Western Cape Government
Environmental Affairs & Development Planning

Annual State of Waste Management Report

Western Cape - 2017

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SCHEDULE OF ACRONYMS

2W2W	2Wise2Waste
CoCT	City of Cape Town
CFCS	Consumer Formulated and Chemical Sector
CKDM	Central Karoo District Municipality
CWDM	Cape Winelands District Municipality
CSIR	Council for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DM	District Municipality
EDM	Eden District Municipality
EMDC	Education Management District Centre
EPIP	Environmental Protection and Infrastructure Programmes
EPWP	Extended Public Works Programme
HCRW	Health Care Risk Waste
HCRWMR	Health Care Risk Waste Management Regulations
HCWMA	Health Care Waste Management Act
HCWMAA	Health Care Waste Management Act Amendment
IDP	Integrated Development Plan
IPWIS	Integrated Pollutant and Waste Information System
IPWM	Integrated Pollution and Waste Management
IIWMTMP	Integrated Industry Waste Tyre Management Plan
IWMPs	Integrated Waste Management Plans
MEC	Member of Executive Council
MIG	Municipal Infrastructure Grant
MRF	Materials Recovery Facility
MSA	Municipal Systems Act (Act 32 of 2000)
NEMA	National Environmental Management Act, 107 of 1998
NEMWA	National Environmental Management: Waste Act, 59 of 2008
NWMS	National Waste Management Strategy

ODM	Overberg District Municipality
SAWIS	South African Waste Information System
SoWR	State of Waste Report
WC IWMF	Western Cape Industry Waste Management Forum
WC WMOF	Western Cape Waste Management Officer's Forum
WC IWMP	Western Cape Integrated Waste Management Plan
WC RAG	Western Cape Recycling Action Group
WCDM	West Coast District Municipality
WCG	Western Cape Government
WDF	Waste Disposal Facility
WMO	Waste Management Officer

WESTERN CAPE 2017: AT A GLANCE
POPULATION SIZE
6 264 792
The waste economy is estimated at
R15 billion
1600 jobs
to be created in the next 5 years
The cost for Municipalities to be compliant for waste management services
R964 736 000
POLICY & LEGISLATION
National Pricing Strategy for Waste Management.
Landfill ban for all types of light bulbs
National Norms & Standards for the Disposal of Waste to Landfill
WASTE DISPOSED
1 807 878
50%
of the waste is diverted from landfill
21 DESIGNATED WMO'S
2ND PROVINCIAL INTEGRATED WASTE MANAGEMENT PLAN
GREEN WASTE GUIDELINE
STATUS QUO ON E-WASTE
WESTERN CAPE MODEL WASTE MANAGEMENT BYLAW
PUBLIC PRIVATE PARTNERSHIPS
with municipalities (AWT)
55
Operational Waste Management Facilities
HAZARDOUS WASTE DISPOSED
2 093 842
In 2017, waste generated in the Western Cape decreased by
13%
NATIONAL CALL FOR INDUSTRY WMPS
Complaints in the Western Cape have decreased by
15%

In South Africa, there is an urgent need to adopt a holistic view of waste management. Although South Africa's waste legislation is in line with global trends, enforcement and monitoring have proven difficult due to both a lack of appropriate waste expertise and practices. The South African Government has, however, mandated waste management as one of the critical areas it needs to address.

Management of municipal solid waste is a complex problem, mainly because of the constantly increasing amount of waste and its resultant financial and environmental implications. There are many challenges for municipalities apart from a limited financial budget, such as meeting service delivery goals and implementing alternative waste technologies to ensure compliance to the national waste diversion targets by 2019.

In hindsight, the current waste economy results in an industry that is estimated to be worth R15 billion in revenue and provides 29 833 people with employment. Legislation has been passed, to help unlock the potential R17 billion of material currently being landfilled that could be recycled. Coupled with this, Western Cape municipalities are gearing up to implement Public Private Partnerships, that will potentially attract a further R1.3 billion and create approximately 1 600 jobs in the next five years.

With so much opportunities, we have a responsibility to ensure waste management is optimized to ensure maximum efficiency and minimal financial costs and environmental impacts.

1. Introduction

South African faces many challenges in the waste management sector and at the same time, legislation has been developed and is becoming more robust with emphasis being placed on conserving natural resources and protecting the environment. Compliance with these legislative requirements has huge financial implications for the municipalities and the entire waste sector. Consequently, municipalities and private sectors are feeling the impact of new and more demanding environmental legislation in South Africa, particularly in light of potentially severe financial implications and a scarcity of technical expertise.

A greater awareness of relevant legislation and requirements has seen a continual increase in the registration and reporting of waste quantities to the department by waste generators, transporters, treaters and disposers. There is still a challenge in the registration of facilities and the data obtained thus far is useful, however the accuracy of the data received is questionable as estimated quantities are provided to the department. The Department has conducted waste data audits at various facilities to verify the accuracy of data and record keeping processes.

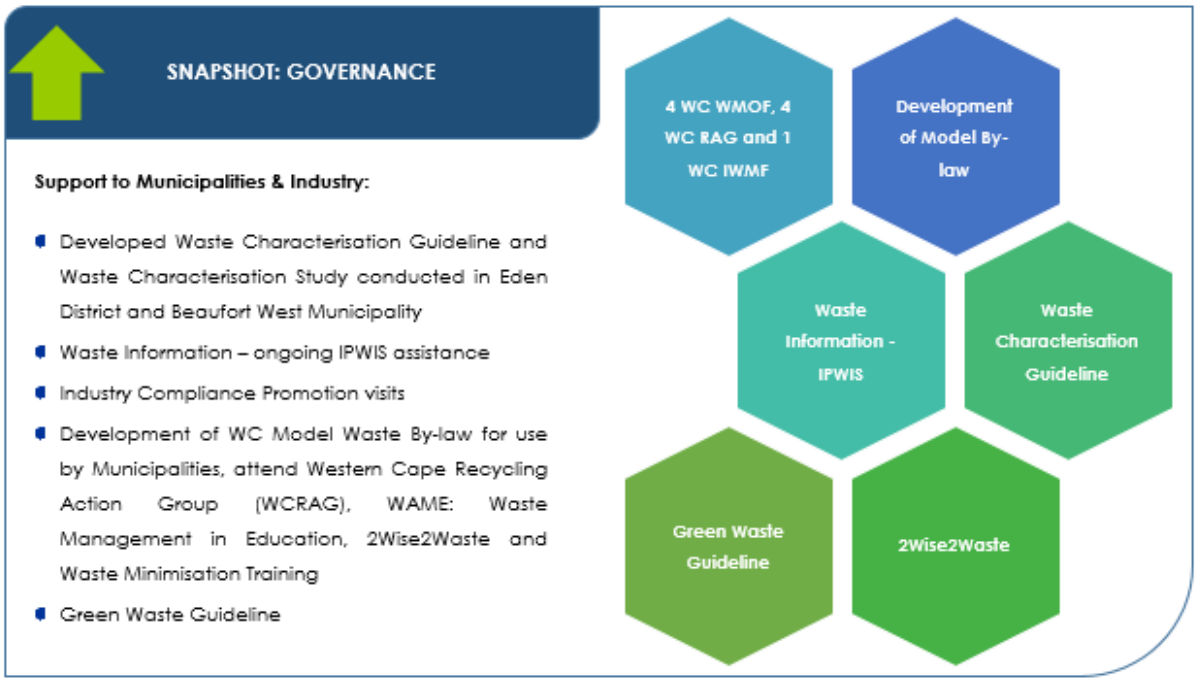
Total system planning, which involves considering a total waste system, and then developing the most appropriate mix of infrastructure and services to manage that waste stream, is an effective way of ensuring that waste management solutions are comprehensive, practical and encompass the wide variety of processes involved in each waste stream. It is therefore vital that municipalities conduct annual waste characterisation studies to determine waste streams and quantities. In addition, provision must be made for the procurement of weighbridges and accurate accounting of waste quantities to measure waste generation, diversion and disposal as per the National Waste Information Regulations, 2012. Municipalities need to review and repeal existing bylaws or develop new integrated waste management bylaws that do not hamper the growth of the waste economy and essentially, is aligned to NEMA, the Waste Act and related waste regulations. The Department has developed a Model Waste Management Bylaw to assist municipalities and will be finalised in due course.

Modern South African waste facilities are becoming more automated, technologically advanced and eco-friendly. The days of open landfills are limited as newer, healthier and safer methods of waste management are implemented in the country. Municipalities must conduct landfill airspace studies to determine the availability of remaining airspace at waste management facilities and simultaneously, the application of the waste hierarchy must be vigorously applied.

Waste is not something that should be discarded with no thought for what its purpose may be in the future. Waste could be a very beneficial resource if it is used correctly; with proper management, there is a chance for us Cape Townians to reap the rewards.

1.1 Purpose of the State of Waste Report (SoWR)

The SoWR provides an overview of the status of waste management within the Western Cape Province together with the implementation of National Environment Management: Waste Act, No. 59 of 2008 (NEMWA) and Western Cape Integrated Waste Management Plan (WCIWMP). This report focuses on information and data collected for the 2017 calendar year by Department. It highlights the programs and initiatives developed and implemented by the Department and municipalities to facilitate integrated waste management. The analysis of this information and data will influence interventions and measures the effectiveness of the interventions.



