gazetted (on 03 July 2009) GN No. 718 (Gazette No. 32368) and 719 (Gazette No. 32369) which present a Waste Management Activity Lists describing those waste activities, and thresholds, which require authorisation before they are undertaken. This list was amended in 2013 (Gazette No 921 of 2013) and again in 2017 (Gazette No, 1094 of 2017). The NEM: WA Schedule 1 (Section 19) identifies activities which require a waste management licence. Activities include:

- Recycling and recovery.
- Treatment of waste.
- Disposal of waste on land.
- Construction, expansion or decommissioning of facilities and associated structures and infrastructure.

Either a Basic Assessment or Scoping and Environmental Impact Assessment (EIA) process is to be carried out with regards to acquiring a licence as stipulated in the environmental impact assessment regulations made under section 24 (5) of the NEM: WA).

(f) Integrated Waste Management Planning

The NEM: WA also places considerable emphasis on the development of an integrated waste planning system, through the development of interlocking Integrated

Waste Management Plans (IWMPs) by all spheres of government and specified waste generators. This planning system is the primary tool for cooperative governance within the sector. While the requirement for these plans is new for national and provincial governments, and for waste generators, this is not the case for local governments who had been able to voluntarily prepare such plans within their Integrated Development Plans (IDPs). IWMPs are mandatory for national and provincial government and specified waste generators, but the situation for local government is made a little more ambiguous by the Constitutional assignment of concurrent powers to provincial and local governments in this respect, with only limited authority assigned to national government.

(g) Norms, standards, tariffs and financial Management Systems

Other focal areas of the NEM: WA include provisions for the development of norms and standards, tariffs and financial management systems. These powers all largely repeat existing national or provincial powers that are provided for in other legislation. The key change is that the Minister of Environmental Affairs now assumes these powers in terms of the Act, although concurrently with other authorised Ministers notably in Local Government and Finance portfolios.

Certain sections of the act have yet to be enacted, including the following:

- Section 28 (7), which makes allowance for of a person, category of person or industry to compile and submit an industry waste management plan for approval to the MEC, without being required to do so by the MEC.
- Section 46, which allows the licensing authority to require an applicant seeking a waste management licence to appoint an independent and qualified person to manage the application.

National Environmental Management: Air Quality Act

The National Environmental Management: Air Quality Act (39 of 2004) requires that appropriate consideration must be given to the emissions arising from waste management practices, processes and procedures. Many facets of waste management are associated with atmospheric emissions, for example, waste transportation is associated with carbon dioxide released from vehicles, and methane and carbon dioxide which are released from landfill sites.

The Air Quality Act was published in the Government Gazette on 24 February 2005 and came into effect in September 2005. This Act, amongst others, provides for the implementation of a National Framework, of national, provincial and local ambient air quality and emission standards and air quality management plans. These implementations are currently in progress.

Atmospheric Pollution Prevention Act

Prior to the Air Quality Act coming into full effect, the control of atmospheric emissions of noxious, hazardous and nuisance causing materials was controlled by the Atmospheric Pollution Prevention Act (APPA) (Act 45 of 1965) and its amendments. The administration of the APPA has been assigned to the Air Pollution Control Department under the Department of Forestry, Fisheries and the Environment.

Those sections addressing the management of dust are of importance for landfill site management. Sections 27 – 35 state that industries should adopt the “best practicable means” for preventing dust from becoming dispersed or causing a nuisance. The act also empowers owners or occupiers present in the vicinity of the source of dust/nuisance to take or adopt necessary steps or precautions against the nuisance. Where steps have not been prescribed, owners must adopt the “best practicable means” for the abatement of the nuisance. Should any person/s such as for example, waste management service providers, not comply with the necessary steps to prevent owners/occupiers from the effects of dust, the person/s may be liable to pay a dust control levy to the minister.

National Water Act

The National Water Act (Act 36 of 1998) is South Africa’s overarching piece of legislation dealing with water resource management. It contains a number of provisions that impact on waste management, including:

- Ensuring the disposal of waste in a manner, which does not detrimentally impact on water resources.
- Managing the discharge of waste into water resources.

The Act allows the Minister to make regulations for:

- Prescribing waste standards, which specify the quantity, quality and temperature of waste that may be discharged or deposited into or allowed to enter a water resource.
- Prescribe the outcome or effect, which must be achieved through management practices for the treatment of waste before it is discharged or deposited into or allowed to enter a water resource.
- Requiring that waste discharged or deposited into or allowed to enter a water resource be monitored and analysed according to prescribed mechanisms.

Occupational Health and Safety Act

The purpose of the Occupational Health and Safety Act (OHSA) (Act 85 of 1993) and associated regulations is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

A sound waste management strategy and planning must take into account the safety of persons involved in the practical implementation thereof, with reference in particular to any waste services carried out by municipal officials; and waste service providers and their employees.

Core to OHSA are the principles and core duties of employers and employees as legislated in Sections 8, 9 and 14 thereof.

Section 8(1) stipulates that “Every employer shall provide and maintain, as far as is reasonable practicable, a working environment that is safe and without risk to the health of his employees”.

Section 9(1) stipulates that “Every employer shall conduct his undertaking in such a manner as to ensure, as far as is reasonably practicable, that persons other than those in his employment who may be directly affected by his activities are not thereby exposed to hazards to their health or safety.” Subsection (2) imposes a similar duty on every self-employed person.

Section 14(a) imposes a duty on every employee at work to take reasonable care for the health and safety of himself and of other person who may be affected by his acts or omissions. An employee is also required to co-operate with his employer concerning his duties in terms of the Act and to obey health and safety rules and procedures laid down by his employer.

In addition the OHSA further protects workers with regard to Hazardous Chemical Substances through specific regulations. Asbestos regulations deal with specific asbestos containing waste management.

It is likely that the OSHA also places an obligation on the Municipality, to ensure that service providers maintain compliant Health and Safety procedures. This would be relevant in the case of outsourced, waste management functions.

Health Act

The Health Act (Act 63 of 1977) focuses on the promotion of the health of the people and the provision of processes to enable this objective to be achieved. Sections 20, 34 and 38 of the Act are relevant to waste management.

Section 20, requires authorities to take lawful and reasonable practical measures to maintain their areas in a hygienic and clean condition to prevent an unhealthy environment for people.

Sections 34 and 38 of the act authorise the National Minister of Health to make regulations, which may directly impact on waste management.

Hazardous Substances Act

The Hazardous Substances Act (Act 15 of 1973) governs the control of substances that may cause ill health or death in humans by reason of their toxic, corrosive, irritant, flammability or pressure effects. The Act provides for the regulation of the storage, handling, labelling and sale of Group I, II, and III hazardous substances. A license is required for an operation that stores, handles and sells Group I substances. Section 29(1) of the Act regulates the disposal of the empty containers, which previously held Group I substances.

No national, local provincial or local municipal regulations have been promulgated under the Act for the on-site management of Group II hazardous substances.

The relevance of the Act with regard to waste management is captured as certain waste types may be categorised into the various groupings under the Act as noted above.

National Road Traffic Act

The United Nations (UN) recommendations on the transport of dangerous goods have been used to produce sections of the National Road Traffic Act (Act 93 of 1996). In addition, and in terms of other regulations published under the Act, certain South African Bureau of Standards (SABS) Codes of Practice have been incorporated as standard specifications into the National Road Traffic Regulations (GNR 1249 of 13 November 2001). These codes have been based on the UN recommendations, also known as "The Orange Book" and the associated European Agreement concerning the International Carriage of Dangerous Goods by Road Regulations.

The codes of practice so incorporated include e.g. the following:

- SANS 10228:2006 Edition 4.00: The identification and classification of dangerous goods for transport.
- SANS 10229-1:2005 Edition 1.00: Transport of dangerous goods - Packaging and large packaging for road and rail transport Part 1: Packaging.
- SANS 10229-2:2007 Edition 1.00: Transport of dangerous goods - Packaging and large packaging for road and rail transport Part 2: Large packaging.
- SANS 10232-1:2007 Edition 3.00: Transport of dangerous goods - Emergency information systems Part 1: Emergency information system for road transport.
- SANS 10232-2:1997 Edition 1.00: Transportation of dangerous goods - Emergency information systems Part 2: Emergency information system for rail transportation.
- SANS 10232-3:2007 Edition 3.00: Transport of dangerous goods - Emergency information systems Part 3: Emergency response guides.
- SANS 10232-4:2007 Edition 1.01: Transport of dangerous goods - Emergency information systems Part 4: Transport emergency card.
- SANS 10233:2001 Edition 2.00: Transportation of dangerous goods - Intermediate bulk containers.

The transportation of all waste products should adhere to the above where applicable, noting that certain waste/refuse may be categorised as dangerous goods.

Advertising on Roads and Ribbon Development Act

The Advertising on Roads and Ribbon Development Act (Act 21 of 1940) regulates, amongst other things, the depositing or discarding of waste near certain public roads, and the access to certain land from such roads. To the extent as outlined in Proclamation 23 in Government Gazette 16340 of 31 March 1995, the administration of this Act has been assigned to the provinces. In terms of section 8 of the Act, no person shall within a distance of 200 metres of the centre line of a public road deposit or leave outside an urban area, so as to be visible from that road, a disused vehicle or machine or a disused part of a vehicle or machine or any rubbish or any other refuse, except in accordance with the permission in writing granted by the controlling authority concerned. The

controlling authority may remove any object or substance referred to found on a public road and may recover the cost of the removal from the person who deposited or left such object or substance there.

When any person has deposited or has left any object or substance in contravention of the above, but not on a public road, the controlling authority concerned may direct the person in writing to remove or destroy that object or substance within such period as may be specified in the direction. If the person fails to comply with that direction, the controlling authority may cause the object or substance to be removed or destroyed any may recover from the said person the cost of the removal or destruction. The preceding provision do not apply to any object or material which has been or is being used for or in connection with farming, or to soil excavated in the course of alluvial digging: provided that this sub-section shall not permit the deposit or leaving of any article or material on a road.

Waste Tyre Regulations

The Waste Tyre Regulations were first published as Government Notice R.149 on 13 February 2009 and came into effect on 30 June 2009. These regulations were amended in 2016 in General Notice R. 1493 of 2016. The latest Waste Tyre Regulations (R1064 of 2017) were published on 29 September 2017 and came into effect immediately. The purpose of the legislation is to regulate the management of waste tyres by providing for the regulatory mechanisms. The regulations apply uniformly in all provinces in South Africa and affect waste tyre producers, waste tyre dealers, waste tyre stockpile owners, landfill site owners and tyre recyclers.

In summary, the regulation:

- Defines a waste tyre as a new, used, re-treaded, or un-roadworthy tyre, not suitable to be re-treaded, repaired or sold as a part worn tyre and not fit for the original intended use.
- Prohibits management, recycling, recovery or disposal of a waste tyre at any facility or on any site, unless such an activity is authorised by law.
- Prohibits recovery or disposal of a waste tyre in a manner that may or may potentially cause pollution or harm to health.
- Prohibits purchase, sale or export of waste tyres unless authorised.
- Prohibits disposal of a waste tyre at a waste disposal facility, two years from the gazetted date, unless such a waste tyre has been cut into quarters; and prohibits disposal of tyres in five years; unless these are shredded.
- Provides regulations in terms of tyre producers, tyre dealers and tyre stockpile owners, particularly regarding waste stockpile abatement and waste tyre storage.

Asbestos Regulations

On 28 March 2008, the Minister of Environmental Affairs and Tourism published as Government Notice R.341 of 2008 entitled "Regulations for the prohibition of the use, manufacturing, import and export of asbestos and asbestos containing materials" under Section 24B of ECA (thus now the NEM: WA). This would have implication for phasing out of asbestos containing material, which may therefore result in higher quantities of asbestos waste.

Mineral and Petroleum resources Development Act

The objective of the Mineral and Petroleum resources Development Act (No. 28 of 2002) , amongst others, is to give effect to section 24 of the Constitution by ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner while promoting justifiable social and economic development.

Municipal Structures Act

The main objective of Local Government: Municipal structures Act (Act 117 of 1998) is to provide for the establishment of municipalities in accordance with the requirements relating to categories and types of municipality, to provide for an appropriate division of functions and powers between categories of municipality, to provide appropriate electoral systems and to provide for matters connected therewith.

The functions and powers of municipalities are set out in Chapter 5 of the Act, with a municipality having the functions and power assigned to it in terms of sections 156 and 229 (dealing with fiscal powers and functions) of the constitution.

Municipal Systems Act

As intended by the Constitution, Waste management services such as refuse collection, removal, transportation and disposal is generally the responsibility of local municipalities⁴.

Municipal Systems Act (Act 32 of 2000) with respect to the Local Government Municipal Systems Act (MSA) defines a municipal service as follows:

“A serviced that a municipality in terms of its powers and functions provides or may provide for the benefit of the local community irrespective of whether

- (a) Such a service is provided, or to be provided, by the municipality through an internal mechanism contemplated in section 76 or by engaging an external mechanism contemplated in section 76; and
- (b) fees, charges or tariffs are levied in respect of such a service or not.”

Chapter 8 Section 73 - 82 outlines certain general duties on municipalities in relation to the municipal service as highlighted below.

In terms of section 75(1), a municipality must give effect to the provisions of the Constitution and must:

- Give priority to the basic needs of the local community.
- Promote the development of the local community.

Ensure that all members of the local community have access to at least the minimum level of available resources and the improvement of standards of quality over time.

In terms of section 75(2), municipal services must – be equitable and accessible; be provided in a way, which promotes the prudent, efficient and effective use of available resources and the improvement of standards of quality over time; be financially sustainable; be environmentally sustainable, and be regularly reviewed with a view to upgrading, extension and improvement.

Section 74 regulates tariff policy in respect of municipal services. A municipality is obliged to adopt and implement a tariff policy on levying fees for municipal services. A municipality’s tariff policy must reflect at least the following principles:

- People who use municipal services must be treated equitably in the application of tariffs.
- In general terms, what individual users pay for services should be in proportion to their use of the services.
- Poor households must have access to at least basic services. Different ways of providing for this are suggested, for example lifeline tariffs and subsidisation.
- Tariffs must reflect the costs reasonable associated with providing the service for example capital, operating, maintenance, administration and replacement costs and interest charges.
- Tariffs must be set at levels which allow the service to be financially sustainable.
- In appropriate circumstances, surcharges on tariffs may be allowed.
- Special tariffs may be set for categories of commercial and industrial users in order to promote local economic development.
- The economical, efficient and effective use of resources must be promoted, as well as the recycling of waste and other appropriate environmental objectives
- Any subsidisation of tariffs should be fully disclosed.

Section 78 prescribes the process which municipalities must follow when they decide through which mechanism to provide a municipal service in their areas. There are particular provisions, which a municipality must comply with when it provides a municipal service through a service delivery agreement with what the MSA terms “external mechanisms”.

The MSA contains extensive provisions pertaining to public participation. In particular, the community has the right to contribute to decision-making processes by its municipality. A municipal council must establish appropriate mechanisms, processes and procedures to enable residents, communities and stakeholders in the municipality to participate in the local affairs. It is pertinent to reiterate that waste management services as provide by the municipality is an integral part of local affairs.

As such municipalities' mechanisms must provide for:

- The receipt, processing and consideration of petitions and complaints lodged by residents, communities and stakeholders in the municipality.
- The receipt, processing and consideration of written objections and representations with regard to any matter to which it is required to invite public comment.
- Public meetings of residents, on a ward or any other basis.
- Public hearings by the council and its committees when appropriate.
- Surveys among residents when appropriate and the processing and publication of the results.

Development Facilitation Act

The Development Facilitation Act (Act 67 of 1995) provides specific principles for:

- Land development and conflict resolution.
- Controls on land occupation.
- Recognition of informal land-development practices.

These principles are set out in sections 3 and 4 of the Development Facilitation Act and form the basis for most of the integrated development plan. Chapter one of the Development Facilitation Act sets out principles which affect all decisions relating to the development of land.

This means that whenever a municipality, a development tribunal, a Member of the Executive Council (MEC) or any other authority is considering an application for the development of land, they must make sure that their decision is consistent with these principles. Any integrated development plan must, in terms of the Local Government Transition Act, be based on these principles too.

The Development Facilitation Act's principles form the basis of integrated development planning - in particular the land-development objectives. In terms of section 2 of the Act, the general principles which are set out in section 3 of the Act include:

- Policy, administrative practice and the law should promote efficient and integrated land development in that they:
- Promote the integration of the social, economic, institutional and physical aspects of land development.
- Promote integrated land development in rural and urban areas in support of each other.
- Encourage environmental sustainable land development practices and processes.
- Members of communities affected by land development should actively participate in the process of land development.
- Policy, administrative practice and laws should encourage and optimize the contributions of all sectors of the economy (government and non-government) to land development so as to maximize the Republic's capacity to undertake land development.
- Laws, procedures and administrative practice relating to land development should:
- Be clear and generally available to those likely to be affected thereby.
- In addition to serving as regulatory measures, also provide guidance and information to those affected thereby.
- Be calculated to promote trust and acceptance on the part of those likely to be affected thereby.
- Give further content to the fundamental right set out in the constitution.
- Policy, administrative practice and laws should promote sustainable land development at the required scale, in that they should, inter alia, promote sustained protection of the environment.
- Policy, administrative practice and law should promote speedy land development.

- Each proposed land development area should be judged on its own merits and no particular use of land, such as residential, commercial, conservation, industrial, community facility, mining, agricultural or public use, should in advance or in general, be regarded as being less important or desirable than any other use of land.
- A competent authority at national, provincial and local government level should co-ordinate the interests of the various sectors involved in or affected by land development so as to minimize conflicting demands on scarce resources.

The Physical Planning Act

The objective of the Physical Planning Act 125 of 1991 is to provide for the division of the country into regions and to promote regional development. Policy plans consist of broad guidelines for the future physical development of the area and restrictions are placed on the use of land in the area to which the plan relates. Local authorities are required to develop urban structure plans for their areas of jurisdiction.

Promotion of Administrative Justice

The purpose of the Promotion of Administrative Justice Act ("PAJA") (Act 3 of 2000) is principally to give effect to the right to administrative action that is lawful, reasonable and procedurally fair; and to the right to written reasons for administrative action as contemplated in section 33 of the Constitution; and to provide for matters incidental thereto.

Administrative law governs the relationships between public bodies, and between public and private bodies and/or individuals. Many activities which affect the environment, including certain waste management activities, require authorisation from a public body. Because environmental conflicts may arise during the authorisation process from the exercise of administrative decision-making powers, administrative law principles are of particular relevance to environmental law generally, and specifically in the context of the environmental authorisation requirements stipulated by the provisions of section 24 of the NEMA read with its subordinate legislation regulating environmental impact assessment (or "EIA").

Promotion of Access to Information

Promotion of Access to Information, (Act 2 of 2000) is closely linked to the notion of administrative justice is the right of access to information. Without access to information, a person may be unable to determine whether or not his or her right to just administrative action (or to an environment not harmful to human health or well-being or, for that matter, any other Constitutional right) has been infringed. The purpose of the Promotion of Access to Information Act ("PAIA") is to give effect to the Constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith.

National Policies and Guidelines

White Paper on Environmental Waste Management

The White Paper on Environmental Management was published in 1998. This policy sets out government's objectives in relation to environmental management, how it intends to achieve its objectives, and to guide government agencies and organs of state in developing strategies to meet their objectives.

The policy document is an overarching policy framework that refers to all government institutions and to all activities that impact on the environment. The policy states that government will allocate functions to the institutions and spheres of government that can most effectively achieve the objectives of sustainable development and integrated environmental management. This would include the allocation of certain functions to the municipal sphere of government. Where appropriate, provincial and local governments are to develop their own legislation and implementation strategies in order to address their specific needs and conditions within the framework of the policy.

White Paper on Integrated Pollution and Waste Management

The White Paper on Integrated Pollution and Waste Management (1999) is a subsidiary policy of the overarching environmental management and constitutes South Africa's first policy document focused on integrated waste management. This national policy set out Government's vision for integrated pollution and waste management in the country and applies to all government institutions and to society at large and to all activities that impact on pollution and waste management.

Integrated pollution and waste management is defined as a holistic and integrated system and process of management aimed at pollution prevention and minimisation at source, managing the impact of pollution and waste on the receiving environment and remediating damaged environments. Waste management is to be implemented in a holistic and integrated manner and extend over the entire waste cycle from cradle-to-grave and will include the generation, storage, collection, transportation, treatment and the final disposal of waste.

The overarching goal reflected in the policy, is integrated pollution and waste management. The intention is to move away from fragmented and uncoordinated pollution control and waste management, towards an approach that incorporates pollution and waste management as well as waste minimisation.

Within this framework, the following strategic goals apply:

- Effective institutional framework and legislation.
- Pollution and waste minimisation, impact management and remediation.
- Holistic and integrated planning – the intention is to develop mechanisms to ensure that integrated pollution and waste management considerations are integrated into the development of government policies, strategies and programmes as well as all spatial and economic development planning processes and in all economic activity.

The strategic mechanisms include the following:

- The incorporation of integrated environmental management principles and methodologies in spatial development planning as it relates to pollution and waste management.
- Making timeous and appropriate provision for adequate waste disposal facilities.
- Developing management instruments and mechanisms for the integration of pollution and waste management concerns in development planning and land allocation.
- Developing appropriate and agreed indicators to measure performance for inclusion in Environmental Implementation Plans and Environmental Management Plans as provided for in the National Environmental Management Act.
- Participation and partnerships in integrated pollution and waste management governance.
- Empowerment and education in integrated pollution and waste management.
- Information management.
- International co-operation.

National Waste Management Strategy

The first NWMS was published in 1999 by DFFE and DWS. It was the first strategy for addressing South Africa's waste management challenges. The strategy effectively defines South Africa's vision for waste management highlighting themes such as "cradle to grave" management of waste products and the waste management hierarchy which encourages waste disposal only as a last resort.

The NWMS was revised in 2011 in line with Chapter 2, Part 1, of the Act which required the establishment of a NWMS within two years of the Act coming into effect. Significant changes included the addition of "remediation" to the waste management hierarchy, and the consolidation of what was previously many different action plans into a single action plan.

This NWMS 2020 is also responding to pollution, waste management practices and the legacy relating to the socio-economic conditions of the people of South Africa. The following are expected outcomes that will be achieved through effective and efficient implementation of the NWMS 2020 by all stakeholders from all sector of society:

- Prevent waste, and where waste cannot be prevented ensure – 40% of waste from diverted from landfill within 5 years; 55% within 10 years; and at least 70% within 15 years leading to Zero-Waste going to landfill;
- All South Africans live in clean communities with waste services that are well managed and financially sustainable; and
- Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping

The key interventions that will be implemented in respect of each of the three (3) Outcomes are provided for in the figure below:

Figure 32: Pillars, Outcomes and Interventions

STRATEGIC PILLAR	OUTCOME	KEY INTERVENTIONS
Waste Minimisation	40% of waste from diverted from landfill within 5 years; 55% within 10 years; and at least 70% within 15 years leading to Zero Waste going to landfill	<ul style="list-style-type: none"> • Prevent waste generation through cleaner production, industrial symbiosis and extended producer responsibility; • Prevent Food Waste; • Increase re-use, recycling and recovery rates; • Divert organic waste from landfill through composting and the recovery of energy; • Divert construction and demolition waste from landfill through beneficiation; and • Increase technical capacity and innovation for beneficiation of waste.
Effective and Sustainable Services	All South Africans live in clean communities with waste services that are well managed and financially sustainable	<ul style="list-style-type: none"> • Separate waste at source; • Safe and environmentally sustainable disposal of hazardous household waste; • Cities Support Programme Implementation; and • Effective integrated waste management planning.
Compliance, Enforcement and Awareness	Mainstreaming of waste awareness and a culture of compliance resulting in zero tolerance of pollution, litter and illegal dumping	<ul style="list-style-type: none"> • Reduce Pollution, littering and illegal dumping; • Enhance capacity to monitor compliance and enforce the Waste Act and International Agreements; and • Ensure municipal landfill sites and waste management facilities comply with licensing requirements.

The overall objective of this strategy is to reduce the generation of waste and the environmental impact of all forms of waste and thereby ensure that the socioeconomic development of South Africa, the health of the people and the quality of its environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management.

The internationally accepted waste hierarchical approach was adopted of waste prevention/minimization, recycle/reuse, treatment and finally disposal. The strategy outlines the functions and responsibilities of the three levels of government and where possible, firm plans and targets are specified.

Action plans have been developed for reaching all of the eight goals.

Polokwane Waste Summit Declaration

During September 2001 a national waste summit was held at Polokwane, in the Northern Province. It was attended by key stakeholder groupings in the waste field in order to jointly chart a way forward in terms of national waste management. The resultant Polokwane Declaration includes a vision and goal for the management of all waste, i.e. domestic, commercial and industrial:

Vision – To implement a waste management system that contributes to sustainable development and a measurable improvement in the quality of life, by harnessing the energy and commitment of all South Africans for the effective reduction of waste.

Goals - To reduce waste generation and disposal by 50% and 25% respectively by 2012 and develop a plan for zero waste by 2022

Key actions in the Polokwane Declaration include the following:

- Implement the National Waste Management Strategy.
- Develop and implement legislative and regulatory framework.
- Waste reduction and recycling.
- Develop waste information and monitoring systems.

Local Government Turnaround Strategy

Cabinet approved the Local Government Turnaround Strategy (LGTAS) on the 3 December 2009 in Pretoria. The LGTAS recognised that each municipality faces different social and economic conditions and has different performance levels and support needs. Thus a more segmented and differentiated approach was required to address the various challenges of municipalities. In addition cabinet recognised that the problems in Local Government are both a result of internal factors within the direct control of municipalities as well as external factors over which municipalities do not have much control. (Department of Cooperative Governance and Traditional Affairs, Dec 2009.)

The LGTAS identifies the internal factors related to for example the following:

- Quality of decision-making by Councillors.
- Quality of appointments.
- Transparency of tender and procurement systems and levels of financial management and accountability.
- Levels of financial management and accountability.

The external factors relate to:

- Revenue base and income generation potential.
- Inappropriate legislation and regulation.
- Demographic patterns and trends.
- Macro and micro-economic conditions.
- Undue interference by political parties and weaknesses in national policy.
- Oversight and Inter-Governmental Relations.

Ultimately the aim of the LGTAS is to:

- Restore the confidence of the majority of our people in our municipalities, as the primary delivery machine of the developmental state at a local level.
- Re-build and improve the basic requirements for a functional, responsive, accountable, effective, and efficient developmental local government.

The LGTAS sets out five strategic objectives with associated key interventions. Probably most relevant in the context of waste management is the first objective, i.e. to *“Ensure that municipalities meet basic needs of communities. This implies that an environment is created, support provided and systems built to accelerate quality service delivery within the context of each municipality’s conditions and needs”*.

Interventions to achieve the various objectives include better organisation by National Government and improved support and oversight from provinces in relation to Local Government. Furthermore municipalities are to reflect on their own performance and tailor-made turnaround strategies, while all three spheres of governments should improve inter-governmental relations. Also, political parties are to promote and enhance institutional integrity of municipalities and a social compact on Local Government where all citizens are guided in their actions and involvement by a common set of governance values.

In terms of the LGTAS an immediate task is for agreements to be reached with each province on the roll-out programme to establish different provincial needs and capacities, which will guide how municipalities are to be supported to prepare and implement their own tailor-made turnaround strategies that must be incorporated into their IDPs and budgets (by March 2010). Key stakeholders and ward committees were to be mobilised early in 2010. By July 2010, all municipalities were to be in full implementation mode of the national and their own Turn-around Strategies. (Department of Cooperative Governance and Traditional Affairs, Dec 2009.)

Minimum Requirements Documents; Department of Water Affairs and Forestry

The DWS Minimum Requirements: Waste Management Series were formulated in the form of guideline documents as a joint venture between DWS and the Department of Forestry, Fisheries and the Environment (DFFE).

The objective of the Minimum Requirements is to establish a framework for standards for waste management in South Africa. The former DWS published the second edition of the Minimum Requirements series in 1998, consisting of the following three documents:

- Document 1: Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste.
- Document 2: Minimum Requirements for Waste Disposal by Landfill.
- Document 3: Minimum Requirements for Monitoring at Waste Management Facilities.

The third edition was released in draft form in 2005, but only Document 1 (DFFE, 2005) has been finalised.

The Minimum Requirements provide applicable waste management standards or specifications that should be met, as well as providing a point of departure against which environmentally acceptable waste disposal practices can be assessed. The objectives of setting Minimum Requirements are to:

- Prevent water pollution and to ensure sustained fitness for use of South Africa's water resources.
- Attain and maintain minimum waste management standards in order to protect human health and the environment from the possible harmful effects caused by the handling, treatment, storage and disposal of waste.
- Effectively administer and provide a systematic and nationally uniform approach to the waste disposal process.
- Endeavour to make South African waste management practices internationally acceptable.
- Ensure adherence to the Minimum Requirement conditions from the permit applicant, before a waste disposal site permit is issued.
- Promote the hierarchical approach to waste management, as well as a holistic approach to the environment.

The series formed the basis for the permitting process that had been required in terms of Section 20 of the ECA. The requirements, standards and procedures covered in the series had generally been included as permit conditions, thereby becoming legally binding on the permit holder. In addition to requirements for the establishment and operation of a landfill site, the permit holder was generally required to operate, maintain and attend to the closure of a waste disposal site in compliance with the permit conditions, as well as in accordance with the guidelines set out in the Minimum Requirements documents. Note that an EIA must be conducted prior to the establishment of waste disposal facilities. However, the above mentioned waste activity has now been repealed and instead requires a license application under tNEM: WA.

The third edition was released in draft form in 2005, but only Document 1 (DFFE, 2005) has been finalised.

National Policy for Basic Refuse Removal Services to Indigent Households

The National Policy for the Provision of Basic Refuse Removal Services to Indigent Households (GN No. 34385) was published in the Government Gazette in June 2011.

The purpose of this policy is to ensure that indigent households have access to at least a basic refuse removal (BRR) service.

This Policy aligns to existing relevant legislation, as in accordance to 74 (2)(c) of the Municipal Systems Act, 2000 (Act No. 32 of 2000) poor households must have access to at least basic services and section 9 (2) of NEMWA (Act

59 of 2008) which stipulates that each municipality must exercise its executive authority and perform its duty in relation to waste services, including waste collection, waste storage and waste disposal, by (c) ensuring access for all to such services.

The objectives of the policy are to identify households that can be enrolled for the BRR service, establish bylaws to enforce tariff policies that will support the BRR service and to raise awareness within the municipality with regard to correct handling of domestic waste for BRR and the need to minimize waste and recycle.

Implementation plans include each municipality:

- declaring specific localities as the recipients of basic refuse removal services;
- maintaining “accurate and updated” registers of indigent people;
- taking action in the event of malpractice;
- integrating basic refuse removal into “basic indigent policies”;
- designating the administration of the policy to the “most appropriate department”; and
- raising awareness.

The policy includes a “grid of responsibilities” for each sphere of government and a policy monitoring and evaluation plan. According to the grid of responsibilities, national government will take responsibility for building capacity at provincial and municipal level, with provincial government determining municipal capacity and assisting district municipalities in “drawing up guidelines”.

National Policy in Thermal Treatment of General and Hazardous Waste

The Thermal Waste Treatment of General and Hazardous Waste Policy was gazetted (GN No. 32439) for public comment on 30 January 2009 and published under the NEM: WA on 24 July 2009. The policy presents the Government’s position on thermal waste treatment as an acceptable waste management option in South Africa. It also provides the framework within which incineration and co-processing treatment technologies of general and hazardous waste should be implemented in the country.

All Government Departments across the different spheres of government must consider this policy in their decision making on matters pertaining to thermal treatment of waste.

The policy presents objectives which vary thematically. These consider the integration of thermal waste treatment into the integrated waste management system. Schedules one to four provide guidelines on the following:

(a) Air Emission Standards – Waste Incineration

Listed air emission standards for general and hazardous waste incinerators, brought into operation subsequent to the final gazetting of this policy, to be complied with until the formalisation of The Minimum Emission Standards in terms of Section 21 of the National Environmental Management: Air Quality Act of 2004.

(b) Air Emission Standards – AFR Co-Processing

The Minimum Emission Standards for Alternative Fuels and Raw Materials (AFR) co-processing is currently in the process of being formalised in terms of Section 21 of the National Environmental Management: Air Quality Act of 2004. In the interim this policy constitutes the air emission standards for all cement kilns co-processing AFR.

(c) Waste Excluded from Co-Processing

Listed types of waste that are not allowed to be received, stored, handled or co-processed in cement kilns.

(d) Conditions of Environmental Authorisation

Any cement plant co-processing general or hazardous waste as alternative fuels and/or raw materials, and any dedicated general and/or hazardous waste incinerator must have the relevant approvals from the competent

authority. This schedule includes notes on operational management, air quality management, waste management and monitoring and reporting.

National Waste Information Regulations

The National Waste Information Regulations came into effect on 01 January 2013.

These cover registration of persons who conduct certain waste management activities and their duty to keep records. Annexure 1 of the regulations lists activities including recovery and recycling, treatment and disposal of waste for which the person conducting the activity must register in terms of GR 625 of 2012. The municipality has a duty in terms of waste disposal to land (as well as operating waste recycling or treatment facilities) to report waste types and quantities in accordance with these regulations to SAWIC on a quarterly basis. Amendments to the National Waste Information Regulations were released for public comment in July 2018 (GN 701 of 2018), the major change in the regulations was the requirement for waste transporters to register. Other proposed changes to the regulations were a decrease in the allowable reporting timeframes from the closure of a reporting period from 60 days to 30 days and registration and reporting thresholds recovery of hazardous waste being decreased from 500kg to 100kg a day.

National Policy for the provision of basic refuse removal services to indigent households

The National Policy for the provision of basic refuse removal services to indigent households as published for general information in notice 413 of Government Gazette No. 34385 on 22 June 2011 was developed in response to the constitutional requirement that all households should have access to basic services regardless of their income level, as well as the adoption of a free basic services in 2001.

This Policy aligns to existing relevant legislation, as in accordance to 74 (2)(c) of the Municipal Systems Act, 2000 (Act No. 32 of 2000) poor households must have access to at least basic services and section 9 (2) of NEMWA (Act 59 of 2008) which stipulates that each municipality must exercise its executive authority and perform its duty in relation to waste services, including waste collection, waste storage and waste disposal, by (c) ensuring access for all to such services.

Implementation plans include each municipality:

- Declaring specific localities as the recipients of basic refuse removal services.
- Maintaining “accurate and updated” registers of indigent people taking action in the event of malpractice.
- Integrating basic refuse removal into “basic indigent policies.”
- Designating the administration of the policy to the “most appropriate department.”
- Raising awareness.

The policy includes:

- A “grid of responsibilities” for each sphere of government.
- A policy monitoring and evaluation plan.

According to the grid of responsibilities, national government will take responsibility for building capacity at provincial and municipal level, with provincial government determining municipal capacity and assisting district municipalities in “drawing up guidelines”.

National Domestic Waste Collection Standards

The National Domestic Waste Collection Standards (notice 21 of Government Gazette 33935, 21 January 2011) published under the National Environmental Management: Waste Act (Act No. 59 of 2008) came into effect on Tuesday, 1 February 2011.

This standard aims to provide a uniform framework within which domestic waste should be collected in South Africa. This comes after a consultative process with provinces, municipalities and the general public in order to redresses the past imbalances in the provision of waste collection services. The standards aim to guide municipalities on how to provide acceptable, affordable and sustainable waste collection service to the human health and the environment.

The standards covers the levels of service, separation at source (between recyclable and non-recyclable materials), collection vehicles, receptacles, collection of waste in communal collection points, and most importantly the frequency of collection. Non-recyclable material such as perishable food waste must be collected at least once a week and recyclable material such as paper, plastic, glass etc. must be collected once every two weeks. Municipalities have a choice to provide different types of bins taking into consideration the type of vehicles they use; however, they must be rigid and durable to prevent spillage and leakage.

The development of the standards took into consideration the existing innovative practices at local government level across the country and seeks to build on what has already been achieved whilst emphasizing a need to separate recyclable and non-recyclable domestic waste and the protection of human health and the environment.

National Norms and Standards for Assessment of Waste for Landfill Disposal

The National Norms and Standards for Assessment of Waste for Landfill Disposal (GR635, 23 Aug 2013) require the assessment of waste prior to disposal at landfill. The assessment of waste before disposal must include identification of the total and leachable concentrations of different chemicals. The concentration of chemicals determines the classification of the waste which in turn dictates the type of disposal site where the waste can be disposed of.

Waste Classification and Management Regulations

The Waste Classification and Management Regulation (GR635, 23 Aug 2013) aims to address the management of different waste categories. The regulations stipulate the requirements for the transport storage and treatment of different waste types. A list of requirements for record keeping by waste generators is also included in the regulations with the aim of improving and standardising record keeping. The regulations also detail the process to be followed when motivating why a listed waste management activity does not require a waste management license.

National Norms and Standards for Disposal of Waste to Landfill

The National Norms and Standards for Disposal of Waste to Landfill (GR636, 23 Aug 2013) specify minimum engineering design requirements for landfill sites. The design requirements vary depending on the type of waste to be disposed of at the site.

Landfill sites are designed to comply with one of four designs (Class A – Class D). The landfill design classes vary in the types of liner used. Class A landfill sites require multiple linings and leachate collection systems whereas a Class D landfill site is much simpler in design requiring only a 150 mm base preparation layer. Different classes of landfill are required for different types of waste.

National Norms and Standards for the Storage of Waste

The National Norms and Standards for the Storage of Waste (GN 926, Nov 2013) specify the minimum requirements for waste storage facilities in the interest of protection of public health and the environment. The standards aim to ensure that waste storage facilities are managed according to best practise and to provide a minimum standard for the design and operation of new and existing waste storage facilities.

Hazardous waste storage facilities should be located in areas zoned as industrial, where waste storage facilities are located in residential areas a buffer of at least 100 m must be assigned to the site. General waste storage facilities must be located in an area that is easily accessible by the public.

The standards also specify design requirements for waste storage facilities, these include:

- Access roads
- Signage at the entrance of the facility in at least three official languages applicable to the areas the facility is located in. The sign must indicate:
 - The risk associated with entering the site.
 - Hour of operation.

- Name, address and telephone number of the person responsible for the operation of the facility.

The standards also require that waste is separated at source into recyclables and non-recyclables.

A new condition for the management of waste storage facilities is the requirement for bi-annual internal audits and biennial external audits

National standards for the extraction, flaring or recovery of landfill gas

The National standards for the extraction, flaring or recovery of landfill gas (GN 924 of 2013) aims to control the extraction, flaring and recovery of gas at landfills or recovery facilities to minimise harmful impacts to people and the surrounding environment. The standards require, in planning phase, that an assessment of environmental risks and impacts that are associated with the proposed activities is complied, and that Environmental Management Plan is compiled to mitigate these risks. The standard contains a set of standard procedures for handling and maintaining of equipment for construction, operational and decommissioning phase. The standard also covers training, emergency response, monitoring and reporting, general requirements and transitional arrangements.

National standards for scrapping or recovery of motor vehicles

The National standards for scrapping or recovery of motor vehicles (GN 925 of 2013) puts forth minimum requirements for the design, construction and upgrading of a motor scrapping facility. The design must consider: sensitive environments; drainage systems; storage and operational areas for off-loading, dismantling, liquid waste, shredding, dispatching parts and recyclables. Specific design requirements are set out for different operational areas. Minimum requirements are given for the operational phase including vehicle dismantling, solid waste management, and liquid waste management. Minimum requirements in the decommissioning phase focus on the compilation of a rehabilitation plan for the facility and disposal of contaminated wastes. The standard also covers training, emergency response, monitoring and reporting, general requirements and transitional arrangements.

National norms and standards for sorting, shredding, grinding, crushing, screening of waste

The National norms and standards for sorting, shredding, grinding, crushing, screening of waste (GN 1093 of 2017) require all waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) less than 100m² in size to register with the competent authority and provide details including the location, types of waste processed, and civil design drawings of the facility as set out in Section 4 of the standard.

The standards require all waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) more than 100m² in size register with the competent authority as set out in Section 4 of the standard, as well as comply with requirements for the location, design, construction, access control and signage. Operational requirements in Section 8 of the standard address management of operational impacts such as control of hazardous substances, air emissions, discharging of wastewater, noise and odour emissions. The standard also covers training, emergency response, monitoring and reporting, general requirements, requirements during the decommissioning phase and transitional provisions.

Local Strategy and Policies

Municipal By-laws

Chapter 7 of the South African constitution: Section 156 provides that a municipality may make and administer by-laws for the effective administration of matters which it has the right to administer and that (section 151) it shall not be in conflict with national or provincial legislation.

This is further supported in the municipal systems act (Act 32 of 2000), Chapter 3: section 11 for a municipality to exercise executive authority within its boundaries to implement applicable by-laws. Section 75 of the MSA provides for the municipal council to adopt by-laws to give affect and enforce its tariff policy.

The Draft Municipal Sector Plan (Notice 182 of Government Gazette 34167) was published by the Minister for public comment on the 30 March 2011. Section 3.3.9.5 motivates that the enforcement of municipal waste by-laws is required to address ineffective collection systems through the enforcement of available resource-based controls which will improve the situation at community level. Enforcement should further be placed with a dedicated section with trained Environmental Management Inspectors in line with Chapter 7 of the National Environmental Management Act, 1998 (Act107 of 1998).

District	Chris Hani District Municipality
Venue	DEDEAT Regional Office, Chris Hani District Municipality, Komani Office Park, Makhanda
Date and time	15 October, 2018. 12.30 – 15.30
Stakeholders in attendance	DEDEAT, Chris Hani DM, DFFE LGS, Emalahleni LM, Sakhisizwe LM, Inxuba Yethemba LM, GIBB
	ITEM
1	WELCOME / INTRO
1.1	Lulama Daniels (LD): opened and did welcome
1.2	Kate Flood (KF): NMBM have tendered their apologies
2	PRESENTATION
2.1	KF: Presented the draft IWMP
3	SUMMARY OF DISCUSSION
3.1	Some landfill sites listed as operational in the presentation are no longer operational. The presentation will be circulated to all attendees for corrections.
3.2	How was the information for the IWMP collated? <i>KF: The latest IWMPs were used and surveys and information requests were sent out to all municipalities. Unfortunately not all municipalities responded to the information requests.</i>
3.3	Top issues with regard to waste management in the Chris Hani District Municipality: 1. Understaffing at the LMs. Not enough human resources/personnel in municipalities 2. Lack of budget in municipalities. Local municipalities are reliant on the district municipality for budget. <i>Response from LD: District municipalities are not responsible for budget provisions to local municipalities. Treasury has made budget available to all local municipalities for waste management in terms of Equitable Share. Local municipalities are still using the excuse of lack of budget to cover up for lack of waste management service and non-expenditure for waste management.</i>
3.4	Waste management is not a priority in the local municipalities. At a managerial level in local municipalities the waste department and municipal management should engage with COGTA to inform management of the importance of waste management and the need for budget. <i>Response from LD: A meeting was held with COGTA. Waste managers are not vocal enough for waste management, e.g. MIG funding only goes to roads and other departments, but not to waste.</i>
3.5	Is poor service delivery is not an issue in Chris Hani District Municipality? <i>Response from LMs: Waste planning and combining IWMP projects into IDPs is problematic. Budgetary decision are made on a senior level and waste managers do not have input into these decision.</i>
3.6	What is the strategy of the Province to deal with strategic planning for landfill sites, other provinces are taking a regional approach to landfill sites. <i>Response LD: Each Province is to manage waste to landfill sites based on waste generation, landscape and population density.</i> Follow on question: The problem it can be difficult to implement regional sites, for example at the Ibika landfill site. This was supposed to be a regional landfill site, but it is not used as a regional landfill site.
3.7	People don't litter because they are not aware of the negatives of littering, but because there are not enough bins, waste drop-off facilities or an adequate waste collection service.
3.8	Public awareness should include recycling and management of hazardous substances and waste. Waste awareness is undertaken by municipalities, but the consequences of poor waste management are not communicated. The link between the actions and consequence must be communicated. <i>Response from LD: The only way to achieve this is through a behavioural change, for example, the Cape Town drought. Water consumption dropped significantly when there was no water and awareness campaigns were run. It must be communicated that because of our own doing (poor waste management) people can get sick, this will stimulate change.</i>
3.9	An abattoir in town dumps waste at the landfill site, the community takes condemned meat from the landfill site. The negative impact and risks of consuming contaminated meat this must be communicated to the community.
3.10	Is a MRF sustainable or is there a return on investment for a MRF? <i>Response from KF: There are hidden cost savings for a MRF for example less waste being disposed of at landfill, reduced transportation costs. The development of a MRF can help to facilitate recycling.</i>
3.11	A waste facility needs to make business sense for a municipality to implement it. A business plan or feasibility assessment would need needed to determine if a MRF is feasible. <i>Response from KF: To understand the true cost of waste management services to a municipal, a cost accounting exercise</i>

	<i>must be done.</i>
3.12	Why is the waste collection so high in Intsika Yethu local municipality compared to the other local municipalities? Response from Intsika Yethu Local Municipality: Waste management staff are pro-active in this municipality.
4	WAY FORWARD
4.1	KF noted that comment period ends 24 October.
4.2	KF to circulate presentation and attendance register.
4.3	LD: Once plan is complete, it will get gazetted for public comment. And then gazetted for implementation.
District	Joe Gqabi District Municipality
Venue	DEDEAT Regional Office, Joe Gqabi District Municipality, No. 27 Queens Terrace, Aliwal North, 9750
Date and time	16 October, 2018. 08.30 – 11.30
Stakeholders in attendance	DEDEAT, Joe Gqabi DM, DFFE LGS, Walter Sisulu LM, GIBB
	ITEM
1	WELCOME / INTRODUCTION
1.1	Lyndon Mardon (LM): Opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF presented the draft IWMP
3	SUMMARY OF DISCUSSION
3.1	Feedback provided on the status on Landfill sites in the DM. Updated information list to be sent to KF from respective LMs. <ul style="list-style-type: none"> • Jamestown operational landfill site issued in 2014 • Jamestown old landfill site is unknown • Burgersdorp landfill site details to be issued • Venterstad landfill site details to be issued • Oviston no landfill site (TBC as shows on google earth) • Lady Grey landfill site is operational • Rhoddes landfill site permit is underway (to be issued)
3.2	The DFFE IWMP toolkit does not cater for the development of district IWMPs. This is a gap and should be raised at national forums/meetings.
3.3	The date of the Senqu IWMP is questioned and is to be confirmed. It was requested that a copy of the IWMP be submitted to KF.
3.4	According to the objectives for the 2010 IWMP, all LMS were to have appointed a WMO. Seeing that 32% of LMs have an appointed WMO, the status for the objective should be "work in progress" and not incomplete as per the draft IWMP. KF: Noted, this will be amended in the final IWMP.
3.5	Top 5 issues of waste management in the Joe Gqabi District Municipality <ol style="list-style-type: none"> 1. The permits for the landfill sites do not speak to NEMWA and there is a need it to be amended, for example, Lady Grey and Walter Sisulu have an incinerator that is working every day, Aliwal North, Jamestown, Steynsburg have incinerators, but that are not working. This is not allowed according to NEMWA but the old permits allow. Maclear is the only landfill site which has a permit in terms of NEMWA, all facilities have directives. 2. Joe Gqabi District Municipality is a poor district and needs more income and investment from recycling. Can a cumulative effect/monetary (economic) value be provided in the status quo of the IWMP for recyclable waste for different waste types to persuade communities to recycle. 3. The District is very rural, waste collection is not undertaken in rural areas. The landfill sites and waste collection service mainly focus on servicing the towns. As a result burning of waste occurs. 4. Insufficient budget planning done in the local municipalities. For example waste collection and management is not a priority therefore there no provision is made for fleet etc. 5. Waste awareness is insufficient with regard to informing the public of the need for quality recyclable waste from the waste stream. 6. Lack of resources and capacity to implement the IWMP
3.6	Can the air quality emissions (hypothetical emission gases and volumes) and consequences of waste burning be included to the IWMP. <i>Response from KF: A 1- page summary can be included.</i> Lyndon Mardon (LM) advised that draft state of air report has data that can be used. Waste burning is 2 nd biggest response item for the fire department. The lack of waste collection leads to burning of waste in rural areas. The solution is to collect the waste.
3.8	Not all district municipalities have IWMPs. The DFFE IWMP toolkit does not allow for the development of district IWMPs. Can DEDEAT to develop a district IWMP toolkit as a project so that each district can have an IWMP?
3.9	Is the WMO guideline development and performance plan needed as a goal? <i>Response from KF: A project or target is needed around empowerment of WMOs, WMOs are responsible for waste management in municipalities.</i>
3.10	Due to the lack of ownership of an MRF in Ugie by the municipality and community and financial constraints the MRF is not operational.

	<i>Response from KF: the IWMP will be updated to reflect this.</i>
3.11	Separation at source is important to local municipalities. Some local municipalities are already undertaking separation at source programmes. This target (target 3.2) should not be limited to Metros. The IWMP should be inclusive and not exclude anyone, local municipalities also have responsibilities in terms of separation at source. If there is a target for separation at source in the Provincial IWMP it can be put forward as a case to politicians and municipal management. If local municipalities are receiving equitable share therefore separation at source can be driven by local municipalities.
3.12	Has DEDEAT considered the development of a Provincial WIS? <i>Response from TM: DEDEAT has not considered provincial waste management system as yet. The province can continue to use the national SAWIS, the province is able monitor information submitted to the SAWIS by Eastern Cape registered facilities.</i>
3.13	How can DEDEAT be more involved in waste awareness and assist LMs with waste awareness? <i>Response from TM: DEDEATs awareness covers a wide range of environmental issues including waste management awareness. The local municipalities are undertaking a lot of waste awareness campaigns as well even though they are not all reported to DEDEAT.</i>
3.14	Is information on waste awareness campaigns shared with DEDEAT? <i>Response from TM: This is shared in the quarterly waste forums by some of the municipalities. The development and improving of reporting templates by DEDEAT will assist in the reporting on all the waste activities in the Province</i>
4	WAY FORWARD
4.1	KF noted that comment period ends 24 October.
4.2	KF to circulate presentation and attendance register.
4.3	TM: Once the plan is complete, it will be released for public comment, thereafter it will be gazetted for implementation.

District	Alfred Nzo District Municipality
Venue	DEDEAT Regional Office, Alfred Nzo District Municipality, erf 206, Magistrate Street, Maluti, 47400
Date and time	17 October, 2018. 08.30 – 11.30
Stakeholders in attendance	DEDEAT, Alfred Nzo DM, Matatiele LM, Ntabankulu LM, Umzimvubu LM, UmAfrica Recyclers, GIBB
	ITEM
1	WELCOME / INTRODUCTION
1.1	Lyndon Mardon Tembela Mapukata (TM): Opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF presented the draft IWMP
3	SUMMARY OF DISCUSSION
3.1	Use the waste hierarchy to speak to climate change in the IWMP. KF: A 1 pager will be added to the IWMP which discuss climate change impacts associated with waste management
3.2	Include waste oil facilities that are treating used oil in the IWMP. There is 1 facility in East London and 1 large facility in Port Elizabeth.
3.3	Comments on waste facilities in the district: <ul style="list-style-type: none"> • Umzumvubu LM has a MRF • Bizana landfill is still under construction • Cedarville landfill/dump site in Matatiele is closed. Has been closed in 2008. • Ntabankulu landfill licence issued in 2014. Response from KF: The IWMP will be updated to reflect these comments
3.4	Only Ntabankulu LM IWMP was sent for endorsement.
3.5	Top 5 issues of waste management in the Alfred Nzo District Municipality <ol style="list-style-type: none"> 1. Disposal of tyres on landfill sites 2. Disposal of nappies on landfill sites 3. Landfill sites airspace not lasting as long as they were designed for. For example Matatiele landfill was supposed to have airspace for 19 years, but currently looks as if it will only have airspace for 9 years (half of the life landfill lifespan). <i>TM responded: The local municipality is not implementing waste hierarchy which could be the problem.</i> 4. The landfill sites are too close to the community leading to vandalism of infrastructure and theft of equipment. 5. Illegal dumping mainly builders rubble but differs per local municipality.
3.6	WMOs were designated in all Alfred Nzo local municipalities in 2017.
3.8	Waste collection services are seen as a liability to the municipality as most customers are indigent. Equitable share is insufficient to service all indigents.
3.9	TM: In response to a lack of municipalities undertaking full cost accounting exercises. Two sessions on the DFFE waste tariff model were conducted in the district by national DFFE, in 2014 and 2018.
3.10	What will the WMO performance and development plan be based (target 1.2 and 1.3)?

	<i>KF response: The template will be based on the DFFE guidelines for designation of waste management officers.</i>
3.11	Can DEDEAT assist to develop a template for operational plans for waste facilities.
3.12	Target 6.2 achieve a 10% waste collection increase is not feasible due to a lack of budget, waste tariff increases cannot be undertaken and low payment of tariffs. <i>TM response: Is equitable share filtering down to waste collection? Budget is available for waste collection based on the indigent grants.</i> Local municipality response: There is a lack of influence in the waste management dept. <i>TM: Also the indigent household lists are not updated so the volumes for waste collection cannot be quantified.</i> Local municipality: The issue of politicians in LM not listening to waste management staff should be raised with the internal auditors (auditor general).
3.13	People within the local municipality do not pay for waste collection service even though they are receiving the service as the "services" are billed on a lump sum basis and are not split per service. The community therefore refuses to pay any waste collection service. LM: this is a concern for the LM finance department and not the waste collection dept.
3.14	Should DEDEAT solely champion recycling? (Target 7.2). The Alfred Nzo district municipality has had 2 workshops to date with private companies. Private companies have also presented recycling initiatives and waste to energy to the district.
3.15	Can DEDEAT to investigate a penalty system when local municipalities are not implementing their responsibility in terms of waste management and management of landfill sites. This will assist the WMOs to fulfil their role. <i>KF: Should a target around enforcement be added to the implementation plan?</i>
3.16	Why are wastewater and effluent is not included in the IWMP? <i>Response from TM: The management of wastewater treatment works and management of sludge is the responsibility of the Department of Water and Sanitation. The treatment of wastewater and sewage sludge are no longer listed activities in terms of the NEM: WA.</i>
3.17	What is the requirement for review of permits issued under the Environment Conservation Act for landfill sites? <i>TM response: For now the focus is to licence all unlicensed landfill sites. Municipalities can commence the process of reviewing ECA licenses</i>
4	WAY FORWARD
4.1	KF noted that comment period ends 24 October.
4.2	KF to circulate presentation and attendance register.
4.3	TM: Once the plan is complete, it will be released for public comment, thereafter it will be gazetted for implementation.

District	O.R. Tambo District Municipality
Venue	DEDEAT Regional Office, O.R. Tambo District Municipality, 5th Floor Botha Sigacawu Building, Cnr Leeds Road and Owen Street, Mthatha
Date and time	18 October, 2018. 08.30 – 11.30
Stakeholders in attendance	DEDEAT, DFFE, O.R. Tambo DM, Nyandeni LM, Ingquza Hill LM, GIBB
	ITEM
1	WELCOME / INTRODUCTION
1.1	Tembela Mapukata (TM): Opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF presented the draft IWMP
3	SUMMARY OF DISCUSSION
3.1	The maps showing waste collection service should have more intervals so differences between local municipalities can be seen <i>KF response: It is not possible to show all the different levels of collection service, the number of categories could maybe be increased to 10 e.g. 1-10%, 11-20%. There are tables in the report which give a breakdown of waste collection services per local municipality. Maps will be added to the district summary page to show waste collection per local municipality.</i>
3.2	Comments on recycling programmes King Sabata Dalindyebo LM is running a waste separation at source programme Mhlontlo LM has a MRF. Port St Johns LM has a dirty MRF at the landfill site. <u>Data of a buy-back centres and MRFs will be provided by O.R. Tambo DM to KF.</u>
3.3	All OR Tambo landfill sites permits are showing on the SAWIS site. A password has been received from national DFFE which now allows the upload of permits.
3.4	Comments on the status of IWMP King Sabata Dalindyebo LM has a 2018 IWMP which has been endorsed by DEDEAT. <u>The IWMP is to be sent to KF.</u> Nyandeni IWMP was endorsed in 2014.
3.5	All LMs in the district have an appointed WMO. <u>Information to be submitted to KF.</u>
3.6	With regards to the data presented on the satisfaction of waste collection service, was this survey only of people receiving a waste collection service.

	KF response: yes the survey was limited to those receiving a collection service.
3.8	Top issues of waste management in the O.R. Tambo District Municipality 1. The municipalities are rural in nature and therefore cannot target all households for waste collection services 2. Lack of waste awareness in communities 3. There is lots of development outside the urban edge which creates peri-urban environments. These areas do not then receive a waste collection service. 4. Lack of available land for new landfill sites 5. Disposable nappies 6. Servicing of indigents is an issue. Indigent registers are not finalised. Funding in terms of equitable share is not used for waste management 7. WMO is not influencing budgetary decisions, budget for waste is not ring fenced.
3.9	Infrastructure development and provision of equipment and fleet for waste management is not a priority. TM response: WMOs are not well equipped to handle waste management issues in the local municipalities. Municipalities are not aware of the percentage of funds designated for waste management.
3.10	Target 1.5 of the implementation should also require municipalities to determine additional resources needed to implement the PIWMP. KF response: target will be amended.
3.11	Recycling should be formalised, and local municipalities should collect data on recyclables from waste collectors. This can be dealt with in the by-laws.
3.12	WMO training requirements should include training on NEMWA, EMI training, waste management, etc. Training will assist the enforcement of waste management.
3.13	By-laws are enforced by traffic officers, but the traffic officer focus on traffic violations. Fines are not being issued for illegal dumping. The entire exercise of developing by-laws was in vain as they are not enforced.
4	WAY FORWARD
4.1	KF noted that comment period ends 24 October.
4.2	KF to circulate presentation and attendance register.
4.3	TM: Once the plan is complete, it will be released for public comment, thereafter it will be gazetted for implementation.

District	Sarah Baartman District Municipality
Venue	DEDEAT Regional Office, Sarah Baartman District Municipality, Collegiate House, Cnr Belmont Terrace and Castle Hill, Central, Port Elizabeth
Date and time	22 October, 2018. 08.30 – 11.30
Stakeholders in attendance	DEDEAT, Sarah Baartman DM, Blue Crane Route LM, SANRAL, GIBB
	ITEM
1	WELCOME / INTRODUCTION
1.1	Tembela Mapukata (TM): Opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF presented the draft IWMP
3	SUMMARY OF DISCUSSION
3.1	Jeff Govender (JG): Can SAWIS give you the details of waste generation split between LM and private industry? KF: No, SAWIS only presents rolled up data
3.2	JG: Has the appeal process for the Coega SEZ hazardous landfill approval been concluded yet? KF: No, the appeal process is still underway.
3.3	JG: Koukamma LM have started using (for last few years) an illegal landfill on private land. <u>JG to provide details to KF.</u>
3.4	JG: Humansdorp MRF. Kouga LM have put out a tender for a private-public partnership to establish and run a facility at the Humansdorp landfill. Kouga LM spent R25M on weighbridges, fencing, guard-houses etc. at Humansdorp and Hankey landfills. At Hankey landfill guardroom has been stripped. At Humansdorp, fencing has been stripped. Neither weighbridges are working because electronics at guardhouses have been removed.
3.5	JG: Beyers Naude. Challenge is that with amalgamation, waste has not been allocated any budget. Will only be funded in 2021. Needing approx. R40M. DEDEAT encouraged them to look at recycling to reduce waste to landfill. DEDEAT will engage Coke and Petco to assist. Suggested that they do an in-house assessment of their landfills to rank compliance. Also asked them to get the volumes of waste generated per town. LM thinking about appointing small transporters (bakkies) per town to do collection.
3.6	Masixole Ntongana (MN): A MRF at Alexandria has been completed but not yet handed over for operations
3.8	MN: Graaf Reinet: Has a transfer station. Intention was to do separating of waste here and upgrade it, but nothing has happened, and it continues just to be used as a transfer station.
3.9	KF: We were not able to meet with Dr Beyers Naude. JG: this is because directors and senior people in community services have been suspended or fired
3.10	TM: not sure if Bathurst garden and Canon Rocks sites are still in existence. KF GIBB audited the sites a few years back.. KF: to issue previous Sarah Baartman (Cacadu) landfill audit report to JG TM
3.11	JG: Need to qualify the fact that Dr Beyers does not have its own IWMP. Explain IWMP history of previous constituting

	LMs.
3.12	TM: Need to differentiate between municipalities having just completed their IWMP and those which have been endorsed by MEC. Only NMBM has completed the endorsement process.
3.13	<p>Top issues in the Sarah Baartman District Municipality</p> <ul style="list-style-type: none"> - Nomsa Mgicipe (NM): There is no funding for waste management in Blue Crane. All the funding is diverted to housing and roads. There is no capital budget in the IDP for waste management. - JG: MIG funding is not being apportioned correctly. The split is specified but not adhered to. - Chris Julius (CJ): The LMs do not action any of the findings in the landfill performance audits. - NM: There is no feedback from the DEDEAT. They are not supporting LMs. - JG: Acknowledges that DEDEAT is not responding to LMs quickly but DEDEAT is not getting the feedback needed from DFFE. They have submitted reports to DFFE but no response or site visit. - Nene Songxaba (NS): It is hard for SANRAL to comply because there is no database of licensed sites, and sites are not manned so no one can sign to prove you dumped there correctly. - NM: There are no trained peace officers in LMs hence no enforcement of bylaws is being done. - JG: Integration of provincial and national competencies.
	Separation at source: NM: Have tried to do separation at source in Blue Crane. Did not work because residents say that they want to be paid to do separation at source. Also private recyclers are taking the bags and reselling them. There is also a higher cost for the municipality to supply a 2-bag system but there are no funds.
	JG: Suggests that before we commit Sarah Baartman District Municipality to doing a waste infrastructure masterplan, we need to get formal correspondence from SBDM to confirm if they would access this. SBDM lady to get confirmation. JG then called the SBDM and they said they would not be able to assist with this unless DEDEAT funds the plan. JG to request SBDM to send this in writing.
	JM: Kate to add to implementation plan that DEDEAT approval processes for housing / residential developments that they must include recycling drop off facilities.
	NM: Blue Crane established a waste management forum. They coordinate awareness campaigns. They report the number and extent of the campaigns to the district. For example, they invite members of the community to dumpsites when they clean it up.
	KF: Is it reasonable to say that DEDEAT should audit all facilities annually. CJ: In metro, there are currently 5 facilities registered to N&S and 3 waste licenses. KF: Should be reasonable to keep this as a target.
	JG: when talking about fining LMs, must remember that there is a process to the Intergovernmental Relations Act, in which they would have to prove that they have engaged the LMs properly.
4	WAY FORWARD
4.1	KF noted that comment period ends 24 October.
4.2	KF to circulate presentation and attendance register.
4.3	TM: Once the plan is complete, it will be released for public comment, thereafter it will be gazetted for implementation.

District	Amathole District Municipality
Venue	DEDEAT Head Office, Beacon Hill, Hockley Close, King Williams Town
Date and time	23 October, 2018. 10.00 – 13.00
Stakeholders in attendance	DEDEAT, DFFE, Amathole DM, Raymond Mhlaba LM, Great Kei LM, Eastern Cape Parks and Tourism Agency, GIBB
	ITEM
1	WELCOME / INTRODUCTION
1.1	Lulama Daniels (LD): Opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF presented the draft IWMP
3	SUMMARY OF DISCUSSION
3.1	There is a landfill at Morgan's bay for garden waste with licence for closure – Kei Mouth also has a site with closure licence
3.2	No landfill in Hamburg, transfer station at Peddie
3.3	Seymour landfill non operational
3.4	LD: Rieger's is not landfill site, rather garden refuse transfer station
3.5	LD: No KWT Tannery, became illegal dumpsite
3.6	LD: KF to review handover documents from Department of Water Affairs to Department of Forestry, Fisheries and the Environment. Buffalo City Metro IWMP is not finalised and should not be used as an information source for PWIMP
3.8	<p>Top 5 issues specific to waste management in Amathole DM and BCMM</p> <ul style="list-style-type: none"> • Funding for waste management activities lacking • ADM: Difficulty in designating/approving a WMO due to commitment issues

	<ul style="list-style-type: none"> • IWMPs are expiring, lack of action in municipalities to review in-house or appoint a service provider • Instability within municipalities • Lack of capacity in municipalities (inexperience)
3.9	LD: funding should not be a problem because national treasury specifies the allocation of equitable share for waste management, but municipalities use this budget in other areas
3.10	LD: IWMPs cannot be implemented or funded for if they do not make it to the IDP process. Not a financial problem but a problem of developing IWMPs that have shortcomings like no public participation process that render them non credible and therefore no implementation of IWMPs
3.11	LD: Budgets are supplied when implementing IWMPs to fund waste management in rural areas, but are used rather on urban areas (areas of focus) rather than where it should be used
3.12	Target 1.1, it might not be viable to have WMOs in place by Year 2. If this requirement does not filter down into local municipality IWMPs or the IWMPs are not implemented
3.13	LD: is mandate of municipality to collect waste. Municipalities are still accountable for implementation of separation at source and should monitor this to allow enabling environment for separation source. Responsibility of Municipality
3.14	KF and LD: Municipalities should review the effectiveness of operational plans for waste management facilities
3.15	LD: Owner of facility must contact EAP for facility licence to get the operational plans for facilities, it is owned by the owner who paid for the plan. Facility owner must sign operational plan for it to be credible. KF: Owner of licence to review the operational plan internally
3.16	LD: Target 8.6 DEDEAT should serve more of a support role than an enforcement role. Municipalities should address non-compliance internally. If DEDEAT issues fines this will result in money being spent on the fine instead of addressing the issues. When DEDEAT tries to fine municipalities, they appeal the fines and say that they don't have funding. KP: DEDEAT should give municipalities an opportunity to address findings before issuing fines.
3.17	LD: Fines should be for individuals and not for municipality. The official/staff member that is conducting the discrepancy should be fined rather the municipality itself. Municipalities need to be able to issue fines internally for their staff that are non-compliant
3.18	Municipal managers do not react to DEDEAT when they issue non-compliance reports. If DEDEAT issued fines, it would make municipal managers take compliance issues raised by DEDEAT more seriously
3.19	LD: There should be a protocol to follow with court involvement around fining for non-compliance
4	WAY FORWARD
4.1	KF noted that comment period ends 24 October, the deadline has been extended to 26 October for Amathole District Municipality
4.2	KF to circulate presentation and attendance register.
4.3	TM: Once the plan is complete, it will be released for public comment, thereafter it will be gazetted for implementation.

District	Nelson Mandela Bay Metropolitan Municipality
Venue	GIBB Office, Greyville House, Cnr Cape & Greyville Roads, Greenacres, Port Elizabeth
Date and time	25 October 2018. 11.30 – 13.30
Stakeholders in attendance	NMBM, GIBB
	ITEM
1	WELCOME / INTRODUCTION
1.1	KF (KF): Opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF presented the draft IWMP
3	SUMMARY OF DISCUSSION
3.1	Top issues in the NMBM <ul style="list-style-type: none"> • Lack of funding direction to waste management projects. MIG funding is not correctly distributed and is used for other services • No designated WMO • Lack of enforcement of by-laws due to a lack of appointed peace officers • Lack of support for DFFE Local Government Support • Lack of implementation of plans such as IWMP • Lack of technical information available to municipalities
3.2	Can DEDEAT develop a database which lists successful municipal waste initiatives e.g. street bins and provide contact details so other municipalities know who to contact for advice?
3.3	Target 3.5, all the construction and demolition waste (C&DW) brought onto the metros two landfill sites is used for cover material. It would not be viable to crush and sell C&DW.
3.4	Landfill airspace is a concern in the metro, there are plans to expand Koedoeskloof
3.5	Lack of intergovernmental communication e.g. the metro were not involved with the EIA for the proposed Coega regional general and hazardous landfill site.

3.6	Lack of support from DFFE Local Government Support, there is a DFFE representative in the metro but they haven't engaged with the waste department.
3.8	The province should develop a set of editable public participation materials, local municipalities often lack the budget or skills to develop materials in-house.
4	WAY FORWARD
4.1	KF noted that comment period ends 24 October, the deadline has been extended to 26 October for NMBM
4.2	KF to circulate presentation and attendance register.
4.3	KF: Once the plan is complete, it will be released for public comment, thereafter it will be gazetted for implementation.

Appendix E: Summary of Funding Agencies Applicable to Waste Management

There are various South Africa and international agencies as well as governmental organisations which provide funding for waste management projects. A summary of some of these agencies is provided below. This list should not be considered as exhaustive and is included for information purposes.

Table 534: Details of funding agents

Fund Name	Funding Agency	Qualifying Recipients	Purpose and type of projects funded (waste specific)	What is funded/ not funded	Funding cycle
South Africa					
The Green Fund	DFFE with DBSA as implementing agent	Municipalities	Sustainable waste management and recycling	Project development and / or investment in green projects and programmes; Capacity building. All funded.	
The Cooperative Incentive Scheme (CIS)	Department of Trade & Industry	Primary co-operatives	Feasibility assessments, business, manufacturing etc. project up to a maximum value of R350,000	Business Development; Technology improvements, Machinery, commercial vehicles, infrastructure (electricity, boreholes etc.)	
DBSA Development Fund	DBSA	Municipalities, state-owned enterprises, public-private partnerships, public-public partnerships and private sectors	Physical, social and economic infrastructure projects. DBSA's goal is to improve the quality of life of the people of the region.	Municipal operations, maintenance and capacity building.	
The Jobs Fund	Government Technical Advisory Committee (GTAC)	Public, private and non-governmental organisations	Activities that significantly contribute to job creation. Minimum funding requests are R10 million	<ul style="list-style-type: none"> Enterprise development Infrastructure investment Support for work seekers Institutional capacity building	
Expanded Public Works (EPWP) Incentive Grants.	National Department Public Works (DPW)	Municipalities	Labour intensive work, including waste and environmental projects.	Salary payments for temporary workers. Workers must not be paid less than R50/day	Annual
Municipal Infrastructure Grant (MIG)	National Treasury	Municipalities	All infrastructure related needs	Physical infrastructure	
Infrastructure Finance Corporation Limited (INCA)	Corporate Social Investment (CSI)	Municipalities	All infrastructure related needs	Capacity building, socioeconomic development and infrastructure projects	
Small Enterprise Finance Agency (SEFA)	Department of Small Business Development	Qualifying SMMEs and Co-operatives	For social development and to advance the human rights of women	Financial products and services provide to the following sectors: <ul style="list-style-type: none"> Services Manufacturing 	Ongoing

National Empowerment Fund (NEF)	National Empowerment Fund (NEF)	Black entrepreneurs		Support Broad-Based Economic Empowerment (BB-BEE)	<ul style="list-style-type: none"> • Agriculture • Construction • Mining • Green industries 	Ongoing
National Youth Development Agency (NYDA)	National Development Agency (NYDA)	Formal and informal businesses, co-operatives	Youth Agency	Youth development	Individual grants awarded to formal and informal businesses that are in start-up or development phase of their business	Ongoing
International						
Austrian Development Coordination	Austrian Embassy	Civic, community local government structures		Capacity building of civil, community and local government structures.	Empowerment of civil society, poverty reduction needs of children and people with disabilities	Ongoing
British Foreign & Commonwealth Office Global Opportunity Fund (FCO Global Opportunity Fund)	British Embassy	Partners from civil society, NGO's and others.		Support of the country's specific developmental needs. Government affiliated social development initiatives.	Depends on nature and merit of application	Ongoing
French Development Aid	French Agency for Development	Various, including municipalities		Development of basic infrastructures and essential services	Infrastructure, water connections, sanitation.	
Development cooperation	German Technical Cooperation (GTZ)			Rural development, social development, environment and climate change.	Various. Depends on nature and merit of application	Ongoing
Tirelo Boscha, Public Service Improvement Facility	Belgium Development Agency (BTC South Africa) Hosted by SA Dept. of Public Service and Administration	All government departments, their implementing agencies and non-state actors involved in public service delivery.		Any public service delivery related projects, particularly research and pilot projects focusing on public service delivery.	Implementation costs including fees, travel costs, supplies. Infrastructure costs are not funded.	Application open approximately annually.
Overseas Development Assistance	Japan International Cooperation Agency (JICA)	Governments and their agencies.		Various including community development, environment, infrastructure projects	Various	Ongoing
Development cooperation	Swedish International Development Cooperation Agency (SIDA)	Municipalities		Various including economic and environmental partnerships.	Grants, training and technical assistance.	Ongoing
Turkish International	Turkish Embassy	Municipalities		Economic and social	Grants for various needs, including	Ongoing

Cooperation and Development Agency (TIKA)			development	financing infrastructure and construction projects.	
Abu Dhabi Fund for Development	UAE Embassy	Municipalities	Economic and social development in developing countries. Financing for development projects.	Various	Ongoing
UNDP Small Grants Programme and other UNDP and partner funds.	United Nations Development Programme.	Municipalities	Enhancing service delivery, economic development, and sustainable development, and enhancing social services.	Various	Ongoing
USAID	US Agency for International Development	Municipalities	To develop health, economic growth, education and democracy.	Various	Ongoing
European Investment Bank (EIB)	Social Investment (CSI)	Public and private sector investments, and mixed public-private ventures	Under an agreement with the South African Government, it finances: <ul style="list-style-type: none"> • Productive investment • Infrastructure, including municipal infrastructure Assisting development in South Africa	Provides finance and expertise for projects supporting innovation, SMEs, infrastructure and climate action	Ongoing

PROVINCIAL NOTICE 529 OF 2023

**NOTICE****MATATIELE LOCAL MUNICIPALITY DRAFT A LAND USE SCHEME**

Notice is herewith given in terms of Section 25(1) of the Municipality's SPLUMA By-law that the Municipal Council has, on 26 January 2023 resolve to adopt a new Wall-to-Wall Land Use Scheme for the Municipality's area of jurisdiction in terms of Chapter 5 of the Spatial Planning and Land Use Management Act No. 16 of 2013 (SPLUMA).

ISAZISO**UMASIPALA WENGINGQI YASE MATATIELE UYILWA INKQUBO YOKUSETYENZISWA KOMHLABA**

Isaziso siyanikezelwa ngokweCandelo lama-25(1) loMthetho kaMasipala we-SPLUMA wokuba iBhunga likaMasipala, ngomhla wama-26 kweyoMqungu ka-2023 linesigqibo sokwamkela iNkqubo entsha yokuSetyenziswa koDonga ukuya eludongeni kwindawo ephantsi kolawulo lukaMasipala ngokwemiqathango. yeSahluko sesi-5 soMthetho woCwangciso lweSithuba noLawulo lokuSetyenziswa koMhlaba onguNombolo 16 ka-2013 (SPLUMA).

Mr. Lizo Matiwane
Municipal Manager
P.O Box 35
Matatiele
4730

PROVINCIAL NOTICE 530 OF 2023

Nelson Mandela Bay Municipality (EASTERN CAPE)**Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)****ERF 1790, WESTERING, PORT ELIZABETH, EASTERN CAPE**

Under Section 47 of the Spatial Planning and Land Use Management Act, (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that condition B.6(a), (b), (c) and (d) in Deed of Transfer No. T8231/2019 applicable to ERF 1790, WESTERING, Port Elizabeth are hereby removed.

PROVINCIAL NOTICE 531 OF 2023**Nelson Mandela Bay Municipality (EASTERN CAPE)****Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)****ERF 296, COTSWOLD, PORT ELIZABETH, EASTERN CAPE**

Under Section 47 of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that conditions B.4 (b), (c) and (d) in Deed of Transfer No. T6618/2017 applicable to Erf 296 Cotswold are hereby removed.

PROVINCIAL NOTICE 532 OF 2023**Nelson Mandela Bay Municipality (EASTERN CAPE)****Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)****ERF 2510, NEWTON PARK, PORT ELIZABETH, EASTERN CAPE**

Under Section 47 of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that condition C.5 in Deed of Transfer No. T8174/2020 applicable to Erf 2510 Newton Park is hereby removed.

PROVINCIAL NOTICE 533 OF 2023**Buffalo City Metropolitan Municipality (EASTERN CAPE)**

Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act 2013 (Act 16 of 2013) and the Buffalo City Metropolitan Municipality Spatial Planning and Land Use Management By-Law (2016).

ERF 6818, EAST LONDON (10 St Andrews Road)

1. Under Section 47 of the Spatial Planning and Land Use Management Act 2013 (Act 16 of 2013) read with Section 59 of the Buffalo City Metropolitan Municipal Spatial Planning & Land Use Management Bylaw of 2016 and upon instructions of the Local Authority a notice is hereby given that conditions B.(b) and (d) from Deed of Transfer T6474/2008 applicable to Erf 6818 East London is hereby removed.

PROVINCIAL NOTICE 534 OF 2023**LOCAL AUTHORITY NOTICE 127 OF 2018****Buffalo City Metropolitan Municipality (EASTERN CAPE)**

Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act 2013 (Act 16 of 2013) and the Buffalo City Metropolitan Municipality Spatial Planning and Land Use Management By-Law (2016).

RE: ERF 10196 EAST LONDON (27 LOWER RIDGE ROAD, BONNIE DOON)

Under Section 47 of the Spatial Planning and Land Use Management Act 2013 (Act 16 of 2013) read with Section 59 of the Buffalo City Metropolitan Municipal Spatial Planning & Land Use Management Bylaw of 2016 and upon instructions of the Local Authority a notice is hereby given that condition C (a-d) and D found in Deed of Transfer No. T6848/2022, pertaining to Erf 10196 East London is hereby removed.

PROVINCIAL NOTICE 535 OF 2023**Nelson Mandela Bay Municipality (EASTERN CAPE)**

Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)

ERF 117, SUMMERSTRAND, PORT ELIZABETH, EASTERN CAPE

Under Section 47 of the Spatial Planning and Land Use Management Act, (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that condition A., B.(a)-(d), C. and D.1-D,5 in Deed of Transfer No. T7036/2021 applicable to ERF 117, SUMMERSTRAND, Port Elizabeth are hereby removed.

PROVINCIAL NOTICE 536 OF 2023

OFFICE OF THE PREMIER

GENERAL LAW AMENDMENT BILL, 2023 (EASTERN CAPE)

The above mentioned Bill is hereby published for public comment in terms of Rule 147 of the Standing Rules of the Provincial Legislature (Eastern Cape).

Members of the public are invited to submit written comments within 14 days from the date of publication hereof.

The comments must be submitted to –

The Director General

Office of the Premier

Private Bag X 0047

Bhisho

5604

For the attention of : Ms M. Koert

Email: Melanie.koert@ecotp.gov.za alternatively,

Email: Tammy.flanagn@ecotp.gov.za

OFFICE OF THE PREMIER

**GENERAL LAW AMENDMENT BILL, 2023
(EASTERN CAPE)**

As introduced

(BY THE PREMIER OF THE PROVINCE OF THE EASTERN CAPE)

BILL

To repeal obsolete and old order legislation of the Province of the Eastern Cape; and to provide for matters connected therewith.

BE IT ENACTED by the Legislature of the Province of the Eastern Cape, as follows:-

REPEAL OF LAWS

1. The laws mentioned in the second column of the Schedule are hereby repealed to the extent set out in the third column thereof.

SHORT TITLE AND DATE OF COMMENCEMENT

2. This Act is called the Eastern Cape General Law Amendment Act, 2023.

SCHEDULE

Number and year of Act	Short title	Extent of repeal
(a) Ordinance No. 23 of 1964	Provincial Restaurants Ordinance	Repealed as a whole
(b) Ordinance No. 20 of 1971	Public Resorts Ordinance	Repealed as a whole
(c) Act No. 8 of 1997	Regulation of Development in Rural areas Act (Eastern Cape)	Repealed as a whole

EXPLANATORY MEMORANDUM ON THE EASTERN CAPE GENERAL LAW AMENDMENT BILL, 2017

PART 1 (GENERAL PRINCIPLES)

BACKGROUND

The Office of the Premier undertook a process of rationalizing provincial legislation to test such legislation against the Constitution 1996, for possible retention, amendment or repeal.

The rationalization process involves the review of legislation to ensure that all legislation in the statute books of the Province –

- (a) is aligned to the Constitution;
- (b) addresses the current needs of the Province;
- (c) is free of obsolete and discriminatory terms and references;
- (d) is accessible; and
- (e) promotes legal certainty, good administration and enhances service delivery.

This Bill is a culmination of that process. A bulk of the old order legislation has been repealed by the various General Law Amendment Acts which have been passed by the Legislature.

The legislation to be repealed by this Bill cuts across Provincial Departments hence the Bill is introduced by the Premier of the Province. Relevant

departments have been consulted on legislation repealed by this Bill and it is not expected that there will be any vacuum left as a result of the repeal of legislation listed in the Schedule thereto.

2. REASONS AND EFFECT OF THE BILL

The Bill is to ensure that old order legislation is repealed thereby creating legal certainty.

3. OBJECTS OF THE BILL

The objects of the Bill is to repeal obsolete and old order legislation of the Province of the Eastern Cape.

4. FINANCIAL IMPLICATIONS

There are no financial implications.

5. DEPARTMENTS/ BODIES/ PERSONS CONSULTED

Relevant departments have been consulted on legislation repealed by this Bill

6. COMPETENCY

The subject matter of the legislation to be repealed fall within Schedule 4 of the Constitution which provides for areas of concurrent National and Provincial Legislative competence.

PART 2
(CLAUSE BY CLAUSE ANALYSIS)

- CLAUSE 1** - provides for the repeal of all legislation listed in the Schedule to the Bill
- CLAUSE 2** - provides the short title of the Bill

PROVINCIAL NOTICE 537 OF 2023**Nelson Mandela Bay Municipality (Eastern Cape)****REMOVAL OF RESTRICTIONS APPLICATION IN TERMS OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013):****ERF 527, Cotswold, Gqeberha, Port Elizabeth, Eastern Cape**

Under Section 47 of the SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) and upon instructions by the Local Authority, a notice is hereby given that conditions 6.(a), 6.(b), 6.(c) & 6.(d) as contained in the Title Deed No. T028675/2009 applicable to 17 Loerie Street, Cotswold Erf 527 are hereby removed.

Yours faithfully,

SIngram / SIngram Plans (PTY)Ltd

PROVINCIAL NOTICE 538 OF 2023**Nelson Mandela Bay Municipality (Eastern Cape)****REMOVAL OF RESTRICTIONS APPLICATION IN TERMS OF THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013):****ERF 4135, Lorraine, Port Elizabeth, Eastern Cape**

Under Section 47 of the SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) and upon instructions by the Local Authority, a notice is hereby given that conditions B1 (a), (b), (c) of Deed of Transfer T000086914/2007 applicable to Erf 4135, Lorraine are hereby removed.

Yours faithfully,

SIngram / SIngram Plans (PTY)Ltd

PROVINCIAL NOTICE 539 OF 2023

Eastern Cape Department of Economic
Development Environmental Affairs and
Tourism



Eastern Cape Provincial Recycling Strategy

J37234

FINAL



Eastern Cape Provincial Recycling Strategy

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Revision Status

Rev No.	Issue Date	# Pages	Revision Description	Prepared By	Reviewed By	Approved By
0	20 Nov 2018	89	Version 1	K. Flood	W. Fyvie	W. Fyvie
1	30 Jan 2019	104	Version 2	K. Flood	W. Fyvie	W. Fyvie
2	23 Sep 2019	103	Version 3	K. Flood	W. Fyvie	W. Fyvie
3	08 Oct 2019	112	Version 3 - Final	K. Flood	W. Fyvie	W. Fyvie

Abbreviations / Acronyms

BCMM	Buffalo City Metropolitan Municipality
DEA	Department of Environmental Affairs.
DEFF	Department of Environment, Forestry and Fisheries (formerly Department of Environmental Affairs)
DEDEAT	Department of Economic Development Environmental Affairs and Tourism
DM	District Municipality.
ECA	Environment Conservation Act (73 of 1989).
ECSECC	Eastern Cape Socio-Economic Consultative Council.
ECDoH	Eastern Cape Department of Health
EIA	Environmental Impact Assessment.
EPR	Extended Producer Responsibility
EPWP	Expanded Public Works Programme
ERA	E-waste Recycling Authority
eWASA	e-Waste Association of South Africa.
FBRR	Free Basic Refuse Removal.
GDPR	Gross Domestic Product per Region.
GN	Government Notice
HCRW	Health Care Risk Waste.
HWMP	Hazardous Waste Management Plan.
IDP	Integrated Development Plan.
IDZ	Industrial Development Zone.
IndWMP	Industry Waste Management Plan
IT	Information Technology.
IWM	Integrated Waste Management.
IWMP	Integrated Waste Management Plan.
IWMSA	Institute of Waste Management South Africa.
LM	Local Municipality.
MEC	Member of Executive Council.
MIIU	Municipal Infrastructure Investment Unit.
MRF	Material Recovery Facility.
NEMA	National Environmental Management Act.
NEMWA	National Environmental Management: Waste Act (59 of 2008).
NMBM	Nelson Mandela Bay Metropolitan Municipality
NWMS	National Waste Management Strategy.
OHSA	Occupational Health and Safety Act (85 of 1993).
OTR	Off Road Tyre
PCBs	Polychlorinated Biphenyls.
PE-HD	Polyethylene high density.
PE-LD	Polyethylene low density.
PET	Polyethylene Terephthalate.
PIWMP	Provincial Integrated Waste Management Plan.
POP(s)	Persistent Organic Pollutant(s).
PP	Polypropylene.
PROs	Producer Responsibility Organisations
PS	Polystyrene.

PSC	Project Steering Committee.
PUDSS	Permissible Utilisation and Disposal of Sewage Sludge.
PVC	Polyvinyl Chloride.
RDP	Reconstruction and Development Programme.
ROSE	Recycling Oil Saves the Environment.
RSA	Republic of South Africa.
SABS	South African Bureau of Standards.
SANBI	South African National Biodiversity Institute.
SATRP	South African Tyre Recycling Process Company.
SAWIS	South African Waste Information Centre.
WHO	World Health Organisation.
WIS	Waste Information System.
WMO(s)	Waste Management Officer(s).

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1 Introduction

The Department of Economic Development Environmental Affairs and Tourism (DEDEAT) has identified that there is a need to increase recycling in the Eastern Cape. There is currently a significant lack of data available on recycling to allow DEDEAT to determine the status quo of recycling in the province.

1.1 Definition of Recycling

The National Environmental Management Waste Act (Act 59 of 2008) defines recycling as

‘a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material’

Recycling of waste is located below waste avoidance and reduction and re-use in the waste management hierarchy. Waste avoidance and reduction is largely driven by the manufacturing and retail sector and can be achieved through review of product and packaging design to minimise the amount of material used and through the use of returnable packaging such as returnable beverage bottles.

Waste recycling typically occurs in the post-consumer phase of a products lifespan and is driven to a large extent by consumer behaviour and availability of services or facilities for recycling.

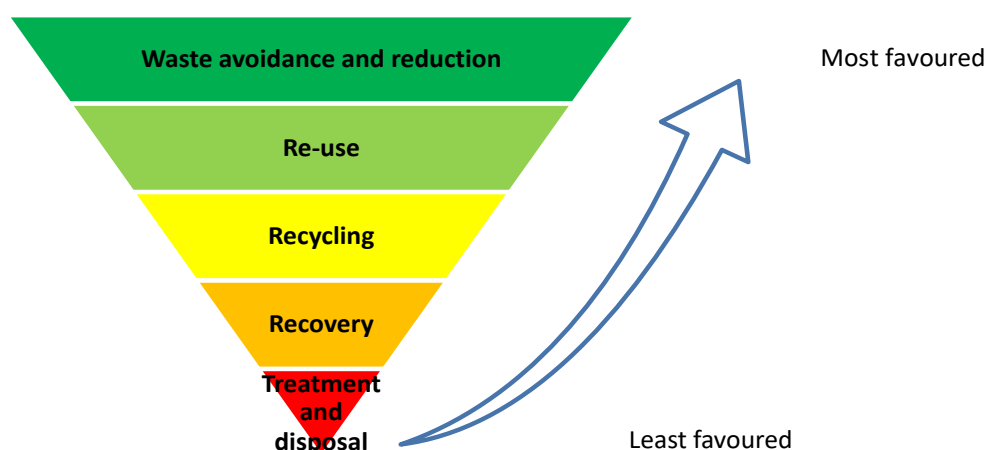


Figure 1: Waste Management Hierarchy (source NWMS, 2011)

1.2 Why Recycle?

Recycling of waste can have a number of socio-economic and environmental benefits including:

- **A reduction in waste to landfill.** Which can result in saving in landfill site airspace and undesirable impacts associated with landfill sites including surface and groundwater contamination, burning of waste, and wind scatter litter. Landfill sites are also extremely expensive to construct (due to stringent liner requirements) and operate (if operated correctly). Landfill site owners should therefore seek to maximise the lifespan of their landfill sites.
- **A reduction in reliance on virgin material.** Recycling of materials such as plastic and glass requires less energy than use of virgin materials. Incorporation of a portion of recycled material into new products reduces the need to use virgin materials.
- **Job creation.** Recycling can create significantly more jobs than simply disposing of waste to landfill.

1.3 Legislated Requirement to Recycle

There are several pieces of legislations as well as strategies and guidelines which address recycling. A summary of key legislation and guidelines and conditions which are applicable to recycling are listed below.

Table 1: Documented recycling requirements

Legislation/ guideline/ strategy	Recycling requirements
National Environmental Management: Waste Act (59 of 2008)	<ul style="list-style-type: none"> • Each municipality must as far as reasonably possible provide containers or receptacles for the collection of recyclable waste • A holder of waste (generator) must take measures to reduce, re-use and recover waste
National Domestic Waste Collection Standards (2011)	<ul style="list-style-type: none"> • 25% of recyclables diverted from landfill • All metros, secondary LMs and large towns to have initiated separation at source programmes
National Waste Management Strategy 2018 (draft)	<ul style="list-style-type: none"> • 50% of waste diverted from landfill within 5 years, 80% in 10 years and 95% in 15 years
Eastern Cape Provincial IWMP (draft)	<ul style="list-style-type: none"> • Provincial masterplan to be developed to address recycling facilities • DEDEAT to host quarterly forums with WMOs and private sector • 50% of urban households in metros to undertake S@S by 2023 • Both metros and 12 LMs to have operational MRFs by 2023 • Both metros to investigate programmes for crushing of C&DW • All municipalities to have at least 1 drop-off facility in the main town by 2022 • All municipalities to implement in-house recycling programmes
Operation Phakisa	<ul style="list-style-type: none"> • Reduce municipal waste to landfill by 50% • Increase e-waste recycling from 7% - 30% by 2023 • 50% of households in metros to be S@S by 2023 • Develop 9 transfer station per metro • Establish 17 MRFs and 9 plastic pelletisation plants

1.4 Problem Statement

The Eastern Cape Province is the second largest province in terms of geographic area and covers 13.8% (168,966 km²) of the total area of the country and houses 12.5% of South Africa's

population. The Eastern Cape is largely rural in nature which is illustrated by the high number of B4 municipalities in the province.

Table 2: Municipality classification (categories and descriptions sourced from DBSA, 2011)

Category	Description	No. municipalities
A	Metropolitan municipalities	2
B1	Secondary cities, local municipalities with the largest budgets	0
B2	Local municipalities with a large town as core	2 (Makana and KSD)
B3	Local municipalities with small towns, with relatively small population and significant proportion of urban population but with no large town as core (e.g. most of the population within several towns)	14
B4	Local municipalities that are mainly rural with communal tenure and with, at more, one or two small towns in there are.	15
C1	District municipalities that are not water services authorities	2 (Sarah Baartman, O.R. Tambo)
C2	District municipalities which are water services authorities	4

More than half of the local municipalities in the Eastern Cape are B4 municipalities. The rural nature of these municipalities presents challenges in terms of waste collection and recycling. A high percentage of the population will reside in small settlements, villages or towns which may be located far from the main towns and poor road infrastructure may render some areas inaccessible by traditional refuse collection vehicles. Provision of a recycling service to small villages and settlements may not be economically viable due to high transportation costs and low volumes of material being generated.

There is a significant lack of recycling data available in the Eastern Cape. The South African Waste Information System (SAWIS), managed by DEFF, aims to improve waste data collection and management for South Africa and use of the system is supported by the National Waste Information Regulations (GN 625 of 2012). At present there are only 12 recycling facilities reporting on the SAWIS for the province. In order to set informed targets for recycling a baseline is required.

1.5 History of Provincial Recycling Strategies in the Eastern Cape

This is the first Eastern Cape Provincial Recycling Strategy. Other provinces have developed provincial recycling guidelines and strategies. These are discussed later in this report.

1.6 Objectives and Scope of Provincial Recycling Strategy

The scope of works for this strategy is:

1. Identify and remove barriers and obstacles to achieving efficient recycling levels as a means of achieving socio-economic and environmental sustainability within the Eastern Cape Province
2. Develop a framework for exchange of information between industrial sectoral organizations and provincial government in so far as setting up informed recycling targets and thereby encouraging more widespread implementation of existing recycling initiatives

3. Develop a practical and basic institutional framework to introduce government subsidies for infrastructure, transport and initial stimulation of markets for recycled products

This Recycling Strategy is limited to the Eastern Cape Province which consists of six district municipalities, two metropolitan municipalities and 31 local municipalities as listed in the table below.

The focus of the recycling strategy is on increasing recycling of post-consumer or domestic waste as it poses a greater challenge than post-industrial waste. Post-industrial waste is typically available in large quantities, is usually less contaminated, and hence is easier and more lucrative to recycle and hence is generally well managed by the recycling industry.

Table 3: Eastern Cape Municipalities

District Municipality	Local Municipality	Municipal code
N/A	Nelson Mandela Bay Metropolitan Municipality	NMA
N/A	Buffalo City Metropolitan Municipality	BUF
Alfred Nzo District Municipality (DC44)	Matatiele Local Municipality	EC441
	Mbizana Local Municipality	EC443
	Ntabankulu Local Municipality	EC444
	Umzimvubu Local Municipality	EC442
Amathole District Municipality (DC12)	Amahlathi Local Municipality	EC124
	Great Kei Local Municipality	EC123
	Mbhase Local Municipality	EC121
	Mnquma Local Municipality	EC122
	Ngqushwa Local Municipality	EC126
	Raymond Mhlaba Local Municipality	EC129
Chris Hani District Municipality (DC13)	Emalahleni Local Municipality	EC136
	Engcobo Local Municipality	EC137
	Enoch Mgijima Local Municipality	EC139
	Intsika Yethu Local Municipality	EC135
	Inxuba Yethemba Local Municipality	EC131
Joe Gqabi District Municipality (DC14)	Sakhisizwe Local Municipality	EC138
	Elundini Local Municipality	EC141
	Senqu Local Municipality	EC142
	Walter Sisulu Local Municipality	EC145
OR Tambo District Municipality (DC15)	Ingquza Hill Local Municipality	EC153
	King Sabata Dalindyebo Local Municipality	EC157
	Mhlontlo Local Municipality	EC156
	Port St John's Local Municipality	EC154
	Nyandeni Local Municipality	EC155
Sarah Baartman District Municipality (DC10)	Blue Crane District Municipality	EC102
	Dr Beyers Naudé Local Municipality	EC101
	Kouga Local Municipality	EC108
	Koukamma Local Municipality	EC109
	Makana Local Municipality	EC104
	Ndlambe Local Municipality	EC105
	Sundays River Valley Local Municipality	EC106

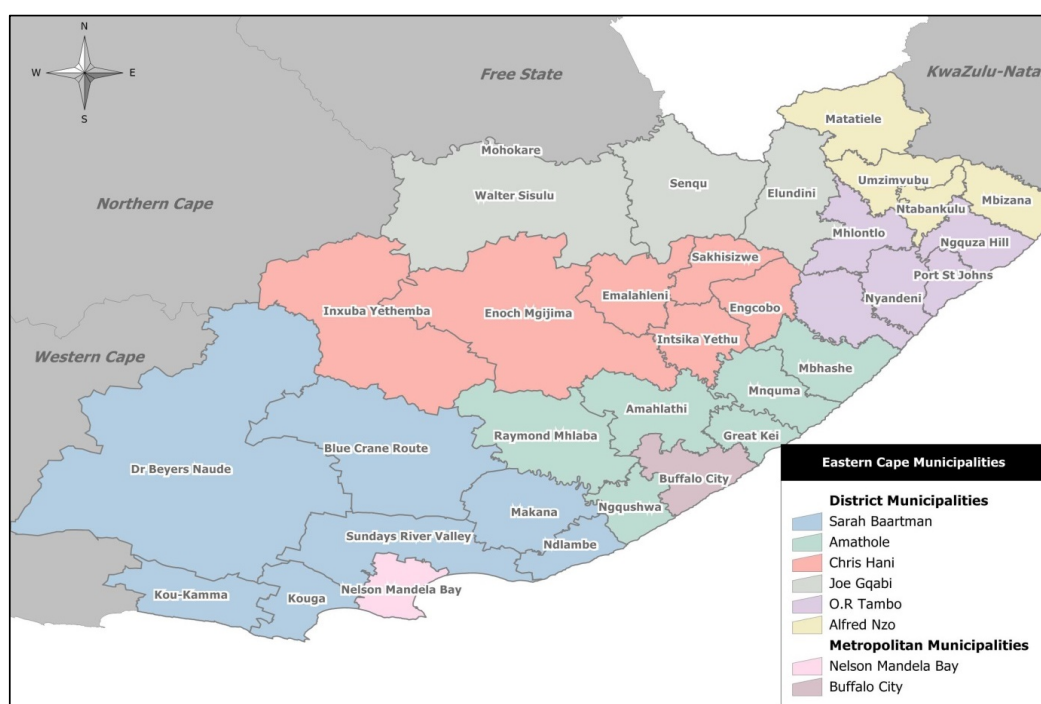


Figure 2: Eastern Cape Province showing the local, district and metropolitan municipalities

1.7 Overview of Waste Management in Eastern Cape

The current situation in terms of provision of basic waste services in the province needs to be taken into consideration when identifying mechanisms to increase recycling in the province.

1.7.1 Waste Services Provision

Based on the results of the 2016 Stats SA Community Survey only 41.3% of households in the province have access to a weekly refuse collection service and 44.3% of households make use of their own refuse dump (Stats SA, 2016).

Table 4: Waste collection services in the Eastern Cape (data source Stats SA Census 2001 and 2011 and Community Survey 2016)

Waste Service	2001	2011	2016
Removed by local authority / private company at least once a week	37.0	41.0	41.3
Removed by local authority / private company less often	1.4	2.4	2.2
Communal refuse dump/ collection point	1.2	1.7	4.7
Own refuse dump	43.6	41.7	44.3
No rubbish disposal	16.8	11.3	6.0
Other	No data	1.9	1.5

The Eastern Cape Province has the third lowest percentage of households that receive a weekly waste collection service. Limpopo has the lowest percentage (21.9%) followed by Mpumalanga (39.4%) and the Eastern Cape (41.3%).

Table 5: Comparison of waste service provision across South Africa's Provinces (Community Survey, 2016)

Waste Service	Eastern Cape	Free State	Gauteng	Kwa-Zulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Removed at least once a week	41.3	69.7	83.6	47.7	21.9	39.4	54.8	61.8	86.8
Removed less often	2.2	3.8	3.0	3.2	1.4	3.3	3.1	2.8	3.0
Communal refuse dump	3.5	3.6	3.4	2.8	3.2	4.3	3.2	3.6	1.9
Communal collection point	1.2	0.8	1.9	2.1	0.6	1.1	1.2	1.0	4.5
Own refuse dump	44.3	17.5	4.3	38.8	66.1	44.0	32.4	24.1	2.2
No rubbish disposal	6.0	3.9	3.1	4.1	5.6	6.5	3.9	5.0	0.9
Other	1.5	0.7	0.7	1.3	1.1	1.5	1.4	1.7	0.6

The low level of collection rates needs to be taken into consideration when identifying goals and objectives in this Recycling Strategy, only 44.7% of households have access to basic refuse service (kerbside collection or communal collection points/ refuse dumps). It is therefore not feasible to include targets such as 60% of households to be separating waste at source, as at present the mechanisms are not in place to provide basic services for mixed domestic waste.

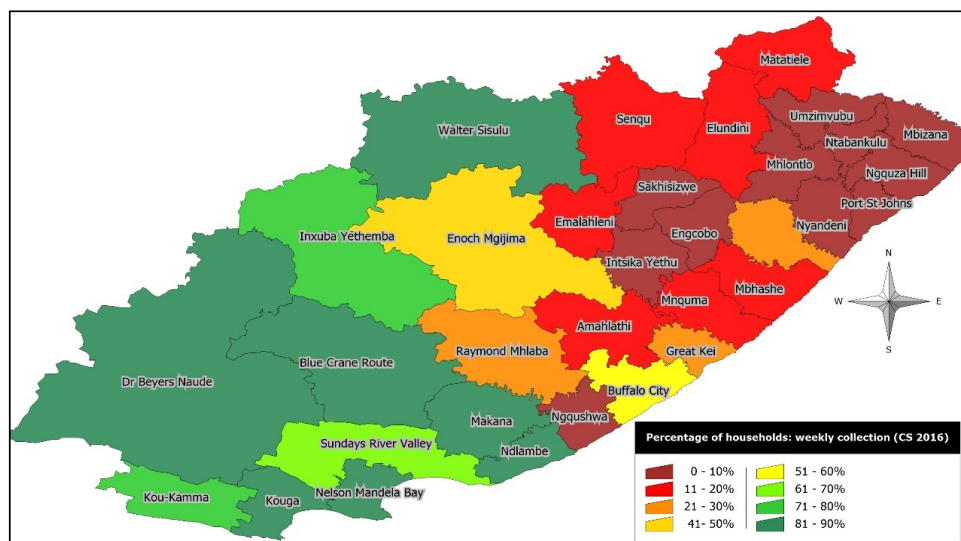


Figure 3: Percentage of households receiving a weekly waste collection service (STATs SA Community Survey 2016 data)

1.8 Alignment with other Strategic Plans

While this recycling strategy will function as a standalone report it is necessary to align it with existing strategies and plans. Details of these documents are provided below.