2.1. The Legislative Framework for Waste Management in South Africa

The most pertinent and important legislative requirements in terms of waste management are contained in a number of statutes and national policies. South Africa has international obligations in terms of hazardous substances and waste and has ratified four key international Multilateral Environment Agreements. Various national and provincial legislation and international obligations are listed as follows:

2.1.1. National legislation

- Constitution of the Republic of South Africa Act, No. 108 of 1996
- Municipal Structures Act, No. 117 of 1998
- Municipal Systems Act, No. 32 of 2000
- National Environmental Management Act, No. 107 of 1998
- National Environment Management: Waste Act, No. 59 of 2008
- National Environmental Management: Waste Amendment Act, No. 26 of 2014
- National Waste Management Strategy, 2011
- White Paper on Integrated Pollution and Waste Management for South Africa, 2000 (GG No. 20978 GN. No. 227)
- Hazardous Substances Act, No. 5 of 1973
- National Health Act, No. 61 of 2003
- Health Care Waste Management Amendment Act, No. 6 of 2010
- Environment Conservation Act, No. 73 of 1989
- National Water Act, No. 36 of 1998

- National Environment Management: Air Quality Act, No. 39 of 2004
- National Domestic Waste Collection Standards, 2011 (GG No. 33935 GN. No. 21)
- Waste Classification and Management Regulations, 2013 (GG No. 36784 GN. No. R. 634)
- National Norms and Standards for the Assessment of Waste for Landfill Disposal, 2013 (GG No. 36784 GN. No. R. 635)
- National Norms and Standards for Disposal of Waste to Landfill, 2013 (GG No. 36784 GN. No. 636)
- National Norms and Standards for the Storage of Waste, 2013 (GG No. 37088 GN No. 926)
- National Norms and Standards for the Scrapping or Recovery of Motor Vehicles, 2013 (GG No. 37087 GN No. 925)
- List of Waste Management Activities, 2013 (GG No. 37083 GN. No. 921)
- National Waste Information Regulations, 2012 (GG No. 35583 GN. No. R. 625)
- Integrated Tyre Waste Management Plan, 2012 (GG No. 35927)
- Plastic Carrier Bag and Plastic Flat Bag Regulations, 2003 (GG No. 24831 GN. No. R. 625)
- National Environment Management: Waste Act, No. 59 of 2008: Waste Management Plans for Approval, 2015 (GG No. 39018 GN. No. 736)
- National Environment Management: Waste Act, No. 59 of 2008: Industry Waste Management Plans, 2013 (P.N. 365/2013)
- National Environment Management: Waste Act, No. 59 of 2008: National Pricing Strategy for Waste Management, 2016 (GG No. 40200 GN No. 904)

2.1.2. Provincial legislation

- Constitution of the Western Cape, Act No. 1 of 1998
- Western Cape Health Care Waste Management Act, No. 7 of 2007
- Western Cape Health Care Risk Waste Management Regulations, 2013

2.1.3. International conventions

- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 22 March 1989
- BAN Amendment to Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 01 January 1998
- Rotterdam Convention on the Prior Informed Consent Procedure in Certain Hazardous Chemicals and Pesticides in International Trade, Rotterdam 10 September 1998
- Stockholm Convention on Persistent Organic Pollutants, Stockholm 22 May 2001
- The Montreal Protocol on Substances that Deplete the Ozone Layer, 01 January 1989

2.2. Waste Management Governance Platforms

The Waste Directorate established governance platforms to interact with various stakeholders in the waste management industry within the province. These governance platforms are:

- Western Cape Waste Management Officers Forum (WC WMOF);
- Western Cape Recycling Action Group (WC RAG); and
- Western Cape Industry Waste Management Forum (WC IWMF).

2.2.1. WC WMOF

The Department hosted three forum meetings during the 2017 financial year, these forum meeting are rotated and therefore hosted at various municipal areas to ensure all municipalities participated. Forums were conducted in Velddrif (March 2017), Oudtshoorn (August 2017), and a technical forum conducted at the Kraaifontein Materials Recovery Facility in Cape Town in November 2017. The percentage RSVP and attendance versus participation in the Integrated Waste Management Forums were 73.3% for Velddrif, 91.11% for Oudtshoorn, 108.8% for Kraaifontein. The average participation for the three forums held during 2017 was 91.07%.

The technical forum meeting hosted at Kraaifontein Materials Recovery Facility allowed municipal officials from the rest of the Western Cape to view and get practical exposure to the operations at the New Horizons waste to energy plant in Athlone, as well as the private waste management facility, Vissershok Waste Management facility (Pty) Ltd.

2.2.2. WC RAG

In 2010, a Waste Minimisation Summit brought about a resolution to initiate the Western Cape Recycling Action Group (WCRAG). The main aim being to address issues pertinent to the growth of recycling, key challenges in the sector and to coordinate various collaborative initiatives within the recycling industry bodies.

2.2.3. WC IWMF

The Department hosted the Western Cape Industry Waste Management Forum (WC IWMF) at the Tygerberg Nature Reserve on 6 September 2017.

The purpose of the forum was to:

- provide a platform for industry and government to engage on waste related matters;
- discuss waste management legislation and the impact thereof on industry;
- identify capacity and waste-related training needs in industry; and
- promote and share new technologies and innovation (Best Practicable Environmental Options - BPEO's) with regard to integrated waste management.

2.3. Support to Municipalities and Industry during 2017

2.3.1. Waste Characterisation

The information obtained from waste characterisation studies at municipal level, is crucial for the development of municipal Integrated Waste Management Plans (IWMPs). It provides decision-makers with real data of current and expected (future) solid waste generation trends, among different demographic and socio-economic categories. It also provides valuable information for the overall planning of waste management such as waste management services and infrastructure.

The Department conducted a workshop on the 26th July 2017 within the Eden District Municipality to train municipal officials on the use of the Waste Characterisation Guideline developed in the 2016/17 financial year. Beaufort West and Cape Agulhas Municipalities' intend to review their 2nd generation IWMPs' and requested the DEA&DP to conduct a waste characterisation study in September 2017 and February 2018 respectively. A waste awareness and characterisation training session conducted at Matzikama Municipality saw matric students were trained on the principals of waste management and waste characterisation. The Municipality hopes to employ some of the students to conduct door-to-door awareness campaigns in 2018.

2.3.1.1. Waste Characterisation Guideline

The guideline was drafted to assist district and local municipalities to conduct waste characterisation studies to determine the types and quantities of waste generated within their municipal areas, to take ownership of the studies and incorporate the data obtained for strategic planning purposes. The guideline was amended based on inputs received from the workshop conducted in the Eden DM and Beaufort West Municipality's waste characterisation study, in August and September 2017.

The guideline outlines the waste characterisation methodology and provides guidance on –

- Diverting waste from landfill sites;
- Minimising adverse environmental and social impacts of waste management, particularly for the vulnerable;
- Obtaining updated information on the quantity of waste streams generated and an estimation of the potential for waste diversion from waste management disposal facilities;
- The use of the data and information in the development and review of IWMPs; and
- How municipalities can use the information for forward planning with respect to the design and implementation of efficient and effective –
    - collection,
    - waste minimisation (recovery, reuse, recycling), and
    - transportation services for the various solid waste streams.

2.3.2. Industry Compliance Promotion Visits

The Department selected companies who generated high volumes of hazardous waste as identified in the Hazardous Waste Status Quo Report, drafted in the 2016/17 financial year. The first visit took place at Fine Chemicals Corporation on 12 June 2017, with a further thee (3) inspections scheduled for 2018. Fine Chemicals is an Active Pharmaceutical Ingredient (API) Producer and is an owned subsidiary of Aspen Pharmacare Holdings Limited. They are accredited as a waste generator with the City of Cape Town's Integrated Waste Management By-Law 2009, as amended. Fine Chemicals had a high generation of hazardous waste type, in particular, liquid and sludge organic waste. The company currently generates approximately 3000 tons of aqueous effluent on an annual basis. The company has taken the initiative to address their high volumes by looking at proven alternatives. Secondly, they have successfully tested and conducted treatment methods to divert aqueous waste from landfill. Overall, the facility is well maintained with regard to waste management and waste diversion.

2.3.3. Waste Information

During 2017, the Department embarked on waste data audits at various private and municipal facilities within the province. The aim of the audits was to verify the submitted waste data supplied by waste generators via the Integrated Pollutant and Waste Information System (IPWIS). Where insufficient and inconsistent waste reporting has taken place, the Department has liaised and corresponded via emails, telephonic calls and letters to Municipalities in this regard. Training sessions and discussions were held with respective municipalities to address challenges with the IPWIS registration and online reporting to ensure compliance with the SAWIS requirements. The Department provides on-going support and assistance to waste generators.

2.3.3.1. IPWIS Waste data audits

During 2017, the DEA&DP conducted various on-site waste data audits at identified facilities for the 2016 calendar year. The purpose of the waste data audits was to verify and confirm the accuracy and authenticity of the waste reports submitted to IPWIS and subsequently the SAWIS. The audit was conducted in terms of regulations 9(1) & (2) and 10(1) of the National Waste Information Regulations, 2012. See **Table 1**.

Facilities were randomly selected and informed in writing of the audit and the activity type to be audited. The letter further addressed the information to be audited such as the waste records or documents for the period of January 2016 to December 2016. The DEA&DP has provided guidance to the facilities concerning areas of non-compliance and provided an opportunity for data to be amended. Follow up waste data audits will be conducted once the corrections have been made on IPWIS.

Table 1: IPWIS waste data audit 2017

IPWIS Activity	First Inspection	Second Inspection	Third Inspection	Status	Referred to Law Enforcement
Hazardous Waste Generator	Yes	TBC	TBC	Compliant	TBC
General Waste Disposal	Yes	Yes	TBC	Non-compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC
Hazardous Waste Generator	Yes	TBC	TBC	Compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC
Health Care Risk Waste Generator	Yes	TBC	TBC	Non-compliant	TBC
General Waste Treatment	Yes	TBC	TBC	Non-compliant	TBC
Health Care Risk Waste Generator	Yes	TBC	TBC	Compliant	TBC
Health Care Risk Waste Generator	Yes	TBC	TBC	Compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC
Health Care Risk Waste Generator	Yes	TBC	TBC	Compliant	TBC

IPWIS Activity	First Inspection	Second Inspection	Third Inspection	Status	Referred to Law Enforcement
Health Care Risk Waste Generator	Yes	TBC	TBC	Compliant	TBC
Recycling and Recovery	Yes	TBC	TBC	Non-compliant	TBC
Hazardous Waste Generator	Yes	TBC	TBC	Non-compliant	TBC
Health Care Risk Waste Generator	Yes	TBC	TBC	Non-compliant	TBC
Health Care Risk Waste Generator	Yes	TBC	TBC	Compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC
General Waste Disposal	Yes	TBC	TBC	Non-compliant	TBC

Desktop waste data audits

Concurrently, the DEA&DP embarked on desktop waste audits of the top 10 Health Care Risk Waste generators in Western Cape. The aim of the audit was to obtain a snapshot of the accuracy of waste data submitted by healthcare facilities in the Province.

There are +/- 6000 health care risk waste generators in the Western Cape, ranging from medical and dental practices to Tertiary medical facilities. Consideration was therefore given to the operational capacity constraints and in addition to the on-site waste data audits, the desktop audits was an added effort to regulate the reporting of this sector. The desktop data was extracted from Bizbrain (Provincial transversal application) and facilities were requested to submit the data to the Department. After the desktop audits were conducted, letters were issued to facilities outlining concerns and issues to be addressed by the facilities.

The common errors and/or discrepancies are outlined below:

- No source data provided;
- Conflicting data and inconsistent reporting methods;
- Incorrect calculations;
- Incorrect unit of measure utilized applied during the reporting period, i.e. reported in tons (T) but waste was weighed in kilograms (kg);
- Limited reporting on waste streams;
- Personnel responsible for capturing of data vs interpretation of the data submitted to IPWIS; and
- Responsible personnel are not conversant with the service provider's operations and handling of their waste.

These audits have highlighted the need to broaden the scope of the audits and lack or insufficient recordkeeping and reporting are more prevalent at larger health care waste institutions. Facilities need to develop and implement Standard Operating Procedures (SOP's) for recording health care waste management records and in-house verification measures need to be conducted.

2.3.4. Waste Minimisation and Policy

2.3.4.1. Status of Waste Minimisation in the Western Cape

An increase in waste generation is rapidly causing landfill airspace to reach critically low levels. As holders of waste, municipalities face many challenges such as finding alternative disposal methods, inadequate funding to build new waste disposal facilities and implementation of waste minimisation programmes pertinent to source separation, waste transportation over great distances to neighbouring municipalities and limited bulk infrastructure. With more emphasis being placed on waste minimisation than waste disposal, it has become imperative to know the status of waste minimisation within municipalities in order to ascertain where assistance may be required and/or areas that need improvement. Responses received from Waste Managers indicates that 39% of local municipalities have implemented a source separation system, while 74% of local municipalities do not have any waste diversion quantities. **Table 2** provides information on the status of waste minimisation based on the responses received from twenty-four (24) local and three (3) district municipalities.

Table 2: Waste Minimisation within Municipalities for 2017

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
Beaufort West Municipality	No	1	No	No	No	None	None	The Municipality does not have a separation at source waste recovery system.	Yes, but its outdated
Bergrivier Municipality	2 drop offs, planning to construct a 3 new drop offs.	2	Started a project with a 3- bag system in 2014 and rolled it out to all residential areas.	No	No	None	Garden waste is chipped and used for ground cover in municipal flower beds. They are in the process to do their own composting on the	Recycling Contractors were appointed at Piketberg and Velddrif transfer stations. Clear bags (recyclables) are collected at all households in	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
							Piketberg landfill.	residential areas.	
Bitou Municipality	No	No	Separation at source.	No	Container provided for buy back centres.	None	Additional door to door garden waste removal service. Tariffs apply. Constructed a compost facility valued at ±2million. Drop off facilities available at waste transfer station for green waste.	Quarterly Municipal waste newsletters were done for all waste awareness. Clean up campaigns are conducted with schools. Appointed 11 community contractors in each ward for cleaning illegal dumping spots in Plettenberg Bay. Partnership	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								with "Keep Plett Clean" (voluntary group) for cleaning streets in CBD area. Local contractor on board on the basis of collecting a minimum amount of recyclables.	
Breede Valley Municipality	New drop off facilities within De Doorns and Touwsrivier	No	No	No	No	None	There is additional door to door garden waste removal service.	The Municipality took initiative to make information notice board to constantly remind residents to minimise	The Municipality has a bylaw that was published in 2008. It is not aligned to NEM: WA

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								waste, Mascot (bin-bin) visiting schools for waste education and welcoming of holiday visitors to the municipality. CBD street cleaning and established an area cleaning unit for addressing illegal dumping.	and needs to be amended .
Cape Agulhas Municipality	3	No	2-bag system at households and separation at source for businesses.	Contracts with private company, who sorts and bales recyclables. Contractor	No	None	Currently in talks with Overberg Agri – Abattoir to start composting	The Municipality has limited roll out of its recycling programme. They have	Yes, the bylaw is outdated

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
				running Swopshop (as part of contract)			and wants the municipalities chipped green waste. Currently green waste chipped only at drop offs.	community drop-off facilities in selected towns. There is some deviation with regard to recycling on landfill. 3 awareness campaigns at schools, mall and door-to-door project was done.	
Cederberg Municipality	No	No	No	No	No	None	There is an additional door to door garden waste removal service.	Bins are serviced daily in public open spaces and walkways where pedestrian traffic is high.	Yes, the bylaw is outdated

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								Business and commercial waste collection is happening at a fixed increased tariff. The challenge includes lack of funding to implement the Regional Waste Disposal Site as the current landfill sites are nearing its capacity.	
Drakenstein Municipality	Yes	Yes	No	Yes	No	None	There is an additional door to door garden waste	Bins are present along walkways and clear bags are provided to	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
							collection service.	each household for additional waste recycling. Collection of recyclables happens on a weekly basis. The Recycling projects are run by some schools and community groups in the municipal area (that display waste information like diversion rates)	
George Municipality	No	No	Yes	No	No	None	There is an additional door to door garden	The Municipality provides a weekly waste	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
							waste collection service.	collection service to residents. The municipality implements a split-bag system, which is also implemented in the lower income residential areas. Removing illegal builders' rubble in residential areas. A range of waste awareness activities have been implemented to ensure the distribution of	

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								waste management information.	
Hessequa Municipality	No	Yes	Yes	No	Yes, operated by Henque Waste	Enviroclaim was appointed to collecting E-waste in Hessequa region. This contract took place every 3 months of the year in all towns.	Composting is implemented by means of the Green Genie home composting system, which is supplied to residents by the Municipality.	The Municipality operates a split-bag system to collect recyclables within the residential areas. Clear bags are provided to households who must fill a bag with recyclables before being issued with another bag. The split bag	Yes, but its outdated

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								system is also implemented in the lower income residential areas. The Municipality acquired a chipping machine and has started chipping garden waste.	
Kannaland Municipality	None	No	No	No	No	None	Not yet	Kannaland Municipality does not have any formal recyclers.	Yes
Knysna Municipality	Yes, in Sedgefield and Stridealong	Recycling centres in Sedgefield and Knysna.	Pilot in Smutsville covers 99 households; All other formal	5 swop shops; Sinethemba Khayalethu; Hornlee; 7 Passes;	No	There is an E-waste recovery container placed at the Transfer	Door-to-door garden waste curb side collection. 2 blue bags	Recycling bins are available outside the Knysna Recycling Facility.	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
	(Private recycler)		residential areas practice separation at source through a three bag system.	Smutsville Rheenendal. The municipality supports by means of transport for the recyclables as well as containers from which the swop shops are operated.		Station for households and businesses. The e-waste container is	per household per week. Chipping garden waste in Knysna and Sedgefield. Composting bins programme available - rolled out to certain areas. The chipping of green waste takes place at the two green waste facilities.	Informal composting and a home composting project takes place in Karatara. 70 Green Genie bins were placed at 70 households. Containers, with a capacity of a 1000 litres, were provided for the recovery of used oil at the Knysna Transfer Station.	

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
Laingsburg Municipality	Yes, it's not operational	No	No	No	No	None	None	The Laingsburg Municipality has not implemented their recycling programme to date. It is anticipated that they will proceed shortly with their waste recovery programme.	No
Langeberg Municipality	Drop offs facilities have been constructed in McGregor, Montagu, Bonnievale and Robertson	The Municipality has a clean MRF at Ashton WDF. Recyclables from the split bag system is	Yes, the Municipality introduced a 2-bag system in all areas. which includes the lower income residential areas.	No	No	None	Chipping of green waste takes place at the Robertson Drop-off Facility, the Municipality has a three-year tender	Recycling igloos are strategically placed at schools and in the CBD. at their own compost plant in Robertson. Additional	No

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
		further separated at the facility.					in place. Green waste is composted by the Municipality	door to door garden waste service	
Matzikama Municipality	No	No	No	No	No	None	None	No formal recycling is taking place in the Matzikama municipality.	Yes
Mossel Bay Municipality	Yes	No, A Mossel Bay recycling contractor has their own MFRs located in Voorbaai and Mossdustria.	No	Yes, The Municipality supports a number of swop shops and secured funding to sustain them.	No but there are plans in progress.	The Municipality had E-waste open days	Small amounts of garden refuse are collected on refuse removal days and dispose	The Municipality has three skip trucks and a contract with Interwaste for the emptying of bulk skips placed in open spaces as well as waste at transfer stations. The	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								Municipality removes waste from all businesses in the municipality's jurisdiction once a week.	
Oudtshoorn Municipality	No	No	No	No	No	None	None	There is no formal recycling programme implemented by the municipality. The municipality does not support any recycling initiatives implemented by the private sector.	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
Overstrand Municipality	Yes	Yes	Yes, its rolled out extensively to all communities in all towns.	Yes, there is support to the community based recycling programme in the form of a swop shop.	Yes	None	Additional door to door garden waste collection service. Garden waste being chipped by Enviroserv and Averda is in charge of the composting.	Recycling campaign done through distribution of pamphlets showing how recycling works to household, miss waste queen where 1766 children were targeted and taught how to take care of the environment while playing, etc.	Yes
Prince Albert Municipality	Yes	Yes	No	No	No	None	None	The Prince Albert municipality does have a recycling programme	No

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								that has not been rolled out to all communities.	
Saldanha Bay Municipality	2 in Saldanha Bay, 1 in Hopefield, 1 in Langville	Yes; Vredenburg MRF, if recycling from outside people, then he buys back from the public.	Started first stage in Langebaan, September including Vredenburg. Hopefield, Jacobsbaai and Paternoster. Third phase not this year. Public leaves clear bag for contractor under the municipal tender.	Yes, bins and skips supplied to Middlepos, Saldanha Bay	No	None	Garden Waste being chipped. No composting plant and resell to members of the public for mulching. Low tariff for R9 per cubic metre. Buy back amount for mulch R10.44 per cubic meter.	Weighing does occur, but quantifying the diversion rate is almost impossible as recordkeeping does not happen. Investigating smaller drop offs to avoid illegal dumping awaiting on budget. Builders' rubble being used as cover material	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								- reusing the waste.	
Stellenbosch Municipality	No	No	No	No	No	None	The Municipality is piloting an organic waste collection service at restaurants. The pilot study is limited to a maximum of 20 restaurants within the Stellenbosch area with removal 5 days per week.	The Municipality is implementing a fixed increase tariff waste removal service to all farms within the Municipality. This service is eliminating the requirements for black bags and are converting to servicing via wheelie bins.	No

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
Swartland Municipality	7	Yes, at the dirty MRF	None	Support DRESS swop shop with transport and buying.	No	None, only florescent lamps.	Garden waste collections done for Moorreesburg. Recycling from farms are disposed of at no cost. DNA Composting and SWACO as the transporter.	77 Recycling igloos at schools and within the towns. Swartland taking wastes from Piketberg and Porterville.	Yes
Swellendam Municipality	No	No	No	No	No	No	None	Bontebok Waste Disposal Facility has no recordkeeping system and garden waste and builder's rubble is not separated. No waste	Yes

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								minimisation programmes/projects.	
Theewaterskloof Municipality	Yes	No	No	No	No	No	None	The Municipality does not have a formalised recycling programme. There is limited recycling carried out by private companies who at present do not receive the support of the municipality.	Yes, but its outdated.