1.8.1 Eastern Cape Provincial Integrated Waste Management Plan

The 2010 Eastern Cape Provincial Integrated Waste Management Plan (PIWMP) is currently under review. The PIWMP culminates in an implementation plan which lists a number of projects which seek to improve waste management in the Province over the next 5 year period (2018 – 2023). Eight objectives were identified in the PIWMP to facilitate an improvement in waste management in the Province.

1. Ensure sufficient institutional capacity to implement integrated waste management
2. Improved integrated waste management and future planning
3. Increased waste minimisation, re-use, recycling and recovery
4. Effective waste information management
5. Improved waste facility management
6. Provide effective and financially viable services
7. Improved education, awareness and waste information sharing
8. Effective compliance monitoring and enforcement

Targets identified in the PIWMP which are applicable to recycling have been incorporated into the objectives and targets chapter of this Recycling Strategy.

1.8.2 National Waste Management Strategy

(a) 2011 National Waste Management Strategy

The 2011 National Waste Management Strategy (NWMS) is structured around a framework of eight goals. The goals along with their respective targets were supposed to have been met by 2016.

Table 6: National Waste Management Strategy Objectives (targets related to recycling are shown in bold)

Goal	Targets for 2016
1. Promote waste minimisation, re-use, recycling and recovery of waste.	<ul style="list-style-type: none"> • 25% of recyclables diverted from landfill sites for re-use, recycling or recovery. • All metropolitan municipalities, secondary municipalities, and large towns have initiated separation at source programmes. • Achievement of waste reduction and recycling targets as set in industry waste management plans for paper and packaging, pesticides, lighting (CFLs) and tyre industries
2. Ensure the effective and efficient delivery of waste services.	<ul style="list-style-type: none"> • 95% of urban households and 75% of rural households have access to adequate levels of waste collection services. • 80% of waste disposal sites have permits.
3. Grow the contribution of the waste sector to the green economy	<ul style="list-style-type: none"> • 69,000 new jobs created in the waste sector. • 2,600 additional SMEs and cooperatives participating in waste service delivery and recycling
4. Ensure people are aware of the impact of waste on their health, well-being and the environment.	<ul style="list-style-type: none"> • 80% of municipalities running local awareness campaigns • 80% of schools implementing waste awareness campaigns
5. Achieve integrated waste management planning.	<ul style="list-style-type: none"> • All municipalities have integrated their IWMPs with their IDPs, and have met the targets set in IWMPs • All waste management facilities required to report to SAWIS have waste quantification systems that report information to WIS

Goal	Targets for 2016
6. Ensure sound budgeting and financial management for waste services	<ul style="list-style-type: none"> All municipalities that provide waste services have conducted full-cost accounting for waste services and have implemented cost reflective tariffs
7. Provide measures to remediate contaminated land.	<ul style="list-style-type: none"> Assessment complete for 80% of sites reported to the contaminated land register Remediation plans approved for 50% of confirmed contaminated sites.
8. Establish effective compliance with and enforcement of the Waste Act	<ul style="list-style-type: none"> 50% increase in the number of successful enforcement actions against non-compliant activities. 800 environmental management inspectors (EMIs) appointed in the three spheres of government to enforce the Waste Act

(b) 2018 Draft National Waste Management Strategy

The Department of Environment, Forestry and Fisheries (DEFF) is currently revising the 2011 NWMS and the following objectives and targets have been listed in the draft 2018 strategy. The 2018 NWMS has three strategic goals to drive and improve waste management in South Africa

1. Waste minimisation
2. Effective and sustainable waste services
3. Awareness and compliance

Table 7: Summary of 2018 NWMS Goals (goals applicable to this Recycling Strategy are shown in bold)

Goal	Implementation mechanism
1. Prevent waste, and where waste cannot be prevented, divert 50% of waste from landfill within 5 years; 80% within 10 years; and at least 95% of waste within 15 years through reuse, recycling, and recovery and alternative waste treatment.	<p>Waste Prevention:</p> <ul style="list-style-type: none"> Reduce the generation of waste in the manufacturing sector through cleaner production and industrial symbiosis Prevent food waste by working with agricultural producers, retailers, the hospitality sector and consumers. <p>Waste as a Resource:</p> <ul style="list-style-type: none"> Divert organic waste from landfill through composting and the recovery of energy Divert construction and demolition waste from landfill through beneficiation Increase recycling and recovery rates Increase technical capacity and innovation for the beneficiation of waste
2. All South Africans live in clean communities with waste services that are well managed and financially sustainable.	<p>Waste Collection:</p> <ul style="list-style-type: none"> Implementation of the DEFF separation at source policy to promote reuse, recycling and recovery of waste Safe and environmentally sustainable disposal of hazardous household wastes. <p>Integrated Waste Management Planning:</p> <ul style="list-style-type: none"> Provinces provide effective regional guidance and oversight in the development and implementation of metro, district and local municipality IWMPs within the context of overarching Provincial Integrated Waste Management Plans All local authorities to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2020
3. South Africans are aware of waste and a culture of compliance with waste	<ul style="list-style-type: none"> Reduction of littering and illegal dumping due to attitudinal shifts and greater public awareness of the environmental damage caused by waste Enhanced capacity to enforce the Waste Act and International

Goal	Implementation mechanism
management norms and standards exists, resulting in zero tolerance of pollution, litter and illegal dumping.	<ul style="list-style-type: none"> Agreements on waste and pollution Municipal landfill sites and waste management facilities comply with licensing standards All local authorities to include provisions for recycling drop-off/buy-back/storage centres in their IWMPs by 2020

1.8.3 Operation Phakisa: Chemicals and Waste Phakisa

Operation Phakisa is an initiative which seeks to unlock South Africa's economic potential. The plan identifies a number of initiatives to progress waste management in South Africa.

The following initiatives are relevant to this Recycling Strategy.

- Reduce industrial waste to landfill by 75%
- Reduce municipal waste to landfill site 50%
- Move toward zero meat production waste to landfill by 2023
- Increase e-waste recycling from 7% to 30% by 2023
- Unlock government ICT legacy volumes and create 1,000 jobs through reclamation of precious metals
- Create 1,000 jobs through recycling and re-use of government computers
- 50% of households in metropolitan municipalities separating at source by 2023
- Development of at least 9 transfer stations per metropolitan municipality
- Establish 17 MRFs and 6 plastic palletisation facilities
- A minimum of 30% of construction waste to be re-used in construction activities
- 8,000 direct and indirect jobs through plastic recycling
- Produce building aggregates and construction inputs from rubble and glass
- Extend EPR for packaging waste
- Establish an industry for reclamation of refrigerants and phase out import of disposal cylinders

1.8.4 Eastern Cape Provincial Development Plan

The theme of the Eastern Cape Provincial Development Plan is '*flourishing people in a thriving province*'. The 2014 draft Eastern Cape Development Plan sets the following targets related to waste management.

- An inclusive, equitable and growing economy for the province
- An educated, innovative and empowered citizenry
- A healthy population
- Vibrant, equitably enables communities
- Capable agents across government and other institutional partners committed to the development of the Province

The plan recognises that poor waste management results in environmental challenges and can cause health issues. Strategic objective 3.6 is titled "*Address the social determinants that*

affect health and disease”, and highlights the need for infrastructure to improve roads, water and sanitation supply, the safe disposal of refuse/ water , and proper spatial planning of human settlements.

1.8.5 Recycling Enterprise Support Programme

This recycling strategy will be aligned with the objectives of the Recycling Enterprise Support Programme (RESP) that is implemented by the DEFF. The RESP was developed to encourage entrepreneurship and job creation in order to:

- Maximise the economic potential of waste management
- Support waste management projects
- Increase recycling rates and diversion from landfill
- Promote innovation in the recycled products market
- Encourage funded project sustainability.

1.8.6 Working on Waste

The Working on Waste programme is run by the Department of Environmental Affairs and is implemented under the Expanded Public Works Programme (EPWP). The aim of the Working on Waste Programme is to work towards the achievement of goals of the NWMS.

1.8.7 National Development Plan

South Africa National Development Plan (NDP) was published in 2012 and outlined the required steps to eliminate poverty and reduce inequality by 2030.

The NDP sets the following objectives related to recycling:

- An absolute reduction in the total volume of waste disposed to landfill site each year through a national recycling strategy
- Carbon price, building standards, vehicle emission standards and municipal regulations to achieve scale in stimulating renewable energy, waste recycling and retrofitting buildings
- Consumer awareness initiatives and sufficient recycling infrastructure should result in South Africa becoming a zero waste society
- Implement a waste management system through rapid expansion of recycling infrastructure and encouraging composting of organic domestic waste to bolster economic activity in poor urban communities

The NDP also recognises the opportunity for the manufacturing sector to reuse waste.

1.9 Recycling Strategies in South Africa

1.9.1 Separation at Source Survey

The Department of Environment Forestry and Fisheries commissioned a nation-wide study on separation at source in 2017. The key aims of the study were to:

1. Determine the status quo of separation at source
2. Identify policy options and models to increase separation at source.

The study is not currently available for public review.

1.9.2 Management Options for Construction and Demolition Waste and Factors that Influence Recycling Behaviour

The Department of Environment Forestry and Fisheries commissioned a study in 2017 on the construction and demolition waste (C&DW) industry in South Africa. The aim of the study was to better understand the status of the C&DW recycling industry and determine options for improving it. The study was not finalised at the time of this report.

1.9.3 Provincial Recycling Strategies/ Guidelines

The following section summarises recycling strategies and guidelines which have been developed for other provinces.

(a) General Waste Minimisation Plan for Gauteng

The Gauteng Department of Agriculture and Rural Development (GDARD) released a general waste minimisation plan for the province in 2009. One of the key targets in the plan was a decrease in waste disposal by 1% per year between 2009 and 2014. The report lacked accurate data due to a lack of weighbridges at waste disposal facilities, however it was estimated that 25% of the Gauteng waste stream was composed of main line recyclables.

The report covered the following:

- Status quo – estimated waste stream composition and recyclable quantities
- Waste generation forecasts
- Identification of waste minimisation options
- Legislative interventions
- Short, medium and long term waste minimisation targets
- Implementation plan

Projects in the implementation plan were captured under the following headings,

1. Enabling environment
2. Generation
3. Transport cycle
4. Recovery and recycling
5. Development of MRFs
6. Development of rubble crushing plants

7. Disposal

Various targets were identified under each of the headings which were classified as short, medium or long term targets.

(b) Western Cape Waste Minimisation Guidelines for Municipalities

The Department of Environmental Affairs and Development Planning (DEA&DP) released waste minimisation guidelines in 2015.

The guidelines presents practical information on how different recycling options could be implemented including required capital investment, operational costs, pros and cons of different solutions and case studies.

The strategy does not contain an implementation plan or any goals or targets, but rather is designed as a user-friendly guideline to assist municipalities in exploring different options to minimise waste.

1.10 Industry Waste Management Plans

In December 2017 the Minister of Environmental Affairs published a notice (GN 1353 of 2017) requiring the paper and packaging industry, electrical and electronic industry and lighting industry to prepare and submit industry waste management plans (indWMP) for DEFF's approval.

The intention is that these indWMPs will entrench extended producer responsibility into these industries which generate significant wastes.

Definition of Extended producer responsibility measures (NEMWA, as amended):

Measures that extend a person's financial or physical responsibility for a product to the post-consumer stage of that product, and includes-

- a) Waste minimisation programme
- b) financial arrangements for any fund that has been established to promote the reduction, re-use, recycling and recovery of waste
- c) awareness programmes to inform the public of the impacts of waste emanating from the product on health and the environment; and
- d) any other measures to reduce the potential impacts of the product on health and the environment

In response to this notice the following industry waste management plans have been developed:

- Electrical and electronic industry – E-waste Recycling Authority
- Electrical and electronic industry – South African Waste Electrical and Electronic Enterprise Development Association (SAWEEEDA)

- Packaging Industry - Packaging South Africa (Packaging SA) Industry Waste Management Plan – Federation of Plans consisting of inputs from the following industries:
 - Glass – The Glass Recycling Company (TGRC)
 - Paper and board – PAMDEV
 - Metals – MetPac-SA
 - Polyolefins – Polyco
 - Polyethylene terephthalate (PET) – PETCO
 - Polystyrene – Polystyrene Association of South Africa

The stakeholder engagement for the plans has been completed and they were submitted to DEFF in September 2018. All of the tyre indWMPs were rejected by DEFF in a decision dated 11 September 2019. A decision from DEFF on the other plans is still pending.

1.10.1 Packaging Industry Waste Management Plan

The Packaging SA Industry Waste Management Plan – Federation of Plans was submitted to DEFF on 05 September 2018 (Packaging SA, 2018). The plan will come into effect on 01 January 2019 (subject to approval by DEFF) and cover a 5 year period until 31 December 2023. Each of the individual indWMPs will also follow these timeframes.

The following sections summarise the targets of each of the individual plans which comprise the Federation of plans.

(a) Glass

The glass indWMP will be implemented by the Glass Recycling Company (TGRC), a not-for-profit organisation and the official producer responsibility organisation (PRO) for promoting glass recycling.

In 2017 41.5% of glass waste recycled in South Africa, it should be noted that this figure only considers glass packaging materials such as bottles and jars, it does not cover window glass or windscreen glass.

The plan sets the following targets over the five year period:

Programme 1: Focus on separation at source

The objective of programme 1 is to increase the number of households participating in separation at source programmes to increase the volumes of glass collected from domestic sources.

Programme 1 targets

- An additional 239,721 tonnes of cullet recovered over a 5 year period
- 3,045 new jobs created over the five year period of which 2,436 will be historically disadvantaged individuals

- 1,523 jobs will be allocated to those already involved in the private sector
- 1,997 new businesses created over the five year period (Packaging SA, 2018)
- Achieve a 65.4% recycling rate by the end of the 5 year period

Programme 2 – 7 objectives

- Development and implementation of business plans for specific metropolitan municipalities
- National awareness campaigns to raise the profile of separation at source
- Supporting existing and new entrepreneur through the provision of equipment, training and mentorship
- Continue schools competition to change behaviours and increase the number of households participating in separation at source schemes
- Cover transportation costs of glass collected in areas removed from recycling centres
- Investigating alternative markets for cullet

Programme 2 – 7 targets

- Reach a total of 20,227,104 people in collaboration with waste awareness campaigns/ messages over the five year implementation period
- Reach a total of 6,079,757 people in collaboration with municipalities which are undertaking separation at source programmes
- Reach 25 million people annually with national awareness campaigns
- Reach a total of 7.5 million people through separation at source programme who are participating in separation at source programmes
- Assist an additional 250 entrepreneurs over the five year period
- 10 additional schools and 3,000 additional learners participating in educational programmes per year
- Recover an additional 118,266 tonnes of cullet over the five year implementation period
- Create an additional 1,503 jobs over the five year implementation period of which 1,202 will be allocated to historically disadvantaged individuals
- 986 new businesses created over the five year implementation period
- Glass recycling rate of 43%
- A total of 1,925,615 tonnes of cullet recovered over the five year implementation period

(b) Paper and Packaging

The paper and packaging indWMP will be implemented by PAMDEV a not-for-profit organisation and producer responsibility organisation (PRO) of the Paper Manufacturers Association of South Africa (PAMSA) for promoting glass recycling.

In 2017 70.7% of all recoverable paper was collected for recycling in South Africa, which is a significant increase from the 57.3% collection rate in 2012 (Packaging SA, 2018).

The paper packaging indWMP sets the following targets over the five year period:

- Increase paper packaging recycling rates to 77.3% by 2023
- An additional 205,487 tonnes of paper packaging to be diverted from landfill over the five year period
- A total of 6,818,294 tonnes of paper packing to be re-used, recycled or recovered over the 5 year implementation period
- A potential of 946 additional jobs created through the implementation of project, of which 757 will be allocated to historically disadvantaged individuals
- 473 jobs to be filled by those already operating in the informal sector
- 1,000 individuals are trained and mentored over the five year implementation period, of which 800 will be historically disadvantaged individuals and 500 will be trainees who operate in the informal sector.

(c) Metals

The metal indWMP will be implemented by MetPac-SA a non-profit company. The current metal packaging recovery rate is estimated at 73%.

The metal indWMP sets the following targets over the five year period.

- A membership drive: MetPac was only established in 2016 and a large portion of the metal packaging industry in South Africa are not yet fulfilling EPR obligations
- Collection of reliable data: as a relatively new organisation MetPac lacks accurate data on the type and volume of metal being recycled. The development of a database to track metals recycling is proposed
- Providing equipment to small and micro- collectors such as bulk bags, trolleys and bailers to add value to material collected
- Development of a knowledge sharing platform to allow MetPac to engage with government department (DEFF, Treasury, Dti etc) to ensure the necessary support is provided to all role players in the metal packaging industry
- Research and development into problematic metal packaging waste streams such as paint cans, multi-layer materials and foil heat trays (Packaging SA, 2018)

(d) Polyolefins

The Polyolefin Recycling Company (Polyco) is a non-profit company which represents a group of polyolefin packaging converters. The plastic polymer groups which Polyco represents are:

- Polymer code 2 – high density polyethylene (HDPE)
- Polymer code 4 – Linear low and low-density polyethylene (LL/LDPE)
- Polymer code 5 – Polypropylene (PP)
- Polymer code 7- multilayer materials

The Polyco plan sets the following targets for the 5 year implementation period:

- Increase collections from 44% to 54%
- Spend R 325 million on SMME development over the 5 year implementation period

- Spend R 35 million on skills development over the 5 year implementation period
- Create in excess of 2,000 direct and 1,500 indirect jobs over the 5 year implementation period
- Invest R 625 million in the polyolefin recycling industry for infrastructure, skills development, environmental and awareness training, research and development and quality (Packaging SA, 2018)

(e) Polyethylene terephthalate

The polyethylene terephthalate (PET) indWMP will be implemented by PETCO a registered not-for-profit company. PETCO's portfolio currently only covers packaging materials composed of PET. PETCO has included edible oil products such as cooking oil and thermoform and sheet sectors (trays, blister packs etc.) into their indWMP.

Some of the key targets included in PETCO's indWMP are:

- Increase in recycling of PET bottle from 65% to 72%
- Increase recycling of edible oils from 0% - 39%
- Increase recycling of thermoform from 0 – 35%
- Create an additional 710 jobs (recyclers, collection employment at MRFs, river and beach clean ups) and 75,000 income opportunities
- Funding of two MRFs
- Eight on-going beach and river clean up contracts (Packaging SA, 2018)

(f) Polystyrene

The Polystyrene indWMP will be implemented by the Polystyrene Association of South Africa, a not-for-profit organisation.

Some of the key targets included in the polystyrene indWMP are:

- Increase the polystyrene recycling rate from 16.8% - 18.9% over a five year period
- Development of small-scale municipal recycling hub facilities in some small to medium sized municipalities
- Creation of an addition 35 – 50 jobs through the development of hubs

(g) Vinyls

The vinyl indWMP will be implemented by the South Africa Vinyls Association (SAVA). The vinyl indWMP contains the following key targets for the 5 year implementation period:

- Creation of 7,450 direct and 6,690 indirect jobs

(h) Proposed Extended Producer Responsibility Fees

The following extended producer responsibility fees were proposed in the packaging indWMP.

Table 8: Extended Producer Responsibility fees associated with packing materials (data source, Packaging SA, 2018)

Material	Category	2019 EPR fee R/tonne	2020 EPR fee R/tonne	2021 EPR fee R/tonne	2022 EPR fee R/tonne	2023 EPR fee R/tonne
PET	Bottles	R 901	R 1,189	R1,169	R1,185	R1,071
	Edible oil	R 604	R 830	R 989	R 1,250	R 1,255
	Thermoforms	R 740	R 966	R 1,019	R 1,295	R 1,538
Polyolefins	Rigid and flexible	R 250	R 250	R 250	R 250	R 250
	Multi-layer	R 420	R 420	R 420	R 420	R 420
	Carrier bags	R 420	R 420	R 420	R 420	R 420
	Recyclate	R 100	R 100	R100	R 100	R 100
Glass	Cullet	R 37	R 39	R 41	R 43	R 45
Metals	Steel/aluminium	R 100	R 105	R 110	R 116	R 122
Polystyrene	-	R 150	R 158	R 165	R 174	R 182
Vinyls	-	R 150	R 158	R 165	R 174	R 182
Paper	-	R 3.5	R 3.7	R 3.9	R 4.1	R 4.3

1.10.2 Electrical and Electronic IndWMP

Two indWMPs for the electrical and electronic industry (hereafter referred to as e-waste indWMP) were submitted to DEFF in September 2018 by the electrical and electronic industry.

(a) South African Waste Electrical and Electronic Enterprise Development Association indWMP

An e-waste indWMP was developed by South African Waste Electrical and Electronic Enterprise Development Association (SAWEEDA) in 2018. The plan covers the period 2019 – 2024.

The following mechanisms are proposed in the plan to increase the recycling of e-waste.

- Establish micro-collector co-operatives to collect e-waste
- Set up a transport network
- Set up a storage network for different types of e-waste
- Segregation, dismantling and separation of e-waste fractions
- Setting up SMME's to supply the end to end recyclers with feedstock
- Roll out a container based e-waste dismantling and related industries across South Africa
- Establish 3 end to end recycling plants over the next 5 years
- Set up metal extraction facilities locally
- Set up beneficiation industries/ down-stream businesses (SMME development in refurbishment, reuse etc.)
- Conduct research and support local innovation in partnership with the DST/DHET and DTI and set up a research database and repository
- Set up training, skills and technology transfer facilities in partnership with above
- Ensure e-waste marketing and awareness raising programmes nationally and provincially

- Establishment of the SAWEEEDA Foundation for the promotion of environmentally sound products and corporate social responsibility programmes
- Monitoring and evaluation
- Set up a formal partnership with WEEE Africa Forum and EWASA to ensure industry needs and input in guaranteed
- Encourage the compliance to the WEEELABEX Standards drafted by SAWEEEDA to ensure quality management of e-waste.

The plans budgets and targets have been calculated based on a lev of R3.50/kg of e-waste produced or imported into South Africa.

(b) E-waste Recycling Authority indWMP

The E-waste Recycling Authority (ERA) is a non-profit organisation which represent the electrical and electronic industry.

To ensure that all e-waste is accepted at e-waste recycling facilities, the following handling fees will be paid by ERA:

- General e-waste R 3.50/kg
- CRT and equivalent class e-waste – R 6.00/kg
- Batteries and equivalent high hazardous e-waste – R 30.00/kg

The ERA e-waste indWMP sets the following targets:

- Increase the e-waste collection rate from 7% to 21% by the end of the five year implementation period
- Increase the tonnages of e-waste which is re-used or refurbished from 9,750 tonnes in year 1 to 27,847 in year five
- Increase the tonnages of e-waste which is recycled from 22,750 tonnes in year 1 to 64,976 by year 5
- Create the following over the five year implementation period
 - 9 new tier 1 enterprises
 - 25 new tier 2 enterprises
 - 250 new tier 3 drop-off points
 - 2,000 new tier 3 buy-back centres
 - 2,000 new tier 4 enterprises
 - 220 new e-waste transporters
 - 100 e-waste call services
 - 220 inspectorate positions
- Create 176 new formal jobs in ERA operations, R&D technology investments and education and awareness
- Create an additional 10,185 formal jobs in the recycling sector and through enterprise development
- Create an additional 540 formal jobs in e-waste indWMP support services – transporters, call service and e-waste inspectorates

1.10.3 Tyre Industry Waste Management Plan

In October 2017 the Minister of Environmental Affairs published a notice (GN 1148) requiring the tyre industry to submit an industry waste management for DEFF's approval. The notice required that an indWMP be submitted to DEFF within two months of the date of notice.

Four tyre indWMPs were received by DEFF:

- South African Tyre Reuse Company
- Tyre Abatement and Minimisation Initiative of South Africa
- Evergreen Energy (business plan)
- JPC Energy Systems (business plan)

The Minister of Environmental Affairs requested public comment on the four tyre industry waste management plans on 08 May 2018 in government gazette no. 472. As previously mentioned, none of the plans were approved by DEFF. As none of the plans have been approved details of these plans have been omitted from this document.

2 Approach and Methodology

2.1 Methodology

A phase approach was used for the development of this recycling strategy. The phases are detailed below.

2.1.1 Identification of Key Stakeholders

One of the first tasks undertaken in the development of this provincial recycling strategy was the identification of key stakeholder.

The table below summaries key stakeholders:

Table 9: Key stakeholders in the recycling industry

Stakeholders	Comments
DEDEAT	DEDEAT are responsible for overseeing waste management in the province
Local, metropolitan and district municipalities	Municipalities are responsible for providing an enabling environment for recycling in their area of jurisdiction
Recycling companies	Recycling companies irrespective of size involved in recycling in one way or another
Building industry	The building industry generates construction and demolition waste. Components of construction and demolition waste can be recycled.
Manufacturing industry	The manufacturing industry are key stakeholders, especially plastic product manufacturers. Manufacturers can choose to use recycled materials in their product and can also determine whether their products themselves are recyclable.
The public	The public can influence recycling in the province through choosing to buy recycled products and committing to recycling on a household level.
Extended producer responsibility	These organisations manage and co-ordinate manufacturers of a particular

Stakeholders	Comments
organisations	product e.g. PETCO represent the PET industry.
Informal waste pickers	Informal waste pickers are key role players in the recycling industry

2.1.2 Literature Review

An in-depth literature review was undertaken to determine current recycling practices in the province and countrywide. The following key reports were reviewed:

- Eastern Cape Integrated Waste Management Plan: General Waste, 2010
- Eastern Cape Integrated Waste Management Plan: Hazardous Waste 2010
- IWMPs for the local, district and metropolitan municipalities
- SAWIS statistics
- Waste facility permits
- Statistics SA Census 2011 and Community Survey 2016 data
- Industry waste management plans
- Draft 2018 National Waste Management Strategy, 2018
- Various articles and papers ad detailed in the references section

A full list of references consulted during the development of this plan is listed at the back of this report.

2.1.3 Questionnaires

A questionnaire was developed and a survey undertaken using a multi-pronged approach which involved:

- Emailed/ handed delivered surveys to a database of recycling companies
- Face-to-face interviews with select recycling companies
- Online survey –from 02 August – 07 September

Municipalities were surveyed using a general waste survey which was developed for the Eastern Cape IWMP and Recycling Strategy.

Table 10: Summary of completed surveys

Survey method	No. responses
Face-to-face interviews/ meetings	8
Telephonic surveys/ email correspondence	5
Email/ hand delivered surveys	5
Online survey	2
Municipal surveys	23
Total	43

2.1.4 Project Steering Committee

A meeting was held on 24 January 2018 to establish the project steering committee (PSC) for this project. The PSC consisted of DEDEAT, local authorities and SALGA. The details of the PSC are presented in the table below.

Table 11: Project Steering Committee Members

Name	Organisation
Lulama Daniels	DEDEAT
Lyndon Mardon	DEDEAT
Tembela Mapukata	DEDEAT
Gcobisa Mdoda	DEDEAT
Briant Noncembu	DEDEAT
Thozamile Babane	DEDEAT
Sinetemba Mduzana	DEDEAT
Hlomela Hanise	DEDEAT
Mxolisi Fulumente	DEDEAT
Walter Fyvie	GIBB
Kate Flood	GIBB
Thabisa Mkize	Amathole District Municipality
Bulelwa Dayimani	Amathole District Municipality
Archie Kambi	Amathole District Municipality
Nqobile Ngcobo	Amathole District Municipality
Nosisa Tshika	Buffalo City Metropolitan Municipality
Honjiwe Mayapi	Department of Environmental Affairs
Zona Cokie	SALGA
Yamkela Zitwana	O.R. Tambo District Municipality

Two PSC meetings have been held to date. Meeting details are presented below.

Table 12: Details of Project Steering Committee Meetings

Meeting no.	Date	Venue
1	24 January 2018	DEDEAT Offices, Bhisho
2	13 August 2018	DEDEAT Offices, Bhisho

2.1.5 Workshops and Stakeholder Engagement

Five stakeholders workshops were arranged to present the draft recycling strategy. The workshops were held within the five largest urban centres in the Eastern Cape. Of the five workshops, one (Makhanda) was cancelled as no stakeholders attended the workshop. A total of 80 stakeholders attended the other four workshops.

Table 13: Recycling strategy workshop meetings

Town	Date	No. attendees	Stakeholders in attendance
East London and King Williams Town	26 November 2018	17	DEDEAT, Amathole District Municipality, Senqu Local Municipality, SG Environmental Empowerment, Sigwela & Associates, GIBB

Town	Date	No. attendees	Stakeholders in attendance
Mthatha	27 November 2018	20	DEDEAT, O.R. Tambo District Municipality, Alfred Nzo District Municipality, Mhlontlo Local Municipality, King Sabata Dalindyebo Local Municipality, Nyandeni Local Municipality, SALGA, Tulsapark, Tata Waste, GIBB
Komani	28 November 2018	16	DEDEAT, Chris Hani District Municipality, Joe Gqabi District Municipality, Enoch Mgijima Local Municipality, Engcobo Local Municipality, Intsika Yethu Local Municipality, GIBB
Makhanda	29 November 2018	5*	DEDEAT, GIBB. <i>Note, this meeting was cancelled as no stakeholders, other than the project team were in attendance.</i>
Port Elizabeth	22 January 2019	19	DEDEAT, Chris Hani District Municipality, Nelson Mandela Bay Metropolitan Municipality, Ndlambe Local Municipality, Blue Crane Route Local Municipality, Department Rural Development and Agrarian Reform, GreenCycle, BBG Recycling, VWSA, Alurite, The Waste Takers

Attendance registers for the stakeholder workshops are provided in Appendix A and a summary of discussions from the workshops is provided in Appendix B.

2.2 Assumptions and Limitations

This study has drawn information from a number of sources including interviews with municipalities and stakeholders, IWMPs, SAWIS records, DEDEAT records, industry waste management plans and various literature sources. It is assumed that the information given verbally in interviews and documented information is accurate.

3 Compliance with Existing Legislation and Guidelines

A review of the level of compliance of recycling practices in the Eastern Cape in relation to targets set by legislation and guidelines was undertaken to identify gaps in current recycling operations in the Province.

3.1 National Environmental Management: Waste Act (Act 59 of 2008)

The following table provides a summary of the requirements of the National Environmental Management: Waste Act (Act 59 of 2008), hereafter referred to as the Waste Act.

Table 14: Summary of recycling requirements as defined in the Waste Act

Topic	Section	Requirements	Comments
General duty	3	The state must put in place measures that seek to reduce the amount of waste generated, and where waste is generated, ensure that it is re-used, recycled and recovered in an environmentally sound manner.	DEFF has initiated the development of guidelines and strategies to increase recycling in the province including a study on waste separation at source, a review of the 2011 National Waste Management Strategy (NWMS) and a study on options for recycling and re-use of construction and demolition waste.
Waste service	9 (1) &	The municipality must deliver waste	There is a gap between waste service

Topic	Section	Requirements	Comments
standards	(2)	management services, including waste removal, storage and disposal services in adherence to the national and provincial norms and standards (section 7 and 8 of the Act); whilst: <ul style="list-style-type: none"> Integrating the IWMP and IDP Ensuring access to services Ensuring affordable service delivery Ensure effective and efficient Sustainable and Financial management 	provision in the Eastern Cape and the requirements of National Norms and Standards. Details are provided in the following sections.
	9 (3)	The Municipality may furthermore set local standards: <ul style="list-style-type: none"> For separating, compacting and storing waste Management of solid waste, i.e.: Avoidance, Minimisation, Recycling Coordination of waste to relevant treatment or disposal facilities Litter control 	Not all municipalities have by-laws in place to govern waste management. Where by-laws are in place they do not always specify requirements for waste separation and are not enforced.
Designation of Waste Management Officers	10(3)	The Municipality must designate in writing a waste management officer from its administration to be responsible for coordinating matters pertaining to waste management in that municipality	Only 47% of Eastern Cape Municipalities have designated WMOs (DEDEAT, 2018).
Integrated Waste Management Plans	11 (4) & (7)	<ul style="list-style-type: none"> The Municipality must submit an IWMP to the MEC for endorsement (response from the MEC must be given within 30 days) Include the approved IWMP into its IDP Follow the consultative process in section 29 of the Municipal Systems Act (separately or as part of IDP) 	<ul style="list-style-type: none"> Only 13 of 31 municipalities have submitted their IWMPs to DEDEAT for endorsement (DEDEAT, 2018). In some cases IWMP projects are not incorporated into IDPs. This means the projects, including recycling projects are not allocated budget in the IDP.
	12	Contents for IWMP's, includes: <ul style="list-style-type: none"> A situational analysis a plan of how to give effect to the Waste Act municipal waste management and services obligations prioritisation of objectives setting of targets planning approach to any new disposal facilities; and Financial resourcing. 	The situational analysis of the majority of municipalities IWMPs do not contain data on recycling occurring in the municipality including details of companies operating in the municipality and types and volumes of waste recycled.
	13	An annual performance report prepared in terms of section 46 of the Municipal	Only one municipality is submitting performance reports to DEDEAT.

Topic	Section	Requirements	Comments
		Systems Act must contain information on the implementation of the municipal IWMP.	

3.2 National Waste Management Strategy (2011)

The following table presents a summary of the 2011 NWMS targets and progress in the province to achieve these targets.

Table 15: A review of National Waste Management Strategy Objectives related to recycling

Goal	Targets for 2016	Compliance in 2018 within the Eastern Cape
1. Promote waste minimisation, re-use, recycling and recovery of waste.	<ul style="list-style-type: none"> 25% of recyclables diverted from landfill sites for re-use, recycling or recovery. All metropolitan municipalities, secondary municipalities, and large towns have initiated separation at source programmes. Achievement of waste reduction and recycling targets as set in industry waste management plans for paper and packaging, pesticides, lighting (CFLs) and tyre industries 	<ul style="list-style-type: none"> Based on SAWIS records only 6.4% waste is diverted from landfill. Neither of the metropolitan municipalities have active separation at source programmes in place. Some local municipalities have launched separation at source programme. The packaging, tyre and e-waste indWMPs have been submitted to DEFF for review.
3. Grow the contribution of the waste sector to the green economy	<ul style="list-style-type: none"> 69,000 new jobs created in the waste sector. 2,600 additional SMEs and cooperatives participating in waste service delivery and recycling 	<ul style="list-style-type: none"> 29,833 people employed in the formal waste sector in 2012 (CSIR, 2012). Information on the number of jobs created in the waste sector in the Eastern Cape is not available.

3.3 National Norms and Standards for the Disposal of Waste to Landfill (GN 636 of 2013)

The National Norms and Standards identify a number of waste streams which will be banned from landfill. The following table summarises waste streams which are applicable to this Recycling Strategy.

Table 16: Waste streams prohibited or restricted from disposal at landfill and compliance timeframes

Waste stream	Compliance timeframe
Lead acid batteries	8 years (2021)
Re-usable, recoverable or recyclable used lubricating mineral oils, as well as oil filters, but excluding other oil containing waste	4 years (2017)
Hazardous waste electric and electronic equipment - lamps	3 years (2016)
Hazardous waste electric and electronic equipment - other	8 years (2021)
Waste tyres - whole	Immediate (2013)
Waste tyres - quartered	5 years (2018)

3.4 National Domestic Waste Collection Standards (GN 21 of 2011)

This standard aims to provide a uniform framework within which domestic waste should be collected in South Africa in order to address the past imbalances in the provision of waste

services. The standards aim to guide municipalities on how to provide acceptable, affordable and sustainable waste collection service to the human health and the environment.

Table 17: Recycling targets of the National Domestic Waste Collection Standards

Requirement	Progress in the Province
Separation at source must be encouraged in line with relevant indWMPs and all households in metropolitan municipalities and secondary cities must be separating waste at source	<ul style="list-style-type: none"> The indWMPs have been submitted to DEFF but not yet approved. Neither of the metros have municipal separation at source programmes in place
Service providers/ municipalities must provide clear guidelines to households on sorting of waste, appropriate waste containers and removal scheduled for different waste types	<ul style="list-style-type: none"> Municipalities which have participated in separation at source programmes have undertaken awareness campaigns with residents
Community involvement in recycling must be encouraged	
Municipalities must provide an enabling environment for recycling through a kerbside collection service for mainstream recyclable or provision of communal collection points.	<ul style="list-style-type: none"> Neither of the metros have municipal separation at source programmes in place. NMBM have provided formal recycling facilities at two of their waste drop-off centres. BCMM owns a buy-back centre where recyclables can be dropped off. Some of the local municipalities have provided public drop-off facilities for the public to use.
Non-mainstream recyclable (e-waste, scrap metals batteries etc.) must be routed to drop-off centres	<ul style="list-style-type: none"> The NMBM allows e-waste to be dropped off at the Kragga Kamma drop-off centre. The majority of municipal drop-off facilities are not designed to accept hazardous waste
Recyclable waste must be removed from drop-off centres at least once a fortnight	<ul style="list-style-type: none"> The frequency of collection of recyclable waste from drop-off centres will vary on a site by site basis.

3.5 National Pricing Strategy for Waste Management (2016)

The aims of the National Pricing Strategy for Waste Management (hereafter referred to as the Pricing Strategy) are:

- Mainstream the polluter pays principal
- Reduce waste generation
- Increase waste diversion from landfill
- Support the growth of South Africa's waste economy
- Reduce the environmental impacts of waste

The Pricing Strategy identified downstream, upstream and subsidy based instruments which could be used to increase recycling rates in South Africa.

3.6 National Waste Information Regulations (GN 625 of 2012)

The National Waste Information Regulations came into effect on 01 January 2013. The aim of these regulations is to improve waste information management for South Africa. Annexure 1 of the regulations lists activities including recovery and recycling, treatment and disposal of waste for which the person conducting the activity must register and report on the South

African Waste Information System. Person conducting the following activities or operating the following facilities in terms of recycling must comply with the National Waste Information Regulations.

- Recovery of waste at a facility that has the capacity to process in excess of 10 tons of general waste or in excess of 100kg of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises
- Recycling of general waste at a facility that has an operational area in excess of 500m²
- Recycling of hazardous waste in excess of 100kg per day calculated as a monthly average.

Amendments to the National Waste Information Regulations were released for public comment in July 2018 (GN 701 of 2018), the major change in the regulations was the requirement for waste transporters to register. Other proposed changes to the regulations were a decrease in the allowable reporting timeframes from the closure of a reporting period from 60 days to 30 days and registration and reporting thresholds recovery of hazardous waste being decreased from 500kg to 100kg a day.

There is a general lack of knowledge and compliance in the private sector with these norms and standards. Only 12 facilities in the province are reporting on the SAWIS.

3.7 National Norms and Standards for the Storage of Waste (GN 926 of 2013)

The National Norms and Standards for the Storage of Waste (GN 926, Nov 2013) specify the minimum requirements for waste storage facilities in the interest of protection of public health and the environment. The norms and standards are applicable to waste facilities that have the capacity to store in excess of 100m³ of general or 80m³ of hazardous waste.

At the time when these norms and standard were promulgated GN 718 and 719, which present a list of waste management activities which require a waste management license, were amended to remove the storage of waste.

Based on discussions with the private sector and DEDEAT not all facilities which trigger the registration threshold have been registered. An example is that within the NMBM; DEDEAT only have 5 facilities registered. There are in excess of 16 municipal drop-off facilities alone in NMBM which would trigger the requirement for registration as well as numerous industries which have waste yard with a storage capacity in excess of 100m³.

3.8 National norms and Standards for Sorting, Shredding, Grinding, Crushing, Screening and Bailing of General Waste

These norms and standards have two different requirements depending on the size of a facility:

- All waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) **less than 100m² in size** must register with the competent authority and provide details

including the location, types of waste processed, and civil design drawings of the facility as set out in Section 4 of the standard.

- All waste facilities (used for sorting, shredding, grinding, crushing, screening of waste) **more than 100m² in size** must register with the competent authority as set out in Section 4 of the standard, **as well as** comply with requirements for the location, design, construction, access control and signage.

Operational requirements in Section 8 of the standard address management of operational impacts such as control of hazardous substances, air emissions, discharging of wastewater, noise and odour emissions. The standard also covers training, emergency response, monitoring and reporting, general requirements, requirements during the decommissioning phase and transitional provisions.

4 Recycling Surveys

4.1 General Household Survey 2016

A review of domestic waste recycling was undertaken as part of the Stats SA General Household Survey in 2016. The following section summarises the key findings of this survey

On a national level households located in metropolitan municipalities are more likely to separate waste at source for recycling than traditional and rural households (Stats SA, 2018). The higher percentage of household which are separating waste at source in metropolitan municipalities could be due to the presence of separation at source programmes or the availability of easily accessible recycling drop-off facilities, or due to ability to pay a service provider to collect recyclables.

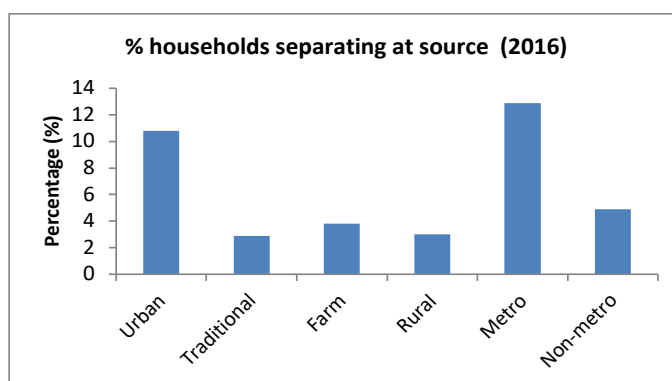


Figure 4: Percentage of household which are separating waste at source for recycling (data source, Stats SA, 2018)

Only 4.8% of urban households in the Eastern Cape separate their waste for recycling. The national average is 10.8% of urban households (Stats SA, 2018).

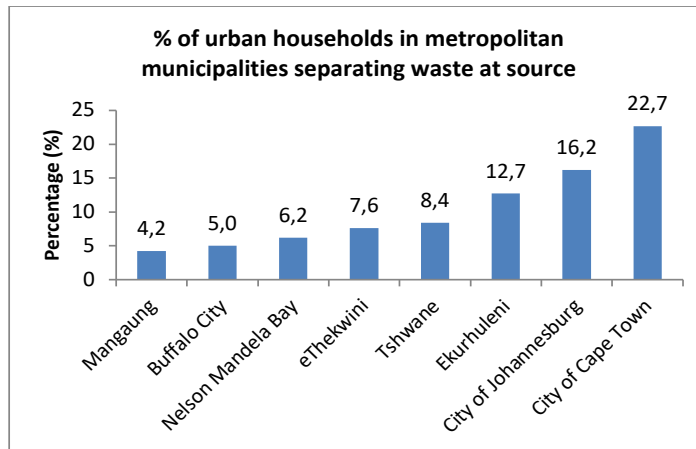


Figure 5: Percentage of household which are separating waste at source for recycling in the nine metropolitan municipalities (data source, Stats SA, 2018)

The separation at source rate is low in the two Eastern Cape metropolitan municipalities (5% in Buffalo City and 6.2% in Nelson Mandela Bay). These low rates could be attributed to a lack of municipal separation at source programmes. Households which are separating waste at source are most likely either paying a private company to collect their waste or transporting waste at their own cost to a recycling drop-off facility.

The Stats SA survey also assessed reasons for households not engaging in recycling, the following feedback was received from the survey.

The majority of households which do not recycle (75.8%) indicated they did not recycle because they could put recyclable materials into their bin with the rest of their waste. A lack of recycling services (38.9%) and conveniently located recycling drop-off points (29.0%) were also given as reasons for not recycling. These results indicate that if municipalities were to provide a kerbside collection service for recyclable or easily accessible recycling facilities then the percentage of households recycling would increase. Of concern is that 34.8% of households do not think it is important to recycle, which indicates a lack of waste awareness on a national level. A further 31.1% of households indicated that they do not recycle due to a lack of financial incentives.

4.2 Public Perception Surveys

The key aim of this study is to identify mechanism for increasing recycling in the province. Recycling can only be increased if the public and private sector understand the value of recycling and support recycling initiatives. There have been a number of surveys undertaken across South Africa which assessed the public perception of recycling. Key findings of these studies are presented in the table below.

Table 18: Summary of recycling surveys

Study name	Survey description	Key findings	Reference
Sustainability of waste management recycling: A case study of Paarl	Surveys were distributed to 100 households in Paarl to assess households attitudes towards recycling. 70 surveys were returned.	<ul style="list-style-type: none"> 46% of households recycle 33% of households which don't recycle cite the reason for this as it takes too much effort to recycle. A further 28% state they do not have time to recycle Paper (33% of households) is the most commonly recycled material by households followed by glass (30% of households) and plastics (28% of households) 43% of households were aware of the location of their nearest recycling facility 78% of households were aware of the importance of recycling 81% of households were willing to learn about recycling 74% of households would be willing to pay for as recycling service 91% of households stated they would be willing to participate in recycling in the future 	Rossouw, L and Du Plessis, R (2018). Sustainability of Waste Management Recycling: A case study of Paarl, presented at IWMSA WasteCon 2018, Emperors Palace, Johannesburg
A survey on selected households within the Ekurhuleni Metropolitan Municipality to participate in solid waste management and recycling	100 questionnaires were delivered to households or undertaken face-to-face in the city of Ekurhuleni. A total of 80 responses were received.	<ul style="list-style-type: none"> 60% of respondents were aware of recycling centres 55% of respondents are involved in waste minimisation 65% of respondents are involved in reclaiming of waste to recycle or to sell to recycling companies 64% of respondents understood the important of separation at source 36% of respondents recycle due to environmental concerns, 30% separate waste at source as it is useful for recycling or composting and 20% separate waste at source due to influences from the media 44% of respondents who do not recycle indicate the reason is a lack of containers 23% of respondents do not recycle due to a lack of time 	Gumbi S.E and Rampedi I.T (2018) A survey on selected households within the Ekurhuleni Metropolitan Municipality to participate in solid waste management and recycling, presented at IWMSA WasteCon 2018, Emperors Palace, Johannesburg
Nelson Mandela Bay Municipality Waste Management Perception Survey. A	A waste management public perception was undertaken using face-to-face surveys, an online survey and	<ul style="list-style-type: none"> 37% of households in medium – high income areas recycle but only 11% of households in low income areas recycle Glass (29% of respondents) was the most widely recycled material followed by paper/cardboard (22% of respondents) and plastic (18% of respondents) 	Nelson Mandela Bay Municipality (2012). Waste Management Perception Survey. A

Study name	Survey description	Key findings	Reference
component of the integrated waste management plan 2011/2012 review	hardcopy stations. A total of 1,111 responses were received	<ul style="list-style-type: none"> 88% of respondents felt that NMBM has a responsibility to facilitate recycling 	component of the integrated waste management plan 2011/2012 review
PETCO Consumer Research Results 2017	A public perception survey on attitudes towards recycling. Face to face interviews were undertaken in Johannesburg and a national online survey was undertaken. A total of 665 responses were received.	<ul style="list-style-type: none"> 75% are aware of the concept of recycling 38% recycling all the time, 12% most of the time and 14% occasionally 30% of respondents do not currently recycle but would recycle in the future Reasons given for not recycling, a lack of space (59%), apathy (44%). Lack of facilities (44%), lack of education (28%) Of those who recycle 44% drop-off waste, 19% leave it out for collection, 6% sell to waste collectors Of those who don't currently recycle 29% would recycle if they had more knowledge of recycling, 25% would recycle if they were paid or incentivised, and 21% would recycle if they were given bags or bins to store recyclables in 	PETCO (2017) Press Release, 11% committed to recycling, research finds & PETCO (2018) PETCO Consumer Research Results March 2017
CSIR National Survey on Households Waste Recycling Behaviour in South Africa, 2015	A national survey on household recycling behaviour. 3,617 surveys undertaken face to face. Results were compared to the 2010 survey	<ul style="list-style-type: none"> Survey total – 78% of households never recycle, 72% of urban households never recycle, 85% of households in small towns or rural areas never recycle Willingness of non-recyclers to recycle using a kerbside collection increased from 41% of households in 2010 to 56% in 2015 Households unwilling to make use of the kerbside collection also increased from 15% in 2010 to 19% in 2015 	Strydom W.F & Godfrey L.K. (2016) Households waste recycling behaviour in South Africa – has there been progress in the last 5 years? Presented at WasteCon 2016, Emperors Palace, Johannesburg

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5 National Overview of Recycling

The 2018 draft State of Waste Report estimates that of the 42 million tonnes of general waste generated annually in South Africa only 11% is recycled (DEA, 2018). This illustrates that South Africa as a whole falls short of the 2011 NWMS target of 25% of recyclable waste to be diverted from landfill.

The following sections detail current recycling of different waste streams in the country.

5.1 Paper and Cardboard Recycling

Based on statistics provided by PRASA, in 2016 paper consumption in South Africa was 2,381,442 tonnes. A high level of paper recycling is occurring in South Africa. On a national level 68% of all paper was collected for recycling in 2016. This amounts to a total of approximately 1.4 million tonnes. Of the 1.4 million tonnes of paper recovered in South Africa in 2016 1,388,228 (99.2%) was recycled (PRASA, 2017).

Recovered paper is used in approximately 65% of paper mills in South Africa and some paper mills only use recovered paper stock in manufacturing (Packaging SA, 2018).

Table 19: Paper recycling rates 2010 - 2016

Year	Recovered paper as a percentage of recoverable paper	Tonnes of paper recovered (tonnes)	Reference
2013	62%	1,169,296	PAMSA (2014)
2014	64%	1,063,129	PAMSA (2015)
2015	66%	1,196,026	PAMSA (2016)
2016	68%	1,399,039	PAMSA (2017)

The PAMSA data is used in the Packaging SA indWMP to provide a status quo of paper recycling in South Africa.

The SAWIS also provides data for paper recycling in South Africa, however the SAWIS records do not directly correlate with PAMSA's data. In 2013 PAMSA reported 1,169,300 tonnes of paper being recycled in 2013 and SAWIS reports 8,101,933 tonnes. The year on year data reported by PAMSA is more consistent than the SAWIS data which fluctuates significantly year on year. The PAMSA data is therefore considered to be the more accurate data set

Table 20: Paper recycling tonnages 2013 – 2017 for South Africa (source SAWIS, access 19 November 2018)

Year	Paper category (tonnes/ annum)					
	Paper	Brown grade	Mixed grades	Newspaper & magazine	White	Total
2013	202,219	5,984,370	1,299,664	220,612	395,066	8,101,933
2014	1,044,744	6,522,421	1,589,245	285,652	622,803	10,064,866
2015	760,949	1,682,266	343,455	202,066	367,584	3,356,322
2016	285,426	1,095,944	291,267	153,408	350,165	2,176,210
2017	514,784	852,305	577,634	1,187,699	293,772	3,426,196

Based on SAWIS records there were 178 facilities registered as recycling paper, which may include facilities where paper is sorted and bailed.

Table 21: Number of paper recycling facilities in South Africa (source SAWIS, data source 19 November 2018)

Year	Number of recycling facilities per waste category					Total
	Paper	Brown grade	Mixed grades	Newspaper & magazines	White grades	
2013	6	22	21	17	22	88
2014	12	28	21	19	21	101
2015	24	38	36	27	31	156
2016	21	38	34	27	33	153
2017	32	43	37	28	38	178

5.2 Glass

Glass is widely recycled in South Africa; there are over 4,017 glass banks in South Africa, 41% of glass is recycled and 87% of glass is diverted from landfill. In addition, the recycling of glass supports 3,125 entrepreneurs (web reference 4). The majority of glass is sent to Cape Town or Johannesburg for recycling. The major glass recyclers in South Africa are Consol and Nampak.