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
Witzenberg Municipality	No	Nil	All towns receive black and green bags	No	No	No	Green bag for garden waste, as a chipper was procured.	The municipality completed a Waste Management Master Plan with SOPS, a working relationship with Essen will support waste ambassadors to do awareness in municipality and working with recyclers in municipality.	Yes, but its outdated
West Coast District Municipality	No	No	No	No	No	No	None	EHP's from the District Municipality monitor waste activities on an ongoing basis	No

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								and communicates any transgressions to the local municipalities	
Overberg District Municipality	No	No	No	No	No	No	There are litter pickups at various locations. For instance, assisting in beach clean-up.	The District organises a Waste Forum that provide an enabling platform to municipalities to discuss waste management challenges. The ODM has a regional landfill site that services both the Overstrand and Theewatersklo	No

Municipality	Drop offs	Materials Recovery facility	2bag system	Support swop shops	Support buy back centres	E-Waste initiatives	Organic Waste initiatives	Recycling/ Other waste minimisation initiatives	By law status
								of municipalities	
Cape Winelands District Municipality	No	No	No	No	No	No	None	The Municipality provides support by means of a forum where waste management challenges within the district are discussed and solutions sought.	No

2.3.4.2. Waste Minimisation Training in 2017

The Department provides waste minimization training and advice to a variety of stakeholders in the Western Cape in order to strengthen the province's capacity to minimize waste, ensuring provincial and national waste diversion targets are met. Municipalities are the primary beneficiaries of the training programmes and the Department hosted three (3) workshops in 2017. A waste minimization training workshop was hosted with municipal staff and recyclers in the Kannaland Municipal area where twenty-one (21) people were trained.

The training consisted of educating participants on topics such as:

- An introduction to waste management;
- What is recycling?
- Business aspects of recycling;
- Value adding to waste as resource;
- Waste minimisation systems and awareness; and
- Aspects of the WAME programme to assist the Environmental Protection and Infrastructure Programmes (EPIP) workers with their waste awareness lessons aimed at primary schools.

2.3.4.3. Recycling Economy in 2017

Four (4) WC RAG engagements were hosted by the DEA&DP in 2017. The first session held on 2 March 2017, was a collaborative planning session facilitated by the Craft and Design Institute (CDI), where initiatives the next two (2) years were planned. Initiatives emanating from the meeting was finalised and adopted by members in June 2017. In 2018, WC RAG's Terms of Reference and brand development will be reviewed.

The following is a summary of these thematic seminars highlighting the key issues that were raised at these platforms:

- *Small Medium Micro Enterprise's (SMME's) – 24 August 2017*

The Western Cape Government (WCG) recognises the valuable contribution this waste sector makes towards the growth of the Green Economy in the Western Cape. It also recognises that small and micro-recycling enterprises plays a significant role in diverting waste from landfill sites and has the potential to grow even further, should a nurturing environment exist for these enterprises to flourish. Improving the capacity of these small and micro entrepreneurs, who are predominantly involved in the recovery of recyclables can improve business efficiencies, lead to improved recovery rates in municipalities and the potential for job creation. The Department hosted a seminar with and provided feedback to Small Medium Micro Enterprise's (SMME's) on the "Wastepreneur" programme, as well as gain support from industry representatives.

A "Wastepreneur" pilot involving fifteen (15) companies was conducted in the 2016/17 financial year and the programme has now been extended to ten (10) small and micro waste enterprises in the Eden District Municipality for the 2017/18 financial year. The support package to beneficiaries on the programme included a full business diagnostic and on-site business mentorship and support inclusive of business plan development, company profiles and financial management tools, entrepreneurial skills development, compliance advice, industry mentorship, accessibility to resources and markets.

Key issues arising from the SMME's seminar:

- Micro Enterprises who generate R0 – R10 million are exempted from completing the BEEE scorecard, whereas large entities generating R50 million and above must complete a scorecard and comply 100%.
- The Polyco funding system & their new mobile compactor initiative (Swop Shop) is successful. Registered venders can take their recyclables for weighing & monetary rand value for the recyclables are placed onto the Polyco card and can be used at any retailer accepting MasterCards.
- Mpact Plastics assists smaller businesses through establishing partnerships to increase volumes and aids in equipment provision relevant to each individual SMME.

- *Waste Transportation - 22 November 2017*

The second engagement focused on the transportation of waste, its associated challenges and services offered by industry and others, along with the potential partnerships that could be fostered, with the waste sector to stimulate a reverse logistics approach to recycling. This session highlighted the various transport mechanisms, such as the CSIR SASCOST model, transport in the informal market and localized transport systems in municipalities.

Key issues arising from the Waste Transportation seminar

- The price of recyclables and transport cost can influence the selling price of recyclable.
- WC RAG to look at the viability of standardizing the selling price of recyclables.
- Drop offs within the City which negated the need to factor in transport costs are closed mainly due to other competing priorities, like land reclamation.
- The CSIR SASCOST model needs improvement to ensure it is more robust.
- Further engagement with transport agencies must take place relating to transport logistics.

2.3.4.4. WAME: Waste Management in Education in 2017

The Department hosted two (2) workshops with educators in Mossel Bay and Oudtshoorn municipalities respectively, to assist with waste awareness programmes. The WAME programme has since, been rolled out to every municipal area within the Eden District. **Table 3** below indicates the number of schools and teachers that were trained to implement waste management awareness in the curriculum.

Table 3: WAME programme roll out in Eden District Municipality

Municipal area	Circuit area	No. of schools trained	No. of teachers trained
Bitou Municipality	4	5	6
George Municipality	3 & 8	15	26
Hessequa Municipality	1	8	13
Kannaland Municipality	5	13	23
Knysna Municipality	4	8	15
***Mossel Bay Municipality**	***2***	***11***	***19***
***Oudtshoorn Municipality**	***5 & 6***	***11***	***23***
Total		**71**	**125**

2.3.4.5. 2Wise2Waste in 2017

- *Managing waste as a resource in WCG buildings*

The roll out of the 2Wise2Waste waste minimisation programme in Cape Town was done in various WCG buildings. DEA&DP collected and provided data on these WCG owned buildings and to date, 237.45 tons was collected for disposal and 52.19 tons of recyclables recovered. The recovery rate of recyclables in the WCG buildings in the CBD is **18%**. **Figure 1** depicts the monthly quantities of general waste generated, recyclables and organic (food) waste recovered from WCG buildings over the seven month (7) period.

The study revealed that there is room for improvement with respect to the type of data that was collected, to ensure the programmes is successful.

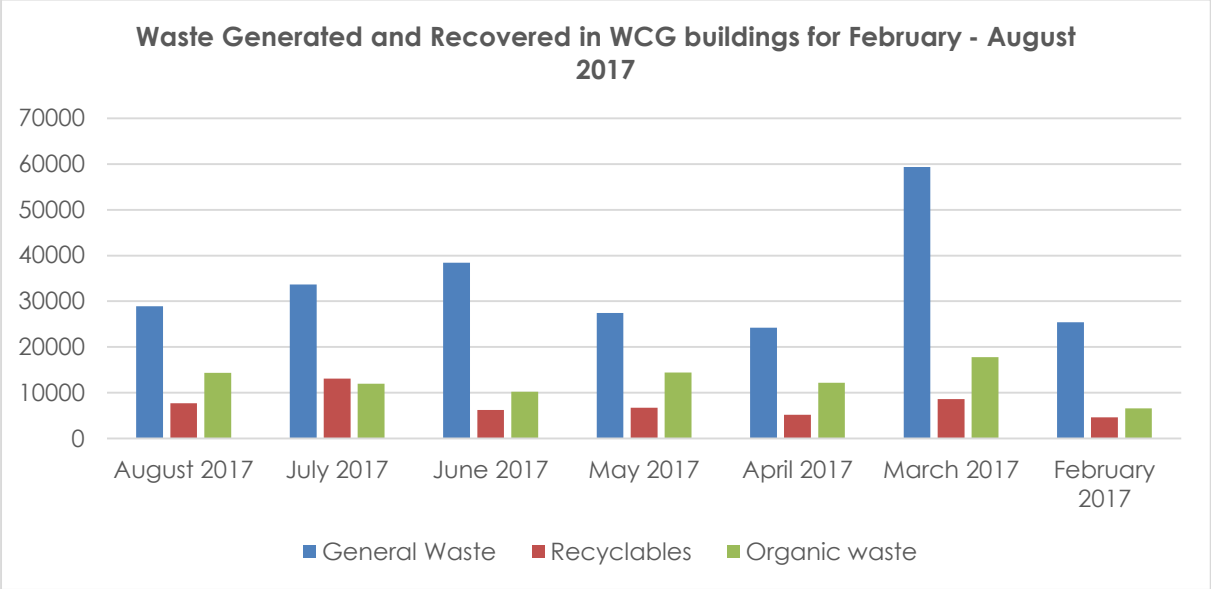


Figure 1: Waste generated and recovered in the CBD for 2017

The 2Wise2Waste Minimisation Initiative includes the following:

- Waste minimisation training and capacity building of WCG staff and cleaning contractors on the new and improved waste recovery system, which will include weighing and record keeping of waste volumes;
- Waste awareness raising drives/ events; and
- Monitoring and reporting on the recycling performance in WCG buildings.

2.3.4.6. Waste Management Awareness Raising at Municipalities in 2017

Waste Awareness is necessary to change perceptions and behaviour around environmentally friendly and sustainable waste management practices. Effective campaigns should have clear and concise marketing to reach as many of the target audiences as possible. The implementation of waste awareness campaigns is done by all spheres of government and the private sector, in support of municipal waste challenges. See **Figures 2 and 3** indicating the distribution of waste awareness initiatives implemented within municipalities and includes funding from National and Provincial Departments. The most popular initiatives were the events calendar, media campaigns, school campaigns and the DEA funded awareness program, Youth Jobs in waste. Municipalities are not capitalising on event greening as an opportunity to create awareness.

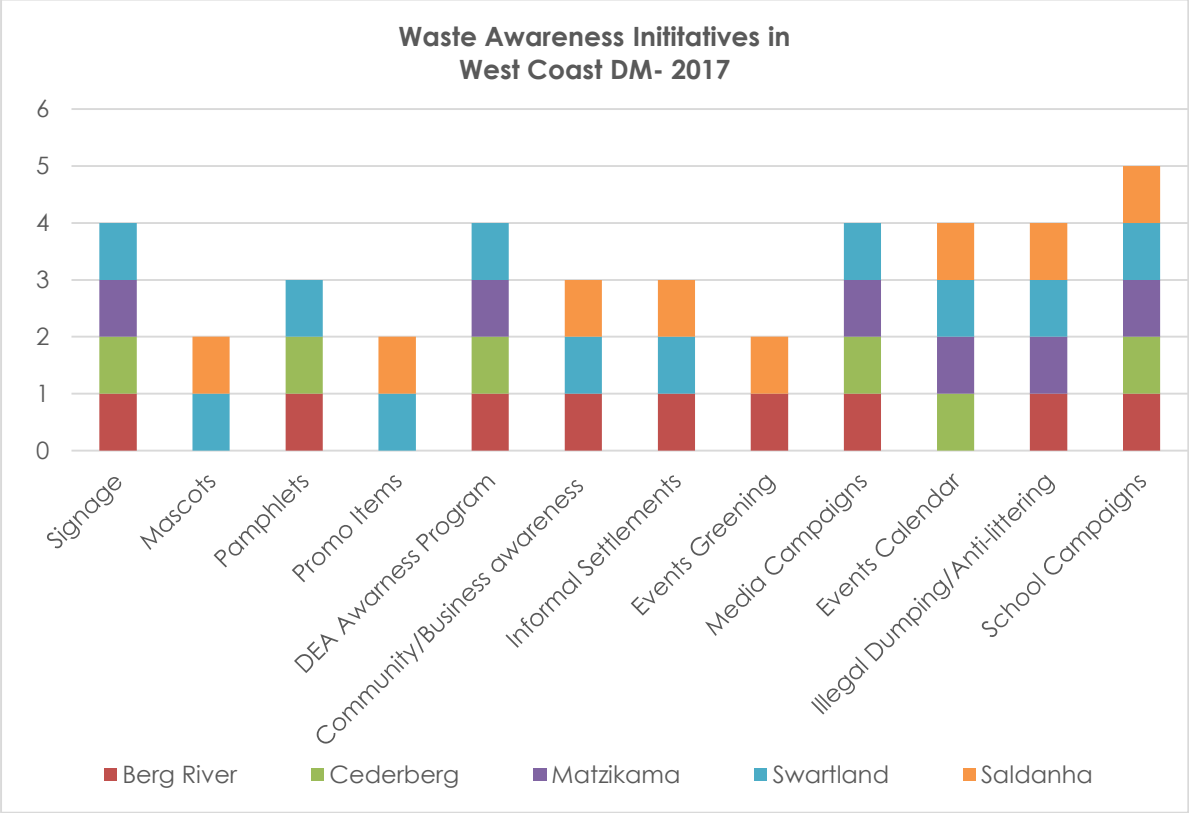


Figure 2: Waste Awareness in West Coast District Municipality

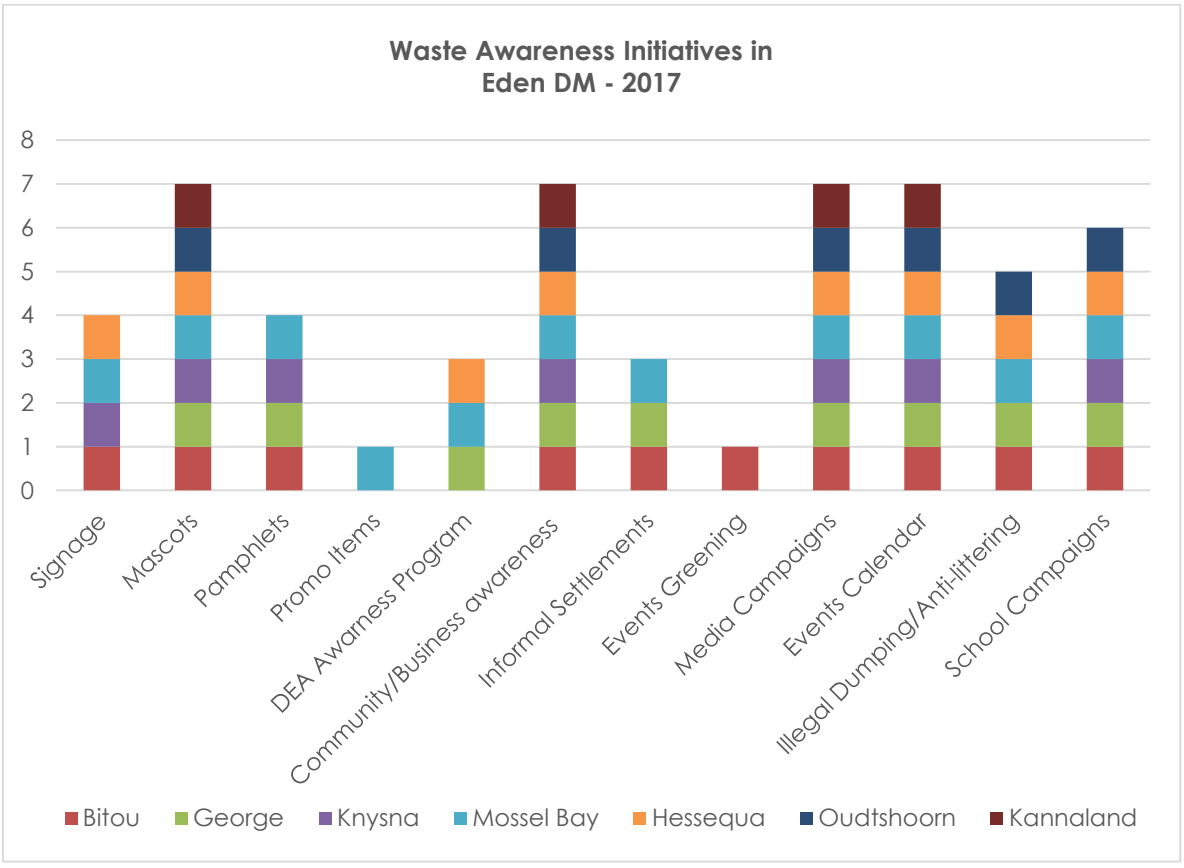


Figure 3: Waste Awareness in Eden District Municipality

2.3.4.7. Development of Model Waste By-Law for use by Municipalities

The WCG identified policies and regulations that are potential limiting factors to growth in the waste sector in the province. DEA&DP has since embarked on the development of a model By-Law for municipalities to firstly, ensure the regulatory requirements for waste management does not hamper economic development and secondly, that it is aligned with current national waste legislation. Municipal councils may adopt the draft by-law with or without modification or qualifications and publish it as required by the Municipal Systems Act.

Twenty-one (21) of thirty (30) municipalities have published bylaws. Of these twenty-one (21), fifteen (15) published municipal by-laws are aligned to the National Environmental Management: Waste Act; 2008 (Act No. 59 of 2008) (NEMWA) and six (6) must be updated. Nine (9) out of thirty (30) municipalities, do not have published by-laws. The City of Cape Town as a metropolitan and Eden District Municipality have by-laws in place. See **Figure 4**.

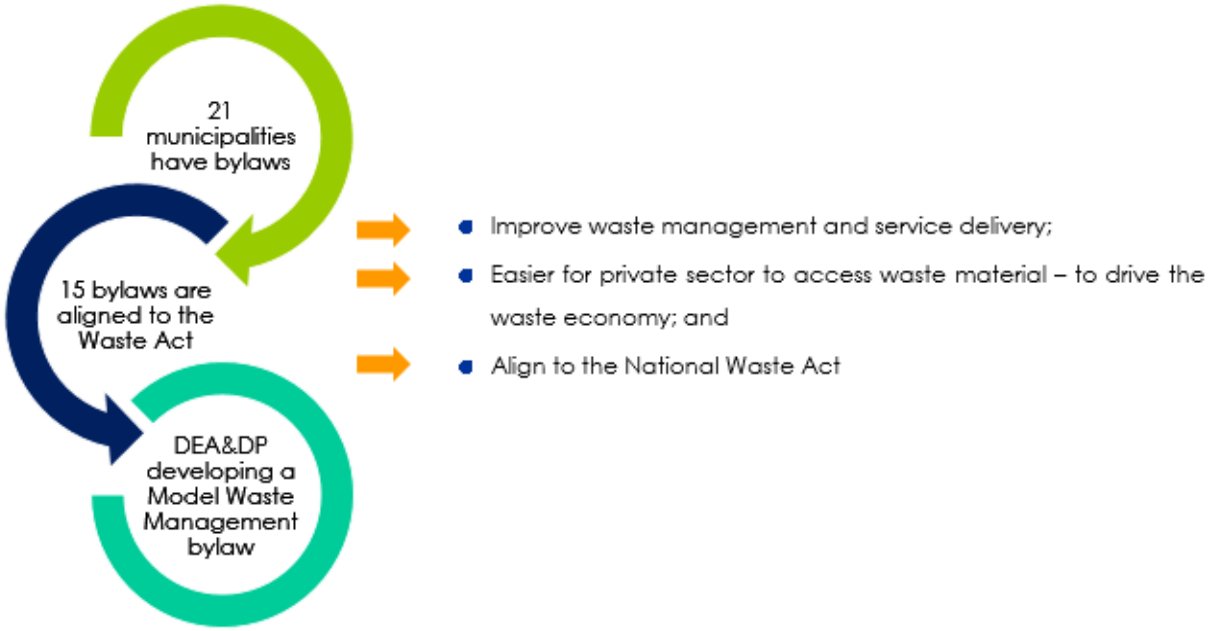


Figure 4: DEA&DP Model Waste Management Bylaw development for Municipalities

2.3.4.8. Guideline for the Management of Green Waste in the Western Cape

In 2016, DEA&DP conducted a status quo analysis on management and quantities of green waste generated in the Western Cape, in order to achieve the National Waste Management Strategy (2011) diversion target.