Nampak recycled 59,000 tonnes of glass in 2016, and 47% of the material used in glass packaging by Nampak is recycled glass (Nampak, 2016).

Table 22: Glass consumption and collection tonnages 2012 -2016 in South Africa (source, PSA, 2018)

Year	Glass consumption (tonnes)	Glass collected (tonnes)	% collected
2012	865,400	339,200	39.2%
2013	809,300	320,900	39.6%
2014	734,800	286,000	38.9%
2015	678,600	152,300	41.1%
2016	686,500	285,000	41.5%

The percentage of glass collected increases annually, however there has been a decrease in annual consumption of glass from 865,400 tonnes in 2012 to 686,500 tonnes in 2016. The decrease in glass consumption could be due to redesign of glass packaging to decrease weight or a loss of market share to plastic packaging (Kagiso Asset Management, undated).

Returnable glass bottles are in circulation in South Africa; there is an 85% return rate on returnable bottles (Packaging SA, 2018). These returnable bottles can be reused up to 30 times (web reference 5). Approximately 80% of all beer sold in South Africa is sold in returnable bottles (Nampak, 2018).

According to SAWIS records in 2017 there were 41 glass recycling facilities operating in South Africa, and in 2017 a total of 177,681 tonnes of glass was recycled.

Table 23: Glass recycling records (source, SAWIS, accessed on 19 November 2018))

Year	Glass recycling (tonnes)	No. registered facilities
2012	2,212	4
2013	9,774,167	21
2014	6,497,948	25
2015	403,725	33
2016	164,041	35
2017	177,681	41

As can be seen in the table above, there are significant discrepancies between year on year annual glass recycling tonnages reported on SAWIS (2012 – 2,212 tonnes , 2013 9.7 million tonnes), confirming that this data is not reliable.

5.3 Metal Packaging

Can recycling rates in South Africa are high. Collect-a-Can estimates that the recycling rate for beverage cans was 72% in 2015 (web reference 3). Approximately 162,000 tonnes of cans were produced in South Africa in 2017, although the annual tonnage of cans produced decreased from 202,000 tonnes in 2013 to 162,000 tonnes in 2017. One reason for this decline is the packaging industry moving from use of steel cans to aluminium cans (PSA, 2018). Steel is approximately 2.5 times denser than aluminium.

Data presented in the Packaging indWMP shows a decline in the consumption of metal packaging between 2012 (230,200 tonnes) and 2016 (194,500). The percentage of metal packaging being collected for recycling has shown an 11.1% increase from 64.6% in 2012 to 74.7% in 2016.

Table 24: Metal packaging consumption and collection tonnages 2012 -2016 (source, PSA, 2018)

Year	Consumption for packaging (tonnes)	Metal packaging collected (tonnes)	% collected
2012	230,200	148,700	64.6%
2013	227,800	153,200	67.2%
2014	226,200	154,000	68.1%
2015	214,400	152,300	71.0%
2016	194,500	145,300	74.7%

5.4 Scrap Metal

The table below shows records of metal recycling obtained from the SAWIS.

Table 25: SAWIS scrap metal records (accessed 19 November, 2018)

Year	Metal	Ferrous metal	Non-ferrous	Total
2013	261,632	1,342,278	94,199	1,698,109
2014	1,045,432	2,639,111	231,005	3,915,548
2015	621,041	1,547,270	101,174	2,269,486
2016	83,632	561,573	102,186	747,392
2017	3,269,412	779,361	168,862	4,217,636

In 2014 1,571,461 tonnes of recycled ferrous metal were exported by South Africa with a value of R5,880,043,432. Ferrous metal is exported to India, Pakistan, Turkey, Indonesia and Vietnam. Less non-ferrous metal (132,102 tonnes) was exported in the same period, however the value of this material (R 3,391,057,466) was significantly more on a “per tonne” basis. Non-ferrous metal is exported to China, India, South Korea, Brazil and Germany (Tutwa, 2017).

5.5 Plastics

Unlike other packaging materials (glass and metal packaging) the consumption of plastic for packaging has increased annually between 2012 (734,100 tonnes) and 2016 (865,700 tonnes). The percentage of material collected for recycling has also increased between 2012 (39.6%) and 2015 (44.6%). The percentage of material collected remained constant between 2015 and 2016. It must be noted that although the percentage of material collected remained constant between 2015 and 2016 the tonnage of plastic packaging collected for recycling increased by 20,600 tonnes.

Table 26: Plastic packaging and collection tonnages 2012 -2016 (source, PSA, 2018)

Year	Consumption of plastic for packaging (tonnes)	Plastic packaging collected (tonnes)	% collected
2012	734,100	291,000	39.6%
2013	780,800	315,800	40.4%
2014	791,100	351,500	44.4%
2015	818,600	365,200	44.6%
2016	865,700	385,800	44.6%

The SAWIS records for plastic recycling show significant fluctuation year on year, again suggesting that this data is not reliable.

Table 27: Plastic recycling tonnages (source, SAWIS, accessed 19 November 2018)

Year	Plastic	HDPE	LDPE	Other	PET	PP	PS	PVC	Total
2013	577,819	82,406	1,898,645	45,227	36,397	671,202	12,305	7	3,324,008
2014	867,490	78,911	583,339	120,807	65,458	301,726	13,628	0	2,031,359
2015	134,384	45,349	116,705	1,637	31,231	3,447	5,024	1,389	339,166
2016	74,391	47,401	129,922	30,082	35,211	11,234	7,172	4,027	339,440
2017	2,698,685	39,315	100,863	11,035	48,031	53,157	9,900	3,462	2,964,448

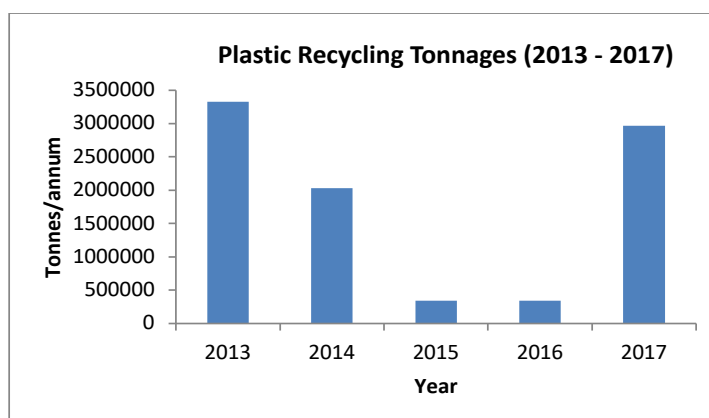


Figure 6: Plastic recycling tonnages (data source SAWIS, accessed 2013 – 2017)

5.5.1 Polyolefins

Polyolefins cover the following categories of plastic:

- High density polyethylene – HDPE
- Linear low and low density polyethylene – LL/LDPE
- Polypropylene – PP
- Multilayer materials

The following table summarises recycling rates of polyolefins in South Africa

Table 28: Polyolefins recycling rates in South Africa (Plastics SA, 2017)

Plastic	Volume recycled	Recycling rate	Comments
LDPE	108,229 tonnes (2015)	32.8%	8% of recycled LDPE is exported to African countries
HDPE	62,208 tonnes (2016)	27.9%	102 HDPR recycler, 8 of which process 50% of the HDPE
PP	44,986 tonnes (2016)	14.8%	The demand for PP and recycling rate of PP is the lowest over the last since 2011 (5.7% decline in recycling rates).

5.5.2 Polyethylene terephthalate

The PET Recycling Company NPC South Africa (PETCO) is the PRO for polyethylene terephthalate (PET). According to PETCO's website in 2018 66% of PET bottles have been collected for recycling (web reference 6) which is a 38% increase from 2008. In 2016, 90,747 tonnes of post-consumer PET was recycled. This is a 22% increase from 2015 recycling rates (Plastics SA, 2017).

In 2017 recycling of PET bottles saved approximately 578,000m³ of landfill site airspace and R430 million was paid by recyclers for baled bottles (PETCO, 2017).

5.5.3 Poly vinyl chloride

There are currently no recyclers in South Africa which can recycle contaminated post-consumer or post-industrial non-packaging PVC waste (Packaging SA, 2018). In 2016 17,081 tonnes of PVC was recycled, which is a recycling rate of 9.4% (Plastics SA, 2017).

5.5.4 Polystyrene

The recycling of polystyrene showed a 7.2% decrease between 2015 and 2016. A total of 5,449 tonnes (8%) of polystyrene was recycled in 2016. Due to the density of polystyrene, it is typically not feasible to transport it unless it has been extruded into ingots to densify the material (Plastics SA, 2017).

5.5.5 Destination of Plastics

The majority of plastic collected for recycling is recycled in South Africa, with the remainder being exported offshore. Of the 334,727 tonnes of plastic recycled in 2017 only 6.3% was recycled outside of South Africa (Pretorius, 2018).

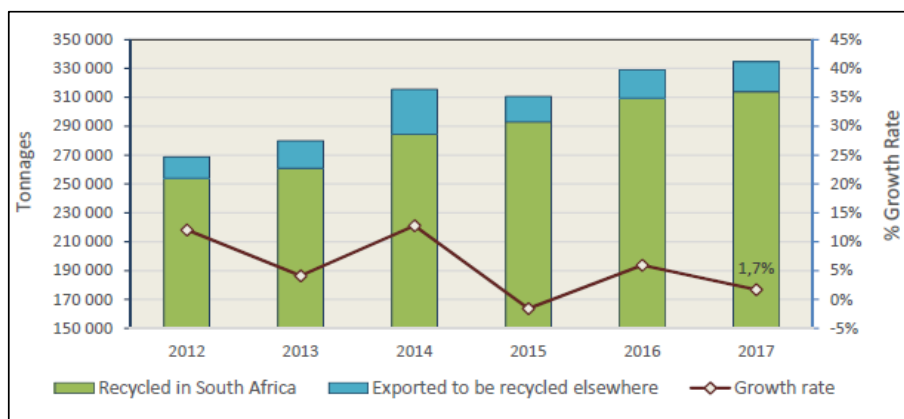


Figure 7: Destination of South African plastic collected for recycling (source, Pretorius, 2018)

5.5.6 Markets for Plastic

The National Plastics Recycling Survey of 2016 notes that in 2016 many recyclers had more recyclate available than their customers required. The increase in availability of recyclate is attributed to changes in consumer behaviour and an increased focus on implementation of waste management in line with the Waste Act e.g. separation at source.

Table 29: Markets for plastic recyclate (source, Plastics SA, 2017)

Destination	% of recycled plastic
Flexible packaging	20%
Clothing and footwear	18%
Building and construction	16%
Rigid packaging	15%

Miscellaneous	8%
Furniture	5%
Agriculture	5%
Export	5%
Domestic wares	3%
Mining and engineering	2%
Polywood	2%

5.6 E-Waste

A lack of accurate data on e-waste generation rates was raised as a concern in both the ERA and SAWEEEDA e-waste indWMPs.

The actual e-waste generation rates in South Africa are unknown. It is estimated that 360,000 tonnes of e-waste are available for recycling each year (ERA, 2018). The current recycling rate of e-waste is estimated to range between 11% (Mintek, 2017) and 18% (STEP, 2013).

According to Operation Phakisa reports, government departments (45%) are the largest generator of e-waste, followed by the private sector (35%) and households (20%).

5.7 Tyres

There are an estimated 60 to 100 million used tyres stockpiled in South Africa, and a further 11 million tyres are added to these stockpiles each year (Smith & Trois, 2018).

Approximately 232,000 tonnes of tyres are sold per annum in South Africa. This equates to approximately 174,000 tonnes of waste tyres being generated annually (2015 figures) (SATRUCO, 2018). A 20% reduction rate is applied to new tyre tonnages to account for loss in mass due to wear to tear. It is estimated that off-road tyres (OTR) account for 25,000 tonnes annually of the new tyres entering the market (TWASIMA, 2018).

6 Waste Recycling in the Eastern Cape

6.1 Separation at Source Programmes

At present neither of the metropolitan municipalities have municipal separation at source programmes in place. There are private companies in operation which offer kerbside collection of source separated recyclables for a small monthly fee. Twelve of the 31 local municipalities are running separation at source programmes but most of these programmes are small pilot programmes. Challenges experienced in running separation at source programmes include a lack of budget to procure bags, a lack of public awareness of recycling and community members expecting an incentive to undertake separation at source.

Table 30: Details of waste separation at source programmes (data collected from IWMPs and through interviews)

Local municipality	District municipality	Details of programme
Umzimvubu	Alfred Nzo	None
Amahlath	Amathole	None
Great Kei	Amathole	None
Amahlath	Amathole	None
Ngqushwa	Amathole	None
Raymond Mhlaba	Amathole	None
Elundini	Joe Gqabi	None
Senqu	Joe Gqabi	None
Blue Crane Route	Sarah Baartman	Separation at source programmes are in place in Cookhouse, Pearston and Somerset East. Recyclable waste is collected in blue bags and taken to the Somerset East landfill site.
Makana	Sarah Baartman	A voluntary pilot two bag system has been initiated.
Ndlambe	Sarah Baartman	Two wheelie bins are provided to select households in Station Hill township to allow households to separate waste at source. Integrated Waste and Recycling Services manage the pilot programme.
King Sabata Dalinyebo	O.R. Tambo	None

6.2 Material Recovery Facilities

The following municipal material recover facilities (MRF) are in operation in the province. The below list has been compiled based on review of municipal IWMPs and from information obtain during surveys with municipalities.

Table 31: Summary of municipal material recovery facilities in the Eastern Cape

Municipality	Location of MRF	Description of MRF	Owner
Elundini	Ugie Landfill site	A mechanised MRF with a raised conveyor belt sorting line and bailer. The MRF is enclosed in a building. The MRF has been vandalised and is not currently operational due to financial constraints	Municipal
Intsika Yethu	-	-	Municipal
Buffalo City	East London	The Buffalo City Buy-back centre includes an area where waste is stored and bailed.	The building is owned by Buffalo City but the equipment is owned by the service provider
Emalahleni	Lady Frere	A MRF will be constructed using funding from DEFF	Municipal
Walter Sisulu	Aliwal North	-	Municipal
Umzimvubu	-	-	Municipal
Port St Johns	Port St Johns landfill site	-	Municipal
Mhlontlo	Qumbu landfill site	-	Municipal
Nyandeni			
Ndlambe	Alexandria	Construction completed but not yet operational	Municipal
Engcobo	Landfill site	-	Municipal

There are a high number of private MRFs operating in the province, which range from mechanised MRFs with sorting conveyors to manual MRFs where waste is stored on tables or the floor of the facility.

6.3 Buy-Back Centres and Swap-Shops

Based on IWMP reviews and completed surveys there are 11 municipal buy-back centres in the Eastern Cape. Details of the buy-back centres are provided in the table below.

Table 32: Summary of buy back facilities in the Eastern Cape

Municipality	Location of buy-back centre	Ownership
Mbizana	Flagstaff	No data available
Mbizana	Bizana	-
Mhlontlo	Tsolo	-
Mhlontlo	Qumbu (x2 buy back centres)	-
King Sabata Dalindyebo	Mthatha	-
King Sabata Dalindyebo	Mqanduli	-
Ingquza Hill	Lusikisiki	-
Port St Johns	Port St Johns landfill – in planning	A buy-back centre is planned for the Port St Johns landfill site
Walter Sisulu	Aliwal North	No data available
Buffalo City	East London	The building is owned by Buffalo City but the equipment is owned by the service provider



Figure 8: Flagstaff buy-back centre (left), one of the compactors dedicated to the project (right)

In addition to buy-back centres there are swap shops in the operation in the province.

The Colchester swap shop in NMBM is funded by a not for profit organisation. Children collect recyclables in exchange for vouchers which can be traded for stationary, clothing and food. The swap shop has been in operation since 2017 (web reference 7).

There is also a swap-shop in operation in Uitenhage, NMBM. The Uitenhage Recycling Mula Swap-Shop has been in operation since 2015. The Swap-Shop services the communities of Kabah, Joe Slovo, Blikkiesdorp, Gerald Smith, Mandelaville and Rosedale. Approximately 250 – 300 households use the Swap-Shop each week. Children from these communities exchange

recyclables for food, toiletries, stationary, clothes or toys once a week and are also provided with a light meal. Since 2015 more than 45 tonnes of PET and 25 tonnes of cardboard have been collected (PETCO, 2017).

6.4 South African Waste Information System Records

The South African Waste Information Centre (SAWIS) was developed to allow implementation of the National Waste Information Regulations (GN 625 of 2012). These regulations require the following persons/ organisations to register and report on the SAWIC:

- Recovery of waste at a facility that has the capacity to process in excess of 10 tons of general waste or in excess of 500kg of hazardous waste per day, excluding recovery that takes place as an integral part of an internal manufacturing process within the same premises
- Recycling of general waste at a facility that has an operational area in excess of 500m²
- Recycling of hazardous waste in excess of 500kg per day calculated as a monthly average.

There are currently 12 facilities in the Eastern Cape registered, and a combined total of 275,667 tonnes of waste were recovered or recycled in Eastern Cape in 2017. The majority (99.9%) of the waste recovered or recycled is general waste. Nationally 93% of waste recovered or recycled is general waste. This suggests that either hazardous waste generated in the Eastern Cape is being transported to another province for recycling or that hazardous waste generated in the Eastern Cape is being landfilled.

Table 33: Facilities registered for the recovery or recycling of waste in the Eastern Cape (data source, SAWIS, accessed on 04 October 2018)

Facility type	No.	2017 tonnages of general waste reported	2017 tonnages of hazardous waste reported	Total waste reported
Direct recovery of raw material from waste	6	158,420		158,420
Recycling of organic substances	1		272	272
Recycling of metals or metal compounds	1	94,936		94,936
Recycling of other inorganic materials	4	22,039		22,039
Total	12	275,395	272	275,667

Based on SAWIS records a total of 22 different waste streams are recovered or recycled in the Eastern Cape. The composition of these waste streams is presented in the chart and table below.

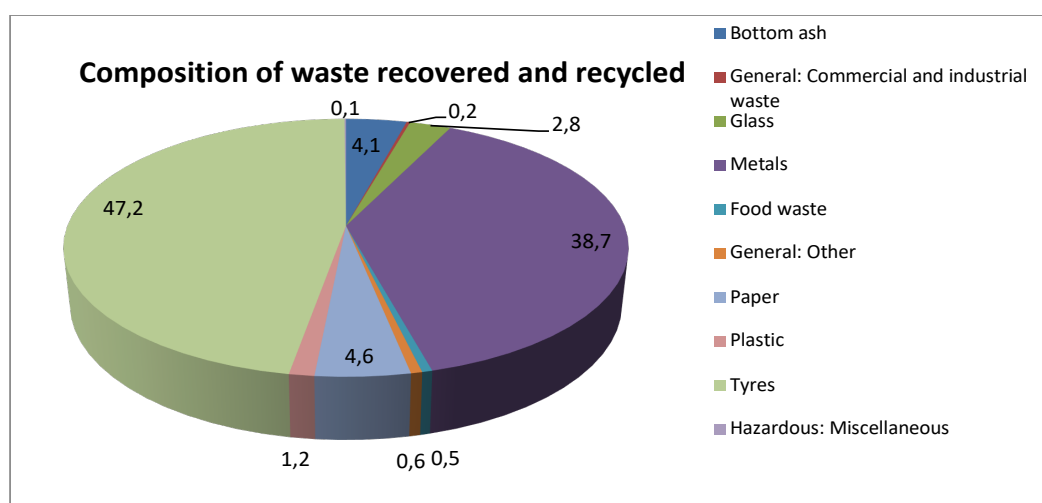


Figure 9: Composition of waste recovered and recycled in the Eastern Cape (data source, SAWIS accessed 04 October 2018)

Table 34: SAWIC records of waste recycling in the Eastern Cape (accessed 19 November 2018)

Waste group	No. Facilities	General waste	Hazardous waste	Total	% of waste
Bottom ash	3	11,269	0	11,269	4.1
Commercial and industrial waste	2	648	0	648	0.2
Glass	1	7,689	0	7,689	2.8
Metals	3	8,674	0	8,674	3.1
Metals: Ferrous metal	3	81,931	0	81,931	29.7
Metals: Non-ferrous metal	3	16,138	0	16,138	5.9
Metals total	9	106,744		106,744	38.7
Food waste	1	1,380	0	1,380	0.5
Other	1	1,518	0	1,518	0.6
Paper	2	874	0	874	0.3
Paper: Brown grades	2	9,354	0	9,354	3.4
Paper: Mixed grades	1	1,140	0	1,140	0.4
Paper: Newsprint and magazines	1	686	0	686	0.2
Paper: White grades	1	677	0	677	0.2
Paper total	7	12,730		12,730	4.6
Plastic	2	343	0	343	0.1
Plastic: High-density Polyethylene	1	45	0	45	0.0
Plastic: Low-density Polyethylene	1	844	0	844	0.3
Plastic: Other	2	325	0	325	0.1
Plastic: Polyethylene terephthalate	1	112	0	112	0.0
Plastic: Polypropylene	2	831	0	831	0.3
Plastic: Polystyrene	2	889	0	889	0.3
Plastic total	11	3,389		3,389	1.2
Tyres	2	130,028	0	130,028	47.2
Hazardous: Miscellaneous	1	0	272	272	0.1
Total	64	275,396	272	275,668	100

Tyres constitute almost half (47.2%) of waste recovered or recycled in the province. A levy of R2.30/kg has been applied to tyres to assist with recycling thereof.

The second largest category of waste being recovered or recycled is metals (38.7%) with ferrous metal being the largest contributor (29.7%).

It must however be stated that, as explained in section 5 above, the year on year data reported on SAWIS is extremely inconsistent, and hence the integrity of SAWIS data is highly questionable.

6.5 Composition of the Domestic Waste Stream

It is essential to understand the domestic waste profile when determining the availability of recyclable material in the province. A breakdown of the domestic waste profile is presented below.

Up to 75% of packaging waste is generated post-consumer (Plastics SA, 2017), therefore collection of recyclable material from households through separation at source programmes could significantly increase volumes of material available for recycling.

The domestic waste stream was determined based on waste characterisation exercises undertaken in the Eastern Cape for the following municipalities:

- Buffalo City Metropolitan Municipality
- Elundini Local Municipality
- Emalahleni Local Municipality
- Elundini Local Municipality
- Enoch Mgijima Local Municipality
- Kouga Local Municipality
- Nkonkobe Local Municipality (amalgamated into Raymond Mhlaba Local Municipality in 2016)
- Nelson Mandela Bay Metropolitan Municipality

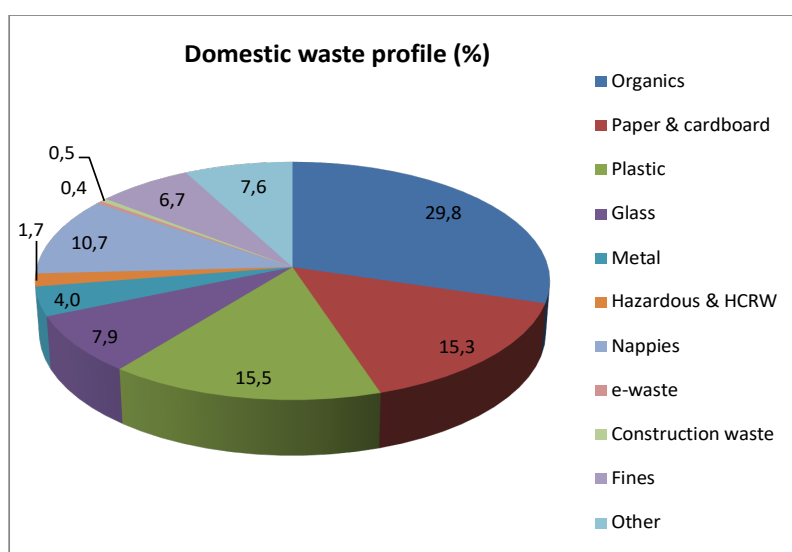


Figure 10: Domestic waste stream profile (source, DEDEAT, 2018)

Based on the waste characterisation results 43% of the domestic waste stream is composed of mainstream recyclables. Plastic is the largest contributor of recyclable materials in the domestic waste stream (15.5%) followed closely by paper and cardboard (15.3%).

1. Plastic – 15.5%
2. Paper and cardboard – 15.3%
3. Glass – 7.9%
4. Metal – 4.0%

6.6 Volumes of Waste Potentially Available to Recycle

The data presented in the section below are based on the assumption that all of the domestic waste in the Eastern Cape is collected and available for recycling and represents a best-case scenario. This is in practice however not currently the case as a large percentage of households in the Eastern Cape either burn or bury waste on their properties, particularly in the rural areas.

6.6.1 Paper and Cardboard

The paper and cardboard component of the domestic waste stream was further broken down into the major categories of paper and cardboard in some waste characterisations. The results of these characterisations indicate that the majority of the paper waste stream is paper other which consists of plasticised paper such as magazines and flyers (41.4%) followed by non-corrugated cardboard (28.8%) and corrugated cardboard (18.8%). High quality paper which is typically white or office paper only constituted 11% of the domestic paper and cardboard waste stream.

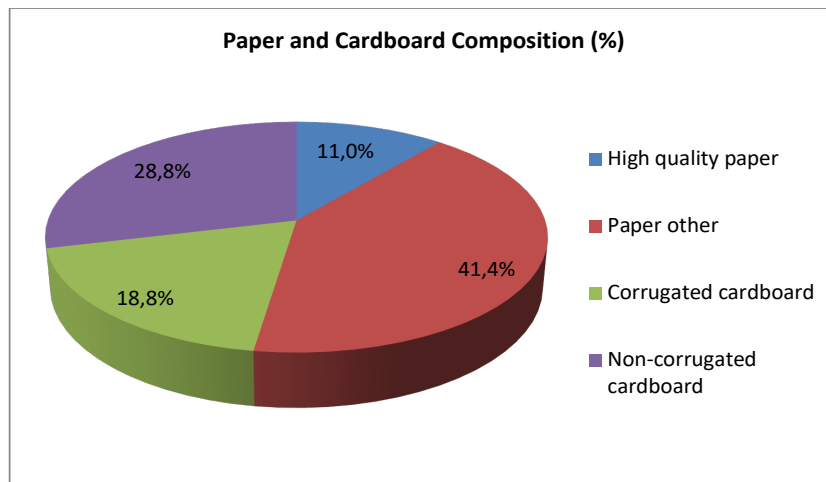


Figure 11: Domestic waste stream paper and cardboard composition (source DEDEAT, 2018)

Based on the 2018 population of the Eastern Cape, it is estimated that 1,203,719 tonnes of domestic waste are generated per annum in the Eastern Cape (DEDEAT, 2018). Using this figure it is calculated that there is potentially 184,169 tonnes per annum of paper and cardboard from domestic streams available for recycling in the Eastern Cape. According to SAWIS only 12,730 tonnes of paper and cardboard was recycled in the Eastern Cape in 2017.

Table 35: Hypothetical tonnages of paper and cardboard available for recycling from the domestic waste stream

Paper/ cardboard category	% of domestic paper/ cardboard waste stream	% of total domestic waste stream	Hypothetical available paper/ cardboard for recycling (tonnes/ annum)
High quality paper	11.0%	1.7	20,463
Paper other	41.4%	6.3	75,834
Corrugated cardboard	18.8%	2.9	34,908
Non-corrugated cardboard	28.8%	4.4	52,964
Total	100.1%	15.3%	184,169

The following recycling rates for the Eastern Cape are based on national averages for paper and cardboard recycling. Based on the assumption that the Eastern Cape recycling rates are in line with the national average at present, 125,235 tonnes of paper and cardboard are potentially collected for recycling in the province per annum. Real figures are however likely to be significantly lower.

Table 36: Estimated paper and cardboard recycling tonnages

Paper/ cardboard category	Volume of material available for recycling	National recycling rate (source PAMSA 2014 - 2017)	Estimated recycling tonnages
High quality paper	20,463	68%	13,915
Paper other	75,834	68%	51,567
Corrugated cardboard	34,908	68%	23,737
Non-corrugated cardboard	52,964	68%	36,015
Total	184,169		125,235

6.6.2 Glass

Glass makes up 7.9% of the domestic waste stream in the Eastern Cape. According to public perception survey undertaken by NMBM in 2011 – 2012 glass is the most commonly recycled material by households. There are in excess of 2,000 glass banks across the province (web reference 8).

According to SAWIS records 7,689 tonnes of glass were collected for recycling in 2017. Based on the results of the survey undertaken as part of this Recycling Survey in excess of 818 tonnes of glass a month or 9,600 tonnes a year are collected in the Eastern Cape for recycling.

Table 37: Hypothetical glass recycling tonnages

Waste type	% of domestic waste stream	Hypothetical available glass for recycling (tonnes/ annum)	National recycling rate (PSA, 2018)	Estimated recycling tonnage
Glass	7.9	95,093	41.5%	39,464

Based on the assumption that the Eastern Cape recycling rates are in line with the national average at present 39,464 tonnes of glass is potentially collected for recycling in the province per annum. Real figures are however likely to be significantly lower.

6.6.3 Metal Packaging

Metal makes up 4.0% of the domestic waste stream. The majority of metal found in waste characterisations is metal packaging, either food tins or beverage cans.

The SAWIS records do not differentiate metal packaging from scrap metal, therefore the SAWIS records cannot be used as guide for metal packaging recycling.

Table 38: Hypothetical metal packaging recycling tonnages

Waste type	% of domestic waste stream	Hypothetical available glass for recycling (tonnes/ annum)	National recycling rate (PSA, 2018)	Estimated recycling tonnage
Metal packaging	4.0	48,149	74.7%	35,967

Based on the assumption that the Eastern Cape collection rates are in line with the national average, at present 35,967 tonnes of metal packaging is potentially collected for recycling in the province per annum. Real figures are however likely to be significantly lower.

6.6.4 Scrap Metal

According to SAWIS scrap metal comprises 38.7% of waste recycled in the Eastern Cape. In 2017, 106,744 tonnes of scrap metal were recycled in the province.

Table 39: SAWIC records of scrap metal recycling in the Eastern Cape (accessed 19 November 2018)

Waste group	No. Facilities	General waste	Hazardous waste	Total	% of waste
Metals	3	8,674	0	8,674	3.1%
Metals: Ferrous metal	3	81,931	0	81,931	29.7%
Metals: Non-ferrous metal	3	16,138	0	16,138	5.9%
Metals total	9	106,744		106,744	38.7%

6.6.5 Plastics

The plastic component of the domestic waste stream was further broken down into the major categories of plastic in some waste characterisations. The results of these characterisations indicate that the majority of the plastic waste stream consists of PE-HD (26.7%), followed by PE-LD (24.4%) and PET (19.7%).

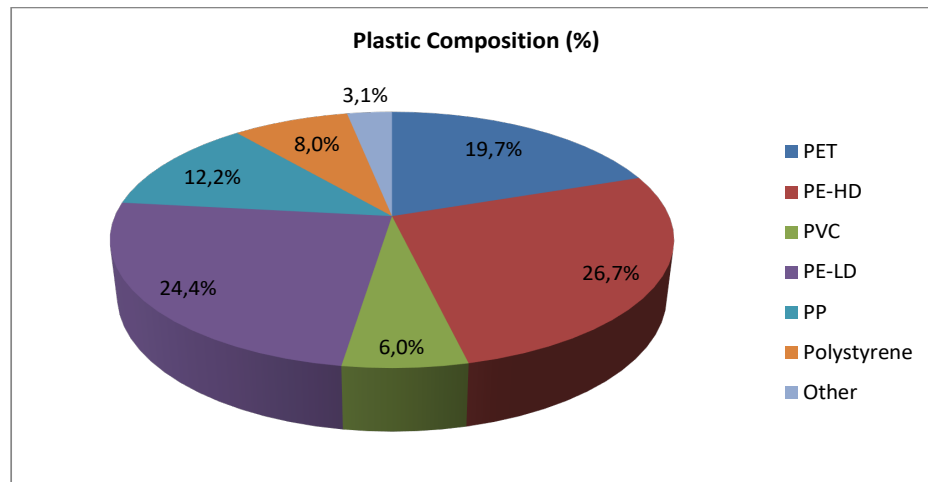


Figure 12: Domestic waste stream plastic composition in the Eastern Cape (source DEDEAT, 2018)

Based on the 2018 population of the Eastern Cape, it is estimated that 1,203,719 tonnes of domestic waste are generated per annum in the Eastern Cape (DEDEAT, 2018).

Table 40: Hypothetical tonnages of plastic available for recycling from the domestic waste stream (DEDEAT, 2018)

Plastic category	% of domestic plastic waste stream	% of total domestic waste stream	Hypothetical available plastic for recycling (tonnes/ annum)
PET	19.7%	3.1%	37,315.3
PE-HD	26.7%	4.1%	49,352.5
PVC	6.0%	0.9%	10,833.5
PE-LD	24.4%	3.8%	45,741.3
PP	12.2%	1.9%	22,870.7
Polystyrene	8.0%	1.2%	14,444.6
Other	3.1%	0.5%	6,018.6
Total	100.0%	15.5%	186,576.4

Based on 1.2 million tonnes of domestic waste being generated annually, there is hypothetically 185,576 tonnes of plastic available for recycling from domestic sources.

Table 41: Estimated maximum likely plastic recycling tonnages in the Eastern Cape

Plastic category	Volume of material available for recycling	National recycling rate	Estimated recycling tonnages
PET	37,315.3	66.0%	24,628
PE-HD	49,352.5	27.9%	13,769
PVC	10,833.5	9.4%	1,018
PE-LD	45,741.3	32.8%	15,003
PP	22,870.7	14.8%	3,385
Polystyrene	14,444.6	8.0%	1,156
Total			58,959

Based on national recycling rates, 58,959 tonnes of plastic would be the likely maximum amount currently recycled annually in the Eastern Cape. The SAWIS records indicate that for 2017 only 3,389 tonnes of plastic were collected for recycling in the province.

6.6.6 E-waste

The Department of Environmental Affairs estimated that only 4% of the total e-waste generated in South Africa annually is generated in the Eastern Cape (2,996 tonnes/ annum) (DEA, 2012). The Eastern Cape exports printed circuit boards (PCB) from e-waste into Europe (Mintek, 2017).

It is estimated that each person generates 6.6kg of e-waste per year (ERA, 2018). Based on a population of 6,996,976 people, a total of 46,180 tonnes of e-waste would be generated per annum in the province. With a recycling rate of 4% only 1,847 tonnes per annum of e-waste is likely currently being recycled in the province.

The following e-waste recycling companies are in operation in the Eastern Cape

- Bolunga Electronic Waste (factory in East London and collections sites in Komani, King Williams Town, Butterworth and Bhisho)
- Desco Electronic Recyclers (collection sites in the Eastern Cape)

- E-waste Technologies Africa (head office in Port Elizabeth, collection sites in East London, Mthatha, Bhisho and Komani)
- Inca Metals (head office and factory in East London)
- Reclam (e-waste recycling facility is in Johannesburg but Reclam has branches across the Eastern Cape)
- Reclite (consolidation facility in East London)
- Sindawonye
- URC (Mintek, 2017)
- Amazing E-Waste (Port Elizabeth)

The Kragga Kamma waste drop-off centre in NMBM is one example of a municipal drop-off facility for e-waste. Approximately 557kg of e-waste is collected at Kragga Kamma each month.

The recycling rate of e-waste is difficult to determine as there are legacy volumes locked up in government department and the public are storing used e-waste in their homes. As public awareness around e-waste recycling is raised and drop-off points are provided for e-waste, recycling rates of e-waste will increase. The Kragga Kamma transfer station receives approximately 6.6 tonnes of e-waste a year.

6.6.7 Tyres

There are no waste tyre recycling plants in the Eastern Cape. Langkloof Bricks in Jeffreys bay uses waste tyres to fuel their cement kiln (SATRUCO, 2018). There are two waste tyre depots in the province, one at Arlington landfill site in Port Elizabeth and one on farm 648 of Cuyler Street in East London (SATRUCO, 2018).

6.6.8 Used Motor Oil

The ROSE Foundation oversees the recycling of used oil in South Africa. In 2018 there were no ROSE approved used oil processors in the Eastern Cape. The FFS Refiners Pty Ltd facility in Port Elizabeth is the only approved used oil storage facility in the Eastern Cape (web reference 1). There are six used oil drop-off centres listed on the ROSE Foundation website, but these are all located in Port Elizabeth (web reference 2).

In 2016 collectors of used oil received R 0.15- R0.30 per litre of used oil delivered to a ROSE approved processor (NORA-SA, 2016).

6.7 Destination of Recyclable Materials

Based on interviews with recycling companies the following details of the destination of material collected for recycling was determined:

Table 42: Destination of material collected for recycling

Material type	Destination	Comments
Glass	Cape Town or Johannesburg	Taken to Consol
Paper	Kwa-Zulu Natal	Taken to the paper mills
Plastic – mixed streams	East London	Waste or rejected plastic components are re-processed and returned to manufacturers or sold back to the manufacturing industry.
Plastic - Polystyrene	East London	Polystyrene generated by industry is transported to East London for processing into new products. Polystyrene is sourced from with the Eastern Cape and outside the Eastern Cape
Plastic – HDPE	Port Elizabeth	HDPE is used for the manufacture of recycling plastic furniture
Plastic - LDPE	Port Elizabeth	LDPE is recycled into food packaging
Used cooking oils	East London and Port Elizabeth	Converted into biodiesel
E-waste	Europe	PCBs exported to Europe

6.8 Value of Recyclable Materials

The following information has been collected through interviews with recycling companies and through literature reviews.

Table 43: Estimated market values of different recyclable materials

Material	Value
Glass	R 400/ tonne, Western Cape, R 200/ tonne, Eastern Cape
White paper	R 2,500/ tonne
Mixed paper grades	R 320 - R 600/ tonne
Glossy paper (baled)	R 400 - R 450-
Cardboard (baled)	R 700 – R800/tonne
Newspaper (baled)	R 550 – R650/ tonne
Plastic – PET	R 1,00 - R 4,800/ tonne (prices vary depending on PET colour)
Plastic HDPE (baled)	R 2,200 – R 2,500
Plastic LDPE	R 1,800 – R 2,200
Plastic Polypropylene	R 2,500 – R 2,800
Plastic - polystyrene	R 450 – R1,300
Steel cans	R 400/ tonne
Aluminium cans	R 10,000 – R 14,000/ tonne
Used oil	R 0.15 – R 0.30/ litre
Copper	R 25,000 – R 35,000/ tonne
Mixed copper	R 20,000 – R 60,000/ tonne
Copper wire	R 20,000 – R 65,000/ tonne
Stainless steel	R 15,000 – R 35,000/ tonne
Mixed steel	R 15,000 – R 30,000/ tonne
Iron & cast iron	R 3,000 – R 5,000/ tonne
Brass	R 15,000 – R 30,000/ tonne
Lead	R 7,500 – R 20,000/ tonne
E-waste	
Hard drives	R 3,000/ tonne
Medium grade laptop board	R18,000/tonne
High grade boards	R 35,000/ tonne
Medium grade board	R 19,000/ tonne
Ram gold	R 30,000/ tonne
Low grade board	R 5,000/ tonne
Plastic CPU pinless	R 22,000/ tonne
Plastic CPU	R 73,000/ tonne
Cell phone boards	R 40,000 – R 50,000/ tonne
Ceramic CPI gold cap	R 420,000/ tonne

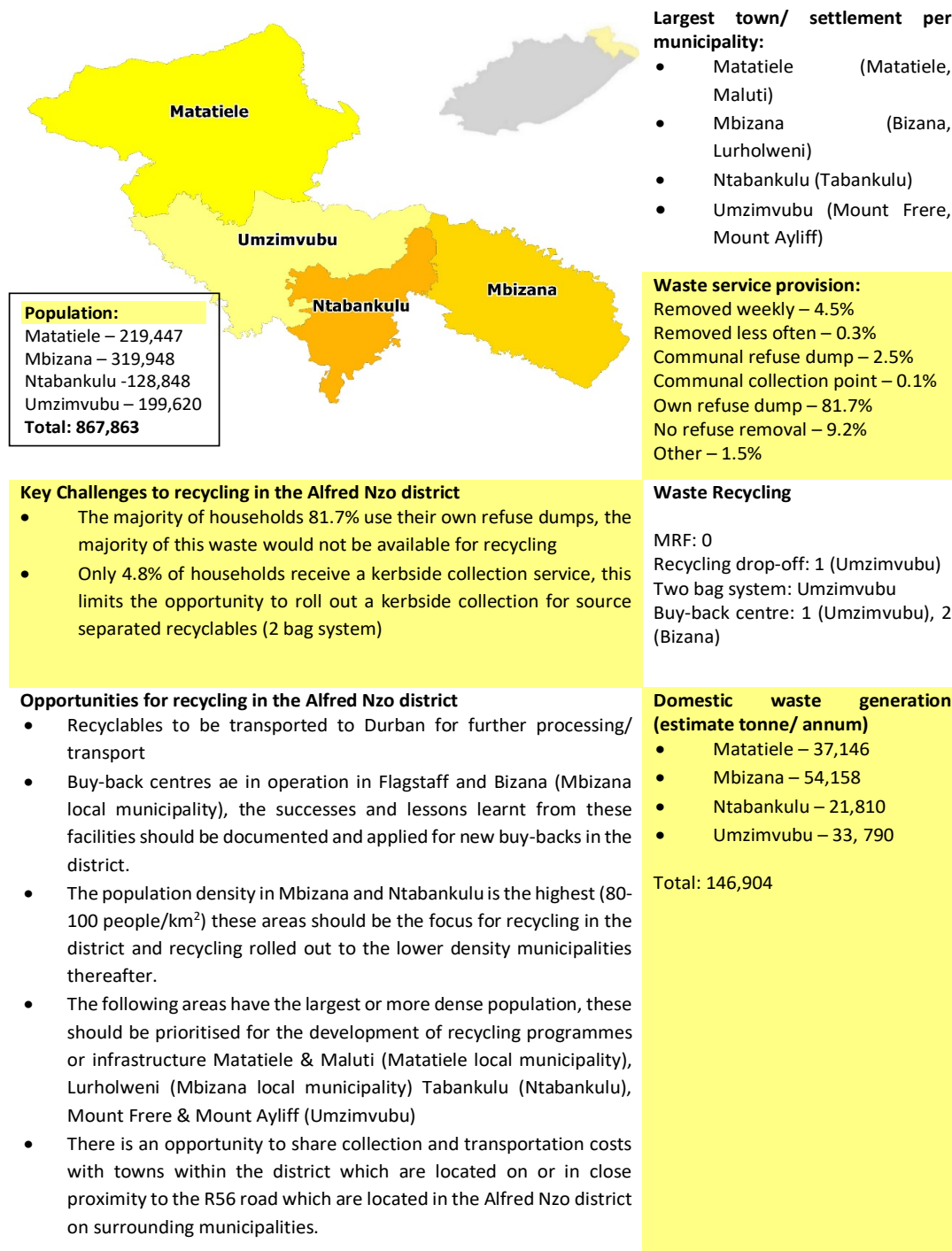
7 *District Profiles*

The Eastern Cape is composed of two metropolitan municipalities (Nelson Mandela Bay Metropolitan Municipality and Buffalo City Metropolitan Municipality) and six districts namely:

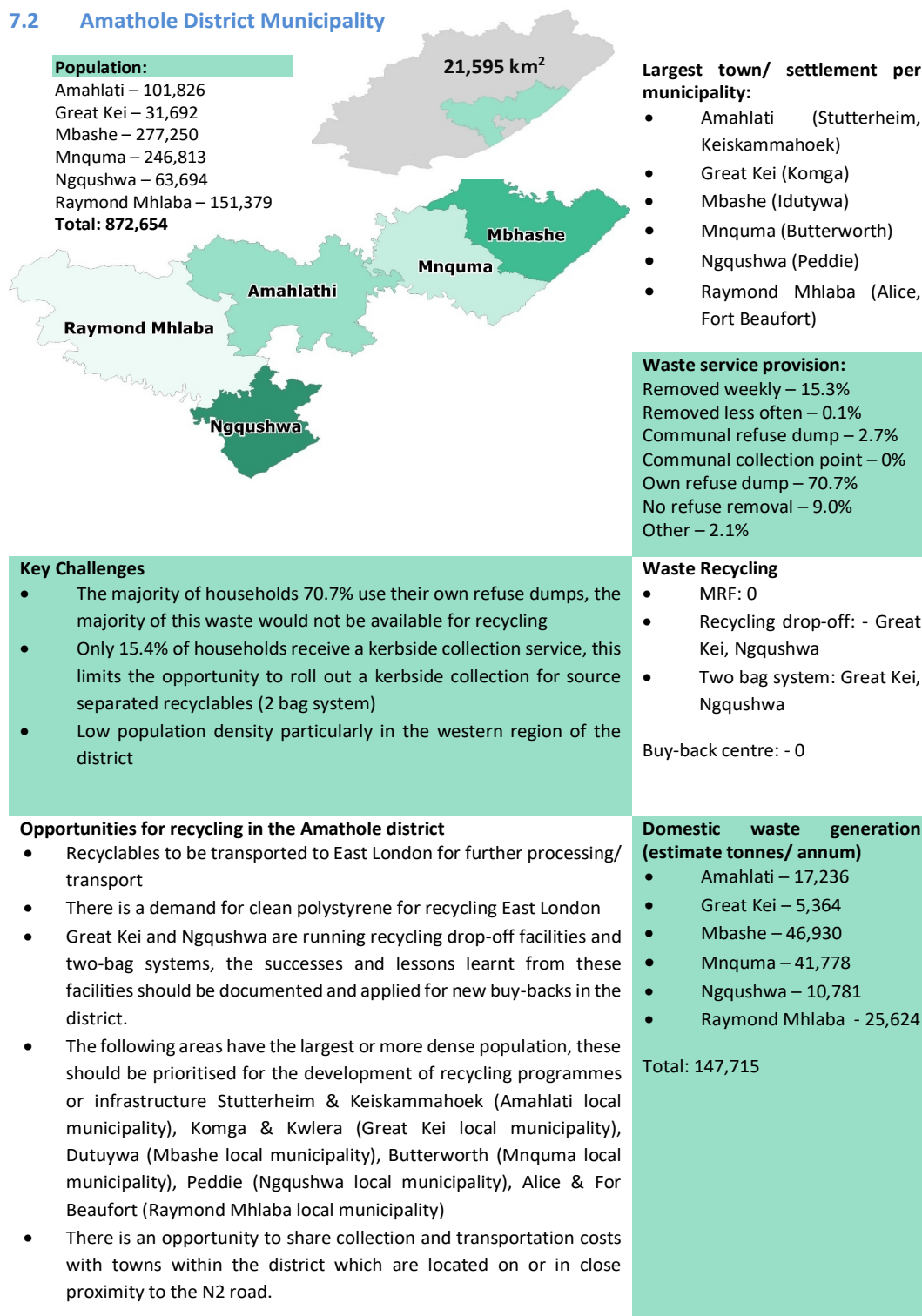
1. Alfred Nzo District Municipality
2. Amathole District Municipality
3. Chris Hani
4. Joe Gqabi District Municipality
5. O.R Tambo District Municipality
6. Sarah Baartman District Municipality

District profiles have been compiled to give an overview of recycling in each district. The identification of locations for the development of recycling infrastructure or recycling programmes is beyond the scope of this strategy however the largest towns/ most densely populated settlements in each local municipality have been identified. These areas should be considered when implementing recycling programmes.

7.1 Alfred Nzo District Municipality



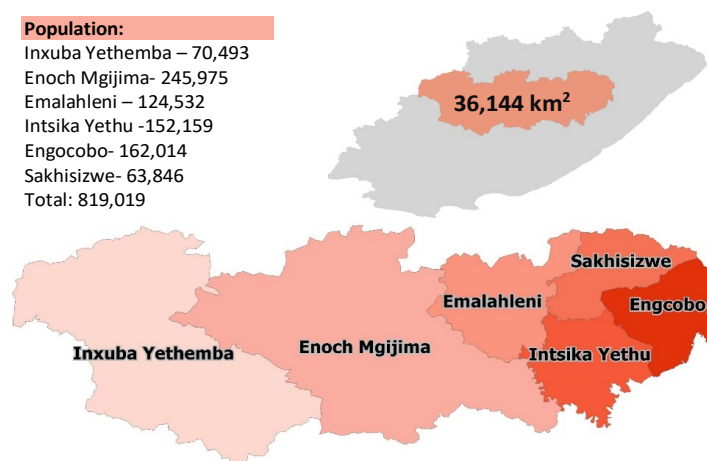
7.2 Amathole District Municipality



7.3 Chris Hani District Municipality

Population:

Inxuba Yethemba – 70,493
 Enoch Mgijima- 245,975
 Emalahleni – 124,532
 Intsika Yethu -152,159
 Engcobo- 162,014
 Sakhisizwe- 63,846
 Total: 819,019



Largest town/ settlement per municipality:

- Inxuba Yethemba (Cradock, Middelburg)
- Enoch Mgijima (Komani, Ezibeleni)
 - Emalahleni (Tyoksville, Dordrecht)
 - Intsika Yethu (Cofimvaba)
 - Engcobo (Engcobo)
 - Sakhisizwe (Cala, Elliot)

Waste service provision:

Removed weekly – 15.2%
 Removed less often – 0.8%
 Communal refuse dump – 3.3%
 Communal collection point – 1.2%
 Own refuse dump – 71.0%
 No refuse removal – 7.0%
 Other – 1.5%

Key Challenges

- Lack of recycling infrastructure and recycling programmes across the district
- The majority of households 71.0% use their own refuse dumps, the majority of this waste would not be available for recycling
- Only 16.0% of households receive a kerbside collection service, this limits the opportunity to roll out a kerbside collection for source separated recyclables (2 bag system)
- Low population density particularly in the western region of the district

Waste Recycling:

- MRF: 1 – Intsika Yethu
- Recycling drop-off: - 0
- Two bag system: 0
- Buy-back centre: - 0

Opportunities for recycling in the Chris Hani district

- Intsika Yethu is operating a MRF, the successes and lessons learnt from this facility should be documented and applied for facilities in the district.
- The following areas have the largest or more dense population, these should be prioritised for the development of recycling programmes or infrastructure Cradock & Middelburg (Inxuba Yethemba local municipality), Komani & Ezibeleni (Enoch Mgijima local municipality), Tyoksville & Dordrecht (Emalahleni local municipality), Cofimvaba (Intsika Yethu local municipality), Engcobo (Engcobo local municipality), Cala & Elliot (Sakhisizwe local municipality)
- There is an opportunity to share collection and transportation costs with towns within the district which are located on or in close proximity to the N6 or N10 roads.