It was carried out to understand the current green waste management practises taking place and subsequently, a strategic decision was taken to develop a guideline to highlight effective strategies and action plans for the management of green waste, available technologies for the

beneficiation potential of green waste and to address the challenges faced by municipalities and industries.

Waste diversion is a national and provincial goal and therefore DEA&DP prioritised the diversion of green waste from landfill, as an 'easy win' option, that can lead to significant benefits for both diversion targets and beneficiation opportunities in the forestry, alien clearing and agricultural sectors as well as green waste sources managed by municipalities.

Some of the benefits of diverting green waste:

- Less risk of greenhouse gas emissions;
- Job creation;
- Soil amendment which increase soil organic carbon levels;
- Preventing soil erosion and reducing waster use; and
- Generate electricity through certain technologies.

The guideline interrogates the various sectors and sub sectors, looking at green waste generated and its beneficiation opportunities and includes challenges in the sectors. During the data collection process for the agricultural sector, some of the challenges raised were that farmers seemed unaware of other available technologies for processing green waste and waste management support available to farmers is a challenge due to their remote locations.

- *Green Waste Stakeholder Engagements in 2017*

On 19 October 2017, DEA&DP hosted a workshop for various stakeholders and role players within the sector to engage and provide input to the guideline. Various comments and challenges were identified by industry to seek a positive way forward. A meeting was held with the City of Cape Town to acquire their comments on the guideline to be incorporated in early 2018.

3.1. Waste Management Planning

The objective of waste management planning is to:

- Identify and plan for future waste management needs and requirements;
- Minimize waste management costs, the adverse social and environmental impacts and the amount of waste generated;
- Promote the use of waste as a resource; and
- Ensure that waste is managed in accordance with the principles of NEMA.

3.1.1. Municipal Integrated Waste Management Plans

The Department has assisted all thirty (30) municipalities with the development of their 1st and 2nd generation Integrated Waste Management Plans (IWMPs), with the call for the 3rd generation IWMPs in 2018. There has been steady improvement in the quality of the 2nd and 3rd municipal IWMPs submitted to the DEA&DP, with five (5) of the 2nd generation municipal IWMP being development by the DEA&DP viz. Central Karoo DM, Beaufort West, Prince Albert, Laingsburg and Kannaland Municipalities.

With the assessment of the submitted IWMPS, the Department has also highlighted the deficiencies and gaps in both 1st and 2nd IWMPs and the need to address compliance of municipal waste management facilities and accurate record keeping of waste quantities. Thus, it is expected that the 3rd generation IWMPs will have a much stronger focus on implementation plans to address gaps and needs identified, including the implementation of alternative waste management

technologies. (GreenCape, Technical guide for technology identification and screening for integrated waste management planning: manual, 2017)

In 2016, a few municipalities drafted their IMWPs, which included the Saldanha Bay, Swartland, Breede Valley and Swellendam municipalities. In 2017, four (4) municipalities submitted their 3rd generation IWMPs to the Department. Three (3) of the IWMPs received a rating above 75%, indicating that these IWMPs met the minimum requirements in terms of the Department's assessment criteria. See **Table 4**, where one (1) of the IWMPs had a score of 30% indicating that it the municipality did not meet the minimum requirements.

Table 4: Integrated Waste Management Plans submitted in 2017

Municipality	Latest IWMP Received for assessment	Assessed Plans		Scores	Description	Endorsable
		Yes	No	(%)		
City of Cape Town	3rd	X		75	Good	Yes
Cape Agulhas	3rd	X		30	Poor	No
Saldanha Bay	3rd	X		80	Good	Yes
Langeberg	3rd	X		81	Good	Yes

3.1.2. Waste Management Officers

Seven (7) municipalities have not designated a Waste Management Officer and two municipalities need to designate new staff due to retirements or resignations in the municipalities. The Department sent letters to municipalities requesting them to designate relevant staff in the capacity of the municipal Waste Management Officers. See **Table 5**.

Table 5: Status of Waste Management Officers in the Western Cape

Municipality	WMO	WMO Designation	
		Yes	No
Cape Winelands District	___		X
Breede Valley	Thys Serfontein	X	
Drakenstein	Ronald Brown	X	
Langeberg	Glenn Slingers	X	
Stellenbosch	Saliem Haider	X	
Witzenberg	Johnny Jacobs	X	
West Coast District	___		X
Berg River	Jaco Breunissen	X	
Cederberg	Jacob Klaaste	X	
Matzikama	Riaan Basson		X
Saldanha Bay	David Wright	X	
Swartland	Freddie Bruwer	X	
Overberg District	Francois Kotze	X	
Cape Agulhas	Walter Linnert	X	
Overstrand	Johannes van Taak	X	
Swellendam	___		X
Theewaterskloof	Marthinus Hegans	X	
Central Karoo District	___		X
Beaufort West	Vuyokasi Ruiters	X	
Prince Albert	___		X
Laingsburg	Johan Mouton	X	
Eden District	Morton Hubbe	X	
Oudtshoorn	Jean Cox		X
Hessequa	Zimcume Lindile	X	

Municipality	WMO	WMO Designation	
		Yes	No
Bitou	___		X
George	Wessel Robertson	X	
Knysna	Stephan Langlands		X
Mossel Bay	Sivuyile Mtila	X	
Kannaland	Hendrik Bernard	X	
City of Cape Town	Keraan Rustim	X	

3.1.3. Provincial Integrated Waste Management Plan

NEMWA requires a provincial government to compile an Integrated Waste Management Plan (IWMP) and may incorporate the IWMP in any relevant provincial plan, every 5 years. The DEA&DP has since developed its 2nd generation IWMP that was finalised in March 2017.

The aim of the WC IWMP is to provide strategic direction for integrated waste management in the province over the short, medium and long term and aimed at provincial government, local government, industry, commerce and civil society. The plan provides four strategic goal, each with objectives, indicators and activities to be undertaken. See **Table 6**.

3.1.3.1. Goals and objectives

Some of the previous goals in the first WCIWMP remained and others were either combined to form four (4) new goals or demoted to objectives below the new goals. The new goals were workshopped with stakeholders, who also assisted in the process of developing action plans.

- *Goal 1: Strengthened education, capacity and advocacy towards Integrated Waste Management*

Goal 1 aims to ensure that the WC IWMP succeeds in implementing integrated waste management throughout the province by effecting behavioural change and increasing participation by three key groups of stakeholders i.e. users (generators of waste), providers of service (local municipalities, formal and informal private sector) and enablers (producers of products, national and provincial government). The strategic objectives of Goal 1 are as follows:

- Strategic objective 1: Facilitate consumer and industry responsibility in integrated waste management;

- Strategic objective 2: Promote and ensure awareness and education of integrated waste management; and
- Strategic objective 3: Build and strengthen waste management capacity.

Goal 2 Improved integrated waste management planning and implementation for efficient waste services and infrastructure

One of the key items of this goal is aimed at ensuring reliable waste information is reported and disseminated, in order to facilitate improved waste management planning. It aims to support municipalities, with respect to integrated waste management planning and to encourage integrated waste planning within industry. In addition, to promote the establishment of integrated waste management infrastructure, investigating the likelihood of waste-to-rail and the provision of adequate and equitable services. The strategic objectives of Goal 2 are as follows:

- Strategic objective 1: Facilitate municipal waste management planning;
- Strategic objective 2: Promote industry waste management planning;
- Strategic objective 3: Promote the establishment of integrated waste management infrastructure and services; and
- Strategic objective 4: Ensure effective and efficient waste information management

Goal 3: Effective and efficient utilisation of resources

Goal 3 is to achieve an environmentally sustainable, climate change-resilient and low carbon economy, which will reduce environmental risk and create job opportunities in the commercial waste economy, by facilitating recycling and recovery in the province. This links closely to Provincial Strategic Goal 1: "Create opportunities for growth and jobs", which aims to accelerate jobs and seeks to stimulate the circular economy. The strategic objectives of Goal 3 are as follows:

- Strategic objective 1: Minimise the consumption of natural resources;
- Strategic objective 2: Stimulate job creation within the waste economy; and
- Strategic objective 3: Increase waste diversion through reuse, recovery and recycling.

Goal 4: Improved compliance with environmental regulatory framework

Goal 4 aims to ensure the sound management of Waste Management Facilities (WMFs) and the protection of public health and the environment. This can be achieved through compliance promotion measures, enforcing compliance, promoting industry self/co-regulation, as well as auditing and monitoring of WMFs. This goal will also focus on developing policy instruments for industry and municipalities and amending/varying existing waste management licenses. It aims to address unnecessary regulatory burden by shifting the focus of norms and standards from risk-

averse, to risk-based approaches. In addition, the remediating and rehabilitation of contaminated land will also be addressed. The strategic objectives of Goal 4 are as follows:

- Strategic objective 1: Strengthen compliance monitoring and enforcement;
- Strategic objective 2: Remediate and rehabilitate contaminated land;
- Strategic objective 3: Facilitate the development of waste policy instruments; and
- Strategic objective 4: Promote self/co-regulatory measures.