Domestic waste generation (estimate, tonnes/ annum)

- Inxuba Yethemba –11,932
- Enoch Mgijima-41,636
- Emalahleni – 21,079
- Intsika Yethu – 25,756
- Engcobo – 27,424
- Sakhisizwe – 10,807

Total: 138,636

7.4 Joe Gqabi District Municipality

Population:

Elundini -144,929
 Senqu – 140,720
 Walter Sisulu -77,477
Total – 363,126

25,663 km²



Largest town/ settlement per municipality:

- Elundini (Ugie, Mount Fletcher)
- Senqu (Barkly East)
- Walter Sisulu (Aliwal North, Dukathole)

Waste service provision:

Removed weekly – 31.5%
 Removed less often – 1.5%
 Communal refuse dump – 1.7%
 Communal collection point – 0.4%
 Own refuse dump – 59.1%
 No refuse removal – 4.6%
 Other – 1.3%

Key Challenges

- Lack of recycling infrastructure and recycling programmes in the Walter Sisulu local municipality
- The majority of households (59.1%) use their own refuse dumps. The majority of this waste would not be available for recycling
- Low population density in the district
- The district is located far from BCMM and NMBM. These are the regions which have been identified for future waste processing facilities

Waste Recycling

- MRF: 2 – Elundini, Senqu
- Recycling drop-off: - 0
- Two bag system: Elundini, Senqu
- Buy-back centre: - Senqu

Opportunities for recycling in the Joe Gqabi district

- A greater percentage of households in the district (33.0%) receive a kerbside waste collection service; this service could be extended to include source separated recyclables.
- The following areas have the largest or more dense population, and these should be prioritised for the development of recycling programmes or infrastructure: Ugie & Mount Fletcher (Elundini local municipality), Barkly East (Senqu local municipality), Aliwal North and Dukathole (Walter Sisulu local municipality)

Domestic waste generation (estimate tonnes/annum)

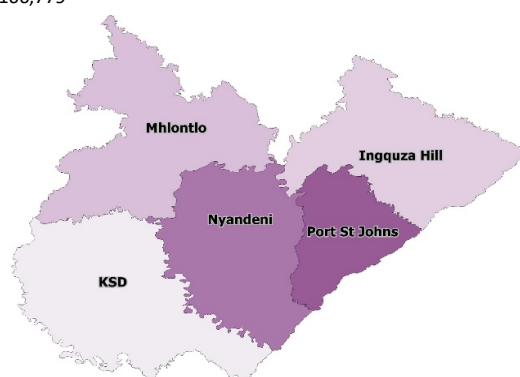
- Elundini – 24,532
- Senqu – 23,819
- Walter Sisulu – 13,114
- **Total: 61,467**

7.5 O.R. Tambo District

Population:

King Sabata Dalindyebo – 488,349
 Mhlontlo – 189,176
 Ingquza Hill – 303,379
 Nyandeni – 309,702
 Port St Johns – 166,779
Total: 145,385

12,096 km²



Largest town/ settlement per municipality:

- KSD (Mthatha, Mandela Park)
- Mhlontlo (Tsolo, Qumbu)
- Ingquza Hill (Lusikisiki)
- Nyandeni (Ngolo, Libode)
- Port St Johns (Port St Johns)

Waste service provision:

Removed weekly – 5.9%
 Removed less often – 0.6%
 Communal refuse dump – 2.8%
 Communal collection point – 0.8%
 Own refuse dump – 78.3%
 No refuse removal – 11.1%
 Other – 0.6%

Key Challenges

- The majority of households (78.3%) use their own refuse dumps; the majority of this waste would not be available for recycling
- Low population density in the district
- The district is located far from BCMM and NMBM, which are the regions which have been identified for future waste processing facilities

Waste Recycling

- Regional recycling programme
- MRF: Mhlontlo, Port St Johns
 - Buy-back centre: - All local municipalities
 - An additional R3.5 million has been allocated for the OR Tambo regional recycling scheme
 - Two transfer stations planned in King Sabata Dalindyebo

Opportunities for recycling in the O.R. Tambo district

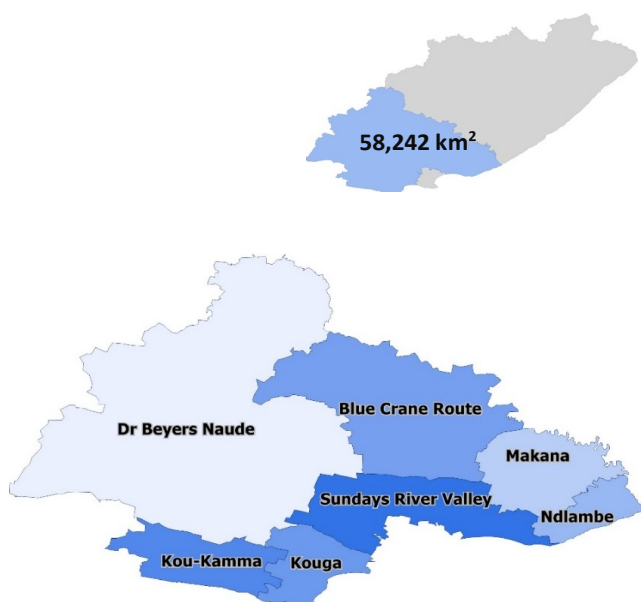
- The regional recycling programme has provided good infrastructure in the district. This programme should be expanded on to increase recycling
- Use of EMEs can be considered to increase the number of households with access to basic service. The scope of work for these service providers could be extended to recycling
- High population density compared to other municipalities in Nyandeni, Port St Johns and Ingquza Hill local municipalities

Domestic waste generation (estimate tonnes/ annum)

- King Sabata Dalindyebo – 82,664
- Mhlontlo – 32,022
- Ingquza Hill – 51,354
- Nyandeni – 52,424
- Port St Johns – 28,231

Total: 246,694

7.6 Sarah Baartman District Municipality



Largest town/ settlement per municipality:

Blue Crane Route (Somerset East)

- Dr Beyers Naude (Graaf-Reinet, Willowmore)
- Kouga (Jeffreys Bay, Humansdorp, Hankey)
- Kou-Kamma (Kareedouw, Joubertina)
- Makana (Makhanda)
- Ndlambe (Nkwenkwezi, Port Alfred)
- Sundays River Valley (Nomathamasanqa, Addo)

Waste service provision:

Removed weekly – 86.2%
 Removed less often – 1.2%
 Communal refuse dump – 2.2%
 Communal collection point – 0.5%
 Own refuse dump – 6.7%
 No refuse removal – 1.8%
 Other – 1.3%

Key Challenges

- Lack of recycling infrastructure and recycling programmes in the district
- Low population density in the district

Waste Recycling

- MRF: 1 - Ndlambe
- Recycling drop-off: - 0
- Two bag system: Blue Crane Route, Makana, Ndlambe
- Buy-back centre: - 0

Opportunities for recycling in the Sarah Baartman district

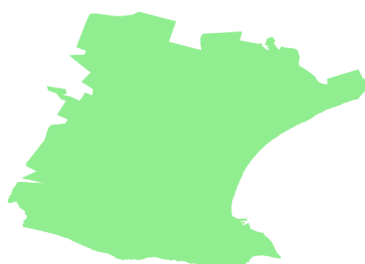
- A greater percentage of households in the district (86.2%) receive a kerbside waste collection service. This service could be extended to include source-separated recyclables.
- The coastal municipalities have good road networks linking them to Cape Town (where there are currently markets for recycling) and NMBM where recycling processing facilities are recommended in the future.

Domestic waste generation (estimate tonnes/annum)

- Blue Crane Route – 6,104
- Dr Beyers Naude – 13,422
- Kouga – 19,118
- Kou-Kamma – 7,395
- Makana – 13,890
- Ndlambe – 10,695
- Sundays River Valley – 10,121

Total: 80,745

7.7 Nelson Mandela Bay Metropolitan Municipality



Population by main area (Census 2011):

- Port Elizabeth – 312,392
- iBhayi – 237,799
- Bethelsdorp – 182,012
- Motherwell – 140,351
- KwaNobuhule – 107,474
- Uitenhage – 103,639
- Despatch – 39,319

Total population : 1,152,115

Key Challenges

- Lack of a two bag system in operation
- Lack of formal municipal recycling drop-off facilities

Waste Recycling

- MRF: 1 – Private MRF in operation, no municipal MRF
- Recycling drop-off: - 2 formal municipal recycling drop-off centres, Kragga Kamma and Blue Horizon Bay
- Two bag system: No municipal system in place
- Buy-back centre: No municipal buy-backs, private buy-back centres are in operation
- Large number of private recycling companies operating

Opportunities for recycling in the NMBM

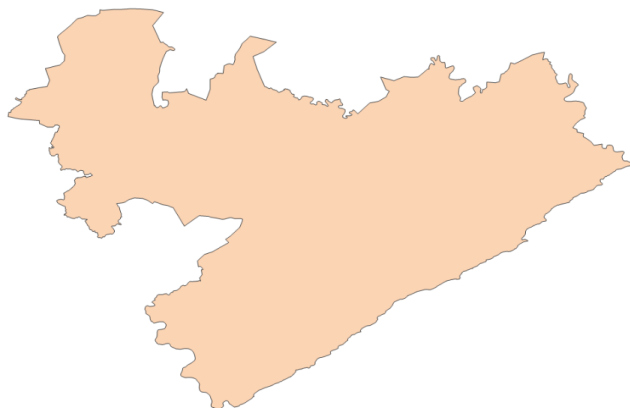
- There is a good network on drop-off centres which can be upgraded to include recycling drop-off facilities
- The NMBM has compiled a drop-off centre masterplan which will inform the location of new drop-off facilities. These facilities can be equipped as recycling drop-off facilities/ sorting facilities
- There are well established recycling companies in the NMBM which can be partnered with to manage recycling facilities
- The NMBM and a private service provider are successfully managing the Kragga Kamma drop-off centre
- NMBM has good port infrastructure at the Port of Port Elizabeth and Ngqura. If recycling processing facilities were developed these facilities could be used to export material nationally or to international markets

Waste service provision:

Removed weekly – 84.8%
 Removed less often – 5.6%
 Communal refuse dump – 2.6%
 Communal collection point – 1.4%
 Own refuse dump – 2.57%
 No refuse removal – 2.0%
 Other – 1.1%

NOTE: NMBM provides a refuse collection service to 100% of formal households within

7.8 Buffalo City Metropolitan Municipality



Population by main area (Census 2011):

- East London – 267,007
- Mdantsane – 156,835
- King Williams Town – 34,019
- Dimbaza – 21,783
- Zwelitsha – 18,189
- Pefferville – 16,380

Total population : 755,200

Key Challenges

- Lack of a two bag system in operation
- Lack of formal municipal drop-off facilities
- Lack of buy-back centres outside East London

Waste Recycling

- MRF: – No municipal MRF
- Recycling drop-off: 3 converted shipping containers are in place for the public to drop-off recyclable waste (private)
- Two bag system: No municipal system in place
- Buy-back centre: -One municipal buy-back centre operated by a service provider

Opportunities for recycling in the BCMM

- Development of a series of recycling drop-off and sorting facilities
- There is a local demand for clean polystyrene waste which is currently imported from outside the province
- Build relationships between BCMM and the private sector
- The BCMM has good port infrastructure at the Port of East London. If recycling processing facilities were developed these facilities could be used to export material nationally or to international markets

Waste service provision:

Removed weekly – 57.1%
 Removed less often – 2.7%
 Communal refuse dump – 7.5%
 Communal collection point – 2.0%
 Own refuse dump – 24.6%
 No refuse removal – 4.2%
 Other – 2.0%

8 *Challenges to Recycling in the Province*

8.1 Challenges Raised by the Recycling Industry

The following challenges were raised during interviews and surveys with the recycling industry

- A lack of funding for infrastructure and vehicles
- Lack of support from local municipalities
- Lack of support for government
- There is a lack of waste and recycling information available
- There is a lack of public awareness around recycling
- Employees lack basic PPE such as gloves
- National funding which was allocated to the project did not materialise
- A lack of cash flow prevents the purchase of equipment or vehicles
- Informal reclaimers remove waste from recycling bins and igloos
- The Eastern Cape is a large province and is removed from the markets for recyclables
- Prices paid for recyclables in the Eastern Cape are lower than other provinces due to transportation distances
- Glass recyclers only accept 32 ton loads. In the time taken to accumulate that amount of glass bags perish and tear during loading
- The price of virgin materials fluctuates. When virgin materials are only marginally more expensive than recycled material manufacturers choose to use virgin materials
- Recycling companies which undertake a door-to-door collection service are still charged for disposal at landfill for the non-recyclable components. This should not be when one considers that disposal of domestic waste is already covered by households waste tariffs
- Education campaigns need to be realistic in terms of potential income from recycling and explain high start-up costs, high transportation costs and low profit margins
- When funding applications are submitted there is a lack of feedback or guidance on how to improve future submissions
- Some national DEFF tenders/ funding applications require attendance of compulsory briefing sessions in Pretoria. Small companies cannot afford transport costs to Pretoria and so cannot submit applications
- Medium – large recycling companies will only collect from small companies once they have a sufficient volume. Storage space is a concern for small companies

8.2 Lack of Basic Waste Management Service Provision

The primary role of local municipalities is to provide a basic waste management service to residents. An estimated 50.3% of households in the Eastern Cape use their own refuse dumps or have no access to refuse disposal (Stats SA, 2016).

In order for municipalities to be able to provide recycling services to their residents an effective waste management service already needs to be in place, but as can be seen this is not the case in all areas of the province.

8.3 Lack of Recycling Data

As previously mentioned there is a lack of data available on waste recycling in the Eastern Cape. The SAWIS is poorly used by the private industry with only 12 facilities reporting. The majority of municipalities could not provide tonnage reports for recyclables collected through recycling programmes. There is no provincial wide database of recycling companies operating in the province.

Only a few recycling companies that were engaged as part of this strategy were willing to provide recycling tonnages. The majority of recycling companies were unable to release data due to confidentiality agreements with client and despite a confidentiality clause being added to the front of the survey, fears of data leaks to competitors prevailed.

There is no provincial system in place to track recycling companies operating in the province, nor municipal recycling initiatives or recycling facilities.

The recycling industry is subject to rapid change; as the prices of materials fluctuate, the recycling of some waste streams ceases being economically viable. A recent example of this was steel cans; due to a drop in the price of steel small recycling companies were not able to find a purchaser for steel cans. Long-term comprehensive data is needed to track patterns in recycling in the province.

8.4 Compliance Issues

8.4.1 Recycling Companies

Based on literature reviews and interviews with recycling companies there is a significant gap in both knowledge of waste management legislation and compliance with legislation. There are numerous recycling facilities operating in the Eastern Cape without the necessary waste management license or registration in terms of norms and standards promulgated under the Waste Act. This finding is mirrored in the Plastics SA 2017 National Plastics Recycling Survey which found that out of the 68 recycling companies surveyed, only 27% were legally compliant.

8.4.2 Local Municipalities

The Waste Act requires municipalities to provide an enabling environment for recycling. Through a review of IWMPs and engagement with municipalities, it is evident that there is a lack of municipal-driven separation at source programmes (two-bag systems and drop-off facilities for recyclables) in the province.

Only an estimated 4.8% of households in the Eastern Cape separate waste for recycling; this is below the national average of 10.8% of households (web reference 10).

Table 44: Percentage of urban households sorted for waste recycling (web reference 10).

Province	Percentage of households separating waste for recycling
Western Cape	20.3%
Gauteng	12.7%
South Africa	10.8%
North West	8.3%
Mpumalanga	8.1%
KwaZulu-Natal	6.2%
Northern Cape	5.1%
Free State	5.1%
Eastern Cape	4.8%
Limpopo	1.2%

While all IWMPs are legally required to address recycling, there is a lack of implementation and monitoring of IWMPs.

8.5 Dispersed Population

The Eastern Cape covers the second largest area of the eight provinces in South Africa. The population density is however the sixth lowest in the country with a population density of 38.8 persons per square kilometre. This poses a problem because the centres where waste is produced are located large distances from one another which increases transport costs and reduces financial viability.

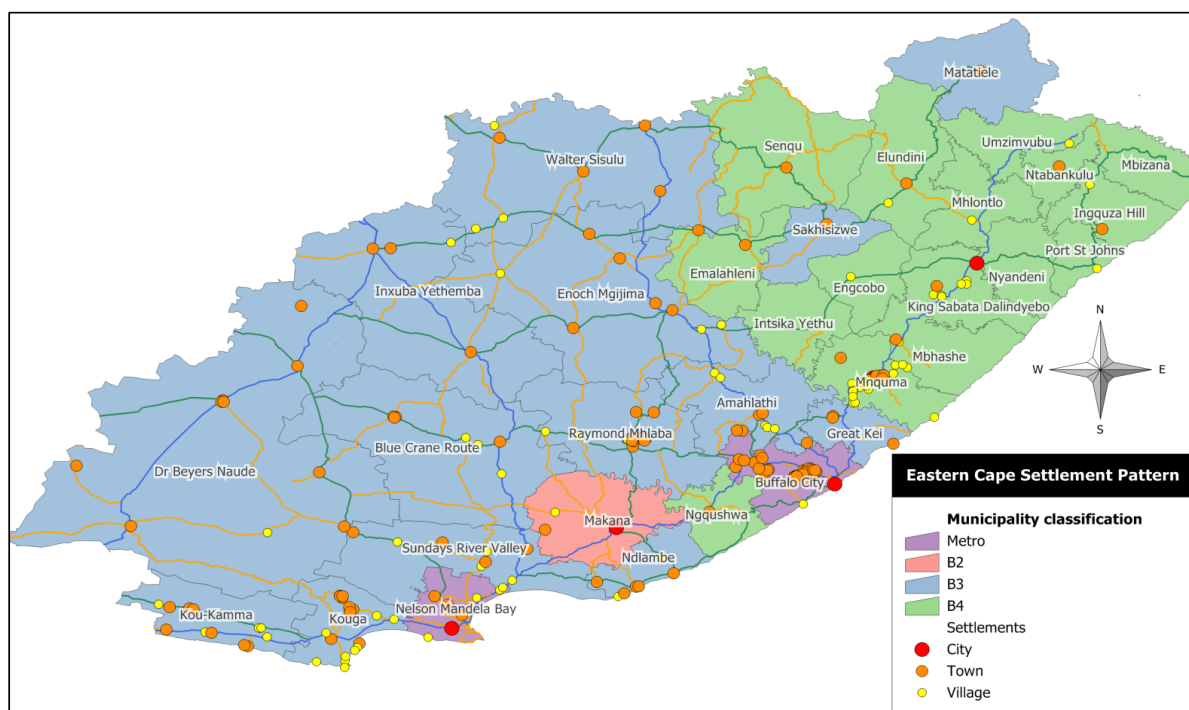


Figure 13: Eastern Cape Municipality Classification

8.6 Recycling Markets and Transportation Distances

The majority of recycling occurs outside the Eastern Cape. Transportation costs associated with waste pose a serious risk to the viability of recycling programmes and companies. In addition, some waste processors such as Consol only accept waste in bulk. Consol only accept loads of glass which are at least 32 tonnes (approximately 36 bags of crushed glass). Many small companies lack the space to store such large volumes of glass or the necessary financial means to ensure cash flow to suppliers whilst they are accumulating volumes to make transport financially viable. Some of the recycling companies have overcome this challenge by forming partnerships with other locally based recycling companies and sharing transportation costs through combining loads.

8.7 Licensing Requirements

Compliance with legislation could be a potential barrier to small recycling companies entering the recycling industry.

8.7.1 National Norms and Standards for the Storage of Waste (GN 926 of 2013)

These norms and standard apply to facilities with the capacity to store in excess of 100m³ of general waste or 80m³ of hazardous waste. The norms and standards place the following requirements on the owners of facilities which trigger the storage threshold:

- Registration of the facility with DEDEAT
- Design requirement – design to be undertaken in consultation with a registered engineer, signage in 3 official languages
- Training programme for employees
- Operational and emergency preparedness plans
- Internal audits bi-annually. Reports to be submitted to DEDEAT
- External audits biennially with reports to be submitted to DEDEAT
- Records that waste is being transported by an authorised transporter

Small emerging recycling companies may not have the skills or knowledge to develop operational and emergency preparedness plans which are required for the registration of facilities.

8.7.2 National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste (GN 1093 of 2017)

These norms and standards are applicable to any facility where sorting, shredding, grinding, crushing, screening or baling of general waste occurs.

Waste facilities with an operational area (including waste storage areas) in excess of 100m² are required to register in terms of the norms and standards and comply with all the provisions of the norms and standards. Waste facilities with an operational area of less than 100m² only need to register the facility with DEDEAT.

The norms and standards place the following requirements on the owners of facilities with an operational area in excess of 100m²:

- Registration of the facility with DEDEAT
- Design requirement – access control (fence, gates, signage), dust suppression (where applicable), impermeable surface if leachate generation is anticipated
- Training programme for employees
- Operational and emergency preparedness plans
- Internal audits bi-annually, reports to be submitted to DEDEAT
- External audits biennially with reports to be submitted to DEDEAT

The same concerns as noted for the Norms and Standards for Storage of Waste apply to these norms and standards in terms of ability for small recycling companies to adhere to the requirements.

8.7.3 National Environmental Management: Waste Act (Act 59 of 2008)

The Waste Act contains a list of activities which require a waste management license application to be undertaken. Recycling falls under the following activity:

Category A: Recycling or Recovery of Waste

(3) The recycling of general waste at a facility that has an operational area in excess of 500m², excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises.

It must be noted that the 500m² operational area includes the storage area. This activity would be applicable to any facility where waste management activities other than sorting, bailing, shredding or grinding occur.

These facilities are required to undertake an application for environmental authorisation which would involve a basic assessment and waste management license application. The timeframes for such a process are typically 8 - 9 months. A R2,000 application fee is applicable to all applications for category A facilities. This fee is only applicable to private companies and not municipal facilities.

8.7.4 National Waste Information Regulations (GN 625 of 2012)

The National Waste Information Regulations are applicable to the following:

Recovery or recycling of waste

- Recycling of general waste at a facility that has an operational area in excess of 500m²

At present there are only 12 companies in the province reporting on the SAWIS. Awareness needs to be raised with recycling companies about the requirements of these regulations and DEDEAT needs to enforce registration and reporting on the SAWIS in order to collect recycling data for the province.

8.8 Recycling Behaviour of the Public

Several surveys have been undertaken to determine the level of awareness of recycling among the public and their attitude towards recycling.

The following findings can be compared between studies.

- The percentage of survey respondents which recycle ranges from 11% in low income areas in the NMBM (NMBM, 2012) to 65% of respondents in Ekurhuleni (Gumbi & Rampede, 2018)
- A lack of containers was given as a reason for not recycling in the Ekurhuleni survey (44%) and a lack of facilities (44%) PETCO 2017 survey and 39% (Stats SA, 2018)
- Time constraints was given as a reason for not recycling by 28% of respondents to the survey undertaken by Roussouw and Plessis in Paarl and the PETCO survey and 23% of respondents in the Ekurhuleni survey
- Of concern is that 33% of households are unwilling to recycle as it takes too much effort (Rossouw & Plessis, 2018) and 19% of households would be unwilling to participate in a kerbside separation at source programme, CSIR 2015 survey
- 34.8% of the Stats SA General Households Survey indicated that they do not think recycling is important and 31% do not recycle due to a lack of benefits.

The table below presents a summary of reasons given by survey participants for participating in recycling and not participating in recycling.

Table 45: Reasons given for recycling and not recycling (data source Rossouw & Du Plessis, 2018, Gumbi & Rampedi, 2018, NMBM, 2012, PETCO, 2017, Strydom & Godfrey, 2016)

Reasons given for recycling	Reasons given for not recycling
<ul style="list-style-type: none"> • Environmental reasons –reduces pollution, protects the environment, reduces litter • Job creation • Source of income • Reduces crime 	<ul style="list-style-type: none"> • Do not know where to drop-off recyclables • Lack receptacles to place recyclables in • Unaware of the concept of recycling • Do not understand the importance of recycling • Lack of space • It is easier to throw all the waste in one bin • It takes too much time/ energy

8.9 Contamination of Recyclable Materials

Nationally up to 74% of post-consumer material obtained for recycling is sourced from landfill sites. This material is often contaminated and up to 38% is therefore not suitable for recycling (Pretorius, 2018). The volume of waste which can be recycled can be increased through the

implementation of separation at source programmes. While contaminated materials can be recycled, wash plants are needed and given the current drought in the Eastern Cape this is not recommended.

Contamination of recyclable waste can also occur at dirty MRFs. The recovery rate of material processed at a clean MRF is significantly higher than a dirty MRF. A dirty MRF typically recovers 10 -25% of recyclables as opposed to a clean MRF where 80% are recovered (DEA, undated, Anél Blignaut Environmental Consultants cc, 2012).

8.10 Perceived Low Cost of Landfilling of Waste

The majority of local municipality-owned and managed landfill sites in the province are not operated correctly. Poorly managed landfill sites represent an affordable solution to waste management as the following costs are saved:

- Operation and maintenance of equipment such as landfill site compactors or TLBs
- Daily cover material is often not applied to the waste body
- Labour costs if there are no/ insufficient municipal employees on site
- Monitoring costs – many sites are not fulfilling licence requirements in terms of environmental monitoring (surface water, groundwater and gas monitoring)
- Auditing costs – many municipalities are not undertaken internal or external audits of landfill sites

In addition waste is burnt on many municipal landfill sites which results in savings in landfill site airspace at the expense of air emissions. GRAP 17 and 19 assessments are not undertaken on all municipal landfill sites so the costs associated with closure of landfill sites are unknown.

If the status quo of poorly managed landfill sites continues in the Eastern Cape then municipalities which lack budget for waste management services will continue to use landfill as their major solution for waste management.

8.11 Free Disposal of Waste at Landfill/ Low Disposal Tariffs

The majority of local municipality landfill sites do not have weighbridges in operation and so do not charge the public or businesses to dispose of waste.

The metropolitan municipalities do have weighbridges at their landfill site, however the tariffs charged for disposal are below the average fees charged by other metropolitan municipalities. The fees shown below are based on tariffs published on the municipality's website.

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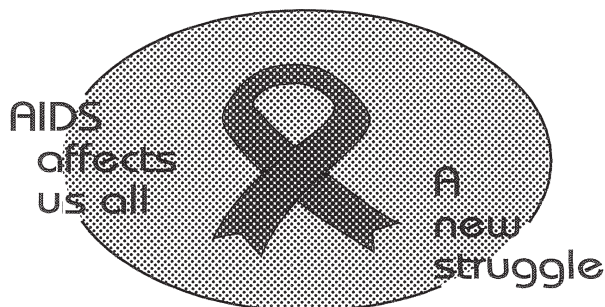
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Table 46: Summary of metropolitan municipality landfill site disposal fees

Metropolitan municipality	Disposal fee R/tonne (incl. VAT)	Comments
City of Cape Town	R 556	2018/19 tariff
City of Ekurhuleni	R 322	2018/19 tariff
City of eThekweni	R 262	Tariffs not available on website, data source GreenCape, 2018
City of Tshwane	R 230	
City of Johannesburg	R 204	2016/17 tariff
Mangaung	R 174	2017/18
Nelson Mandela Bay	R 164 – trade waste and domestic waste R 55 – rubble/ rock/ concrete Free – material suitable for cover	2018/19 tariffs
Buffalo City	R 147- uncompacted waste R 194 – compacted or shredded waste	Based on 2016/17 tariffs. 2017/18 tariffs are not published on BCM's website

8.12 Lack of Recycling Facilities

Private recycling facilities have been provided at schools, churches, fuel stations and other public facilities in urban centres and towns across the province. Municipalities have also incorporated recycling facilities into some of the municipal transfer stations and drop-off centres. Additional readily accessible recycling facilities are however needed, particularly in low income area where residents do not have access to vehicles.

In the PETCO national survey 44% of respondents indicated they do not recycle due to a lack of facilities.

8.13 Lack of Funding

Based on consultation with municipalities most, if not all, Eastern Cape municipalities experience issues where waste management is not prioritised in terms of spend of funding allocated to the municipality. Funding received from equitable share and MIG funding is often directed to other services such as roads, water and sewage.

The root causes behind the incorrect management of waste budgets in municipalities is often a lack of a strong, informed WMO with a detailed understanding of municipal funding mechanisms who has sufficient authority to attend budgetary meetings and ensure funding destined for waste management projects is allocated correctly. A lack of political support in municipalities was also given as a reason for a lack of budget for waste service.

A number of municipalities cite a lack of budget as the primary reasons for not being able to provide a basic service to households. Until budgetary processes in municipalities is rectified municipalities alone cannot be expected to have the required resources to increase recycling.

8.14 Financial Costs Associated with Recycling

Separation at source is one of the mechanisms which can be used by municipalities to create an enabling environment for recycling and to obtain high quality, uncontaminated recyclables. There can, however, be high costs associated with separation at source which can range between R350 – R500 per tonne of waste on top of the standard cost to collect domestic waste. Waste which is separated at source requires a further sorting which requires a sorting facility and labour. The cost of a separation at source programme, including transport and sorting costs, is estimated at R840 per tonne (Smith, F.H and Trois C 2018). There is currently a lack of funding available to provide even a basic waste management service in the majority of rural municipalities in the province.

8.15 Poorly Designed Products

The presence of products of the market which are not recyclable due to technology not being available or the recycling of such products not being economically viable is not just an issue in the province but nationally and internationally.

In response to non-recyclable PET bottles entering the market PETCO has developed design guidelines for PET bottle producers. Design issues noted by PETCO which can reduce the recyclability of PET bottles include:

- Printing directly onto the bottle
- Fillers which improve the density of plastic
- Addition of colour to PET bottles (PETCO, undated)
- Use of pigments to give plastic bottles colour – coloured plastic has a lower economic value than non-pigmented plastic
- Use of heavy metal inks on labels (PETCO, undated)

Manufacturers in the Eastern Cape should engage with the relevant PRO to ensure the products and packaging they are producing are recyclable.

8.16 Saturated Market for Recyclables

According to Plastics SA in 2016 and 2017 recyclers had more recyclable materials available than what was required by their customers (Pretorius, 2018).

Based on interviews with an East London based polystyrene recycler this is not necessarily the case in all industries. The recycler currently only sources 20% of their polystyrene feedstock from the Eastern Cape, while the remainder is sourced from outside the Province. This recycler requires clean, uncontaminated polystyrene for their product. The majority of the polystyrene used is post-industrial e.g. from car manufacturers.

9 *Economic Assessment of Recycling*

An economic and policy assessment was undertaken by Rand International Capital. A summary of the assessment is provided below and the full report is included in Appendix C.

The study is based on the following assumptions and limitations

- A total of 1,430,540 tonnes of domestic waste was generated in the Eastern Cape in 2017; this is based on hypothetical calculations of domestic waste based on the population of the Eastern Cape and the income level of households in the province.
- All of the domestic waste generated in the province is available for recycling. This however is currently not the case as a large percentage of waste is buried or burned by residents in rural areas. The recycling figures presented therefore present a best-case scenario.
- 44% of domestic waste has the potential to be recycled. This is based on the results of domestic waste characterisations in the province.
- The estimated realistic recycling rate is 48% (of the 44% recyclable waste), based on figures published in literature.
- The average economic value of recyclable material per tonne is R1,713, based on figures published in literature and information gathered from the recycling industry.

The economic assessment looked at three scenarios to increase the economic contribution of recycling to the Eastern Cape:

- Scenario 1 - increase recycling rates to 55.0%
- Scenario 2 - increase recycling rates to 61.7%
- Scenario 3 - increase recycling rates to 68.3%

The resource value per tonnes recycled as shown below decreases as more of the recyclable waste is collected. Recycling companies and informal pickers typically first focus on the higher value materials, and as the availability of these materials decreases lower value materials will also be collected which will decrease the average value per tonne of material collected.

Table 47: Economic benefits of increasing recycling and avoided costs

Factor	Baseline	Scenario 1	Scenario 2	Scenario 3
Percentage of recyclable waste recycled	48.3%	55.0%	61.7%	68.3%
Resource value per tonne recycled	R1,713	R1,697	R1,677	R1,662
Resource value (Rand Mil/Year)	R524.23	R 591.17	R654.61	R718.05
Avoided cost – landfill (Rand Mil/Year)	R61.20	R69.67	R78.05	R86.43
Avoid externalities – landfill (Rand Mil/Year)	R44.53	R50.69	R56.79	R62.89
Total recycling value (Rand Mil/Year)	R629.96	R711.53	R789.45	R867.37
Benefit of increased recycling (compared to baseline)	-	R187.30	R265.22	R343.14

(Data source, Rand International Capital, 2019)

The model used predicts that:

- Increasing recycling from 48.3% to 55.0% would increase the economic benefit from recycling by **R187.3 million** per year

- Increasing recycling from 48.3% to 61.7% would increase the economic benefit from recycling by **R265.2 million** per year
- Increasing recycling from 48.3% to 68.3% would increase the economic benefit from recycling by **R343.1 million** per year

Mechanisms which can be used to increase recycling are discussed in the sections below.

Based on the economic model the recycling industry in the Eastern Cape could generate 2,785 full time employee jobs in a year, the majority of these jobs (1,573) would be direct industry jobs, 296 being indirect or industry support jobs and the remaining 916 jobs are induced through the previous two sectors and as multipliers of activities needed to support the direct and indirect activities.

9.1 Economic Instruments

The Pricing Strategy identified potential economic instruments for solid waste management.

Table 48: Pricing Strategy economic instruments and potential application in the Eastern Cape (adapted from National Pricing Strategy for Waste Management)

Instrument	Potential application in the Eastern Cape
Downstream instruments	
Volumetric tariffs (pay-as-you-throw) Waste disposal taxes (including landfill and incineration taxes)	<p>The NMBM and BCMM have the lowest landfill disposal fees of all the metros in South Africa. Increasing landfill site tariffs could be one mechanism to encourage waste recycling as recyclable material can be dropped off at recycling facilities instead of paying for disposal at landfill. There is a risk that significantly increases to landfill site tariffs could result in an increase in illegal dumping of waste.</p> <p>Volumetric tariffs could be charged to businesses to encourage them to recycle. Municipalities also need to undertake reviews of the current services which are provided to business and industry versus tariffs charges e.g. a business may be charged for a weekly service to remove two bins a week but in fact 4 bins per week are being removed. Tracking of waste generated by business and charging consumptive tariffs will create additional revenue for municipalities and also may encourage business to recycle to reduce the cost of waste removal.</p> <p>Volumetric tariffs can also be charged to households, however this is not currently recommended in the Eastern Cape as recycling services such as a kerbside collection of source separated recyclables and easily accessible drop-off facilities for recyclables are not largely available.</p>
Upstream Instruments	
Material and input taxes (including virgin material taxes, taxes on hazardous materials etc.) Product taxes Advance recycling fees EPR fees	<p>DEFF is responsible for the implementation of material and input taxes through the implementation of indWMPs. DEFF and the designated PRO will be responsible for implementation of the plans.</p> <p>Taxes on virgin materials are proposed by the Packaging IndWMP.</p>
Deposit-refund schemes	Deposit refund scheme could be encouraged for locally produced products such as beverages sold in glass bottles.
Subsidy-Based Instruments	
Recycling subsidies Tax rebates and benefits	Recycling subsidies and tax rebates would be managed through national government. Tax credits can also be given to business who actively recycle.

Instrument	Potential application in the Eastern Cape
Capital financing	Recycling subsidies can also include grants, support to establish materials banks, guaranteed income for recycling facilities, investment grants and soft loans.

Revenue from downstream and upstream instruments can be used to fund recycling subsidies. For example extra revenue generated from implementing volumetric tariffs could be used to offset the operational costs of a recycling centre run by an EME.

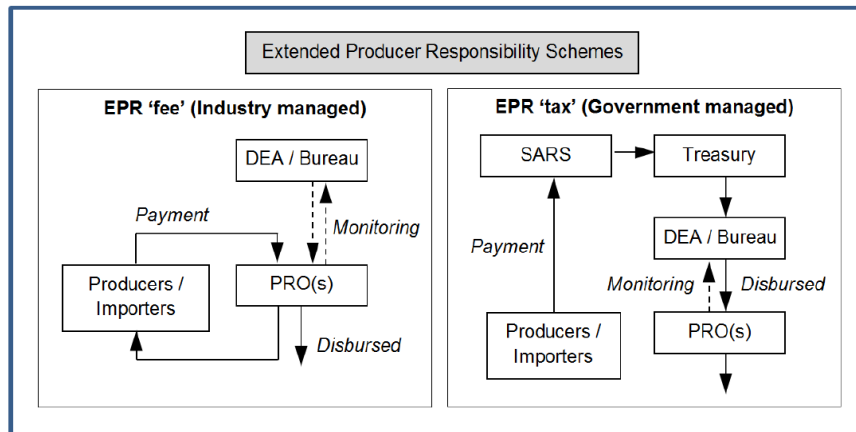


Figure 14: Revenue flow from extended producer responsibility schemes (EPR) (Source, DEA, 2017)

The industry managed EPR scheme will continue to operate for voluntarily EPR schemes, however all EPR schemes initiated through the indWMPs called for by DEFF will be managed from the government system.

10 Mechanisms to Increase Recycling in the Province

10.1 Improving Waste Service Provision

As previously mentioned only 43.5% of households in the province have access to a kerbside collection service. It is evident from public perception surveys regarding waste recycling that the public would be more willing to recycle if it was convenient for them to do so. Before municipalities can undertake kerbside collection of source-separated recyclables they need to have a kerbside collection in place for mixed waste.

This strategy recommends the development of MRFs in municipalities. In order for a MRF to be successful waste needs to be collected and delivered to the facility. In municipalities where only a low percentage of households are receiving a waste collection service a MRF may not be successful until the municipality can collect larger volumes of waste.

10.2 Provincial Fund for Recycling Project

One of the barriers to increasing recycling in the province and the development of EMEs is a lack of funding available for recycling programmes. It is recommended that DEDEAT establish

a fund for recycling projects. The fund would be accessible to EMEs as well as local municipalities and would cover infrastructure development, provision of equipment and training.

10.3 Infrastructure Development

Organic waste management: *This recycling strategy does not cover organic waste which is not recyclable. Organic waste can be composted, however composting is classified as a treatment activity and not a recycling activity.*

The National Norms and Standards for Disposal of Waste to Landfill (GN 636 of 2013) sets a target of a 25% diversion rate of the baseline organic waste from landfill by 2018 and 50% by 2023. Although this strategy does not address organic waste management it does recommend the development of integrated waste management facilities (IWMF) which should provide a 'one stop shop' for all the waste management needs of a municipality. A composting facility should form part of an IWMF.

Waste management infrastructure can be used to increase the diversion of waste from landfill. The following infrastructure can be used by municipalities to assist with waste recovery.

10.3.1 Material Recovery Facility

Material recovery facilities (MRF) are facilities which are designed to sort waste in order to increase waste diversion from landfill. There are two types of MRF, a clean MRF and a dirty MRF.

A clean MRF processes source-separated recyclables and a dirty MRF processes a mixed waste stream.

10.3.2 Recycling Drop-Off Facilities

Municipalities are required to provide an enabling environment for recycling. For municipalities which are not in a position to undertake kerbside collection of source separated recyclables municipalities can provide recycling drop-off facilities.

Recycling drop-off facilities can vary from provision of recycling igloos or bins to formal constructed waste drop-off facilities

The following guidelines should be considered when developing recycling drop-off facilities:

- Facilities should be formal sites with infrastructure such as fencing, and storage facilities. The size of the facility and type of infrastructure will largely depend on the available budget and expected was volumes.
- Facilities should be located in close proximity to residential areas to allow residents to easily access the facilities

- Community buy-in should be sought for the facilities prior to the establishment. Engagement should be held with the local councillor to gauge whether the local community will support the facility
- The facility should either be managed by a local waste company or members of the local community employed at the facility.

10.3.3 Integrated Waste Management Facility

An integrated waste management facility (IWMF) is a facility which encompasses various different waste management infrastructure which can potentially include:

- A MRF
- Public drop-off facilities for recyclables
- A transfer station
- A composting facility

Development of an IWMF instead of standalone facilities can have a number of benefits for a municipality including:

- Shared infrastructure such as access roads, fencing, services
- A reduced staff complement e.g. only one access point to control
- One license/ registration
- One set of internal and external audits instead of one audit per facility
- Reduced transportation of waste between different facilities
- Easier for the public as they can drop all of their waste off at one facility

In large municipalities or municipalities with more than one town the IWMF will need to be supported by a network of waste/ recycling drop-off facilities.

10.3.4 Siting Considerations for Waste Management Facilities

When developing a MRF the following should be considered:

- Location of the MRF: a MRF should be located in close proximity to the largest waste generation centre in the municipality. The largest waste generation areas are typically the largest towns/ cities
- Development of a MRF at a landfill site to minimise the transportation distance for non-recyclable waste
- Location of the MRF in relation to transportation routes. The MRF should be located close to a major transportation route such as a national or regional route to minimise transportation costs.
- Operation of the MRF. A MRF can either be managed internally by a municipality or outsourced. There are informal reclaimers operating on the majority of landfill sites in the province. The development of a MRF may affect informal reclaimers operating in the municipality. The municipality may wish to investigate formalising existing informal reclaimers at a MRF.

10.3.5 Operation of Waste Management Facilities

Waste management facilities can either be managed internally by a municipality or outsourced. The following should be considered when deciding between the two:

- Does the municipality have the necessary resources, skills and experience to manage the infrastructure in-house?
- Does the municipality have the necessary contacts in the recycling industry to secure buyers for recyclables collected?
- Are there informal reclaimers operating in the municipality? Can these informal reclaimers be formalised and stationed at the MRF/IWMF/ drop-off facility?

10.3.6 Recommended Waste Management Infrastructure for Municipalities

The 2019 Eastern Cape Provincial IWMP identifies the need for a provincial waste infrastructure masterplan to identify the future waste management needs of the province.

The below table provides some high level recommendations for infrastructure development in the different category municipalities, however a province, district or local municipality infrastructure masterplan would also be needed to assess infrastructure needs on a case by case basis.

Table 49: Infrastructure recommendations for different category municipalities

Category	Infrastructure Requirements
A - Metropolitan municipalities	<p>Integrated waste management facility which consists of:</p> <ul style="list-style-type: none"> • A MRF • Transfer station (if not located at a landfill site) • Composting facility • Drop-off facility for recyclables <p>The IWMF should be supported by recycling drop-off facilities strategically located across the metros.</p>
B1 Secondary cities, local municipalities with the largest budgets	<ul style="list-style-type: none"> • A MRF located in the largest town. • Small transfer stations in each of the smaller towns • Recycling drop-off facilities in easily accessible areas
B2 Local municipalities with a large town as core	<ul style="list-style-type: none"> • A MRF located in the largest town
B3 Local municipalities with small towns, with relatively small population and significant proportion of urban population but with no large town as core (e.g. most of the population within several towns)	<ul style="list-style-type: none"> • Recycling drop-off facilities with sorting facilities • Mobile buy-back centres
B4 Local municipalities that are mainly rural with communal tenure and with, at more, one or two small towns in there are.	<ul style="list-style-type: none"> • Recycling drop-off facilities may be beneficial in the largest town • Mobile buy-back centres
District municipalities that are not water services authorities	<p>If the district municipality is managing a regional landfill site consideration should be given to adding a MRF and composting</p>

Category	Infrastructure Requirements
C2 District municipalities which are water services authorities	facility to the landfill site.

10.4 Provincial Norms and Standards

Section 8 of the Waste Act specified that provincial authorities may gazette provincial norms and standards for the minimisation, re-use, recycling and recovery of waste. Provincial norms and standards for recycling may only be gazetted if they do not conflict with national legislation or have a significant impact on the economy. Provincial norms and standards could be developed to increase recycling in the province. The provincial norms and standards could implement the following requirement:

- All companies involved in the recycling to register and report to DEDEAT on a monthly basis.
- The planning of urban developments (government or private) must include options for waste/ recycling drop-off facilities.
- All local municipalities to implement, where feasible a two bag system.

10.5 Revision of Waste Management Licenses

The majority of landfill sites in the Eastern Cape have waste management licenses. As the competent authority, DEDEAT has the right to amend waste management licenses as and when deemed necessary. The waste management licenses for all landfill sites can be amended to include a requirement for local municipalities to provide a waste minimisation plan, implement the plan and report back on the implementation status of the plan on an annual basis. Development and implementation of the waste minimisation plans would form part of the license requirements and become legally binding to the local municipality. DEDEAT would need to closely monitor performance of local municipalities with their waste minimisation plans.

10.6 Integrated Waste Management Plans

All municipalities are required to have an integrated waste management plan (IWMP) which is revised on a 5-yearly cycle. The aim of an IWMP is to present the status quo of waste management and identify projects to improve waste management. All municipality IWMPs should be aligned with the projects proposed in this Recycling Strategy. Waste management officers must ensure that the IWMP projects are included in the IDPs and that funding is allocated for the implementation of the project. All municipalities must provide annual feedback to DEDEAT on the implementation of the IWMPs so DEDEAT can track the success of recycling targets in IWMPs.

10.7 Economic Instruments

The Pricing Strategy identified potential economic instruments for solid waste management. A summary of how these instruments could be used in the Eastern Cape is provided in the table below.

Table 50: Pricing Strategy economic instruments and potential application in the Eastern Cape

Category	Instrument	Potential application in the Eastern Cape
Downstream instruments	Volumetric tariffs (pay-as-you-throw) Waste disposal taxes (including landfill and incineration taxes)	The NMBM and BCMM have the lowest disposal fees for waste at landfill out of all the metros in the country. Increasing landfill site tariffs could be one mechanism to encourage waste recycling as it may encourage people to drop off recyclable waste at drop-off centres instead of paying for disposal at landfill. There is however a risk that significantly increase landfill site tariffs could result in an increase in illegal.
Upstream instruments	Material and input taxes (including virgin material taxes, taxes on hazardous materials etc.) Product taxes Advance recycling fees Deposit-refund schemes EPR fees	Taxes on virgin materials are proposed by the Packaging IndWMP. If this plan is approved, DEFF, in collaboration with Packaging SA, would be responsible for implementation of the plan. A deposit refund scheme could be encouraged for locally produced products.
Subsidy-based instruments	Recycling subsidies Tax rebates and benefits Capital financing	Taxes and subsidies are effective if they demonstrate an economic advantage, and can be funded and policed. Capital projects are able to be funded from a number of sources

10.8 Engagement with Producer Responsibility Organisations

The producer responsibility organisations (PROs) are already playing a key role in the recycling industry through the use of levies paid by industry members to facilitate recycling. Stakeholders in the Eastern Cape need to strengthen relationships with PROs through partnerships to increase recycling in the province.

10.9 Industry Waste Management Plans

The Packaging SA indWMP includes a municipal fund which will include funding for the following:

- Separation at source
- Infrastructure
- Equipment
- Operational assistance.

Packaging SA will determine recipients for funding of separation at source programmes in consultation with DEFF and/or the Waste Bureau through a status quo assessment which will be used to determine the readiness of metropolitan municipalities and secondary cities to participate in separation at source programmes.

10.10 Co-operation with the Private Sector

Greater co-operation is needed by local and provincial government and the recycling industry. As previously discussed, municipalities often lack budget to perform basic waste management service such as refuse collection. Municipalities focus should be on the provision of services. Municipalities should focus on providing an enabling environment for recycling through co-operation with the private sector. One method of achieving this would be for municipalities

to provide infrastructure (e.g. transfer station or drop-off facilities) but to allow the private sector to manage recycling drop-off operations at these sites. If managed correctly such a system could assist municipalities to fulfil their mandate to provide an enabling environment for recycling, reduce transportation costs of waste and save on landfill site airspace. Recycling companies would benefit from not having to fund facility capital costs and by having access to additional recyclable material which would normally have ended up at landfill. In such scenarios it would be important for municipalities to obtain tonnage data so that they can quantify their savings in landfill space.

10.11 Development of Small Companies

The Eastern Cape has the highest provincial unemployment rate in the country. The Eastern Cape unemployment rate (35.6%) is significantly higher than the national average of 27.2% (Stats SA, 2018).

All of the indWMPs set targets for development of small companies and entrepreneurs. In order for companies to benefit from the opportunities which stem from the indWMPs (once approved) it is likely companies will need to submit business plans for PROs. To assist with the development of small recycling companies in the province and the resultant increase in recycling, DEDEAT should play a supporting role for small companies and guide them through the development of business plans.

10.12 Public Education and Awareness Campaigns

A lack of public awareness about recycling is evident in the province. The following findings from public perception surveys highlight the need to increase recycling campaigns in the province:

- 34% of respondents do not understand the importance of separation at source (Gumbi & Rampedi, 2018)
- 29% of respondents would recycle if they were provided with more information (PETCO, 2017)
- 20% of households recycle due to influence from the media (Gumbi & Rampedi, 2018).

Social media can have significant impacts on the behaviour of the public. Following a series of social media campaigns around the environmental impacts of plastic straws several major hospitality franchises as well as numerous smaller restaurant chains and independent restaurants have stopped supplying plastic straws and have gone “straw free” or are using bamboo or paper straws. Social media should be one of the channels used to promote recycling the Eastern Cape. A social media campaign should be developed to deliver the following messages:

- Importance of recycling
- Waste is everyone’s responsibility
- How and where to recycle
- Who to contact for more information

11 *Recycling Opportunities in the Province*

The following potential recycling opportunities have been identified in the province. A feasibility assessment is required for the two opportunities identified to assess the feasibility and sustainability of these opportunities.

11.1 E-Waste

It is estimated that between 1,129,000 and 2,108,000 tonnes of e-waste is stored in South African households (SAWEEEDA, 2018). Both of the e-waste indWMPs acknowledge that unlocking these volumes could stimulate the e-waste recycling economy. These volumes could be unlocked through public awareness campaigns led by DEDEAT such as annual e-waste day and the provision of easily accessible e-waste drop-off centres.

Components and reclaimed e-waste are typically exported (SAWEEEDA, 2018). The SAWEEEDA indWMP lists the development of three end-to-end recycling plants as one of the indWMP targets. It would be beneficial to have one of these facilities establish in the Eastern Cape as the Eastern Cape has two ports which will facilitate export of e-waste.

11.2 Polystyrene Waste Facility

Polystyrene is currently recycled in the province in East London, but there is a shortage in the supply of clean polystyrene in the province. This represents an opportunity to increase the extraction of post-consumer polystyrene from the waste stream and thereby reduce waste to landfill which could mean savings in terms of landfill costs. The consumer of polystyrene imports post-industrial polystyrene from outside the province as they are unable to source a sufficient volume of clean polystyrene from within the Eastern Cape.

It is recommended that a feasibility assessment is undertaken to determine if a polystyrene processing facility would be feasible for the province.

11.3 Pelletizing Facilities

At present the majority of plastic which is transported out of the province for processing is only baled. Transport costs could be further reduced by pelletizing product, and the value of the product itself could be increased through pelletisation. In addition, pelletisation plants could also increase job creation, but the viability of developing a plastic pelletisation plant would need to be assessed in detail. It should however be noted that there are currently private facilities in the province that have the ability to pelletize plastics, but they are typically doing this for post-industrial plastics which are clean and for which there is a specific demand. The pelletisation of post-consumer plastics would be less lucrative due to contamination of plastic and mixed plastic feedstock and hence the viability thereof would need to be investigated further.

11.4 Use of Plastic in Road Construction

Plastic has been used to substitute a portion of the bitumen used in roads in India, Netherlands. The construction of plastic roads for the Eastern Cape was first proposed in 2018. It is estimated that 1 million plastic bags would be required for each kilometre of road constructed (web reference 8). The bitumen plastic mix (polymerized bitumen) increases the lifespan on roads in India from 3 years to 6 -7 years, largely due to the fact that plastic has a higher melting point than bitumen (web reference 9).

11.5 Industry Waste Management Plans/ Engagement with Producer Responsibility Organisations

When the e-waste and packaging indWMPs are approved the PROs will be responsible for the implementation of the plans. In order to meet targets presented in the plans co-operation with private recycling companies and local and provincial government will be required. This will be an opportunity for government to engage with the PROs to encourage them to establish recycling facilities in the province.



The timeframes for approval of indWMPs are unknown. Until the plans are approved engagement should be undertaken with existing PROs to determine whether additional recycling programmes can be implemented in the province.

12 Case Studies

The following section presents case studies of recycling initiatives that have been undertaken in the country.

Case study name	Klapmuts Swop Shop
Location	Klapmuts and Kayamandi, Stellenbosch Local Municipality
Objectives	To address littering in Klapmuts and Kayamandi
Brief description of project	A swop shop was set up in Klapmuts and Kayamandi. Community members exchange bags full of recyclable materials for coupons. Coupons can be exchanged for items at the swop shop. Items at the swop shop include food products, second clothing, stationary, kitchen utensils, magazine etc.
Success	Community members approved of the swop shops and were more than willing to participate. Swop shops are held on a weekly basis. The total recyclables collected at the first swop shops in May 2016 was 280 kg. This increased to 2,400 kg at the latest swop shop in June 2017. The project resulted in a saving in landfill airspace and reduced littering and illegal dumping.
Lessons learnt	The swop-shop method of gathering recyclables appears very effective in raising community awareness regarding waste minimisation.
Reference	Stellenbosch Local Municipality, 2017. Utter Rubbish, Newspaper of the Solid Waste Management Department, June 2017

Case study name	Polyco – Packa-Ching
Location	Langa, Cape Town
Objectives	“To increase household recycling rates and simultaneously uplift communities in South African informal settlements and lower-income areas by incentivising a change in behaviour. By tapping into a stream of recyclable material that is largely untouched, the

Brief description of project	project is educating consumers about recycling and showing them that waste has value" Mobile buy-back centre launched on the 21st of August 2017 that travels to 2 specific sites within a community on a weekly basis. The buy-back centre either buys recyclables from community members or makes a trade, namely recyclables for items. Community members can register for a Kilorands card, which they need a cell phone for. Money is uploaded to the card for recyclables received at the mobile buy-back centre. The card can then be used at any MasterCard-accepting outlet. Community members bring already separated waste to the kiosk where it is weighed and money is then loaded onto their Kilorands card. The waste is then sold to WastePlan who recycle the material. Ethnographic research study was also conducted to determine how community responds to the project. It showed that there was a stigma attached where people feel that recycling is "a dirty and poverty-associated activity", but since the project started there seems to be a better understanding of recycling and more of a willingness to interact.
Success	In just six months over 100 tonnes of waste was bought from the community and R100 000 was paid back to them. The projects main success however is the education of the community and its contribution to changing the public mind-sets in terms of waste management.
Lessons learnt	Training and public awareness is key in recycling as people have the wrong views of what waste recycling is and the benefits thereof.
Photographs	 
Reference	Plastics-SA. (2018). News from Polyco: Packa-Ching. Retrieved on 23 July 2018 from Plastics-SA: http://www.plasticsinfo.co.za/tag/polyco/

Case study name	Kragga Kamma Drop-Off Centre, Nelson Mandela Bay Municipality
Location	Nelson Mandela Bay Municipality
Objectives	To provide recycling drop-off facilities for the public and increase waste diversion from landfill
Brief description of project	During the upgrade of the Kragga Kamma drop-off centre the NMBM incorporated facilities to drop off recyclable waste. The project was run as a pilot project by a service provider
Success	An average of 59.4 tonnes of recyclable material was collected per month in 2018.
Lessons learnt	The model of a municipality providing a facility and outsourcing the management to the private sector can work successfully.



Case study name	Mooi River Recycling Centre
Location	Mooi River, Kwa-Zulu Natal
Objectives	Formalise informal reclaimers on municipal landfill sites
Brief description of project	In 2009 a group of informal waste pickers, along with a non-profit organisation called Groundwork, initiated the Mooi River Recycling Centre (MRRC) (SEED, 2015). The informal waste pickers formed a co-operative which partnered with the local municipality to legalise the waste pickers' presence at municipal landfill sites (SEED, 2015). By formalising their activities the workforce now has personal protective equipment (PPE), a shelter and attractive job opportunities (SEED, 2018).
Success	Provided employment for 70 people. 50 tonnes of waste was collected for recycling each month
Lessons learnt	Co-operation between waste pickers, local municipalities and the private sector are key to the success of projects.

Case study name	Recycling revived in Stellies
Location	Stellenbosch
Objectives	To collect the recyclables and process same material at the mini Materials Recovery Facility (mini-MRF) to divert waste from landfill.
Brief description of project	The Stellenbosch Municipality appointed a service provider to manage the collection and sorting of recyclable material at the MRF adjacent to the municipality's landfill. A total of 20 permanent staff and 15 temporary staff were employed for sorting at the mini MRF. Employees consist of previous pickers that have been formalized and now have bank accounts and IDs. The municipality started a pilot project in 2011 where clear bags were issued to the community along with the usual black bags. Community members were asked to separate waste at source using the clear bags and black bags.
Success	A steady increase in recycling rates has been noted since the project began (550 tons of recyclables were recovered at the MRF over the first 6 month period, average of 91.6 tons per month)
Lessons learnt	Education on recycling is needed. Bags for recycling needs to be provided at regular intervals. Collection of source-separated waste needs to be undertaken at regular intervals. Collection and monitoring of clear bags is not of a high enough standard.
Reference	Stellenbosch Municipality. (2017). Utter Rubbish: Recycling Revived In Stellies, Page 1. Stellenbosch Municipality. Stellenbosch.

Case study name	Recyclecycle
Location	Stellenbosch Municipality
Objectives	Diversion of waste from landfill
Brief description of project	Consists of a team of 2 individuals that collect recyclable waste in a tricycle with a trailer equipped with a mounted compacting device to crush tins and plastic bottles. The team services mostly the CBD and keeps records of all waste collected. Waste is sold to recycling contractors.
Success	The team diverts 5 tons of cardboard, paper, glass and plastic per month away from landfill. This saves Stellenbosch residents R27 000 per year by diverting 60 tons of waste away from the landfill.

Lessons learnt	Not all recyclables are profitable to collect and sell.
Photos	<p>Photos credit, Stellenbosch Municipality, Utter Rubbish, 2017</p>
Reference	Stellenbosch Municipality. (2017). Utter Rubbish: Recycling Revived In Stellies, Page 1. Stellenbosch Municipality. Stellenbosch.

13 Identification of Recycling Mechanisms for Different Geographic Areas

As mentioned in this report, the Eastern Cape is a diverse province that includes dense settlements, such as in the two metros, as well as low density, rural areas such as those in the western and eastern extremes. The figure below illustrates this variety in settlement densities. The province also includes areas with good access to municipal services such as roads and waste services, and those with nearly none. As such there can be no “one size fits all” solution to the issue of improving waste minimisation in the province. A stand alone strategy is being developed to provide some practical options for addressing the need to increase waste minimisation in these very different areas.

The options are briefly summarised below

13.1 Urban Areas

These areas would typically be readily accessible by collection vehicles.

13.1.1 Urban Areas Serviced by a Kerbside Collection Service

Multi-bag system: The implementation of a 2 bag system (recyclables and non-recyclables) or a 3 bag system (dry recyclables, organics and non-recyclables) is preferred as this facilitates downstream processing in a clean MRF. This system is however costly as it involves higher transportation costs.

13.1.2 Urban Areas Serviced by Communal Collection Points

These areas would typically be in high-density areas with poor or narrow road networks that prevent waste collection vehicles accessing households. Hence communal skips are placed at strategic locations for the collection of general waste. The following option is proposed:

Drop-off facilities: In such areas, communal drop-off facilities for recyclables would likely be preferable. In its simplest form, this could include a “bottle bank” type facility where the community could place recyclables, or a more formal drop-off type facility which includes one or more skips for recyclables. Key to the success of such facilities, where users are not incentivised for dropping of recyclate, is accessibility; if located too far from residences, the facilities will not be used. Awareness raising and appropriate enforcement would be required in the area to ensure the facilities are correctly used.

13.2 Rural Areas

13.2.1 Rural Areas Serviced by Communal Collection Points/ Skips

These would typically be low-density settlements well removed from towns, where travel costs prevent the provision of a kerb-side collection.

Drop-off facilities: As described above, a simple communal skip system for the collection of recyclables will likely be preferable. Such a facility is likely to not be manned and hence it would be important to ensure that the community is well trained on the correct use of such facilities. The collection or emptying of the recyclables skip could be sub-contracted out to an individual in the local community, if they have access to a small utility vehicle (“bakkie”).

13.2.2 Rural Areas Serviced with no Collection Service

Mobile buy-bag centres: In its simplest form a mobile buy-back centre involves setting up a small trading facility where the community can trade recyclables for either goods or money. In rural communities, this could be an effective manner to incentivise people to recycle despite the effort of having to store and stockpile their recyclables long enough to make the effort of recycling worth their while. This system could equally be applied in rural areas which are serviced via a communal collection point.

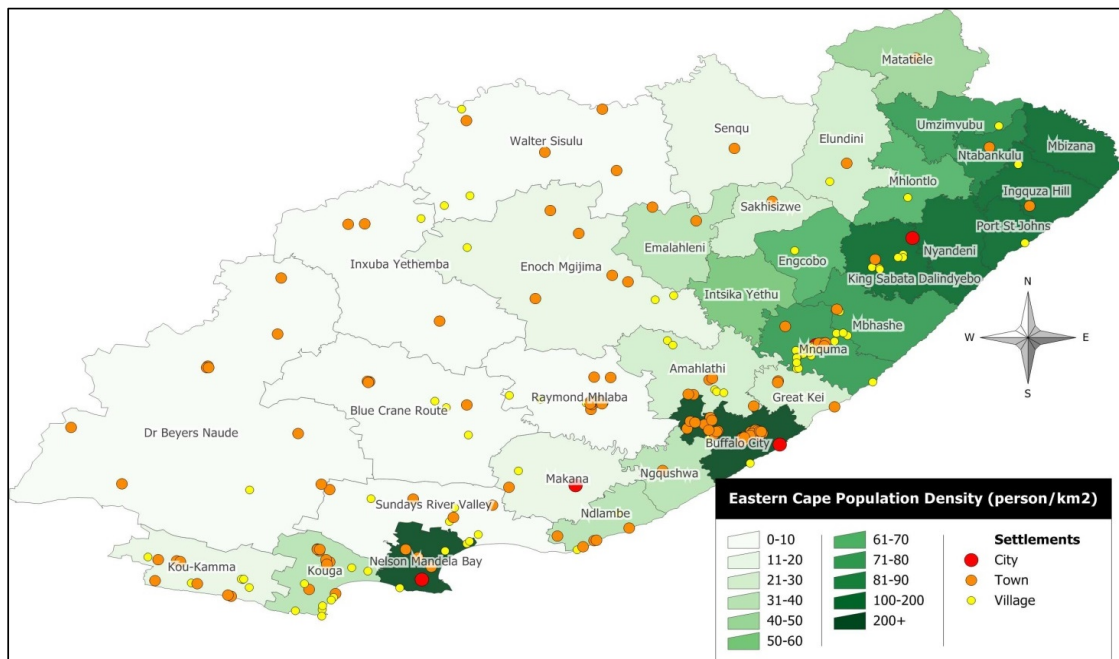


Figure 15: Population Density of the Eastern Cape (Stats SA, 2011)

14 Objectives and Targets

The following objectives and targets are proposed for this Recycling Strategy. These objectives and targets have been aligned with applicable objective and targets from the draft Eastern Cape Provincial IWMP.

1. Develop an enabling environment for recycling in the Province
2. Improved engagement with the recycling industry
3. Improved recycling data collection and management
4. Mainstream recycling public awareness and provision of recycling information

14.1 Short Term Targets

The below targets should be implemented over a five year period from the date on which this Recycling Strategy is approved. For projects which have been incorporated from the PIWMP, the PIWMP timeframes will be applicable. A number of the projects are linked to the indWMPs. The approval timeframes for the indWMPs are not currently known, hence timeframes for these project have not been assigned at this stage.

Table 51: Short Term Objectives and targets (targets show in italics have been adapted from the EC 2018 draft PIWMP)

Actions and Targets	Comment and applicability to the recycling strategy	Deadline
Objective 1. Develop an enabling environment for recycling in the Province		
1.1 Development of a provincial waste infrastructure masterplan for the Eastern Cape. This plan should cover regional landfill sites, MRFs, public drop-off facilities, composting facilities and construction and demolition waste crushing facilities.	<p><i>This would involve a review of short, medium and long term waste infrastructure needs for all municipalities in the Eastern Cape.</i></p> <p><i>The report would:</i></p> <ul style="list-style-type: none"> • Identify required infrastructure • Contain generic conceptual design for different facilities (composting, MRF, drop-off centre etc.) • Contain high-level budget estimates for different facilities to enable municipalities to budget accordingly. <p><i>Infrastructure such as MRFs, recycling drop-off centres and transfer stations can all assist in increasing recycling in province.</i></p>	2022
1.2 Both metros to develop a waste infrastructure masterplan by 2020.	<p><i>The waste infrastructure masterplan would:</i></p> <ul style="list-style-type: none"> • Identify the needs in terms of waste management infrastructure (MRF, composting, recycling drop-off facilities, anaerobic digestion, transfer stations etc.) 	2021

Actions and Targets	Comment and applicability to the recycling strategy	Deadline
	<ul style="list-style-type: none"> Identify priority areas for the development of infrastructure Estimate budgets for the development of infrastructure Provide concept designs for infrastructure <p>A key focus of the waste infrastructure masterplans would be identification of required infrastructure to facilitate recycling.</p>	
<p>1.3 Development of MRFs</p> <ul style="list-style-type: none"> Both metropolitan municipalities to have at least one MRF operational by 2023 12 local municipalities to have MRFs in operation by 2023 	<p>A MRF is required to support a separation at source programme in the metros. It is anticipated that municipalities will run a two bag/ bin system with one bin being dedicated to clean recyclables. Use of multiple bags/ bins for each waste stream e.g. plastic, paper, cardboard, metal is not recommended as it complicates the system.</p> <p>The design of the MRF will be dependent on available land and funding. The design can vary from a mechanised MRF with conveyor belts to a facility where waste is sorted manually on sorting tables.</p> <p>The PETCO indWMP which forms part of the Packaging SA federation of plans submitted for the packaging industry has a target to establish two MRFs.</p> <p>Currently 9 local municipalities have MRFs in operation. A target has been set to increase this to 12 by 2023.</p>	2024
<p>1.4 All municipalities to facilitate the development of at least one recycling public drop-off centre in the main town by 2023.</p>	<p>Public drop-off centres can be incorporated into existing infrastructure such as transfer stations.</p> <p>Public perception surveys have shown that members of the public are willing to separate waste for recycling if facilities are provided.</p>	2023
<p>1.5 50% of urban households in the two metros to have separation at source programmes in place by 2024. Local municipalities to create an enabling environment for recycling in the main town in the municipality by 2024.</p>	<p>Currently neither of the metros have any municipal separation at source programmes in place. The 2011 NWMS had a target that all metros, secondary municipalities and large towns would have separation at source programmes in place by 2016. The NWMS is currently being reviewed, targets related to separation at source will be considered when finalising this PWIMP. Operation Phakisa sets a target of 50% of households in metros to be separating waste at source by 2023.</p> <p>Local municipalities also need to move towards separation at source. At present given the rural nature of B3 and B4 municipalities it may not be possible for municipalities to undertake separation at source in-house, however municipalities may be able to form partnerships with the private sector in this regard.</p>	2024
<p>1.6 DEDEAT to undertake a feasibility assessment of a polystyrene washing facility for post-consumer polystyrene</p>	<p>Separation at source programmes would allow municipalities to obtain uncontaminated recyclables which have a higher economic value than contaminated recyclables. Separation at source programme also serve to educate the public on recycling and waste management.</p> <p>During this strategy, it was noted that post-industrial polystyrene is currently being imported into the Eastern Cape to satisfy the need for polystyrene material in manufacturing. A feasibility study should investigate the options of establishing a collection and wash facility to process post-consumer polystyrene to meet this need.</p>	2021
<p>1.7 DEDEAT to undertake a feasibility assessment of establishing an e-waste processing facility.</p>	<p>The e-waste indWMPs both identify the need for end-to-end e-waste processing plants; the ERA indWMP has a target of 9 and the SAWEEDA indWMP has a target of 3. A feasibility study should be undertaken</p>	2022

Actions and Targets	Comment and applicability to the recycling strategy	Deadline
1.8 DEDEAT to undertake a feasibility assessment of establishing a plastic pelletization plant.	assessing the options for establishing such a facility in the province, likely in one of the metros in close proximity to one of the ports to facilitate international movement of material. At present, the majority of plastic collected for recycling in the province is only baled and transported to converters. A feasibility assessment is required to determine if additional economic benefits and job creation can be achieved through the development of a plastic pelletisation plant. The feasibility assessment should assess availability of feedstock, capital and operational cost and markets for pelletised plastic.	2023
1.9 DEDEAT to pilot a mobile buy back centre	PROs such as Petco have run mobile buy back centres successfully in low income areas. The DEDEAT is to engage with such PROs to pursue at least one such mobile buy back project in the Province. This can be run as a pilot project and rolled out if successful. Polycro are in discussions with a major retailer to roll out 40 Packa-Ching owner managed kiosks across the country (PSA, 2018)	2021
1.10 All waste management licenses to specify waste diversion targets	DEDEAT has the authority to review waste management licenses as deemed necessary. It is recommended that DEDEAT amend all waste management licenses for landfill sites to include the requirement for local municipalities to submit waste diversion plans within 12 months and to report back on the implementation of this plans every 6 months. These conditions will become part of the license conditions and will become legally binding on municipalities.	2025 (to be undertaken using a phased approach)
Objective 2. Improved engagement with the recycling industry		
2.1 DEDEAT quarterly Waste Management Forum: - All municipal waste managers to attend - Greater involvement of private recycling industry (e.g. PETCO, eWASA) at meetings.	Greater interaction between municipalities and the private sector is required to identify and address waste management issues in the province. DEDEAT currently host quarterly Waste Management Forum meetings. Opportunities to increase recycling may be identified through improving communication lines and engagement between municipalities and the private sector.	2021 – on-going initiative
2.2 Develop an updated contact list for DEDEAT and distribute to recycling companies	To improve communication with the recycling industry DEDEAT should develop a contact list which can be distributed to the private sector which provides contact details for the relevant official at DEDEAT, e.g. the person responsible for SAWIS or licensing	2021
2.3 DEDEAT to schedule workshops with PROs to discuss recycling opportunities	DEDEAT should take a proactive approach and schedule engagement with the relevant PROs to determine how DEDEAT can partner with the PROs to identify projects which can be implemented in the province.	2021
2.4 DEDEAT to appoint a research and data management officer	Additional resources are required at DEDEAT to assist with the implementation of this strategy and the Eastern Cape IWMP, in the process of procuring a research officer. Part of the role of the research and data management officer would be to develop key relationships with recyclers in industry to identify opportunities for unlocking recycling projects. Their roles could include, amongst others: - Engagement with PROs and industry - Development of business plans to secure funding for recycling projects - Identification of circular economy opportunities i.e. opportunities to use waste as a resource between industries - Management of the registrations of recycling companies	2021

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Actions and Targets	Comment and applicability to the recycling strategy	Deadline
	<ul style="list-style-type: none"> - Collate and review recycling data on a monthly basis - Engage with municipalities to determine what recycling is occurring in their areas 	
Objective 3. Improved recycling data collection and management		
3.1 DEDEAT to maintain and further develop the database of recycling companies operating in the Province	<p>The database will contain, as a minimum, the following:</p> <ul style="list-style-type: none"> • Contact information • Details of facilities • Details of waste types recycled <p>The database can be used to inform audit schedules and to invite recycling companies to DEDEAT workshops and events. A notice requesting recycling companies to register with DEDEAT can be advertised in the media.</p>	2020 – 2025 on going initiative
3.2 All waste recyclers and data from recycling facilities to be reporting on SAWIS	The owner of all facilities which trigger the reporting threshold in terms of the National Waste Information Regulations must ensure that recycling data is reported on SAWIS. This includes municipal and private facilities.	2022
3.3 Ensure accurate data is reported on SAWIC through training and verification audits	DEDEAT to undertake annual verification audits of recycling companies and municipalities to ensure data is being reported to SAWIS and data is accurate	2021 - ongoing
Objective 4. Mainstream recycling public awareness and provision of recycling information		
4.1 DEDEAT to develop standard editable waste awareness materials for use by municipalities	DEDEAT to develop a set of standardised waste awareness materials which can be issued to small recycling companies to assist with public awareness.	2023
4.2 DEDEAT and municipalities to develop and implement awareness programme.	<p>Awareness campaigns can include print based, radio advertising, road shows at taxi ranks, churches etc. workshops with communities or ward structures, door to door visits and school visits. Municipalities to keep records to allow them to quantify the number of households and schools reached by campaigns.</p> <p>The profile of recycling needs to be raised amongst the public in the province. The public need to be made aware of the need for recycling and how to separate waste at source. Awareness campaigns can be undertaken in partnership with PROs as part of the commitments made in terms of the indWMPs</p>	2020 - ongoing
4.3 DEDEAT to develop basic guideline documents for the operation of small waste management facilities which do not trigger the requirement for a waste management license or registration in terms of the National Norms and Standards.	<p>Guideline documents to be developed for the operation of:</p> <ul style="list-style-type: none"> • Drop-off centres/ transfer stations • Material recovery facility • Buy-back centres • Swap-shops <p>These documents can be used to assist municipalities to improve the management of small waste facilities. It is also recommended that these documents be made publically available for use by the private sector.</p>	2022
4.4 DEDEAT to host annual workshops / knowledge updates for small companies involved in the waste industry	National recycling bodies (PETCO, POLYCO, The Glass Recycling Company) could be invited to present to EMES and small recycling companies. DEDEAT could also present a summary of legislation applicable to small recycling companies such as the National Norms and Standards for Storage of Waste (GN 926 of 2013)	2020 – 2024 – ongoing initiative
4.5 DEDEAT to publish an annual waste newsletter	A waste newsletter should be published annually and distributed to the public and stakeholders in the waste	2021 – ongoing

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Actions and Targets	Comment and applicability to the recycling strategy	Deadline
	management industry electronically. This newsletter could include case studies, contact details for other municipalities who can be considered as leading the way in terms of waste management, legislation updates etc. A section of the newsletter could focus on recycling and provide details of recycling drop-off points, recycling companies operating in certain areas etc.	
4.6 All municipalities to implement an in-house waste recycling programme by 2021.	Municipalities should lead by example in terms of recycling. Programmes for recycling of office paper, plastic etc. should be implemented. These programmes can be used to raise awareness of recycling among municipal employees. Local recycling companies can be contracted to collect the recyclables.	2021- on-going
4.7 DEDEAT to facilitate a recycling survey every 5 years	To determine the public perception to recycling and guide the contents of recycling awareness materials DEDEAT should undertake recycling public perception survey once every 5 years. The survey should be provincial wide and cover all socio-economic groups.	First survey in 2021, thereafter every 5 years
4.8 School recycling awards	School recycling programmes are not only a means to educate the future generation but act as a recycling facility that services the local neighbourhood. A competition between schools would look to encourage such recycling. Possible categories could include urban versus rural, large, medium and small schools.	2020

14.2 Medium-Long Term Targets

The below targets should be implemented over a five to 15 year period (2025 – 2040) from the date on which this Recycling Strategy is approved.

Table 52: Medium-long term targets

Actions and Targets	Comment and applicability to the recycling strategy	Deadline
DEDEAT to fund the development of a recycling facility	Depending on the outcome of the feasibility assessments for a polystyrene washing facility, e-waste processing facility and pelletization plant, the DEDEAT to assist with either partial or full funding for the most viable and sustainable facility. The facility should be located either in the Coega Special Economic Zone in NMBM or the East London Industrial Development Zone in BCMM to allow potential export of processed material to foreign markets.	2030
Incorporation of recycled plastic into road construction	DEDEAT in conjunction with the Department of Roads and Public Works, SANRAL and Eastern Cape Department of Roads and Transport to consider incorporating the use of recycled plastic into roads. A series of collection and processing facilities for suitable grades of plastic would be required.	2035
DEDEAT to have access to detailed and accurate data on waste recycling in the province	DEDEAT to launch a provincial waste recycling portal. This portal will capture information from local municipalities and the private sector with regards to waste recycling occurring in the province and material being exported nationally or internationally for recycling.	2025

15 Stakeholder Engagement

Four stakeholder workshops on the draft Recycling Strategy have been held. The first version of the draft strategy was released to stakeholders for review and comment. No written comments were received on the strategy, however some recommendations and comments were raised during the five stakeholder workshops.

Table 53: Stakeholder workshops

Town	Date
East London and King Williams Town	26 November 2018
Mthatha	27 November 2018
Komani	28 November 2018
Makhanda	29 November 2018
Port Elizabeth	22 January 2019

16 Way Forward

The Recycling Strategy will be finalised based on any additional comments raised from release of the final draft plan to stakeholders. The finalised plan will then be submitted to DEDEAT for approval.

17 Conclusions

17.1 Recycling Information

There is a significant lack of recycling information available in the Eastern Cape. In the short-term DEDEAT should collect and compile information from municipalities which undertake in-house recycling programmes. In the medium-term all IWMPs should contain data for recycling, and DEDEAT should not endorse IWMPs until this information is provided. In the long-term DEDEAT can consider a provincial waste information system and make it mandatory through provincial legislation for recycling companies to register and report.

17.2 Challenges to Recycling

The key challenges to recycling are:

- A lack of basic service provision; only 41.3% of households receive a waste collection service
- Lack of capacity at municipalities to manage recycling; the majority of municipalities in the province lack sufficiently skilled and experienced employees to manage recycling programmes

- Large transportation distances to processing facilities in Cape Town or Durban
- Lack of co-operation between local government and the private sector

17.3 Opportunities to Increase Recycling (Short Term)

In the short term (over the next 5 years) it is recommended that the province focuses on:

- Improving basic service provision such as waste collection services. In municipalities with insufficient fleet or staff these services can be outsourced and recycling targets added to the scope of work for the service providers
- Both metropolitan municipalities to launch two bag system in selected area
- DEDEAT to develop a waste infrastructure masterplan for the province which will address recycling waste infrastructure needs
- Development of recycling drop-off facilities to be undertaken across the province
- DEDEAT to develop and manage a fund for recycling projects

17.4 Opportunities to Increase Recycling (Medium – Long Term)

The in medium – long terms (5 – 15 years) the following should be considered:

- Development of provincial waste management system
- Development of recycling processing facilities in the metros
- Incorporation of recycled materials into infrastructure projects such as recycled plastic into roads

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Appendix A: Attendance Registers: Draft Strategy Workshops

Head Office – East London and Bhisho, 26 November 2018

Eastern Recycling Strategy
ATTENDANCE REGISTER

CLIENT: DEDEAT
 PROJECT: Eastern Recycling Strategy
 PROJECT No: J37234
 PURPOSE: Stakeholder workshop
 VENUE: DEDEAT Head Office, Beacon Hill, Hockley Close, King Williams Town, 5605
 DATE & TIME: 26 November 09:30 - 11:30



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
NAME	SIGNATURE			
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Lyndon Mardon		DEDEAT H/O	071 865 8914	lyndon.mardon@dedea.gov.za
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Eastern Recycling Strategy
ATTENDANCE REGISTER

CLIENT: DEDEAT
 PROJECT: Eastern Recycling Strategy
 PROJECT No: J37234
 PURPOSE: Stakeholder workshop
 VENUE: DEDEAT Head Office, Beacon Hill, Hockley Close, King Williams Town, 5605
 DATE & TIME: 26 November 09:30 - 11:30



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
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Ziyanda Makupela		GIBB	079 088 4829	zmakupela@gibb.co.za

Mthatha, 27 November 2018

Eastern Recycling Strategy
ATTENDANCE REGISTER

CLIENT: DEDEAT
PROJECT: Eastern Recycling Strategy
PROJECT No: J37234
PURPOSE: Stakeholder workshop
VENUE: DEDEAT Offices, 5th Floor Botha Sigacawu Building, Cnr. Leeds Rd & Owen St, Mthatha
DATE & TIME: 27 November 08.30 - 10.30



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
NAME	SIGNATURE			
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Eastern Recycling Strategy
ATTENDANCE REGISTER

CLIENT: DEDEAT
PROJECT: Eastern Recycling Strategy
PROJECT No: J37234
PURPOSE: Stakeholder workshop
VENUE: DEDEAT Offices, 5th Floor Botha Sigacawu Building, Cnr. Leeds Rd & Owen St, Mthatha
DATE & TIME: 27 November 08.30 - 10.30



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
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MADEBA BUTU		Kop Local Municipality	073 1630 743	madeba@kopmunicipality.com

Komani, 28 November 2018**Eastern Recycling Strategy
ATTENDANCE REGISTER**

CLIENT: DEDEAT
PROJECT: Eastern Recycling Strategy
PROJECT No: J37234
PURPOSE: Stakeholder workshop
VENUE: DEDEAT offices, Komani Office Park, Block E, Komani
DATE & TIME: 28 November, 09.30 - 11.30



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
NAME	SIGNATURE			
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**Eastern Recycling Strategy
ATTENDANCE REGISTER**

CLIENT: DEDEAT
PROJECT: Eastern Recycling Strategy
PROJECT No: J37234
PURPOSE: Stakeholder workshop
VENUE: DEDEAT offices, Komani Office Park, Block E, Komani
DATE & TIME: 28 November, 09.30 - 11.30



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
NAME	SIGNATURE			
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Makhanda, 29 November – workshop cancelled**Eastern Recycling Strategy
ATTENDANCE REGISTER**

CLIENT: DEDEAT
PROJECT: Eastern Recycling Strategy
PROJECT No: J37234
PURPOSE: Stakeholder workshop
VENUE: DEDEAT Makhanda Office, Cnr Coles Lane & Hurler St, Makhanda (Grahamstown)
DATE & TIME: 29 November 09.30 - 11.30



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
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Port Elizabeth, 22 January 2019

Eastern Cape Recycling Strategy

ATTENDANCE REGISTER

CLIENT: DEDEAT
 PROJECT: Eastern Recycling Strategy
 PROJECT No: J37234
 PURPOSE: Stakeholder workshop
 VENUE: DEDEAT regional offices, Port Elizabeth
 DATE & TIME: 22 January 2019, 09.00 - 11.00



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
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Eastern Cape Recycling Strategy

ATTENDANCE REGISTER

CLIENT: DEDEAT
 PROJECT: Eastern Recycling Strategy
 PROJECT No: J37234
 PURPOSE: Stakeholder workshop
 VENUE: DEDEAT regional offices, Port Elizabeth
 DATE & TIME: 22 January 2019, 09.00 - 11.00



REPRESENTATIVE		COMPANY / ORGANISATION NAME	CONTACT NO.	E-MAIL ADDRESS
NAME	SIGNATURE			
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Bathabile Songxaba	<i>Bathabile Songxaba</i>	DEDEAT H/O	0780088150	bathabile.songxaba@dedea.gov.za
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Appendix B: Summary of Discussions from Workshops

Area	Bhisho & East London
Venue	DEDEAT Head Office, Beacon Hill, Hockley Close, King Williams Town
Date and time	26 November 2018, 09.30 – 11.30
Stakeholders in attendance	DEDEAT, Amathole District Municipality, Senqu Local Municipality, SG Environmental Empowerment, Sigwela & Associates, GIBB
	ITEM
1	WELCOME / INTRO
1.1	Lulama Daniels (LD): opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF: Presented the draft Recycling Strategy
3	SUMMARY OF DISCUSSION
3.1	Scrap metal needs to be discussed in the strategy. Scrap metal is a stable recycling industry which generates significant profits. How is scrap metal recycling run so it is sustainable. There is scrap metal recycling happening in Port Elizabeth, the company buys scrap metal from East London.
3.2	Q: How does SAWIS function and how is double reporting of data avoided. R: In SAWIS the end receiver of the recyclable materials records what comes in and where it comes from. They focus on the material that will be reprocessed in South Africa.
3.3	A new recycling company has been established in the ELIDZ. They are converting plastic to energy at present they are only in the pilot stage, how can DEDEAT build a relationship with them?
3.4	Q: How do municipalities feel about recyclers disposing of their non-recyclable waste in municipal landfill sites? R: Recyclers are normally issued with tags so that they can bypass security. There are risks associated with accessing landfill sites and so they also need to sign an indemnity form.
3.5	Government should subsidise/incentivise recycling.
3.6	Most of the recycling products come from independent waste pickers
3.7	We need more competition in the industry (disrupters) to stabilise the recycling industry to divert material away from the bigger companies who do not pay small companies and informal collectors well for material.
3.8	There is a new M & E unit to monitor which waste regulations that have been developed
3.9	There is a role that the waste Bureau can play with regards to research in recycling
3.10	The responsibility of the Waste Bureau is to implement plans and assist municipalities that have developed IWMPs to implement those plans. They must ensure that the required infrastructure is in place to implement such plans. This is not happening and this could be due to lack of skills.
3.11	Q: How do you add value closer to home in recycling? R: The strategy identifies some initiatives to increase the processing and recycling of waste within the province e.g. e-waste processing facility.
3.12	A key concern in terms of waste management is the lack of capacity. Capacitated employees leave and incoming employees then need to be trained.
3.13	How can we inculcate the message that good waste management is everyone's responsibility to the general public.
3.14	We need to look at the value chain of the different waste streams holistically.
3.15	Beneficiation of recycling is needed. Recycling must be profitable, the location where waste is generated and collected needs to be considered.
3.16	4.3 of the objectives and targets section 28 duty of care, there should be clarity whether that is for storage or shredding
3.17	Improved data collection would assist to determine the status quo of recycling in the province. DEDEAT wants to improve communication with the recycling industry to determine the geographic footprint of recycling and the volumes and types of waste which are being recycled.
3.18	NEMA principles need to be referred to in the document
4	WAY FORWARD
4.1	KF noted that the commenting period ends 05 December.
4.2	KF to circulate presentation and attendance register.
4.3	LD: Once plan is complete, it will get gazetted for public comment. Thereafter it will be finalised and gazetted for implementation.

Area	Mthatha
Venue	DEDEAT regional offices, 5 th Floor Botha Sigcawu Building, Cnr. Leeds Road and Owen Street, Mthatha
Date and time	27 November 2018, 08.30 – 10.30
Stakeholders in attendance	DEDEAT, O.R. Tambo District Municipality, Alfred Nzo District Municipality, Mhlontlo Local Municipality, King Sabata Dalindyebo Local Municipality, Nyandeni Local Municipality, SALGA, Tulsapark, Tata Waste, GIBB
	ITEM
1	WELCOME / INTRO
1.1	Tembela Mapukata (TM): opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF: Presented the draft Recycling Strategy
3	SUMMARY OF DISCUSSION
3.1	Polystyrene: collecting polystyrene is a time consuming activity for waste pickers and the value paid for polystyrene is low.
3.2	The mobile buy back should be funded by the PROs, the municipality should engage them and provide them with data
3.3	Before you can be a member of Polyco you need to pay an amount of R2,500 and Polyco is not very accessible to rural communities. DEDEAT should engage with them to ensure they or their partners visit more rural communities to collect.
3.4	A comment was raised about typos and incorrect spelling of PSC members names, these comments were supplied to GIBB and will be addressed.
3.5	Waste pickers, how can we factor them in to ensure economic development
3.6	Include a section in the report on how the government can provide support to waste pickers to ensure stability and economic viability on their side.
3.7	There should be a clear direction on the report (recommendation) as to what District Municipalities and Local Municipalities need to do to ensure implementation of the strategy.
3.8	Q: Local Municipalities feel that the report is high level and does not give guidance or directive as to what they as Local Municipalities should implement. They are not able to identify themselves as the ground people on the report. This cannot be a generic solution, it should be custom made to them. R: A review of the implementation plan will be undertaken to ensure it is clear. Local Municipalities IWMPs should contain more municipal specific information. The Recycling Strategy is a guiding document for the province.
4	WAY FORWARD
4.1	KF noted that the commenting period ends 05 December.
4.2	KF to circulate presentation and attendance register.
4.3	TM: Once plan is complete, it will get gazetted for public comment. Thereafter it will be finalised and gazetted for implementation.

Area	Komani
Venue	DEDEAT regional offices, Komani Office Park, Komani
Date and time	28 November 2018, 09.30 – 11.30
Stakeholders in attendance	DEDEAT, Chris Hani District Municipality, Joe Gqabi District Municipality, Enoch Mgijima Local Municipality, Engcobo Local Municipality, Intsika Yethu Local Municipality, GIBB
	ITEM
1	WELCOME / INTRO
1.1	Tembela Mapukata (TM): opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF: Presented the draft Recycling Strategy
3	SUMMARY OF DISCUSSION
3.1	Q: Make the report more relatable to the local municipalities. They feel like the issues and or solutions are high level thus they are unable to see how they can improve. R: The implementation plan will be revised the responsibility of local municipalities is clear. Collection of accurate data was an issue, all the local IWMPs were reviewed but these in some cases were also lacking data on recycling. There was a poor response to the survey.
3.2	Chris Hani to send the list of recycling companies that are operating in the region and GIBB will try to source the information to see how much recycling is done in that specific region. No list of recycling companies was received.
3.3	Instead of setting up a cleaning factory where polystyrene is cleaned to be sold to the businesses that recycle. It would be better to clean and recycle in the same factory and this can be a DEDEAT project (or they can be a stakeholder) R: This could be investigated through a feasibility assessment as the market for recycled polystyrene products would need to be determined.
3.4	Would government be willing to incentivise the factory for washing and recycling the polystyrene?
3.5	It would be good to have a regional pelletizing plant in the province. Engagement would be needed with companies who are currently recycling plastic and industry.

3.6	Project 2.4 in the implementation plan. The strategy should not add to the job description of the DEDEAT waste officer. DEDEAT are already having issues finding the correct candidate for the position.
3.7	Database of all the recycling companies will be circulated to all the different municipalities. Municipalities to review and add companies from their area that aren't included in the database
3.8	There needs to be a drive to register and licence recyclers and transporters
3.9	EQM needs to have a campaign to ensure/enforce registration and licencing of recyclers and transporters (Identification, registration and monitoring)
3.10	Project 4.2 objectives and targets needs to be re-worded (needs to be neutral)
3.11	Project 4.3 (Development of basic guideline document for the operation of waste facilities) Government should not dictate to companies how they should be managing their facilities. The government lacks the experience of running these facilities. An alternative would be to have an official whose role it is to assist small waste management companies. R: The aim of this project is to assist small companies who do not have experience in the waste industry to manage facilities correctly through the provision of basic guideline documents.
3.12	Project 4.4 Q: Should be a quarterly forum be combined with the quarterly WMO forums? R: Yes, this is one way DEDEAT could achieve this target. The WMO forums are open to the private sector but attendance is poor.
3.13	Project 4.6 The in-house municipal recycling should start with paper (make sure that paper is shredded because of the confidentiality of the documents). DEDEAT need to think about how to feasibly implement this without adding strain to the already thinly stretched employees.
3.14	Project 4.6 DEDEAT to pilot the recycling with the view to expand it to the municipalities and come up with the plan on how to expand (e.g., they can bail all shredded paper and store it until it's about certain tonnes that can have economic value). DEDEAT to develop a strategy and a pilot to look at it
3.15	Project 4.8 School Enviro awards are already ongoing (so this might not be necessary as this is already continuing) Awareness campaigns for school children would be more effective. Write out the problem statement and see how we can scale this up. (4.6 & 4.8 to be combined)
4	WAY FORWARD
4.1	KF noted that the commenting period ends 05 December.
4.2	KF to circulate presentation and attendance register.
4.3	TM: Once plan is complete, it will be gazetted for public comment. Thereafter it will be finalised and gazetted for implementation.

Area	Port Elizabeth
Venue	DEDEAT regional offices, Komani Office Park, Komani
Date and time	22 January 2019, 09.00 – 11.00
Stakeholders in attendance	DEDEAT, Chris Hani District Municipality, Nelson Mandela Bay Metropolitan Municipality, Ndlambe Local Municipality, Blue Crane Route Local Municipality, Department Rural Development and Agrarian Reform, GreenCycle, BBG Recycling, VWSA, Alurite, The Waste Takers
	ITEM
1	WELCOME / INTRO
1.1	Lulama Daniels (LD): opened the meeting and welcomed attendees
2	PRESENTATION
2.1	KF: Presented the draft Recycling Strategy
3	SUMMARY OF DISCUSSION
3.1	Full cost accounting is a key action for Local Municipalities. Once the full costs of waste management is known, hopefully this could influence political priorities.
3.2	Concerns were raised that politicians would not change their minds in terms of prioritising recycling once they are aware of the true cost of landfilling. Politicians not taking waste management seriously.
3.3	The report needs to highlight the fact that mismanagement of waste on the land, results in ocean plastic pollution. Our politicians are not educated on waste and environmental issues.
3.4	People tend to think in silos. For example, in a workshop on microplastics workshop last year people in the cosmetics industry could not understand the impact that their microplastics have on the environment.
3.5	Religious institutions should take on the responsibility of good environmental management.
3.6	General waste education / awareness is lacking. Some people still think it is good to litter because it creates jobs.
3.7	Removing illegally dumped waste is significantly more expensive than collecting waste beforehand correctly.
3.8	Need to change awareness. Sustainable Seas Trust (SST) have championed campaigns with the Department of Education to make recycling part of the curriculum. The African Waste Network are also working on waste education materials, with the aim of stopping land-based pollution.
3.9	Public Private Partnerships: There appears to be a problem with Local Municipalities buying into partnering with private organisations. An example of this is a private organisation approach a municipality to build a waste facility. He organisation requested land from the municipality. Co-operation from the municipality was not forthcoming and now the company is

	considering relocating elsewhere. R: This particular application was in the wrong office for a long time.
3.10	There is red tape which prevents municipalities from forming PPPs. The Municipal Finance Management Act requires local municipalities to go to tender for everything which means they can't accept unsolicited bids.
3.11	Q: How is it possible that other municipalities like Cape Town seem able to engage with private industry? R: It is unknown how Cape Town manage to create PPPs, these lessons are not currently being shared.
3.12	Dti is aware of the legal challenges. For example, the Waste to Energy opportunities, people are not aware of the other legal implications with implementing these projects. For example insurance companies don't want to insure vehicles that are using biogas as opposed to petrol (they are not contributing to Road Accident Fund levy generated through petrol sales)
3.13	Q: How is double reporting of waste quantities prevented on the government systems like SAWIS? R: DEA has indicated that they have mechanisms to prevent this, but the details are not known.
3.14	
3.15	Project 4.1 Standardised public awareness materials. Can the NMBM's All Hands on Waste Campaign material not be used by different local municipalities that do not have their own material? The NMBM has given these materials to other municipalities including BCM.
3.16	Government is looking at a national strategy (which is about to be gazetted) that sets a uniform education message for provinces e.g. one mascot per province. Target 4.2 is to remain anyway.
3.17	Project 4.6 It would be good to have a recycling programmes in local municipal and provincial offices. The challenge is implementation, especially if the programme is to be centralised.
3.18	Project 4.8. School recycling awards are currently being run successfully by the private sector. Care must given when running such programmes as giving out the message that there is money in recycling is not correct.
3.19	Project 4.8. It is often difficult to maintain school recycling projects because teachers see it as a burden. Based on past experience programmes have failed because teachers rely on recycling companies to ensure the programme runs successfully. This is a time and financial burden on small companies. Also poorer schools don't have infrastructure to store the waste. They need a proper recycling station. Without the correct infrastructure, the recycling drop-off area becomes a mess.
3.20	Project 4.8 Key to be programmes is having a passionate champion pushing the project, plus where there is an ECO club that handles more than just waste topics. It is critical to make the schools realise that they are not going to make money out of the recycling programme
3.21	Q: Why not make public drop off centres at schools. R: Having public facilities in schools doesn't work. The Public accesses the facility and leaves a mess or dumps non-recyclable waste such a garden waste
3.22	For school recycling projects to be easy to manage they should consider accepting only focused recyclables like paper and plastic.
4	WAY FORWARD
4.1	KF noted that the original commenting period for the report ended on 05 December. However, due to the Port Elizabeth workshop being delayed and a the economic study being added to the report, a new deadline for comments will be communicated to stakeholders.
4.2	KF to circulate presentation and attendance register.
4.3	LD: Once plan is complete, it will get gazetted for public comment. Thereafter it will be finalised and gazetted for implementation.

Appendix C: Economic Assessment

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Approved By**Reviewed By****Prepared By**

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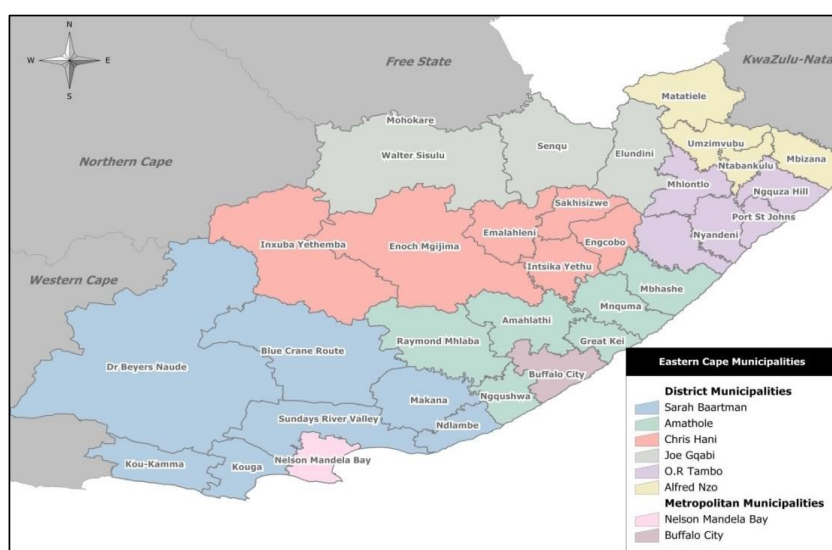
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1 EXECUTIVE SUMMARY

This report has undertaken an analysis of the Eastern Cape waste stream to investigate the potential of increasing recycling in order to reduce waste to landfill and extract a higher economic value out of the current waste streams. This has required an investigation into the economic contribution of recycling in the province, the determination of the volumes and types of waste required in order to render a recycling business viable, provide an overview of the economic instruments that could be used to increase recycling in the province and the potential costs and benefits of these potential economic instruments to both industry and government, from a provincial perspective.

An overview of international and national best practice and economic instruments available has been undertaken to better understand the economic policy framework and be able to postulate the ideal instrument to use in the Eastern Cape context.

The analysis undertaken has provided a useful estimation of the actual waste profiles within the province by using current data and ratios to estimate the total waste generated at a base year in 2017. This baseline is extrapolated through three scenarios which assume a provincial intervention to increase the propensity to recycle by way of an economic stimulus, which could be either a tax or a subsidy, with an inherent positive value of R 343 million being calculated as a result of the stimulus. A high level summary of the recycling economic baseline in the Eastern Cape is as follows:

Table 1: Eastern Cape Waste Profile and Recycling Potential – Subsidy Value

#	Description	Metric
1	Total waste generated in the Eastern Cape in 2017 ⁽¹⁾	1,430,540 tons
2	Recyclable waste with inherent potential to be recycled (44% of total)	632,937 tons
3	Estimated and realistic recycling rate (48% of recyclable waste)	306,008 tons
4	Average economic value per ton recycled	R 1,713 / Ton
5	Total economic value (TEV) of recycling in base year (306,008 tons)	R 524 million
6	Scenario 3 with intervention (subsidy) – TEV increase (432,149 tons)	R 718 million
7	Additional economic benefits (Externalities) through avoided costs.	R 343 million
8	Revised total economic value (TEV) with provincial intervention	R 867 million

Source: Rand International Capital, 2019. Eastern Cape waste recycling. An economic and policy perspective.

Note 1: This data is based upon the assumption that there are 1,771,595 households in the Eastern Cape in 2017, with 6,996,976 residents who generate an average of 3,919 tons of waste per day, at an average of 0.56 kilograms per person per day.

The avoided costs of the operating costs saved by not needing to take the recycled tons to landfill, together with the economic value of the avoided externalities, mainly odour and health issues have been added to these values to improve the baseline value to R 629.9 million from the R 524 million, and for 'scenario 3' as investigated in this report, this has improved from R 718 to R 867 million. **This economic saving of R 343 million is the provincial value that could be allocated to a stimulus measure such as a subsidy.**

This dataset provides a useful baseline and fully applied scenario for the potential for recycling in the Eastern Cape and will allow for economic instrument or policy analysis to be undertaken and implemented.

The economic impact model indicates that the recycling industry in the Eastern Cape could generate 2,785 FTE jobs in a year, with 1,573 of these being direct industry jobs, 296 being indirect or industry support jobs, and 916 being jobs induced by the previous two sectors and as multipliers to the activities required to support the direct and indirect activities.

The economic impact model indicates that the recycling industry in the Eastern Cape could generate total GDP of R1,136 million in a year, with R 623 million of this being direct GDP. There could be indirect GDP of R 136 million, and induced GDP of R 377 million, with the R 377 million of induced GDP being activities required to support the direct and indirect activities.

This report has provided a baseline of economic data, which includes detail of the waste profile for eight of the district municipal entities together with a proxy for the economic value at the gap between the waste collector and the waste recycler, together with an economic value for the entire value chain through to end user back into the market.

This data can now be used to determine the most appropriate waste based economic instrument to use which will not exceed the deemed economic values established.

The waste policy economic instruments that are available for use in the Eastern Cape are mainly limited to those policies which are available at a national level, or to be created and funded at a provincial level, with these being summarised in the following table:

Table 2: SA Waste Policy Economic Instruments for Solid Waste Management

#	Category	Instrument	Potential Application in the EC
1	Downstream Instruments	<ul style="list-style-type: none"> ▪ Volumetric tariffs ("pay-as-youthrow"), and ▪ Waste disposal taxes (Including landfill and incineration taxes). 	Eastern Cape waste disposal fees are very low and should be increased to encourage recycling.
2	Upstream Instruments	<ul style="list-style-type: none"> ▪ Material & input taxes (including virgin material taxes, taxes on hazardous materials, etc.) ▪ Product taxes, ▪ Advance Recycling Fees (ARFs), also known as 'advance disposal fees', ▪ Deposit-refund fees, and ▪ Extended Producer Responsibility (EPR) fees. 	<p>Various SA industry associations are proposing taxes on virgin materials and holding producers responsible along the full value chain.</p> <p>This trend needs to be followed and implemented in the Eastern Cape.</p>
3	Subsidy-Based Instruments	<ul style="list-style-type: none"> ▪ Recyclable subsidies, ▪ Tax rebates and benefits, and ▪ Capital financing. 	<p>Taxes and subsidies are effective if they demonstrate an economic advantage, and can be funded and policed.</p> <p>Capital projects are able to be funded from a number of sources (Appendix 9.10 hereafter)</p>

Source: DEA, 2016. National Pricing Strategy for Waste Management.

In conclusion, although there are no direct subsidies available currently from a national government source, it has been indicated that a progressive capital improvement programme linked to a subsidy stimulus programme for recycling should lead to long-term provincial benefits in the waste management realm.