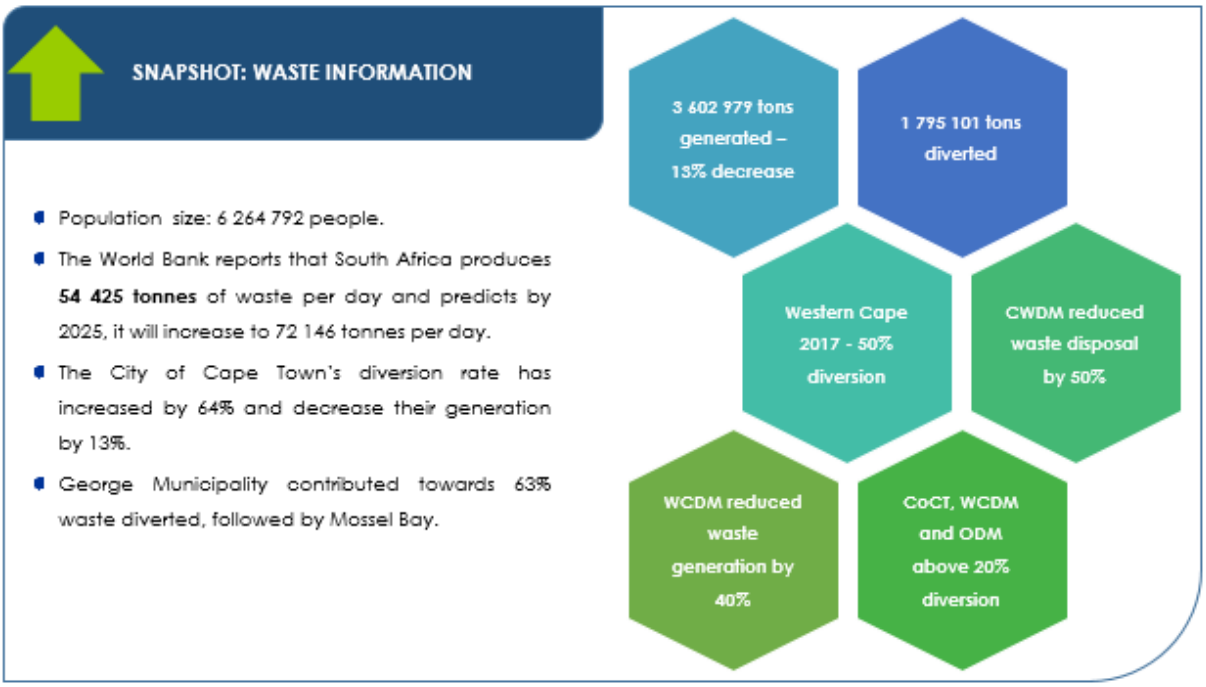
Table 6: Western Cape Implementation Plan activities for 2017

Provincial Integrated Waste Management Plan (2017-2022) Implementation Plan Goals and activities undertaken for 2017	
Goal 1: Strengthened education, capacity and advocacy towards Integrated Waste Management	***Goal 3: Effective and efficient utilisation of resources***
• Undertake a waste awareness strategy for the Western Cape (in progress) • Conduct internal 2wise2waste awareness and training (in progress)	• Develop a municipal C&D waste management guideline (in progress) • Develop a guideline on green waste (in progress) • Host WCRAG meetings/seminars (ongoing) • Engage with and provide support to "Wastepreneurs" in Eden District Municipality (in progress)
Goal 2: Improved integrated waste management planning and implementation for efficient waste services and infrastructure	***Goal 4: Improved compliance with environmental regulatory framework***
• Conduct industry waste forum (6 September 2017) • Conduct WMOF meetings • Municipal IWMPs assessed(ongoing) • Support municipalities with regard to IWMPs (ongoing) • Undertake a waste characterisation studies (30 August to 1 September 2017 and 15 to 17 February 2017). • Waste characterisation workshop (26 July 2017) • Compile a status quo report on e-waste (in progress) • Undertake waste data verifications at private facilities(ongoing) • Undertake waste data verifications at municipal waste management facilities (ongoing) • Develop an Annual State of Waste Management Report (in progress) • Maintain and enhance IPWIS (ongoing) • Conduct IPWIS capacity building workshops (ongoing)	• Monitor waste management facilities for landfill gas (ongoing) • Identify waste management licence authorisations requiring variation (in progress) • Develop audit protocol for composting facilities and materials recovery facilities (in progress) • Audit regulated waste management facilities (ongoing) • Conduct promotional compliance visits (ongoing) • Enforce compliance with waste legislation (ongoing) • Update and maintain waste licensing standard operating procedure(s) (ongoing) • Use waste management licenses to set diversion targets for waste streams (in progress)

The goals and strategic objectives guide the activities included in the implementation plan, over the short- (2017-2022), medium- (2022-2027) and long- (2027-2032) term. The activities for 2017 are included in **Figure X** and indicate the Waste Management Directorate's projects and operational activities for 2017. The Department has initiated the process to ensure the National Department of Environmental Affairs (DEA) endorses the WCIWMP in 2018. The WCIWMP will be reviewed and updated every five years.

3.1.4. Industry Waste Management Plans

No Industry Waste Management Plans were submitted to the Department for 2017. The Minister of Environmental Affairs, Minister Molewa, called on the Paper and Packaging Industry, Electrical and Electronic Equipment Industry and Lighting Industry to prepare and submit their industry waste management plans for approval. The Minister also called on the tyre industry to submit an Integrated Industry Waste Tyre Management Plan (IIWMTMP) but it has since been withdrawn. The IIWMTMP was withdrawn based on the Recycling and Economic Development Initiative of South Africa's (REDISA) poor governance, conflict of interest and not meeting its estimated targets, as well as misuse of public funds. The National Department's Waste Management Bureau will manage the waste tyre stream in the meantime and participants, who registered with the Waste Tyre Management Plan, will in the interim register with the Bureau.



4.1. Population figures

The Western Cape represents 11.4% (approximately 6 million) of the total population in South Africa and is home to the oldest city, Cape Town. It covers an area of 129 462km² and has a population of approximately 6.51 million, as estimated by StatsSA, 2017.

The Western Cape has one Metropolitan Municipality (City of Cape Town Metropolitan Municipality) and five district municipalities namely West Coast, Cape Winelands, Eden, Overberg and Central Karoo. There are 24 local municipalities. The Western Cape's population is largely attributable to in-migration from other provinces and immigration, with the population expected to grow by 1.53 million people to 7.36 million people in 2040. For the period 2016-2021, the Western Cape is estimated to experience the largest inflow of approximately 485 560 migrants (StatsSA, 2017). The West Coast is expected to experience the highest rate of population growth, followed by Overberg. The City of Cape Town Metro is expected to experience the lowest rate of population growth, mainly because it is growing from a higher population base than more rural areas. (Phakathi, 2017)

4.2. Waste Generation Rates

The average generation rate for Municipal Solid Waste for the entire province is thus 0.96 kg/capita/day. The World Bank calculates a waste generation rate of 2 kg/ capita/day (Urban Development Series: What a Waste 2012). The World Bank reports that South Africa produces 54 425 tonnes of waste per day and predicts by 2025, it will increase to 72 146 tonnes per day.

4.3. General Waste in 2017

Municipalities and industries registered on the IPWIS are required to submit monthly on the waste generated, recycled, treated and disposed. As most waste management facilities do not have weighbridges nor scales to record the waste, the Department developed a Waste Calculator, an MS Excel based tool, to assist municipalities to record their waste in the absence of weighbridges. The Waste Calculator tool assist municipalities to quantify and capture their waste on the IPWIS. IPWIS also allows municipalities to capture their waste diversion and identify opportunities in waste streams for diversion. Submitted reports are received from municipalities and industries and verified by the Department. The following sections below depict the management and record keeping of general waste at the municipal waste management facilities. All data reflected in the sections below are based on information submitted to the Department during the 2017 calendar year either via waste calculators or to the IPWIS.

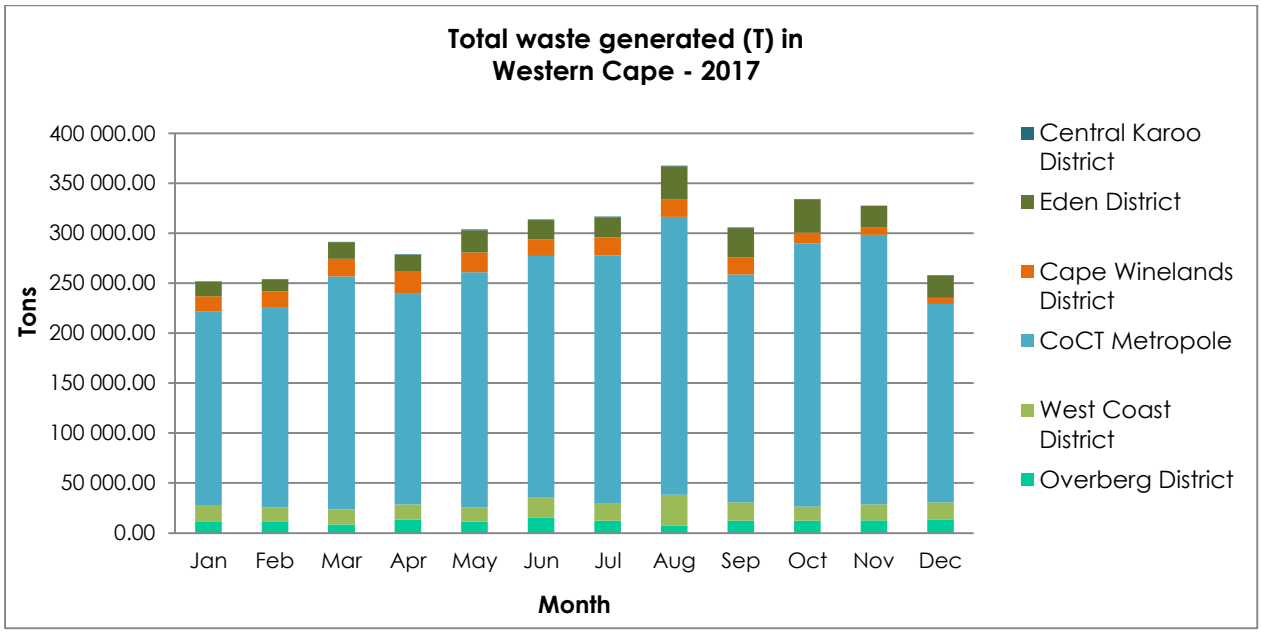


Figure 5: Waste generated in the Western Cape – 2017

Based on the waste information provided to the Department by the municipalities, **3 603 703.01 tons' general municipal waste** has been generated in the Western Cape Province for 2017. See **Figure 5.** Where in 2016, 4 067 982.20 tons and 2 922 787.60 tons in 2015, was generated respectively. This indicates a **13% decrease** in waste generated in the Western Cape Province for 2017. Municipalities are still struggling to report data regularly as one of the common causes are high staff turnover and often results in delays and uncertainty in completing the Waste Calculator sheets timeously. In short, municipal waste reporting has not improved much since 2016, although ongoing efforts have been and were made by the Department, to assist municipalities to report their waste quantities.

The waste generated in 2017 has decreased from what was reported in 2016 and might not be true reflection of the state of waste in the province, but rather and to a certain extent, be due to the increased frequency and accuracy of reporting from the municipalities to the Department in 2017. Secondly, it can be attributed to the waste data verification audits conducted by the Department to some municipalities, highlighting past and current errors in quantifying waste data. Another reason for the decrease in waste disposed can be due to the vigorous diversion approaches implemented by municipalities due to limited landfill airspace availability. Public outcry has also played a major role in delays to approve applications to develop regional landfill facilities.