2 PROJECT INTRODUCTION AND BACKGROUND

It is deemed useful to provide the context and current status of the South African Waste Policy in order to understand how this affects the Eastern Cape waste recycling strategy.

Evolution of Waste Policy

The evolution of waste policy in South Africa saw the country begin with the National Environmental Management Act in 1998. Twenty years later we have seen many adaptations, additions and amendments to this essential legislation, and more recently follow the current National Environmental Management: Waste Amendment Act (NEMWA), which was adopted in 2014.

Along the way we saw the National Waste Management Strategy being implemented in 1999, followed by the Integrated Pollution and Waste Management Policy in 2000, the Polokwane Declaration 2001, the Waste Act in 2008, the National Policy for the Provision of Basic Refuse Removal Services to the Indigents in 2010, and the National Waste Management Strategy in 2012 and the National Environmental Management: Waste Act, 2008 of 2016.

The Current Status Quo

Currently in South Africa we have approximately 108 million tons of waste being generated per annum. Of this 88% is disposed of to landfill, with only 10% being recycled and 2% being processed for energy. In comparison to other countries such as Germany, the Netherlands and Belgium, South Africa is lagging far behind. These European countries currently recycle over 50% of their waste with only 2 to 3 % making its way to landfill – the balance is processed for energy.

Globally waste management is undergoing a major paradigm shift and the focus is very much on Prevention, followed by Re-Use, Recycling, Recovery and Disposal as a last resort. The reasons for this necessary shift are population growth and urbanisation, increasing quantity and complexity of waste, climate change, carbon economics, resource scarcity, commodity prices, energy security, globalisation, job creation and tightening regulations.

Waste Classification and Management Regulations Update

Guidelines for the implementation of the Waste Classification and Management Regulations have been released by the Department of Environmental Affairs (DEA). The regulations, which are published under section 69(1) of the Waste Act, aim to see a move away from landfill as a first option for waste, towards treatment, reuse and recovery - and to put measures in place to monitor this progress. They were developed to replace the Minimum Requirements for Handling and Disposal of Waste, as shortcomings in this legislation saw the disposal of waste to landfill being the major waste management option being adopted by waste generators in South Africa.

The latest DEA regulations aim to: regulate the classification and management of waste; establish a mechanism and procedure for the listing of waste management activities that do not require a waste management license under the Waste Act; set requirements and timeframes for the management of specified waste; define waste generators, transporters and managers and prescribe their general duties.

Simply put, the regulations allow for the improved and more efficient classification and management of waste; provide for safe and appropriate handling, storage, recovery, reuse, recycling, treatment and disposal of waste and will also enable accurate and relevant reporting on waste generation and management – all aimed at supporting the beneficial recovery of waste in order to divert waste from landfill.

Pricing Strategy

Within the life cycle of a product – encompassing production, consumption and recycling – there are various economic instruments which can be used to incentivise responsible waste management. These include: disposal tax, materials tax, extraction tax, product tax, a volumetric tariff, deposit refunds, a recycling subsidy and also extended producer fees.

Extended Producer Responsibility schemes could be implemented which include an industry managed Extended Producer Responsibility fee as well as a Government managed Extended Producer Responsibility tax.

Context For the Eastern Cape Waste Recycling Strategy

This is the current situation which is applied by the Department of Environmental Affairs with assistance from the South African Revenue Services (SARS) for levying and collection of taxes and fines.

This study needs to ascertain how this framework can be applied to the Eastern Cape waste industry in a manner which will encourage higher levels of recycling from the private sector, with the assistance of either taxes or subsidies being initiated from provincial government. 3
PLANNING AND POLICY ENVIRONMENT FOR RECYCLING

This study and the waste profile and potential for recycling in the Eastern Cape needs to be contextualised against the various national and international studies and benchmarks in order to determine the most appropriate and effective mechanism to promote recycling in the province, to the greater benefit of the majority of stakeholders.

3.1 The International Waste Recycling Policy Environment & Instruments

Poorly managed waste is contaminating the world's oceans, clogging drains and causing flooding, transmitting diseases via breeding of vectors, increasing respiratory problems through airborne particles from burning of waste, harming animals that consume waste unknowingly, and affecting economic development such as through diminished tourism. Unmanaged and improperly managed waste from decades of economic growth requires urgent action at all levels of society.

As countries develop from low-income to middle and high-income levels, their waste management situations also evolve. Growth in prosperity and movement to urban areas are linked to increases in per capita generation of waste. Furthermore, rapid urbanization and population growth create larger population centers, making the collection of all waste and the procuring of land for treatment and disposal more and more difficult.

3.1.1 International Waste Management Trends

Urban waste management is expensive. Waste management can be the single highest budget item for many local administrations in low-income countries, where it comprises nearly 20 percent of municipal budgets, on average. In middle-income countries, solid waste management typically accounts for more than 10 percent of municipal budgets, and it accounts for about four percent in high-income countries. Budget resources devoted to waste management can be much higher in certain cases. (World Bank, 2018)

Waste management data are critical to creating policy and planning for the local context. Understanding how much waste is generated, especially with rapid urbanization and population growth, as well as the types of waste being generated, allows local governments to select appropriate management methods and plan for future demand. This knowledge allows governments to design systems with a suitable number of vehicles, establish efficient routes, set targets for diversion of waste, track progress, and adapt as waste generation patterns change. With accurate data, governments can realistically allocate budget and land, assess relevant technologies, and consider strategic partners, such as the private sector or nongovernmental organizations, for service provision.

According to the World Bank, 'The world generates 2.01 billion tonnes of municipal solid waste annually, with at least 33 percent of that - extremely conservatively - not managed in an environmentally safe manner. Worldwide, waste generated per person per day averages 0.74 kilogram but ranges widely, from 0.11 to 4.54 kilograms. Though they only account for 16 percent of the world's population, high-income countries generate about 34 percent, or 683 million tonnes, of the world's waste.' (World Bank, 2018)

Financing solid waste management systems is a significant challenge for most countries, even more so for ongoing operational costs than for capital investments, and operational costs need to be taken into account upfront. In high-income countries, operating costs for integrated waste management, including collection, transport, treatment, and disposal, generally exceed \$100 per ton, which would put this at approximately R 1,400 per ton in South African terms. Lower income countries spend less on waste operations in absolute terms, with costs of about \$35 per ton (R 490 per ton) and sometimes higher, but these countries experience much more difficulty in recovering costs.

This figure of R 490 per ton for waste collection fees correlates very closely with certain of the South African cities, as will be seen further in this and our related reports. The fee collected or charged is usually also lower than the actual cost of delivering that service.

3.1.2 International Waste Recycling Trends

A recent study by the World Bank has found that 'The world generates 0.74 kilogram of waste per capita per day, yet national waste generation rates fluctuate widely from 0.11 to 4.54 kilograms per capita per day. Waste generation volumes are generally correlated with income levels and urbanization rates.' (World Bank, 2018)

Food and green waste comprise more than 50 percent of waste in low- and middle-income countries. In high-income countries the amount of organic waste is comparable in absolute terms but, because of larger amounts of packaging waste and other nonorganic waste, the fraction of organics is about 32 percent.

Recyclables make up a substantial fraction of waste streams, ranging from 16 percent paper, cardboard, plastic, metal, and glass in low-income countries to about 50 percent in high-income countries. As countries rise in income level, the quantity of recyclables in the waste stream increases, with paper increasing most significantly.

The World Bank report has compiled the following metrics relating to waste recycling and waste that goes to landfills:

- 'More than one-third of waste in high-income countries is recovered through recycling and composting.
- Globally, about 37 percent of waste is disposed of in some type of landfill, 33 percent is openly dumped, 19 percent undergoes materials recovery through recycling and composting, and 11 percent is treated through modern incineration.
- Upper-middle-income countries practice the highest percentage of landfilling, at 54 percent. This rate decreases in high-income countries to 39 percent, where 35 percent

of waste is diverted to recycling and composting and 22 percent to incineration.' (World Bank, 2018)

The trends are apparent, with less waste going to landfill as the countries move up the income scales, and more and more waste diverted away between source and landfill.

3.1.3 International Waste Capital & Operating Costs or Subsidies Per Capita

Waste management is an essential urban service that requires planning, management, and coordination across all levels of government and stakeholders. Solid waste management services typically include waste collection from households and commercial establishments and haulage to a collection point or transfer station, transportation from a collection point or transfer station to a final treatment or disposal site, treatment and disposal of waste, and street cleaning and drainage management. Countries and cities around the world are pursuing a range of administrative and operational models to offer some or all of these services.

Adequate waste services are more difficult to achieve in low- and middle income countries, where challenges are as much a result of poor planning and service operation as a lack of funding for investments. Daily waste management is expensive; requires institutional skills for planning, operational management, and oversight; and, where funding is limited, waste management competes with other development priorities. Developing waste management capacity and mobilizing resources requires strong political support. Typical challenges that have repeatedly been identified in World Bank studies include the following:

- 'Shortage of financial resources, particularly to operate waste collection, transport, and disposal systems, caused by lack of revenues from households and other waste generators or lack of budget and funding in local governments.
- Complexity of designing and managing decentralized, locally based waste collection, transport, and disposal systems while maximizing coverage and minimizing environmental impacts.
- Lack of land and resistance from local populations to development of waste facilities.
- Limited institutional capacity for planning, monitoring, and enforcement.
- Ambiguity around organizational structure and responsibility, and coordination both within the same level of government and between national, regional, and local governments.' (World Bank, 2018)

Financing waste management systems is often one of the greatest concerns for municipalities. Cost recovery is essential to avoid reliance on subsidies from own-source revenues or from national or external sources.

Waste management investment costs and operational costs are typically financed differently. Given the high costs associated with infrastructure and equipment investments, capital expenditures are typically supported by subsidies or donations from the national government or international donors, or through partnerships with private companies.

Operational expenditures typically require a solid cost-recovery system for long-term sustainability. The starting point for many municipalities is a standard user fee, which is charged to users for services delivered. User fees may be fixed or variable to encourage reduced waste generation or to provide affordability for lower-income residents. The most effective user fees match the ability and willingness of users to pay.

According to the World Bank study, in most countries, the cost of integral waste services (collection, transport, treatment, and disposal) cannot be fully recovered from user fees and requires subsidies through government transfers or external budget support. According to the study, local governments that receive transfers or subsidies for solid waste programs typically receive between US\$4 (R 56) and US\$10 (R 140) per capita per year. The average of subsidies or transfers from central governments is US\$8 (R112) per capita per year.

The most usual agency providing funding is the national government or the regional government.

3.1.4 International Waste Policy and Instruments for Financing Costs

A partnership with the private sector is commonly pursued by governments or municipalities as a mechanism for achieving efficiency, technical expertise, and financial investment in waste management systems. Private corporations may participate at all steps in a waste management value chain, including construction and operation of disposal sites and transfer stations, waste collection from homes and businesses, street cleaning, and citizen education on waste reduction and source separation.

Private partners recover costs through their service provision. Therefore, successful municipalities ensure that private corporations are either paid directly by the locality or are provided with stable opportunities to earn revenues from tipping fees, user fees, or the sale of recycled materials. Straightforward and transparent private sector schemes need to be put in place where the private sector is able to gauge what their revenue potential will be for the service provided, whether the revenue stream is from user fees paid by either the private sector user or citizens, corporate entities, or the public sector in the form of subsidies.

The public sector would pay the subsidy in order to support the waste management activity, and would justify the cost of the subsidy as being either a direct function and cost of its own service delivery cost and mandate, or as a form of tax to enforce compliance by charging users additional fees at some level.

Environments that are typically conducive to private sector partnerships include simple and transparent procurement processes, minimal political and currency risk, and strong legal systems that enforce payments and encourage user compliance with waste management rules and regulations, such as those about littering and source separation. The lower the risks, the more likely it is for a private corporation to participate in the waste management system.

3.1.4.1 Results Based Financing in Waste Management

Solid waste management systems in low- and middle-income countries that are in early development or undergoing expansion often pursue external financing, especially for capital expenditures. This may be in the form of capital transfers from the country national government, or from Development Finance Institutions (DFI's)

Where waste management initiatives are aligned with national objectives, local governments may obtain financing from national transfers. Local waste management projects may also be financed through loans and grants from development agencies or regional banks, such as the World Bank that also commonly provide technical project support.

Some financiers are testing a model in which payments are tied to proven outcomes such as quantified improvements in service delivery; the promotion and validation of source separation, waste reduction and recycling; the visible cleanliness of public areas and positive feedback from residents.

3.1.4.2 Extended Producer Responsibility (EPR) System

A unique form of private sector participation is the Extended Producer Responsibility (EPR) system. In an EPR system, the cost for the final recycling or disposal of materials is borne by the producer of the good. Producers may pay the municipality directly for the cost of collection

and disposal or develop a system for citizens to return the product. In either case, producers will often price the cost of disposal into the product so that consumers ultimately bear the disposal cost. Therefore, both producers and consumers are financially and logistically responsible for their resource usage. EPR systems ultimately reduce government costs, divert waste from disposal facilities to save space, and encourage environmentally friendly consumption.

Examples of this type of mechanism are PETCO for the recycling of plastic water and soft drink bottle, Collect-a-Can for aluminium cold drink tins and the reuse of batteries, tyres and oil products.

Designing and implementing an EPR scheme involves a range of technical, financial, institutional, and legal considerations. A 2014 analysis of European Union EPR schemes by the World bank identified four key pillars of success: (1) distribution of responsibilities across stakeholders,

(2) recovery of true costs,

(3) fair competition between Producer Responsibility Organisations and operators, with open and transparent tenders, and

(4) transparency by EPR schemes in reporting and transparency by the government in monitoring, with clear performance metrics and transparent monitoring. (World Bank, 2014)

3.2 The SA Waste Recycling Policy Environment & Economic Instruments

3.2.1 The National Pricing Strategy of Waste Management

The National Environmental Management: Waste Act, 2008 of 2016, hereafter referred as the "Waste Act", directly allows for targeting of economic instruments to specific waste streams to serve as economic incentives or disincentives to encourage a change in behaviour towards the generation of waste and waste management by all sectors of society.

The strategy contains guiding methodologies for the setting of waste management charges, aimed at funding the re-use, recycling or recovery of waste; implementation of industry waste management plans (IndWMP) for those activities that generate specific waste streams.

The selection and use of economic instruments is also aligned with the "polluter pays principle" where all generators of waste (including businesses and households) are responsible for the costs of managing the waste generated.

The prices derived for the IndWMP need to include not only the direct financial costs of collection, treatment and disposal of waste, but also associated negative externalities including negative health and environmental impacts. Therefore the use of Extended Producer Responsibility (EPR) schemes as stipulated within the strategy provides a mechanism for boosting the recycling economy and monitoring the effectiveness of the implementation of Industry Waste Management Plans. This process has resulted in a 'National Pricing Strategy' being established to attempt to ensure the maximum benefit to society from responsible waste management, or the avoidance of negative impacts or influences of waste practices.

The aim of this National Pricing Strategy for Waste Management (NPSWM) is to provide the basis and guiding methodology or methodologies for setting of waste management charges in South Africa. This is intended to be achieved through providing an enabling environment for waste recycling and contributing to the recycling economy in South Africa, through recovery, re-use and recycling of waste.

The objective of the NPSWM is to implement economic instruments as part of a basket of policy instruments which will assist with:

- Maintaining the Polluter Pays Principle,
- Reducing the generation of waste,
- Increasing the diversion of waste away from landfills by practising avoidance, minimisation, reuse, recycling and recovery,
- Supporting the growth of a Southern African (regional) secondary resources economy from waste, and
- Reducing the environmental impact of waste.

The NPSWM is based upon the principles of environmentally-related taxation including equity, neutrality, simplicity, certainty, administrative efficiency, cost effectiveness, flexibility, stability, distributional effectiveness and a fair balance from the point of view of taxpayers between the respective burdens of direct and indirect tax.

South Africa currently has both mandatory and voluntary waste management charges in place. Mandatory environmental charges are currently levied on plastic bags, waste tyres and electric filament lamps (incandescent light bulbs), electricity generation using non-renewable or environmentally hazardous fuels (e.g. coal, gas, nuclear), motor vehicle carbon dioxide (CO₂) emissions. Voluntary charges are levied on numerous products, product groups and waste streams including, amongst others, paper and packaging (plastic, glass, metal), waste oil, waste batteries.

The voluntary charges are collected and managed by product responsibility organisations (PROs) often established and/or overseen by local producers and government, in some cases. In certain instances the producers fulfil this role directly without a dedicated PRO.

The Waste Act provides for economic instruments, and empowers the Minister, in concurrence with the Minister of Finance, to make regulations for incentives and disincentives to encourage a change in behaviour towards waste generation and management. Economic instruments are to be applied within the overall fiscal and taxation policy of government. The selection and use of Economic Instruments (EI's) must also be aligned with the principles established by NEMWA, including the 'Polluter Pays' Principle.

According to the 'Polluter Pays' principle, all generators of waste (including businesses and households) are responsible for the costs of managing the waste generated. These include not only the direct financial costs of collection, treatment and disposal of waste, but also externalities such as health and environmental impacts.

'According to the NWMS, before economic instruments can be more widely applied, the **pervasive under-pricing of waste services needs to be addressed**. The under-pricing of waste services creates the wrong set of incentives, undermines waste minimisation efforts, and ultimately undermines the polluter pays principle. Additional economic instruments will create distortions and be ineffective in this context.' (DEA, 2016)

The above principles are extracted from the legislation promulgated by the Department of Environmental Affairs (DEA) known as the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), which was signed into law on 11 August 2016.

Economic Instruments, such as environmental taxes and subsidies (also known as Pigouvian taxes and subsidies), seek to change behaviour by changing the relative prices (and hence incentives) that individuals and businesses face. Specifically, they refer to a set of policy tools designed in such a way as to internalise externalities in market prices, in line with the Polluter Pays Principle. Ideally, the level of the tax or subsidy (per unit, tons) should be set equal to the level of the external cost or benefit (per unit) (or as close to this level as possible), in order to fully internalise the externality, and to avoid possible negative consequences associated with the tax or subsidy being set at a sub-optimal level.

The externality is seen as a cost that is borne by society by no actual action of its own. An externality is something that comes from outside of the issue or event that is being considered. It is not directly related. 'An externality is an incidental side-effect of either consumption or production, and it may be either positive or negative.' (Blignaut, 2004) In an economic context this would mean that the market price of the goods or service may not always reflect the full cost or benefit to society, with the externality usually ignored. Examples of negative

externalities are air pollution, noise pollution, deforestation, environmental degradation and the like.

In the context of solid waste management, EIs provide incentives for manufacturers, consumers, recyclers and other actors along the chain to reduce waste generation and to seek

alternatives to final disposal to landfill (such as reuse, recycling or recovery). To understand the range of potential economic instruments that can be used to address externalities along the waste value chain, it is useful to think of each step along the chain as involving market transactions, and of actors along the chain as having a choice to make at each stage. In this context, decisions made upstream in the value chain (e.g. by producers) ultimately have a significant effect on downstream waste generation and recycling

A theoretical portrayal of the South African recycling value chain and policy instruments is contained in the figure below:



Figure 1: South African Recycling Policy Instruments

Source: Department of Environmental Affairs (DEA), 2017.

These market transactions (and the choices made by the actors involved) are affected by the relative market prices of each option (in addition to other factors, such as the range of choices, infrastructure and services available to them). In order to internalise externalities in these market prices, and therefore to ensure that the various role-players along the value chain make decisions which are of greatest benefit to the economy, environment, and society; a broad range of economic instruments can potentially be implemented, as and when deemed appropriate to correct the market failure, at various points (upstream or downstream) along the waste value chain.

When selecting an instrument (or combination of instruments, such as a tax-and-subsidy combination), it is important to ensure that "double-taxation" is avoided, to ensure that externalities that have been addressed through taxation at one point along the chain are not further addressed at another point along the chain. Provided that charges are set at an appropriate level that takes external costs along the lifecycle of a particular product into account, it will not be appropriate to impose charges both upstream and downstream. Instead, a choice must usually be made as to where along the value chain a charge will be levied. This

choice will often depend on whose behaviour is being targeted for intervention; that is, who has the ability to make decisions that ultimately affect outcomes with respect to waste generation and recycling.

As an example, it may be the decisions of manufacturers or producers (e.g. with respect to input or material use, recycled content or recyclability) that have the most significant impact on waste generation and recycling; while in other cases it may be more appropriate to target the behaviour of waste generators, at the consumption and disposal stage.

A short list of the potential upstream and downstream economic instruments that could be used to improve solid waste management and increase the levels of recycling is contained in the table below.

Table 3: SA Waste Policy Economic Instruments for Solid Waste Management

#	Category	Instrument
1	Downstream Instruments	<ul style="list-style-type: none"> ▪ Volumetric tariffs ("pay-as-you-throw") ▪ Waste disposal taxes (Including landfill and incineration taxes)
2	Upstream Instruments	<ul style="list-style-type: none"> ▪ Material and input taxes (including virgin material taxes, taxes on hazardous materials, etc.) ▪ Product taxes ▪ Advance Recycling Fees (ARFs), also known as advance disposal fees ▪ Deposit-refund fees ▪ Extended Producer Responsibility (EPR) fees
3	Subsidy-Based Instruments	<ul style="list-style-type: none"> ▪ Recyclable subsidies ▪ Tax rebates and benefits ▪ Capital financing

Source: DEA, 2016. National Pricing Strategy for Waste Management.

A high level indication of how each incentive is created and the typical application is contained in Appendix 9.2 hereafter.

3.2.2 Approach to Setting Waste Management Charges

The following advice is provided in the Act regarding the approach to be used for the setting of waste management charges:

'Given the "complexities and specific nature of many market failures" (National Treasury, 2006), it is not possible or appropriate at this stage to be overly prescriptive in terms of a general methodology that can be applied in the setting of all charges, since this need to be done on a case-by-case basis, depending on the:-

- product, product group or waste stream;
- environmental (waste) problem and (fiscal) objective(s) to be addressed;
- intention of the instrument (e.g. to address market failures by internalising externalities to change behaviour, or generate funding for recycling initiatives);

- type of instrument that is appropriate for the case at hand (which in turn depends on the specific problem to be addressed); and
- methodology or modelling approach to be used estimating external costs (where necessary) etc.

In accordance with National Treasury, “for each environmental objective, a tailored or stylised solution is likely to be required” (National Treasury, 2006).’(DEA, 2016)

3.2.3 Implementing Economic Instruments

We provide a brief outline of the implementation of economic instruments within these management systems, with an emphasis on EPR.

As noted above, upstream economic instruments are often implemented within a 'management system', such as an Extended Producer Responsibility (EPR) scheme. This is to ensure that the supporting infrastructure and alternative systems are put in place to support the separation, transportation, recycling and recovery of recyclables, so as to maximise the impact of the charge (i.e. more than simply revenue collection).

A representative example quoted by the Department of Environmental Affairs is as follows:

“Example: Bulgaria has both a tax on packaging material, as well as a system of EPR fees. Bulgaria gives producers and importers two options - pay a product tax to the authorities or pay an EPR fee to the PRO. The state levies a tax per tonne of packaging material due by producers and importers. Companies that achieve specified recycling and recovery targets individually, or producers and importers of packaged goods who sign a contract with a PRO; are exempt from the tax. The tax can be seen as a penalty imposed on companies for non-achievement of recycling and recovery targets for packaging waste.

The taxes are set at a relatively high level, in some cases comparable to or representing a significant percentage of the value of the material itself. The rationale for the relatively high level of the tax is to encourage the use of less packaging. By contrast, the EPR fees are significantly lower than the packaging taxes (Institute for European Environmental Policy 2009; Doychinov and Whiteman 2012; Kjm et al. 2012).” (DEA, 2016 Page 23)

3.2.4 Implementing the Extended Producer Responsibility (EPR) Instrument

It seems that South Africa would prefer that waste economic instruments are implemented within an Extended Producer Responsibility scheme.

The DEA report defines EPR as follows:

“EPR is defined by the OECD as an “environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle” (OECD, 2001). The ultimate goal of EPR is sustainable development through environmentally responsible product development and product recovery. In other words, producers of goods have a responsibility to safely manage those products after the end of useful life, in accordance with the country's waste management policies, which for South Africa, includes waste prevention, minimisation, reuse, recycling, recovery and treatment with disposal to landfill as a last resort.” (DEA, 2016)

The intentions of EPR schemes are to relieve municipalities of some of the financial burden of waste management, and to provide incentives to producers to reduce resources, use more secondary materials, and implement product design changes to reduce waste. In this way, EPR shifts the responsibility for waste management away from government to industry, obliging producers and importers to internalise waste management costs in their product prices and ensuring the handling of their products post end-of-life.

EPR schemes are typically funded through the implementation of various economic instruments, levied either directly by the obligated industry, or by government.

In the case of EPR schemes, the collection and disbursement of funds depend on whether charges are collected as an EPR fee (by industry) (left panel) or a 'tax' (by government) (right panel) in the figure below. According to section 13B of the Waste Act, a money Bill must be tabled in Parliament within three months of the publication of the Pricing Strategy. However, it is also possible to collect levies through the Customs and Excise Act, 1964. This is the same mechanism that is being used for certain environmental products.

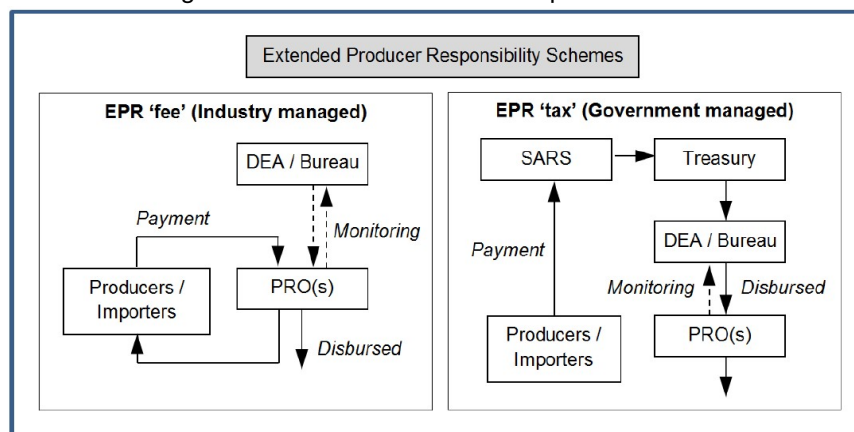


Figure 2: Revenue From 'Extended Producer Responsibility' (EPR) Schemes Source:
Department of Environmental Affairs (DEA), 2017.

The National Pricing Strategy provides for the following mechanisms for implementation:

- The Pricing Strategy proposed two systems for EPR, industry managed scheme and a government managed scheme.

Government managed scheme:- ▪

Revenue collected by

SARS,

- Transferred to DEA as per approved business plan and part of MTEF,
- Waste Management Bureau (WMB) then allocates funds to the Product Responsibility Organization (PRO),

- PRO to implement the approved IndWMP by contractual agreement with WMB, Industry managed scheme:
- Revenue collected by Industry,
- PRO transfers portion of the revenue to WMB as per cooperation agreements, ▪ WMB responsible for monitoring the implementation of the IndWMP.

General principle for National Pricing Strategy:

- SARS is the only entity mandated to collect public funds,
- Funds collected by SARS goes to the Revenue Fund (Fiscus) for further distribution to achieve Government's objectives,
- SARS is currently collecting the Tyre levy as at 1 Feb, plastic bag levy and Incandescent light bulb levy,
- Collection of the levies for the other prioritized sectors (paper & packaging, eWaste and lighting).

3.2.5 Maximising the Circular Waste Economy in South Africa

South Africa's commitment to sustainable development is aimed at balancing the broader economic and social challenges while protecting environmental resources.

For the waste sector in South Africa this means care must be taken to ensure wise consumption and production patterns, resource efficiency, waste prevention and minimization and waste reuse and recovery.

The 'Circular Economy' is a central concept to the:

- A response to the aspiration for sustainable growth in the context of the growing pressure of production and consumption on the world's resources and environment.
- The economy has mainly operated on a 'take-make-dispose' basis.
- Replaces linear model and notion of "end of life".
- Keep the added value in products for longer to eliminate waste.
- Keep resources within the economy when a product has reached end of its life, so that they can be productively used again and again and hence create further value.
- A transition to a circular economy shifts the focus to reusing, repairing, refurbishing, repurposing, recycling and upcycling.
- Business can redesign complete supply chains for resource efficiency and circularity.
- Creates new markets responding to shifts in consumption patterns away from traditional ownership towards using, reusing and sharing.

Recycling Opportunity Statement:

- Recycling rates are influenced by the quality of recovered materials and the economic viability of recycling operations.

- Opportunities for improving may not reside in the already well developed markets (i.e. glass, paper, plastics and cans).
- The real potential lies in unexplored markets for (tyres, eWaste, organic waste, construction & demolition waste, obsolete cars, etc.).
- Increasingly complex waste streams will therefore rely on more specialised technologies to enable recycling.

3.2.6 Waste Management Measures in South Africa

Prevailing waste management measures in South Africa:

Industry waste management plans - enables collective planning by industry to manage their products once they become waste and to collectively set targets for waste reduction, recycling and re-use.

Extended Producer Responsibility (EPR) - identifies particular products that have toxic constituents or that pose waste management challenges, and regulates industry responsibility for these products beyond point of sale.

Priority wastes - identifies categories of waste that require special waste management measures due to the risks of these wastes to human health and the environment.

Licensing - the Act provides for a list of waste activities that require licensing and the setting of conditions. The Act also provides for listing waste management activities that do not require a licence if undertaken according to specified norms and standards or requirements.

Waste Classification and Management System - provides a methodology for the classification of waste and provides standards for the assessment and disposal of waste for landfill disposal

Norms and standards - baseline regulatory standards for managing waste at each stage of the waste management hierarchy. (DEA, 2017)

3.3 Economic Instruments that could be used to Increase Recycling

The monitoring and evaluation of economic instruments implemented within the waste sector will be conducted by various stakeholders, depending on the waste management charge(s) implemented.

The role of government and the private sector will differ depending on the economic instrument to be implemented, the approach to implementation, and the legal status, e.g. voluntary or mandatory. In all instances, the Bureau, as given effect through the Waste Amendment Act, will be instrumental in monitoring and evaluating the implementation of waste management charges and the broader implementation and management frameworks, e.g. EPR schemes.

The roles and responsibilities of the Bureau are outlined in Sections 34D and 34E of the Waste Amendment Act, Act Number 26 of 2014.

One of the primary functions of the Bureau is to review and approve, and to conduct monitoring and evaluation of IndWMPs. The IndWMPs will be drafted by each waste sector and submitted

to the Bureau for approval. Any existing IndWMP must be aligned to the Waste Act, including any amendments, and the NPSWM.

In terms of the NEM: Waste Amendment Act, 2014, the Bureau is responsible for the direct monitoring and evaluation of:-

- systems for the implementation of volumetric tariffs by municipalities,
- the national implementation of disposal taxes,
- all EPR schemes (and the implementation of IndWMPs), and ▪ the impact of incentives and disincentives.

4 ECONOMIC VALUE ASSESSMENT OF EC WASTE RECYCLING

In the light of the preceding sections which indicate both the international and South African approach to the minimisation of waste to landfill and mechanisms used to encourage higher rates of recycling, it is apparent that the actual volumes, composition and value of the waste that is flowing through the relevant precinct is of importance.

The following sections evaluate the specific attributes of the waste in the Eastern Cape District Municipalities and Metros, as well as establish the actual potential for recycling in order to be able to formulate waste profiles and values in tons and Rands respectively. This data is then able to be used to highlight the inherent economic value of the waste profile and to begin to formulate a policy reading economic instruments that could be used to improve recycling and reduce waste to landfill, whilst at the same time not placing an unnecessary or additional burden on the respective municipalities.

4.1 The Economic Cost of Dealing with Municipal Solid Waste (MSW)

In South Africa the trend is to dispose of waste to landfill, with ninety per cent of all waste disposed of to municipal landfill sites, with typical landfilling disposal fees ranging from R 100 to R 150 per ton for general waste, and R 600 to R 800 per ton for hazardous waste in 2013, according to a report by the Department of Science and Technology (DST, 2014). These landfill disposal fees constitute revenue to the various municipalities and are often seen as a proxy for the cost of dealing with Municipal Solid Waste (MSW). This cost is usually seen as being understated as most municipalities do not provide adequately for all operating costs including depreciation on existing infrastructure and capital expenditure required for new landfill and infrastructure upgrade or replacements.

New norms and standards for disposal of waste to landfill are expected to assist in correcting these price 'distortions' by significantly increasing waste disposal costs at new landfills, or where new cells are developed at existing landfills.

4.2 The Economic Value or 'Resource Value' of Recycling

The economic value or 'Resource Value' of municipal solid waste goes beyond the cost of dealing with the physical waste stream, to the **value that is inherent in the actual waste** which can be maximised or extracted through recovery, recycling, reuse and preparing for reuse, energy provision and any other method of extracting additional value from the waste stream.

Moving waste up the hierarchy towards reuse, recycling and recovery contributes to the principles of a 'green economy' in a number of ways:

- Re-introduction of resources back into the economy, ▪
Contribution to economic growth and job creation, and
- Reducing social and environmental costs (externalities).

An important element of this methodology is that it implies that the values reported in the study are likely to under-estimate the full benefits of moving waste up the hierarchy, as the benefits associated with job creation and economic growth, as well as the avoided costs and externalities associated with virgin material extraction, are not taken fully into account.

The aim of this study is to assess the benefits of increased recovery of resources from waste. The benefits are to municipalities specifically, and society as a whole more generally. The focus is therefore on the potential value of the materials that could be recycled; rather than the value of materials currently being recycled.

The definition of all economic activities relating to waste management has been succinctly provided by the South African Department of Science and Technology (DST) as follows:

'All economic activities (including waste management activities, such as landfilling or recycling) incur both benefits and costs. However, certain of these benefits and costs, such as environmental or social externalities¹, are intangible or difficult to quantify, and are therefore not typically accounted for in policy and decision making, which can in turn lead to incorrect decisions being made. Economic valuation refers to the process by which economists quantify (in monetary terms) the unaccounted for benefits and/or costs of economic activities or policy actions. The information generated through this process can then be used to contribute towards improved decision making, in conjunction with other relevant information.' (DST, 2014. Page 3)

In order to determine the potential 'Resource Value' of recycling within the waste economy being evaluated, it is necessary to determine both the potential volumes or quantities of waste that could be recovered, recycled or re-used in one form or another, with the metric for measuring this being a metric ton; and the 'Unit Value' of that ton of waste material which has had its value improved or increased. (For the sake of this report we will refer to all material that has been 'recovered, recycled or re-used' as 'recycled' waste material.) We have used the DST definition of 'unit value' as follows:

'We use the term 'unit value' rather than 'price' to represent the value per tonne; since in economic terms the value per unit of a good or service is not necessarily equal to its market price. Generally speaking, economic value refers to the maximum amount that users of a good or service are willing to pay for the good or service. The decision to

¹ Externalities can be defined as the positive or negative side effects (external benefits or costs) of a particular economic activity (e.g. landfilling) that do not enter into formal markets associated with the activity in question (and are therefore not incorporated in market prices for the activity); but are instead borne by other groups in society and/or by future generations; or are dispersed throughout society as a whole. Examples include the impacts of landfill gas or leachate on the environment, or the impacts of odours on residents living in the vicinity of a landfill site.

purchase a unit of the good or service implies that the user places a higher value on the good or service than its market price. Nevertheless, in the absence of costly and timeconsuming valuation studies in which a large number of surveys are conducted with users regarding their maximum willingness to pay per unit of a specific good or service, market prices must often suffice as a proxy of unit values.' (DST, 2014. Page 5)

The price paid by waste recyclers to waste collectors is used as the proxy for the unit value per type of waste. Since unit prices increase along the recycling value chain, it is necessary to choose a specific point along the chain where unit values will be determined. The figure below illustrates a simple schematic of the recycling value chain. The arrows represent exchanges of materials, each of which also entails monetary exchanges (in the opposite direction). For example, collectors purchase waste materials from individuals or waste pickers, and in turn sell the collected materials to recyclers. In turn, the recyclers undertake processing of the waste materials, and sell the recycled materials to downstream industries for further processing and ultimately for use as a raw material in production processes. Importantly, at each point along the value chain, value is added to the waste materials. This implies that the 'value' (and the price) per tonne of the material increases along the value chain. This process can be seen in the figure below.

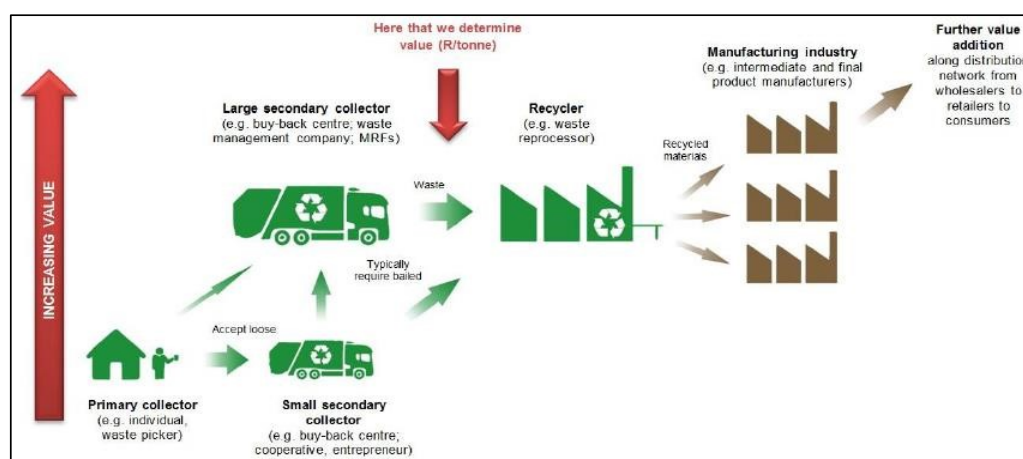


Figure 3: Value Along the Recycling Value Chain

Source: Department of Science & Technology (DST), 2014.

The 'value' of the particular form of waste analysed in this study has been determined at the point between the waste collector and the recycler, or waste re-processor as indicated in the figure above.

4.2.1 South African Waste Quantities, Recycling Rates & Resource Values

In a study undertaken by the Department of Science and Technology (DST) in 2014, the waste volumes and typical prices paid by recyclers was evaluated for 2011 data. A summary of this data is depicted in the table below.

Table 4: SA Waste Quantities, Recycling Rates and Unit Values, 2011.

Waste Stream	Waste Generated. Tons / Year	Waste Landfilled. Tons / Year	Waste Recycled. Tons / Year	Waste Recycled. Percentage	Unit Values to Recyclers Rand / Ton	Waste Value to Recyclers. Rand Million	% of Total
Municipal Waste (Non-recyclable)	8,062,934	8,062,934	-	0%	367.38	-	
Organic component	3,023,600	1,965,340	1,058,260	35%	188.68	199.67	2.44%
Biomass waste from industry	36,171,127	36,171,127		0%	188.63	-	
Construction and demolition waste	4,725,542	3,969,455	756,087	16%	87.50	66.16	0.81%
Paper	1,734,411	745,797	988,614	57%	744.47	735.99	8.99%
Plastic	1,308,637	1,073,082	235,555	18%	3,119.54	734.82	8.97%
Glass	959,816	652,675	307,141	32%	490.00	150.50	1.84%
Metals	3,121,203	624,241	2,496,962	80%	2,270.00	5,668.10	69.21%
Tyres	246,631	236,766	9,865	4%	367.00	3.62	0.04%
WEEE (Electric & Electronic Equip.)	64,045	57,161	6,884	11%	1,000.00	6.88	0.08%
Slag (from mineral processing)	5,370,968	2,685,484	2,685,484	50%	175.00	469.96	5.74%
Ash (From Eskom power generation)	36,220,000	33,930,896	2,289,104	6%	3.00	6.87	0.08%
Waste Oils	120,000	67,200	52,800	44%	2,777.78	146.67	1.79%
Totals	101,128,914	90,242,158	10,886,756	11%	752.22	8,189	100.00%

Source: DST, 2014. A national waste research, development (R&D) and innovation roadmap for South Africa: Phase 2 waste RDI roadmap.

This table provides a very useful snapshot of the South African waste industry and the current state of recycling, with important points to highlight as follow:

- The total waste generated in South Africa which is recorded is in the region of 101 million tons in 2014, which has moved up to 108 million tons for 2016.

- This includes a large quantity of biomass or plant based waste at approximately 36% which typically takes the form of wood and vegetable pulp from the paper mills and the agricultural industries such as sugar mills, with 100% of this currently going to landfill.
- The power generation industry, mainly in the form of Eskom, generates a further 36% of waste in the form of ash from the burning of fossil fuels, mainly coal, with very little of this being recycled and most going to landfill.
- The mining industry generates waste in the form of slag, with 50% of this being recycled by the private sector.
- Municipal waste comprises of non-recyclable materials (8%), organic materials (3%) and construction and demolition waste of a further 4.7%. These items together constitute approximately 16% of total waste generated per year in South Africa,
- Paper, plastic, glass and metals are the typical waste items which are often secured by waste pickers from source, and have a relatively high recycling volume and propensity due to their relatively high demand by the recycling industry, with consequently higher prices paid to collectors. Together these waste streams constitute 7% of total waste per annum.
- Waste that is landfilled annually was 90 million tons in 2011 out of 101 million tons of waste generated, which is a very high landfill rate at 89%.
- Only 11% of all solid waste was recycled in 2011, with the highest volumes being slag, metals and ash, with the highest values realised by metals at R 2,270 per ton.
- Plastic realises the overall highest value per ton at R 3,119 but of relatively low volumes of 235,555 tons processed out of a potential 1.3 million tons. This indicates that there is strong upside potential in this sector.
- The total value of waste inputs to recyclers in 2011 was R 8.19 billion, with metal recycling comprising of 2.4 million tons at an average value of R 2,270 per ton to realise a total value of R 5.67 billion in 2011. It needs to be noted that due to these relatively high values, 'metals' has a high recycling rate of 80% of all metal waste generated, which means it is a mature recycling industry with very little upside potential in the market.

This dataset provides a very useful overview of the South African waste recycling market in the context of all waste generation and waste moved to landfills. These trends and data inputs have been used in the Eastern Cape scenario generation where relevant.

4.2.2 Eastern Cape Waste Quantities, Recycling Rates & Resource Values

The province of the Eastern Cape comprises of two Metropolitan Municipalities and six District Municipalities (DMs), with a number of local municipalities below each DM. We have analysed the provincial data to the level of these eight major municipal entities, with socio-demographic data and particularly population figures and annual income profiles having been used to profile waste streams. The summarised data for the Eastern Cape as a whole is presented in the following table, with an example of two of the DMs being provided as Appendix 9.4.

Table 5: EC Total Socio-Demographic Profile & Waste Generation Profile - 2017

Income Group	District & Income Profile	Waste Profile	Eastern Cape Totals					
	Annual Income & Number	Kg of waste per day / Person	Number of Households	% of Households	Number of Persons	Waste Generation: kg/ day	Waste Generation: kg/ annum	Waste Generation: tonnes/p.a.
Low Income	R 0 - R2400	0.41	205	0.0%	821	337	122,913	123
	R 2400 - R 6000	0.41	3,804	0.2%	15,100	6,191	2,259,655	2,260
	R 6000- R12000	0.41	38,370	2.2%	152,705	62,609	22,852,239	22,852
	R 12000 - R 18000	0.41	76,450	4.3%	303,178	124,303	45,370,528	45,371
	R 18000 - R 30000	0.41	220,500	12.4%	877,864	359,924	131,372,336	131,372
	R 30000 - R42000	0.41	230,700	12.9%	918,616	376,632	137,470,837	137,471
	R 42000 - R54000	0.41	203,600	11.4%	810,124	332,151	121,235,009	121,235
Medium Income	R 54000 - R72000	0.41	216,900	12.2%	860,117	352,648	128,716,516	128,717
	R 72000 - R 96000	0.74	184,800	10.4%	729,319	539,696	196,989,132	196,989
	R 96000 - R132000	0.74	156,060	8.8%	611,037	452,167	165,041,040	165,041
	R 132000 - R 192000	0.74	133,170	7.5%	516,735	382,384	139,570,201	139,570
	R 19200 - R 360000	0.74	149,780	8.4%	572,298	423,500	154,577,581	154,578
	R360000 - R 600000	0.74	88,180	4.9%	332,928	246,367	89,923,784	89,924
High Income	R 600000 - R120000	0.74	58,970	3.3%	220,804	163,395	59,639,291	59,639
	R 120000 - R240000	1.29	17,578	1.0%	65,372	84,329	30,780,175	30,780
	R 240000+	1.29	2,668	0.1%	9,810	12,655	4,619,043	4,619
	Total		1,781,735	100.0%	6,996,826	3,919,288	1,430,540,281	1,430,540
Source: ECSECC (2017), Amathole District Municipality Socio economic review and outlook, 2017								

International and national waste profiles and benchmarks have been used for the kilograms of waste generated per person per day within a particular income group for each DM and Metro, in order to establish the tonnage of Municipal Solid Waste (MSW) generated in the province per annum, with 1,430,540 million tons of waste having been generated in the province on average in 2017.

By applying nationally established and accepted waste profile ratios to this annual tonnage, a profile for the waste stream that is available for use for recycling has been established. The trend is that 44% of total MSW is capable or has the potential of being recycled, and on 1,430,540 tons per annum this equates to 632,937 tons as per the table below, within the indicated waste constituencies.

Table 6: EC Waste Generation Profile & Recycling Potential - 2017

Estimated Values in Tons and Rm Eastern Cape Recycling Potential (Per major recyclable group)	Waste Available - Recycling	% of Total Available	Potential To Be Recycled	Recycle % Of Available	Recyclers Value p.a.	% of Total Available	Value Per Ton
Units of Measure:	Tons p.a.	%	Tons p.a.	%	Rand Mil	%	Rand / Ton
High quality paper	24,036	3.8%	16,344	68%	39.23	7.5%	2,400
Paper other	89,074	14.1%	60,570	68%	54.08	10.3%	893

Corrugated cardboard	41,002	6.5%	27,882	68%	6.69	1.3%	240
Non-corrugated cardboard	62,210	9.8%	42,303	68%	20.31	3.9%	480
Glass	111,696	17.6%	46,354	42%	27.26	5.2%	588
Metal packaging	56,555	8.9%	42,246	75%	115.08	22.0%	2,724
Plastic PET	43,830	6.9%	28,928	66%	118.89	22.7%	4,110
Plastic PE-HD	57,969	9.2%	16,173	28%	53.18	10.1%	3,288
Plastic PVC	12,725	2.0%	1,196	9%	3.59	0.7%	3,000
Plastic PE-LD	53,727	8.5%	17,622	33%	65.13	12.4%	3,696
Plastic PP	26,864	4.2%	3,976	15%	15.41	2.9%	3,876
Plastic polystyrene	7,069	1.1%	566	8%	1.70	0.3%	3,000
e-waste	46,180	7.3%	1,847	4%	3.69	0.7%	2,000
Totals - Eastern Cape	632,937	100.0%	306,008	48%	524.23	100.0%	1,713
- Percentage of Total	44%		21%				
Waste Generation Per Year - Tons MSW	1,430,540						

Source: A summary of the detailed working per major municipal entity and major recyclable category.

It is estimated, based upon the Gibb Report, 2019 that of the waste available for recycling, realistically the potential that could be recycled would be 48% of this, or **306,800 tons**. An average value of recycled waste per ton at the point between the waste collector and the waste recycler has been gleaned from the Department of Science and Technology Report, 2014 and applied to the potential tons available for recycling in order to estimate the total economic value of potential recyclable material at this point.

When these assumptions are applied to the six DMs and the two metros within the province then the following waste profile is established with the total waste generated, waste available for recycling, and potential or estimated waste that could realistically be recycled indicated.

Table 7: EC Municipal Socio-Demographic Profile & Waste Generation Profile - 2017

Baseline Assumptions Per EC District	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total
Households Per District	175,998	227,208	221,067	126,220	104,958	321,396	246,736	348,012	1,771,595
People Per District	867,864	880,790	840,055	479,923	372,912	1,457,384	834,997	1,263,051	6,996,976
Waste Generation Per Day - Tons	459	479	463	288	203	782	487	759	3,919
- Average per Person / Day - Kg	0.53	0.54	0.55	0.60	0.54	0.54	0.58	0.60	0.56
Waste Generation Per Year - Tons MSW	167,676	174,724	169,083	105,066	74,082	285,289	177,618	277,003	1,430,540
- Average per Person / Year - Tons	0.19	0.20	0.20	0.22	0.20	0.20	0.21	0.22	0.20
Waste Available for Recycling	75,640	78,324	75,714	46,770	25,961	128,014	79,222	123,292	632,937
- Percentage of Total Waste	45%	45%	45%	45%	35%	45%	45%	45%	44%
Estimated Recycling Rate - Tons	36,470	37,820	36,596	22,729	12,280	61,758	38,431	59,924	306,008
- Percentage of Recycled Waste	48%	48%	48%	49%	47%	48%	49%	49%	48%

Source: Gibb interpretation of StatsSA Community Survey 2016, EC IWMP, ECSECC 2017 Socio Economic Review and Outlook (SERO)

These datasets are based upon national industry norms and are seen as the 'Baseline' scenario that could be achieved with very little national or provincial government intervention and would be driven by the economic value of the recycled waste.

With the recycling baseline for the province established to be 306,008 tons at 48.3% of the material available to be recycled, it then remains to be seen what could be achieved through incentives, subsidies or taxes to increase the value in tons, and what the intermediate

economic value of these tonnages would be, before avoided costs or any externalities are added or subtracted from this value. Three additional scenarios have been postulated at increasing rates of recycling as indicated in the following table.

Scenario 1 - increase recycling rates to 55.0%

Scenario 2 - increase recycling rates to 61.7%

Scenario 3 - increase recycling rates to 68.3%

Table 8: Potential Resource Value Per Year - Different Scenarios of Resource Recovery

Estimated Values - Ton & Rm - Recycling	Quantities Recycled - Tons / Year				Price / Ton	Values (Rand / Year)			
	Baseline	Scenario 1	Scenario 2	Scenario 3		Baseline	Scenario 1	Scenario 2	Scenario 3
High quality paper	16,344	18,796	20,214	21,632	2,400	39.23	45.11	48.51	51.92
Paper other	60,570	69,656	74,911	80,166	893	54.08	62.19	66.88	71.57
Corrugated cardboard	27,882	32,064	34,483	36,902	240	6.69	7.70	8.28	8.86
Non-corrugated cardboard	42,303	48,648	52,319	55,989	480	20.31	23.35	25.11	26.87
Glass	46,354	53,307	68,539	83,772	588	27.26	31.34	40.30	49.26
Metal packaging	42,246	46,471	48,685	50,899	2,724	115.08	126.59	132.62	138.65
Plastic PET	28,928	31,821	33,442	35,064	4,110	118.89	130.78	137.45	144.11
Plastic PE-HD	16,173	18,599	20,893	23,187	3,288	53.18	61.15	68.70	76.24
Plastic PVC	1,196	1,376	1,960	2,545	3,000	3.59	4.13	5.88	7.63
Plastic PE-LD	17,622	20,266	22,222	24,177	3,696	65.13	74.90	82.13	89.36
Plastic PP	3,976	4,572	6,316	8,059	3,876	15.41	17.72	24.48	31.24
Plastic polystyrene	566	650	1,739	2,828	3,000	1.70	1.95	5.22	8.48
e-waste	1,847	2,124	4,526	6,927	2,000	3.69	4.25	9.05	13.85
Totals	306,008	348,350	390,249	432,149		524.23	591.17	654.61	718.05
- Percentage of 'Full Potential' - Recyclable	48.3%	55.0%	61.7%	68.3%					

In terms of the avoided costs of disposal, current disposal (tipping) fees are generally in the range of R147 to R556 per ton, with the average being R 257 per ton. For our economic modelling we have used a proxy figure for the Eastern Cape of R 200 per ton.

It is acknowledged that these do not necessarily reflect full financial costs of landfilling, which would include capital, operating and closure costs over the lifetime of a landfill. Estimates from some municipalities suggest that full financial costs are likely to be much higher than the range of tipping fees reported here; nevertheless, in the absence of sufficient data on true landfill costs, these tipping fees will be used as a conservative estimate of avoided financial costs.

Furthermore, a study by Nahman *et al.* (2011) estimated externalities (social and environmental costs) associated with landfilling in the City of Cape Town at approximately R111 per ton in 2011. We have applied an annual inflation based escalation factor of four percent to this proxy and determined a 2018 value of R 145.53 per ton. Assuming that the latter can be extrapolated to other areas of South Africa, we can use these figures to supplement our estimated resource values with the benefits in terms of the avoided financial costs and externalities associated with landfill disposal, to give a more comprehensive estimate of the benefits of recycling. The results are summarised in the table below.

Table 9: Benefits of Waste Recovery – Resource Value & Avoided Costs

		Resource Value - Rand Mil / Year

Benefits From Recycling - Rand Mil		Baseline	Scenario 1	Scenario 2	Scenario 3
Resource Value		524.23	591.17	654.61	718.05
Avoided Cost - Landfill	200.00	61.20	69.67	78.05	86.43
Avoided Externalities - Landfill	145.53	44.53	50.69	56.79	62.89
Total Recycling Value		629.96	711.53	789.45	867.37
Benefit of Increased Recycling			187.30	265.22	343.14
- % Increase On Baseline			30%	42%	54%
Source: Own calculations based on assumptions formulated.					

It can be seen that, in terms of the resource value of recovered materials plus the avoided financial costs and externalities associated with landfill disposal, the current potential value of recycling/recovery is in the order of R 629.9 million per year; which could increase to R 711.5 million per year under Scenario 1, to R 789.5 million per year under Scenario 2, and to as much as R 867.4 million per year under Scenario 3.

Achieving the goals of the Eastern Cape Waste Policy, taking into account avoided financial costs and externalities associated with landfill disposal, could therefore potentially unlock R 343 million per year worth of resources into the economy, which otherwise would have been lost through disposal to landfill.

The benefits of increased recycling or recovery relative to the baseline (difference between current value and potential value under each scenario), in terms of resource values and avoided disposal costs, range from R 181 million per year under Scenario 1, R 265 million per year under Scenario 2, to R 343 million per year under the 100% recycling Scenario 3. (Table 9).

Of course, even these values are likely to represent an under-estimate of the full benefits of moving waste up the hierarchy. Although we have now incorporated the benefits associated with avoided disposal costs; the benefits associated with job creation and economic growth, as well as the avoided costs and externalities associated with virgin material extraction, are still not taken into account.

4.3 Unit Benefits of Recycling & Recovery

The values estimated in this report can be translated into benefits per ton of waste recycled (In other words; the 'unit benefits' of recycling); which can be compared with the costs per ton (unit costs) of recycling (not estimated in this report) for policy and decision-making purposes. The value estimates in Table 10 were therefore divided by the quantities recycled in each scenario, to provide an estimate of the benefits of recycling per ton (including the benefits associated with the resource value of recyclables, as well as the avoided financial costs and externalities associated with landfilling) (see table below).

Table 10: Benefits of Recycling per Ton of Waste (Resource & Avoided Costs)

	Economic Benefits per Ton (R/t)			
	Baseline	Scenario 1	Scenario 2	Scenario 3
Benefits From Recycling - Rand				

Resource Value - Per Ton Recycled	1,713	1,697	1,677	1,662
Avoided Cost - Landfill	200	200	200	200
Avoided Externalities - Landfill	146	146	146	146
Total Recycling Economic Value	2,059	2,043	2,023	2,007
- % of Baseline	100.0%	99.2%	98.3%	97.5%
Source: Own calculations based on assumptions formulated.				

Note: These values do not have a direct function to recycling increases in volume, as it is assumed that the highest value waste items, in this instance metals which account for 69% of the baseline value, will be increasing the least incrementally as they are already at a high percentage in the baseline scenario at 80%, leaving relatively little space for improvement. This means that the waste categories with the lower unit values will typically have higher overall recycling growth prospects. This results in the average unit value per ton decreasing as the recycling volumes increase in each scenario.

Furthermore, the benefits per ton illustrated in Table 10 pertain only to the resource value of recycling and the avoided financial and external costs of landfilling; they exclude other benefits such as the avoided financial and external costs of virgin material extraction, benefits in terms of job creation and economic growth, etc. As such, the estimates provided in this report are likely to underestimate the full benefits associated with moving up the waste management hierarchy; although the **costs** of moving up the hierarchy should also be taken into account.

4.4 A Synthesis of the Economic Value of Eastern Cape Waste

The analysis undertaken above has provided a useful estimation of the actual waste profiles within the provinces, used current data and ratios to estimate the waste stream that is available to be recycled at 44% of the total or 632,937 tons per annum.

Of these volumes a certain proportion has the potential to be recycled based upon its deemed economic value at the transfer point between the waste collectors and the waste recyclers. These volumes are seen to be 48% of the recyclables available, or 21% of the total waste stream which amounts to an annual volume of 306,008 tons.

The recycling potential of these 306,008 tons at an average economic value of R 1,713 per ton for the baseline scenario, with a total value of R 524 million. We have anticipated three additional and higher tonnage scenarios being able to be achieved with government interventions of one sort or another to achieve 432,149 tons for the third and highest scenario, at 66.3% of the potential that could be recycled and with a total value of R 718 million per annum, which is a R 194 million improvement in economic value.

The avoided costs of the operating costs saved by not needing to take the recycled tons to landfill, together with the economic value of the avoided externalities, mainly odour and health issues have been added to these values to improve the baseline value to R 629.9 million from the R 524 million, and for scenario 3 this has improved from R 718 to R 867 million. An economic value improvement of R 343 million.

It was calculated that the economic value per ton of recycled waste had an average value of R 2,059 for the baseline, compared to R 2,007 for scenario 3, which is a lower value due to the higher value items from the waste stream being picked out first.

This dataset provides a useful baseline and fully applied scenario for the potential for recycling in the Eastern Cape and will allow for economic instrument or policy analysis to be undertaken.

5 ECONOMIC IMPACT ASSESSMENT OF EC WASTE RECYCLING

An economic impact assessment has been undertaken to move beyond the pure economic value established in the previous section, which is the economic value which the recycler is prepared to the waste collector. In this section we move further up the value chain to establish the economic value to greater society, once the recycled material has been processed and sold back to the materials usage market.

The analysis also looks specifically at the impact of the Eastern Cape recycling industry of Gross Domestic Product and Full Time Equivalent (FTE) employment creation, or jobs.

In order to undertake the Economic Impact Assessment and estimate the potential for employment creation and impacts of Gross Domestic Product (GDP) at both a national and regional level, the waste generation baseline and potential for recycling in the Eastern Cape needs to be established.

This exercise has been completed in the previous section of this report and that data is used.

5.1 Economic Impact Assessment – An Overview

In order to quantify the impact of an intervention on the economy and society, an econometrical modelling exercise will be performed. Current and accepted economic multipliers and methodology will be used for this assessment.

Economic impacts refer to the effects on the level of economic activity in a given area, as a result of some form of external intervention in the economy. The intervention can be in the form of new investment in, for example, technology, transport facilities, social development, housing, business development, etcetera. Government interventions in the forms of taxes and / or subsidies can also have economic impacts. It can furthermore also be in terms of changes in production processes or downscaling of activities. The economic effects may be viewed in terms of:

- Job Creation
- Value added activities
- Personal income (including wages)
- Business output (or sales volume)
- Wealth (including property values)
- Environmental impacts
- Changes to the quality of life

Any of these measures can be an indicator of improvement in the economic well-being of residents of communities that is usually a goal of investment or infrastructure projects. The net economic impact is usually viewed as the expansion or contraction of an area's economy, resulting from changes in (i.e., opening, closing, expansion or contraction of) a facility, project, program, or the whole industry.

5.2 Employment Opportunities in the Recycling Value Chain

There is a dearth of literature on the employment opportunities within the waste recycling value chain, and they apply to levels of development in a country, the nature of the product being recycled and the recycling technology being used.

We have not traversed this data here and will merely provide a schematic overview of the job opportunities in the waste hierarchy, with the underlying assumptions being that the higher you move up the hierarchy and value chain, the better the quality of the jobs with higher remuneration. This is indicated in the figure below.

Figure 4: Employment Opportunities Within the Waste Hierarchy



Source: CSIR, 2016. Opportunities in the Waste Sector. The Green Economy as a driver of sustainable development and job creation.

On a similar basis, the literature indicates a clear distinction between the supply of recycling material to the recycler, and the value chain from thereafter to the market with the ultimate consumption of the recycled product. This is indicated in the figure below.



Figure 5: Supply and Market Demand for Secondary Waste Resources

Source: CSIR, 2016. Opportunities in the Waste Sector. The Green Economy as a driver of sustainable development and job creation.

For the evaluation of the waste recycling value chain in the Eastern Cape for Job creation the following methodology has been adopted:

1. The total tons that could be recycled for each municipal entity per year has been used from the baseline scenario.
2. The estimated economic value of that recycling has been brought into the model, as per the analysis in the previous sections.
3. An economic multiplier for the 'SA Total Economy' from the Industrial Development Corporation (IDC) has been used in the absence of a dedicated recycling multiplier, to estimate the full downstream value to the recycling industry once it has flowed through the whole value chain as per the figure above. This has increased the economic value from R 524 million at the beginning of the recycling process to R 907 million at the end of the recycling process, economic market value.
4. This full economic value has been applied to the IDC multipliers for the 'Total Economy' for employment creation for Direct, Indirect and Induced jobs.

This methodology has resulted in the following employment data for a particular year.

Table 11: Economic Impact: Employment Opportunities – EC Waste Recycling

Potential for MSW to be Recycled - Tons (48% of 'Waste Available')			
Estimated Recycling Rates - Tons	Buffalo City	NMB	EC Total
TOTALS	38,431	59,924	306,008
Source: Gibb interpretation of StatsSA Community Survey 2016, EC IWMP, ECSECC 2017 Socio Economic Review and Outlook (SERO)			
Estimated Values in Rm - Recycling	Buffalo City	NMB	EC Total
Totals - Rand Millions	65.83	102.65	524.23
- Percentage of EC Total	12.6%	19.6%	100.0%
Note: These calculations are based upon SA national recycling rates and monetary yields. These are the prices that 'Recyclers' are prepared to pay 'Waste collectors'.			
<u>EC Waste Recycling - Economic Impact Assessment</u>			
Estimated Values - EC Recycling	Buffalo City	NMB	EC Total
Tons Recycled	38,431	59,924	306,008
Value to Recyclers - R m - Resource Value	66	103	524
Downstream Value to Industry - R m	114	178	907

Employment Creation - 'Jobs' (FTE)	350	545	2,785
- Direct Impact	197	308	1,573
- Indirect impact	37	58	296
- Induced Impact	115	179	916
Note: The multipliers used are the IDC multipliers for 2015, adjusted for inflation for the 'Total Economy' for Employment			

The economic impact model indicates that the recycling industry in the Eastern Cape could generate 2,785 FTE jobs in a year, with 1,573 of these being direct industry jobs, 296 being indirect or industry support jobs, and 916 being jobs induced by the previous two sectors and as multipliers to the activities required to support the direct and indirect activities.

The full detail of these calculations are attached as Appendix 9.9 hereafter.

5.3 GDP Opportunities in the Recycling Value Chain

For the evaluation of the waste recycling value chain in the Eastern Cape for Gross Domestic Product (GDP) creation the following methodology has been adopted:

1. The total tons that could be recycled for each municipal entity per year has been used from the baseline scenario;
2. The estimated economic value of that recycling has been brought into the model, as per the analysis in the previous sections,
3. An economic multiplier for the 'SA Total Economy' from the Industrial Development Corporation (IDC) has been used in the absence of a dedicated recycling multiplier, to estimate the full downstream value to the recycling industry once it has flowed through the whole value chain as per the figure above. This has increased the economic value from R 524 million at the beginning of the recycling process to R 907 million at the end of the recycling process, economic market value.
4. This full economic value has been applied to the IDC multipliers for the 'Total Economy' for GDP creation for Direct, Indirect and Induced GDP along the value chain.

This methodology has resulted in the following employment data for a particular year.

Table 12: Economic Impact: Gross Domestic Product – EC Waste Recycling

Potential for MSW to be Recycled - Tons (48% of 'Waste Available')			
Estimated Recycling Rates - Tons	Buffalo City	NMB	EC Total
TOTALS	38,431	59,924	306,008
Source: Gibb interpretation of StatsSA Community Survey 2016, EC IWMP, ECSECC 2017 Socio Economic Review and Outlook (SERO)			
Estimated Values in Rm - Recycling	Buffalo City	NMB	EC Total
Totals - Rand Millions	65.83	102.65	524.23
- Percentage of EC Total	12.6%	19.6%	100.0%
Note: These calculations are based upon SA national recycling rates and monetary yields. These are the prices that 'Recyclers' are prepared to pay 'Waste collectors'.			

EC Waste Recycling - Economic Impact Assessment			
Estimated Values - EC Recycling	Buffalo City	NMB	EC Total
Tons Recycled	38,431	59,924	306,008
Value to Recyclers - R m - Resource Value	66	103	524
Downstream Value to Industry - R m	114	178	907
Gross Domestic Product (GDP) - R m	143	222	1,136
- Direct Impact	78	122	623
- Indirect impact	17	27	136
- Induced Impact	47	74	377
Note: The multipliers used are the IDC multipliers for 2015 for the 'Total Economy' for GDP			

The economic impact model indicates that the recycling industry in the Eastern Cape could generate total GDP of R1,136 million in a year, with R 623 million of this being direct GDP. There could be indirect GDP of R 136 million, and induced GDP of R 377 million, with the R 377 million of induced GDP being activities required to support the direct and indirect activities.

6 POTENTIAL FOR POLICY INTERVENTIONS WHICH CAN BE APPLIED

This section needs to be completed after a discussion with Gibb Engineers and / or the Client in order to distil the essence of the outcomes of this study and see if there is an economic instrument or policy which could be applied to the Eastern Cape waste and recycling situation on a broad provincial basis, and what steps would be required to be followed in order to achieve this.

It is clear that at a national level the Extended Producer Responsibility (EPR) is preferred, but we are not certain how viable this would be at a provincial level where the extent of local manufacturing versus consumption would be more difficult to determine.

7 CONCLUSIONS

This report has provided a useful baseline of economic data, which includes detail of the waste profile for eight of the district municipal entities together with a proxy for the economic value at the gap between the waste collector and the waste recycler, together with an economic value for the entire value chain through to end user back into the market.

This data can now be used to determine the most appropriate waste based economic instrument to use which will not exceed the deemed economic values established.

In conclusion, although there are no direct subsidies available currently from a national government source, it has been indicated that a progressive capital improvement programme

linked to a subsidy stimulus programme for recycling should lead to long-term provincial benefits in the waste management realm.

8 REFERENCES

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9 APPENDIX

9.1 The Terms of Reference – Rand International Capital

GIBB have been commissioned to prepare an Eastern Cape Recycling Strategy for DEDEAT. The scope of works as per the TOR was:

- Identify and remove barriers to recycling in the Province,
- Develop a framework for exchange of information between private organisations and provincial government,
- Set informed recycling targets,
- Encourage implementation of recycling initiatives, and
- Develop a practical institutional framework to introduce government subsidies for infrastructure, transport and initial stimulation of markets for recycled products.

GIBB have developed a draft report which now requires information on the economics behind recycling in order to inform the strategy and direction that could be followed with this initiative.

An overview of the direction the economic study could take is as follow:

- An overview of the economic contribution of recycling to the province. This work would probably need to have reference to the various national studies which look at the economic potential of recycling but, none of which focus on the Eastern Cape
- Determination of the volumes and type of waste needed to make a recycling business viable. The recycling companies we have spoken to say that profit margins are low and that they are financially constrained by transport costs, amongst others. It has been noted

that DEDEAT are under the impression that recycling companies are highly profitable. The true status of the recycling industry needs to be ascertained.

- Overview of economic instruments which could be used to increase recycling in the province.
- The potential costs and benefits of these recycling economic instruments to both the industry and government from a provincial perspective.

The Eastern Cape Recycling Strategy - RIC Scope of Work

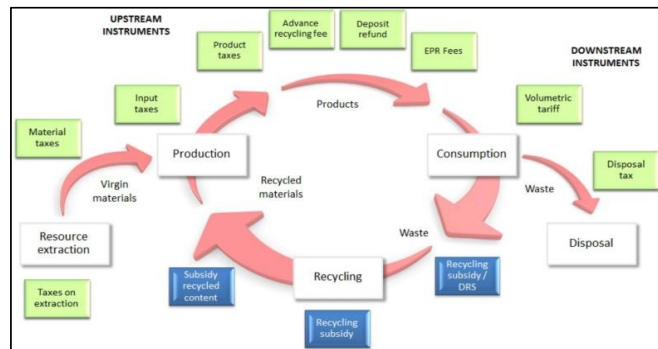
The economic impact assessment is reliant on certain of the current and previous work undertaken and specifically the recycling profile as generated for the Eastern Cape and the various District Municipalities. The profile will be contextualised against various national and international studies and benchmarks in order to establish a credible econometric model to investigate the various policy instruments available. A theoretical portrayal of the South African recycling value chain and policy instruments is contained in the figure alongside:

Figure 6: South African Recycling Policy Instruments

Source: Department of

Environmental Affairs (DEA), 2017.

A high level methodological overview for evaluating the potential economic impact of the course of action in the area is contained in the following section:-



- The economic contribution of recycling to the provincial economy:
 - Assist with establishing a credible model for the recycling potential in the EC,
 - Gross Domestic Product (GDP) impacts of recycling in the EC,
 - Total turnover or economic activity of recycling in the EC,
 - Total employment creation, current and potential in the EC.
- An overview of economic policies and instruments which could be used to assist with the implementation of a recycling policy:
 - The current state of recycling policy and instruments, internationally and nationally,
 - An overview of the potential results and impacts of various policy initiatives,
 - The value chain and stakeholders to be engaged with for each initiative, and
 - The potential economic impact and financial flows for the various policies.
- A synopsis of the economic evaluation findings and recommendations:
 - A high level overview of the recycling economy in the Eastern Cape, and
 - A high level economic policy overview with strategic recommendations.

9.2 Economic Instruments – Incentives Created & Typical Applications

The Department of Environmental Affairs (DEA) has outlined the following waste policy instruments in their national pricing strategy document of 2016.

Table 13: SA Waste Policy Economic Instruments for MSW - Upstream

#	Instrument	Incentive Created	Typical Applications
1	Material and input taxes	Increase relative prices of virgin materials (or materials that are difficult to recycle, or that contain toxic properties) used as inputs in production; so as to provide incentives to use recycled (or recyclable, or less toxic) materials as alternatives	Virgin materials; packaging; hazardous materials
2	Product Taxes	Levied at the point of production or final sale, in order to internalise external costs in product prices, with the aim of changing producer or consumer behaviour (reducing supply and / or demand).	Tyres and WEEE (some OECD countries), fuels, motor vehicles, batteries (particularly car batteries), packaging, and non-biodegradable plastic bags (e.g. Ireland, Italy, south Africa).
3	Advance recycling fees	Similar to product taxes; although main aim is to raise revenue to cover costs of recycling.	Used oil (South African Rose Foundation), oil containers and oil filters (e.g. California and Western Canada), batteries (USA) and WEEE (California, China)
4	Deposit-refund scheme	Deposit is paid upon purchase (thereby providing similar incentive effects as product tax) and is refunded upon return of the used product or packaging for recycling or re-use, thereby providing an incentive to return recyclable or reusable items rather than throw them away.	Glass and plastic beverage containers and steel beverage cans (various countries, including South Africa); batteries; tyres, fluorescent light bulbs, and cars (e.g. Sweden and Norway).
5	EPR Fees	EPR fees are fees paid by producers and importers (the obligated industry) to fund EPR schemes. Their main aim is to raise revenue that can drive behavioural changes of producers.	EPR schemes for e.g. WEEE, tyres, paper and packaging, lighting, paint, cars, batteries, oil, medicines

Source: DEA, 2016. National Pricing Strategy for Waste Management.

Table 14: SA Waste Policy Economic Instruments for MSW - Downstream

#	Instrument	Incentive Created	Typical Applications
6	Volumetric tariffs	Puts a price on each unit of waste collected from waste generators (such as households), thereby providing an incentive for the household to reduce the amount of waste generated or put out for collection, and to seek alternatives such as recycling or reuse. May further seek to internalise external (social and environmental) costs, thereby providing further incentives to reduce waste generation.	Volume or weight-based waste collection charges have been used by some municipalities in the European Union, South Korea, the United States, Canada and Australia.
7	Waste disposal taxes	Internalise the external costs of waste disposal into the disposal fees (e.g. landfill tipping fees), thereby increasing the cost of disposal relative to waste prevention, recycling and recovery, and in turn making the latter relatively more financially viable.	The UK and some EU Member States levy a weight-based landfill tax on disposal to landfill, on top of the normal tipping fee (in combination with a ban on certain waste streams to landfill).

Source: DEA, 2016. National Pricing Strategy for Waste Management.

9.3 Socio-Economic Profile of the Eastern Cape - Population

Metropolitan or District Municipality	Local Municipality	Population 2011 (Census 2011)	Population 2016 (Community Survey)	% change	% total (2016)
Nelson Mandela Bay Metropolitan Municipality		1,152,115	1,263,051	9.6	18.05
Buffalo City Metropolitan Municipality		781,027	834,997	6.9	11.93
Alfred Nzo	Matatiele Local Municipality	2,038,443	219,447	7.7	3.14
District Municipality	Mbizana Local Municipality	281,905	319,948	13.5	4.57
	Ntabankulu Local Municipality	123,821	128,848	4.1	1.84
	Umzimvubu Local Municipality	191,775	199,620	4.1	2.85
Amathole	Amahlathi Local Municipality	101,035	101,826	0.8	1.46
District Municipality	Great Kei Local Municipality	30,832	31,692	2.8	0.45
	Mbhase Local Municipality	261,773	277,250	5.9	3.96
	Mnquma Local Municipality	245,526	246,813	0.5	3.53
	Ngqushwa Local Municipality	65,248	63,694	-2.4	0.91
	Raymond Mhlaba Local Municipality	151,379	159,515	5.4	2.28
Chris Hani	Emalahleni Local Municipality	120,758	124,532	3.1	1.78
District Municipality	Engcobo Local Municipality	155,513	162,014	4.2	2.32
	Enoch Mgijima Local Municipality	250,776	267,011	6.5	3.82
	Intsika Yethu Local Municipality	151,587	152,159	0.4	2.17
	Inxuba Yethemba Local Municipality	65,560	70,493	7.5	1.01
	Sakhisizwe Local Municipality	62,284	63,846	2.5	0.91
Joe Gqabi	Elundini Local Municipality	137,039	144,929	5.8	2.07
District Municipality	Senqu Local Municipality	134,150	140,720	4.9	2.01
	Walter Sisulu Local Municipality	77,477	87,263	12.6	1.25
OR Tambo	Inqguza Hill Local Municipality	278,481	303,379	8.9	4.34
District Municipality	King Sabata Dalindyebo Local Muni.	156,136	488,349	8.5	6.98
	Mhlontlo Local Municipality	190,751	189,176	-0.8	2.70
	Port St John's Local Municipality	156,136	166,779	6.8	2.38
	Nyandeni Local Municipality	290,390	309,702	6.7	4.43
Sarah Baartman	Blue Crane District Municipality	36,002	36,063	0.2	0.52
District Municipality	Dr Beyers Naude Local Municipality	79,292	82,197	3.7	1.17

	Kouga Local Municipality	98,558	112,941	14.6	1.61
	Koukamma Local Municipality	40,663	43,688	7.4	0.62
	Makana Local Municipality	80,390	82,060	2.1	1.17
	Ndlambe Local Municipality	61,176	63,180	3.3	0.90
	Sundays River Valley Local Muni.	54,504	59,793	9.7	0.85
	Total	8,102,502	6,996,975		
Source: Statistics SA (2018). Population Profile Eastern Cape Community Survey 2016. Report 03-01-08					

9.4 Socio-Economic & Waste Profile of the Eastern Cape – Two Districts

Income Group	District	Kg of waste per day / Person	Alfred Nzo						Nelson Mandela Bay (NMB)					
			No. households	% of households	No. persons	Generation kg/day	Generation kg/annum	Generation tonnes/p.a.	No. houses	% households	No. persons	Generation kg/day	Generation kg/ annum	Generation tonnes/p a.
	Annual Income & Number													
	R 0 - R2400	0.41	26	0.0%	128	52.66	19,222	19	32	0.0%	116	48	17,389	17
	R 2400 - R 6000	0.41	435	0.2%	2,145	880	321,053	321	710	0.2%	2,577	1,056	385,592	386
	R 6000 - R12000	0.41	4,500	2.6%	22,190	9,088	3,320,666	3,321	6,480	1.9%	23,518	9,642	3,519,470	3,519
Low Income	R 12000 - R 18000	0.41	8,490	4.8%	41,865	17,165	6,265,081	6,265	13,300	3.8%	48,270	19,791	7,223,609	7,224
	R 18000 - R 30000	0.41	25,600	14.5%	126,236	51,767	18,891,221	18,891	36,600	10.5%	132,834	54,462	19,878,580	19,879
	R 30000 - R 42000	0.41	26,900	15.3%	132,647	54,385	19,850,614	19,851	36,200	10.4%	131,381	53,866	19,661,212	19,661
	R 42000 - R 64000	0.41	23,600	13.4%	116,374	47,713	17,415,312	17,415	31,700	9.1%	115,050	47,171	17,217,240	17,217
	R 64000 - R 72000	0.41	24,000	13.6%	118,346	48,522	17,710,520	17,711	34,200	9.8%	124,123	50,890	18,574,939	18,575
	R 72000 - R 96000	0.74	19,200	10.9%	94,677	70,061	25,572,263	25,572	30,600	8.8%	111,058	82,183	29,996,644	29,997
	R 96000 - R 132000	0.74	14,600	8.3%	71,994	53,275	19,445,487	19,445	29,400	8.4%	106,703	78,960	28,820,358	28,820
Medium Income	R 132000 - R 192000	0.74	11,000	6.3%	54,242	40,139	14,650,864	14,651	29,700	8.5%	107,791	79,766	29,114,430	29,114
	R 19200 - R 360000	0.74	9,670	5.5%	47,684	35,286	12,879,427	12,879	42,900	12.3%	155,699	115,217	42,054,252	42,054
	R 360000 - R 600000	0.74	4,640	2.6%	22,880	16,931	6,179,987	6,180	28,400	8.2%	103,073	76,274	27,839,893	27,840
	R 600000 - R 1200000	0.74	2,620	1.5%	12,920	9,561	3,489,663	3,490	20,300	5.8%	73,675	54,520	19,899,625	19,900
High Income	R 120000 - R 240000	1.29	654	0.4%	3,225	4,160	1,518,483	1,518	6,410	1.8%	23,264	30,011	10,953,919	10,954
	R 2400000+	1.29	63	0.0%	311	401	146,291	146	1,080	0.3%	3,919	5,056	1,845,378	1,845

Total		175,998	100%	867,864	459,387	167,676,153	167,676	348,012	100.0%	1,263,051	758,911	277,002,529	277,003
Source: ECSECC (2017), Amathole District Municipality Socio economic review and outlook, 2017													
Note: Data sourced from ECSECC reports. Does not match Stats SA Community Survey 2016 figures.													

9.5 Baseline Assumptions for the Waste Profile - Eastern Cape

<u>EC Waste Recycling Analysis - Baseline Assumptions</u>													
Baseline Assumptions Per EC District													
Households Per District	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total				
	175,998	227,208	221,067	126,220	104,958	321,396	246,736	348,012	1,771,595				
People Per District	867,864	880,790	840,055	479,923	372,912	1,457,384	834,997	1,263,051	6,996,976				
Waste Generation Per Day - Tons	459	479	463	288	203	782	487	759	3,919				

- Average per Person / Day - Kg	0.53	0.54	0.55	0.60	0.54	0.54	0.58	0.60	0.56	
Waste Generation Per Year - Tons MSW	167,676	174,724	169,083	105,066	74,082	285,289	177,618	277,003	1,430,540	
- Average per Person / Year - Tons	0.19	0.20	0.20	0.22	0.20	0.20	0.21	0.22	0.20	
Waste Available for Recycling	75,640	78,324	75,714	46,770	25,961	128,014	79,222	123,292	632,937	
- Percentage of Total Waste	45%	45%	45%	45%	35%	45%	45%	45%	44%	
Estimated Recycling Rate - Tons	36,470	37,820	36,596	22,729	12,280	61,758	38,431	59,924	306,008	
- Percentage of Recycled Waste	48%	48%	48%	49%	47%	48%	49%	49%	48%	
Source: Gibb Interpretation of StatsSA Community Survey 2016, EC IWMP, ECSECC 2017 Socio Economic Review and Outlook (SERO)										
Summary of 'Waste Available' for Recycling - Tons (45% of 'All MSW')										
										(Based on population, income level and domestic waste profile)
	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total	% Of Total
High quality paper	2,864	2,970	2,874	1,786	963	4,850	3,020	4,709	24,036	3.8%
Paper other	10,613	11,008	10,652	6,619	3,567	17,973	11,190	17,451	89,074	14.1%
Corrugated cardboard	4,885	5,067	4,903	3,047	1,642	8,273	5,151	8,033	41,002	6.5%
Non-corrugated cardboard	7,412	7,688	7,440	4,623	2,492	12,553	7,815	12,188	62,210	9.8%
Glass	13,309	13,803	13,358	8,300	4,473	22,538	14,032	21,883	111,696	17.6%
Metal packaging	6,739	6,989	6,763	4,203	2,265	11,412	7,105	11,080	56,555	8.9%
Plastic PET	5,222	5,416	5,242	3,257	1,755	8,844	5,506	8,587	43,830	6.9%
Plastic PE-HD	6,907	7,164	6,932	4,308	2,322	11,697	7,282	11,357	57,969	9.2%
Plastic PVC	1,516	1,573	1,522	946	510	2,568	1,599	2,493	12,725	2.0%

Plastic PE-LD	6,402	6,640	6,425	3,993	2,152	10,841	6,749	10,526	53,727	8.5%
Plastic PP	3,201	3,320	3,213	1,996	1,076	5,420	3,375	5,263	26,864	4.2%
Plastic polystyrene	842	874	845	525	283	1,426	888	1,385	7,069	1.1%
e-waste	5,728	5,813	5,544	3,167	2,461	9,619	5,511	8,336	46,180	7.3%
Total - Recyclable	75,640	78,324	75,714	46,770	25,961	128,014	79,222	123,292	632,937	100.0%
% Share - DM of EC	12.0%	12.4%	12.0%	7.4%	4.1%	20.2%	12.5%	19.5%	100.0%	

Source: Gibb interpretation of StatsSA Community Survey 2016, EC IWMP, ECSECC 2017 Socio Economic Review and Outlook (SERO)

9.6 Recycling Profile & Assumptions for Monetary Value - Eastern Cape

Potential for MSW to be Recycled - Tons (48% of Waste Available)										
Estimated Recycling Rates - Tons	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total	% Of Waste
High quality paper	1,947	2,020	1,955	1,215	655	3,298	2,053	3,202	16,344	68.0%
Paper other	7,217	7,485	7,243	7,609	11,867	60,570	19,880	3,446	3,834	2,072
Non-corrugated cardboard	5,628	5,462	5,228	3,144	1,694	8,536	5,314	8,288	42,303	13.8%
Glass	5,034	5,221	5,728	3,445	1,856	9,353	5,823	9,082	46,354	41.5%
Metal packaging	5,034	5,221	5,728	3,445	1,856	9,353	5,823	9,082	46,354	41.5%
Plastic PE-LD	1,927	1,999	1,934	1,202	648	3,263	2,032	3,169	16,173	27.9%
Plastic PVC	143	148	143	89	48	241	150	234	1,196	9.4%
Plastic PE-LD	2,100	2,178	2,107	1,310	706	3,556	2,214	3,453	17,622	32.8%
Plastic PP	474	491	475	295	159	779	397	67	70	68
114	71	111	566	8.0%	0.2%	e-waste	229	233	222	127
36,596	22,729	12,280	61,758	38,431	59,924	306,098	48.3%	100.0%	36,470	37,820

Source: Gibb interpretation of StatsSA Community Survey 2016, EC IWMP, ECSECC 2017 Socio Economic Review and Outlook (SERO)

Estimated Values in Rm - Recycling										
Estimated Values in Rm - Recycling	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total	% of Total
High quality paper	4.67	4.85	4.69	2.91	1.57	7.92	4.93	7.69	6.44	6.68
2.17	10.91	6.79	10.59	54.08	10.3%	893	39.23	7.5%	2,400	6.47
Corrugated cardboard	0.80	0.83	0.80	0.50	0.27	1.35	0.84	1.31	6.69	1.3%
Non-corrugated cardboard	2.42	2.51	2.43	1.51	0.81	4.10	2.55	3.98	20.31	3.9%
Glass	3.25	3.37	3.26	2.03	1.09	5.40	3.42	5.34	27.26	5.2%
23.22	14.46	22.55	115.08	22.0%	2,724	588	588	588	13.71	13.76
Plastic PEI	14.17	14.69	14.22	8.84	4.76	23.99	14.94	23.29	118.89	22.7%
Plastic PE-LD	6.34	6.57	6.36	3.95	2.13	10.73	6.88	10.42	53.18	10.1%
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Plastic PVC	0.43	0.44	0.43	0.27	0.14	0.72	0.45	0.70	3.59	0.7%	3.000
Plastic PE-LD	7.76	8.05	7.79	4.84	2.61	13.14	8.18	12.76	65.13	12.4%	3.696
Plastic PP	1.84	1.90	1.84	3.02	15.41	2.9%	3.876	Plastic polystyrene	0.20	0.21	0.13
0.07	0.34	0.21	0.33	0.47	0.25	0.20	0.77	0.44	0.67	3.69	0.7%
- Rand Millions	62.48	64.79	62.69	38.93	21.04	105.80	65.83	102.65	524.23	100.0%	1,713
- Percentage of EC Total	11.9%	12.4%	12.0%	7.4%	4.0%	20.2%	12.6%	19.6%	100.0%		

Note: These calculations are based upon South African national recycling rates and monetary yields. These are the prices that 'Recyclers' are prepared to pay 'Waste collectors'.

9.7 Recycling Values for all EC DMs – Including Avoided Cost & Externalities

Benefits From Recycling - Scenarios	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total	% of Total
Tonnage Recycled - Baseline	36,470	37,820	36,596	22,729	12,280	61,758	38,431	59,924	306,008	
Resource Value - Per Ton Recycled	1,713	1,713	1,713	1,713	1,713	1,713	1,713	1,713	1,713	
Resource Value - Rm	62.48	64.79	62.69	38.94	21.04	105.80	65.84	102.66	524.23	83.2%
Avoided Cost - Landfill - Rm	7.29	7.56	7.32	4.55	2.46	12.35	7.69	11.98	61.20	9.7%
Avoided Externalities - Landfill - Rm	5.31	5.50	5.33	3.31	1.79	8.99	5.59	8.72	44.53	7.1%
Total Recycling Value - Baseline	75.08	77.86	75.34	46.79	25.28	127.14	79.12	123.36	629.96	100.0%
Total Recycling Value - Scenario 1	84.80	87.94	85.09	52.85	28.55	143.60	89.36	139.34	711.53	112.9%
Total Recycling Value - Scenario 2	94.09	97.57	94.41	58.64	31.68	159.33	99.14	154.59	789.45	125.3%
Total Recycling Value - Scenario 3	103.37	107.20	103.73	64.43	34.81	175.05	108.93	169.85	867.37	137.7%
- Percentage of Total EC	11.9%	12.4%	12.0%	7.4%	4.0%	20.2%	12.6%	19.6%	100.0%	

9.8 Recycling Resource Values for EC – Baseline and Three Scenarios

		Quantities Recycled - Tons / Year				Price / Ton	Values (Rand / Year)				% Of 'All'
		Baseline	Scenario 1	Scenario 2	Scenario 3		Baseline	Scenario 1	Scenario 2	Scenario 3	
Estimated Values - Ton & Rm - Recycling	All Potential	24,036	18,796	20,214	21,632	2,400	39,23	45,11	48,51	51,92	90,0%
High quality paper		89,074	69,656	74,911	80,166	893	54,08	62,19	66,88	71,57	90,0%
Paper other		41,002	32,064	34,483	36,902	240	6,69	7,70	8,28	8,86	90,0%
Corrugated cardboard		62,210	48,648	52,319	55,989	480	20,31	23,35	25,11	26,87	90,0%
Non-corrugated cardboard		111,696	53,307	68,539	83,772	588	27,26	31,34	40,30	49,26	75,0%
Glass		56,555	46,471	48,685	50,899	2,724	115,08	126,59	132,62	138,65	90,0%
Metal packaging		43,830	31,821	33,442	35,064	4,110	118,89	130,78	137,45	144,11	80,0%
Plastic PET		57,969	18,599	20,893	23,187	3,288	53,18	61,15	68,70	76,24	40,0%
Plastic PE-HD		12,725	1,196	1,960	2,545	3,000	3,59	4,13	5,88	7,63	20,0%
Plastic PVC		53,727	20,266	22,222	24,177	3,696	65,13	74,90	82,13	89,36	45,0%
Plastic PE-LD		26,864	3,976	6,316	8,059	3,876	15,41	17,72	24,48	31,24	30,0%
Plastic PP		7,069	566	1,739	2,828	3,000	1,70	1,95	5,22	8,48	40,0%
Plastic polystyrene		46,180	2,124	4,526	6,927	2,000	3,69	4,25	9,05	13,85	15,0%
e-waste											
Totals		632,937	348,350	390,249	432,149		524,23	591,17	654,61	718,05	

- Percentage of 'Full Potential' - Recyclable	100.0%	48.3%	55.0%	61.7%	68.3%				
Price Per Ton - Average						1,713	1,697	1,677	1,662
	Resource Value - Rand Mil / Year								
	Baseline	Scenario 1	Scenario 2	Scenario 3					
Benefits From Recycling - Rand Mil									
Resource Value	524.23	591.17	654.61	718.05					
Avoided Cost - Landfill	61.20	69.67	78.05	86.43					
Avoided Externalities - Landfill	44.53	50.69	56.79	62.89					
Total Recycling Value	629.96	711.53	789.45	867.37					
Benefit of Increased Recycling		81.57	159.49	237.41					
- % Increase On Baseline		13%	25%	38%					

9.9.9 EC Economic Impact Per DM of the Recycling Activity – At ‘Recycling Point’

Potential for MSW to be Recycled - Tons (48% of 'Waste Available')									
Estimated Recycling Rates - Tons	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total
TOTALS	36,470	37,820	36,596	22,729	12,280	61,758	38,431	59,924	306,008
Source: Gibb interpretation of StatsSA Community Survey 2016, EC IWMP, ECSECC 2017 Socio Economic Review and Outlook (SERO)									
Estimated Values in Rm - Recycling	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total
Totals - Rand Millions	62.48	64.79	62.69	38.93	21.04	105.80	65.83	102.65	524.23
- Percentage of EC Total	11.9%	12.4%	12.0%	7.4%	4.0%	20.2%	12.6%	19.6%	100.0%
Note: These calculations are based upon SA national recycling rates and monetary yields. These are the prices that 'Recyclers' are prepared to pay 'Waste collectors'.									
EC Waste Recycling - Economic Impact Assessment									
Estimated Values - EC Recycling	Alfred Nzo	Amathole	Chris Hani	Sarah Baar	Joe Gqabi	O.R. Tambo	Buffalo City	NMB	EC Total
Tons Recycled	36,470	37,820	36,596	22,729	12,280	61,758	38,431	59,924	306,008
Value to Recyclers - R m - Resource Value	62	65	63	39	21	106	66	103	524
Downstream Value to Industry - R m	108	112	108	67	36	183	114	178	907
Gross Domestic Product (GDP) - R m	135	140	136	84	46	229	143	222	1,136
- Direct Impact	74	77	75	46	25	126	78	122	623
- Indirect impact	16	17	16	10	5	27	17	27	136
- Induced Impact	45	47	45	28	15	76	47	74	377
Note: The multipliers used are the IDC multipliers for 2015 for the 'Total Economy' for GDP									

[illegible]

Note: The multipliers used are the IDC multipliers for 2015, adjusted for inflation for the 'Total Economy' for Employment

9.10 Summary of Funding Agencies for Waste Management Projects

Fund Name	Funding Agency	Qualifying Recipients	Purpose and type of projects funded (waste specific)	What is funded/ not funded	Funding cycle
South Africa					
The Green Fund	DEA with DBSA as implementing agent	Municipalities	Sustainable waste management and recycling	Project development and / or investment in green projects and programmes; Capacity building. All funded.	
The Cooperative Incentive Scheme (CIS)	Department of Trade & Industry	Primary co-operatives	Feasibility assessments, business, manufacturing etc. project up to a maximum value of R350,000	Business Development; Technology improvements, Machinery, commercial vehicles, infrastructure (electricity, boreholes etc.)	
DBSA Fund	DBSA	Municipalities, stateowned enterprises, public-private partnerships, publicpublic partnerships and private sectors.	Physical, social and economic infrastructure projects. DBSA's goal is to improve the quality of life of the people of the region.	Municipal operations, maintenance and capacity building.	

The Jobs Fund	Government Technical Advisory Committee (GTAC)	Public, private and nongovernmental organisations	Activities that significantly contribute to job creation. Minimum funding requests are R10 million	<ul style="list-style-type: none"> Enterprise development Infrastructure investment Support for work seekers Institutional capacity building 	
Expanded Public Works (EPWP) Incentive Grants.	National Department Public Works (DPW)	Municipalities	Labour intensive work, including waste and environmental projects.	Salary payments for temporary workers. Workers must not be paid less than R50/day	Annual
Municipal Infrastructure Grant (MIG)	National Treasury	Municipalities	All infrastructure related needs	Physical infrastructure	
Infrastructure Finance Corporation Limited (INCA)	Corporate Investment (CSI)	Municipalities	All infrastructure related needs	Capacity building, socioeconomic development and infrastructure projects	
Small Enterprise Finance Agency (SEFA)	Department of Small Business Development	Qualifying SMMEs and Co-operatives	For social development and to advance the human rights of women	Financial products and services provide to the following sectors: <ul style="list-style-type: none"> Services Manufacturing Agriculture 	Ongoing

Fund Name	Funding Agency	Qualifying Recipients	Purpose and type of projects funded (waste specific)	What is funded/ not funded	Funding cycle
National Empowerment Fund (NEF)	National Empowerment Fund (NEF)	Black entrepreneurs	Support Broad-Based Black Economic Empowerment (BB-BEE)	<ul style="list-style-type: none"> Construction Mining Green industries Various 	Ongoing

National Development Agency (NYDA)	Youth Development Agency (NYDA)	Formal and informal businesses, co-operatives	Youth development	Individual grants awarded to formal and informal businesses that are in startup or development phase of their business	Ongoing
International					
Austrian Development Coordination	Austrian Embassy	Civic, community and local government structures	Capacity building of civil, community and local government structures.	Empowerment of civil society, poverty reduction needs of children and people with disabilities	Ongoing
British Foreign & Commonwealth Office Global opportunity fund (FCO Global Opportunity Fund)	British Embassy	Partners from civil society, NGO's and others.	Support of the country's specific developmental needs. Government affiliated social development initiatives.	Depends on nature and merit of application	Ongoing
French Development Aid	French Agency for Development	Various, including municipalities	Development of basic infrastructures and essential services	Infrastructure, water connections, sanitation.	
Development cooperation	German Technical Cooperation (GTZ)		Rural development, social development, environment and climate change.	Various. Depends on nature and merit of application	Ongoing
Tirelo Boscha, Public Service Improvement Facility	Belgium Development Agency (BTC South Africa) Hosted by SA Dept. of Public Service and Administration	All government departments, their implementing agencies and non-state actors involved in public service delivery.	Any public service delivery related projects, particularly research and pilot projects focusing on public service delivery.	Implementation costs including fees, travel costs, supplies. Infrastructure costs are not funded.	Application windows open approximately annually.
Overseas Development Assistance	Japan International Cooperation Agency (JICA)	Governments and their agencies.	Various including community development,	Various	Ongoing
Fund Name	Funding Agency	Qualifying Recipients	Purpose and type of projects funded (waste specific)	What is funded/ not funded	Funding cycle

Development cooperation	Swedish International Development Cooperation Agency (SIDA)	Municipalities	environment, infrastructure projects	Grants, training and technical assistance.	Ongoing
Turkish International Cooperation and Development Agency (TIKA)	Turkish Embassy	Municipalities	Economic and social development	Grants for various needs, including infrastructure and construction projects.	Ongoing
Abu Dhabi Fund for Development	UAE Embassy	Municipalities	Economic and social development in developing countries. Financing for development projects.	Various	Ongoing
UNDP Small Grants Programme and other UNDP and partner funds.	United Nations Development Programme.	Municipalities	Enhancing service delivery, economic development, sustainable development, and enhancing social services.	Various	Ongoing
USAID	US Agency for International Development	Municipalities	To develop health, economic growth, education and democracy.	Various	Ongoing
European Bank (EIB)	Corporate Investment (CSI)	Public and private sector investments, and mixed public-private ventures	Under an agreement with the South African Government, it finances: <ul style="list-style-type: none"> • Productive investment • Infrastructure, including municipal infrastructure Assisting development in South Africa	Provides finance and expertise for projects supporting innovation, SMEs, infrastructure and climate action	Ongoing

Source: Gibb Engineers, 2019. Eastern Cape Provincial Recycling Strategy.

LOCAL AUTHORITY NOTICES • PLAASLIKE OWERHEIDS KENNISGEWINGS**LOCAL AUTHORITY NOTICE 678 OF 2023****Nelson Mandela Bay Municipality (EASTERN CAPE)****Removal of Restrictions in terms of the Spatial Planning and Land Use Management Act, 2013
(Act 16 of 2013)****ERF 75, NEWTON PARK, PORT ELIZABETH, EASTERN CAPE**

Under Section 47 of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) and upon instructions by the Local Authority, a notice is hereby given that conditions C. 1 to C.3 and C.5 to C.9 in Deed of Transfer No. T20904/2019 and any subsequent deed applicable to Erf 75, Newton Park is hereby removed.

LOCAL AUTHORITY NOTICE 679 OF 2023**KOUGA MUNICIPALITY (EC 108)****SPATIAL PLANNING & LAND USE MANAGEMENT BY-LAW, 2016: KOUGA MUNICIPALITY****Erf 79 Oesterbaai, EASTERN CAPE**

In terms of Section 69 of the Spatial Planning & Land Use Management By-law and upon instructions by the Local Authority, a notice is hereby given that conditions in Paragraph B.6(b); B.6(c) and B.6(d) in Deed of Transfer Number T9101/2021 applicable to Erf 69 are hereby removed.

Closing times for **ORDINARY WEEKLY** **2023** **EASTERN CAPE PROVINCIAL GAZETTE**

*The closing time is **15:00** sharp on the following days:*

- **23 December**, Friday for the issue of Monday **02 January 2023**
- **30 December**, Friday for the issue of Monday **09 January 2023**
- **09 January**, Monday for the issue of Monday **16 January 2023**
- **16 January**, Monday for the issue of Monday **23 January 2023**
- **23 January**, Monday for the issue of Monday **30 January 2023**
- **30 January**, Monday for the issue of Monday **06 February 2023**
- **06 February**, Monday for the issue of Monday **13 February 2023**
- **13 February**, Monday for the issue of Monday **20 February 2023**
- **20 February**, Monday for the issue of Monday **27 February 2023**
- **27 February**, Monday for the issue of Monday **06 March 2023**
- **06 March**, Monday for the issue of Monday **13 March 2023**
- **13 March**, Monday for the issue of Monday **20 March 2023**
- **17 March**, Friday for the issue of Monday **27 March 2023**
- **27 March**, Monday for the issue of Monday **03 April 2023**
- **31 March**, Friday for the issue of Monday **10 April 2023**
- **06 April**, Thursday for the issue of Monday **17 April 2023**
- **17 April**, Monday for the issue of Monday **24 April 2023**
- **21 April**, Friday for the issue of Monday **01 May 2023**
- **28 April**, Friday for the issue of Monday **08 May 2023**
- **08 May**, Monday for the issue of Monday **15 May 2023**
- **15 May**, Monday for the issue of Monday **22 May 2023**
- **22 May**, Monday for the issue of Monday **29 May 2023**
- **29 May**, Monday for the issue of Monday **05 June 2023**
- **05 June**, Monday for the issue of Monday **12 June 2023**
- **09 June**, Friday for the issue of Monday **19 June 2023**
- **19 June**, Monday for the issue of Monday **26 June 2023**
- **26 June**, Monday for the issue of Monday **03 July 2023**
- **03 July**, Monday for the issue of Monday **10 July 2023**
- **10 July**, Monday for the issue of Monday **17 July 2023**
- **17 July**, Monday for the issue of Monday **24 July 2023**
- **24 July**, Monday for the issue of Monday **31 July 2023**
- **31 July**, Monday for the issue of Monday **07 August 2023**
- **04 August**, Friday for the issue of Monday **14 August 2023**
- **14 August**, Monday for the issue of Monday **21 August 2023**
- **21 August**, Monday for the issue of Monday **28 August 2023**
- **28 August**, Monday for the issue of Monday **04 September 2023**
- **04 September**, Monday for the issue of Monday **11 September 2023**
- **11 September**, Monday for the issue of Monday **18 September 2023**
- **18 September**, Monday for the issue of Monday **25 September 2023**
- **22 September**, Friday for the issue of Monday **02 October 2023**
- **02 October**, Monday for the issue of Monday **09 October 2023**
- **09 October**, Monday for the issue of Monday **16 October 2023**
- **16 October**, Monday for the issue of Monday **23 October 2023**
- **23 October**, Monday for the issue of Monday **30 October 2023**
- **30 October**, Monday for the issue of Monday **06 November 2023**
- **06 November**, Monday for the issue of Monday **13 November 2023**
- **13 November**, Monday for the issue of Monday **20 November 2023**
- **20 November**, Monday for the issue of Monday **27 November 2023**
- **27 November**, Monday for the issue of Monday **04 December 2023**
- **04 December**, Monday for the issue of Monday **11 December 2023**
- **11 December**, Monday for the issue of Monday **18 December 2023**
- **18 December**, Monday for the issue of Monday **25 December 2023**

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