Seemingly **1 795 824.94 tons** of the general municipal waste has been diverted from landfill and consequently, **1 807 878.07 tons** of general waste has been disposed at landfill. See **Figure 6**. On the face of it, Cape Winelands District has reduced their waste disposed by more than 50% since 2015. The Western Cape's diversion rate is currently standing at **50%** for 2017 as compared to **16%** in 2016.

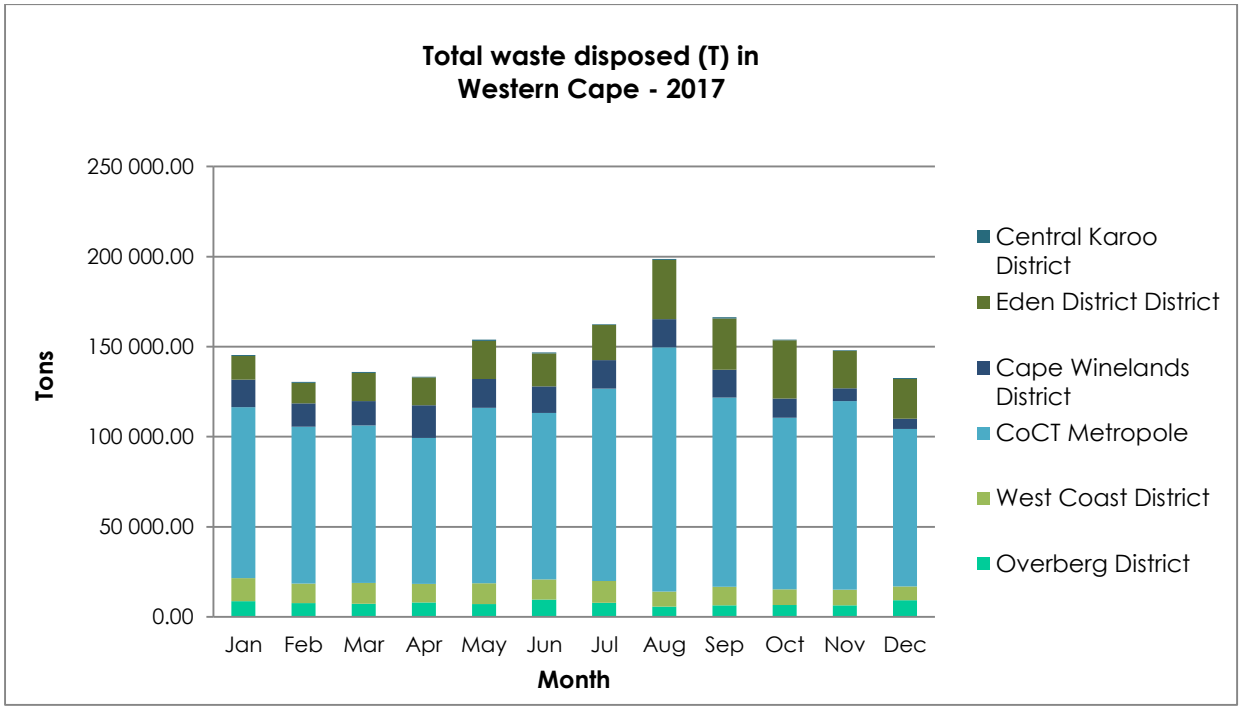


Figure 6: Waste disposed in the Western Cape - 2017

The highest percentage of waste diversion took place in the City and contributed towards 58.06% reported in the Province, for 2017. **Table 7 and Figure 7** provides a summary of all the diversion rates calculated for the municipalities within the Western Cape using the data obtained 2017. The rates range from 1% to 59 %, with the least diversion taking place in the Central Karoo District. The City of Cape Town's diversion rate has increased by 64% since 2016, as they are the largest generator and account for the total largest tonnage of waste diverted with 1 626 315.23 tons.

Table 7: General Municipal Solid Waste diversion (2016 – 2017)

Municipalities	Waste Diverted (T) in 2016	Waste Diverted (T) in 2017	% Waste diverted in 2017
Overberg District	44 756.76	52 005.98	36.43
West Coast District	6 895.36	83 974.17	40.26
City of Cape Town	592 309.72	1 626 315.23	**58.06**
Cape Winelands District	16 578.15	23 869.05	12.89
Eden District	3 711.14	9 548.63	3.66
Central Karoo District	79.30	111.88	1.89

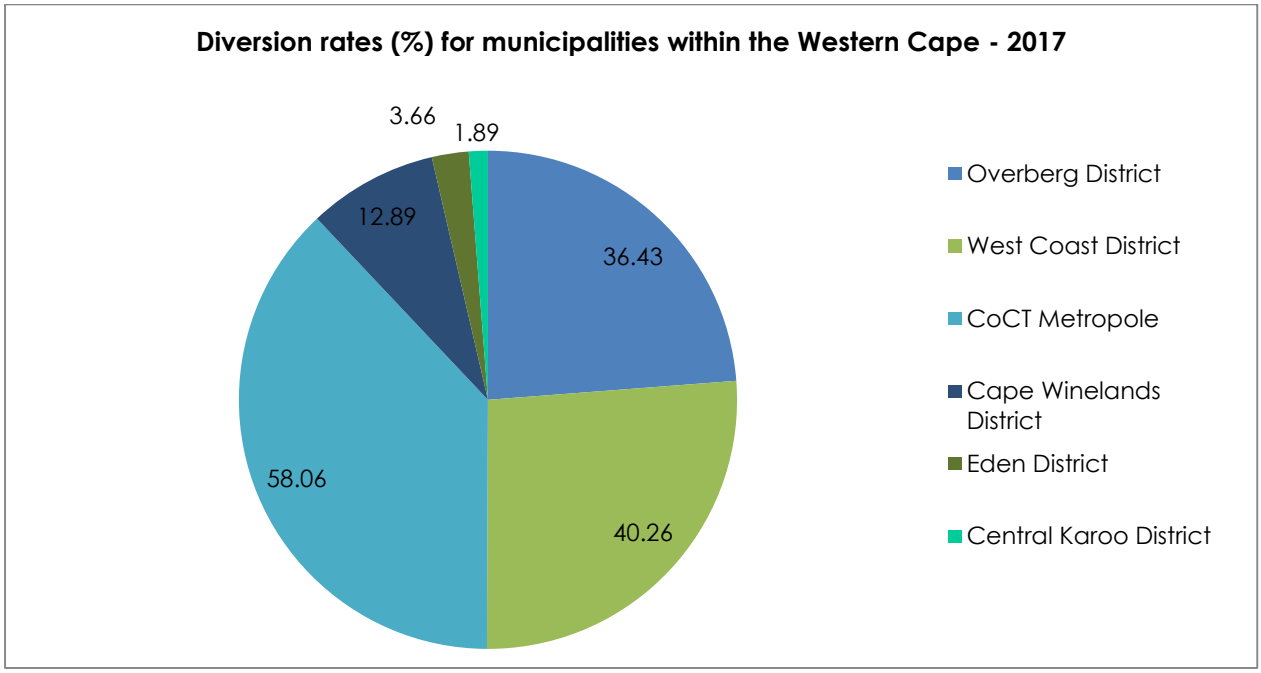


Figure 7: Western Cape diversion rates – 2017

4.3.1. General waste summary for Overberg District Municipality

The Overberg District Municipality (ODM) comprises four local municipalities i.e. Cape Agulhas, Overstrand, Swellendam and Theewaterskloof. The District Municipality has two (2) waste disposal facilities namely Karwyderskraal and Elim Landfill sites. The waste reporting for these facilities is being administrated by the Overstrand Municipality for Karwyderskraal Landfill and Cape Agulhas Municipality for the Elim Landfill, respectively.

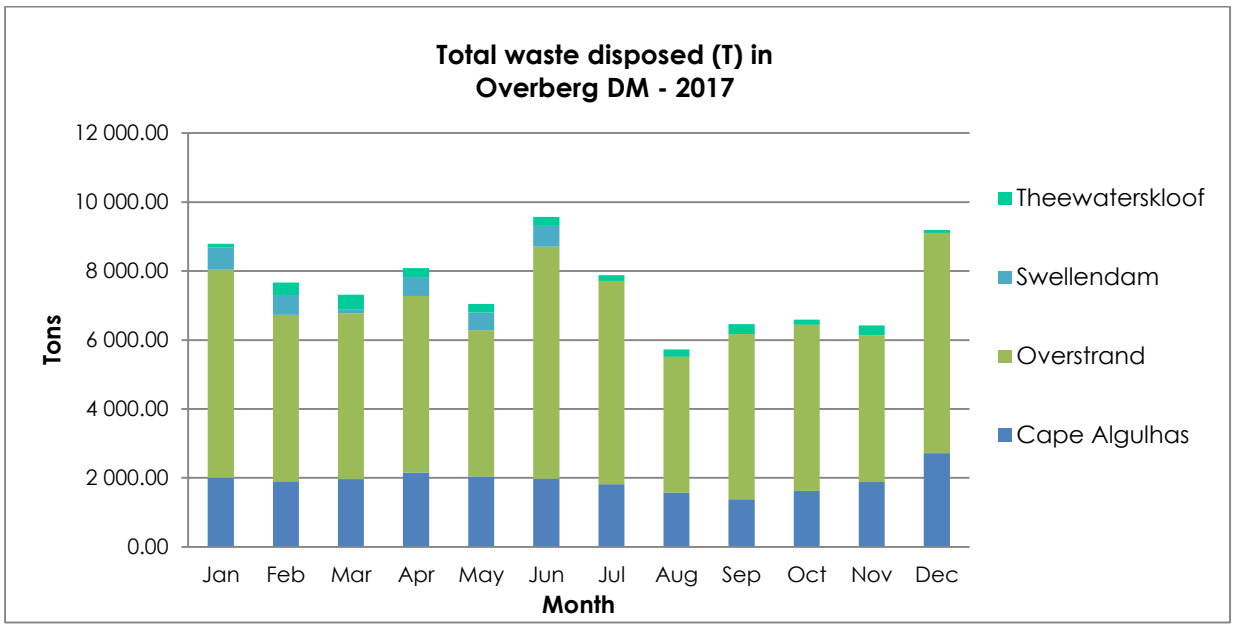


Figure 8: Waste disposed in ODM – 2017

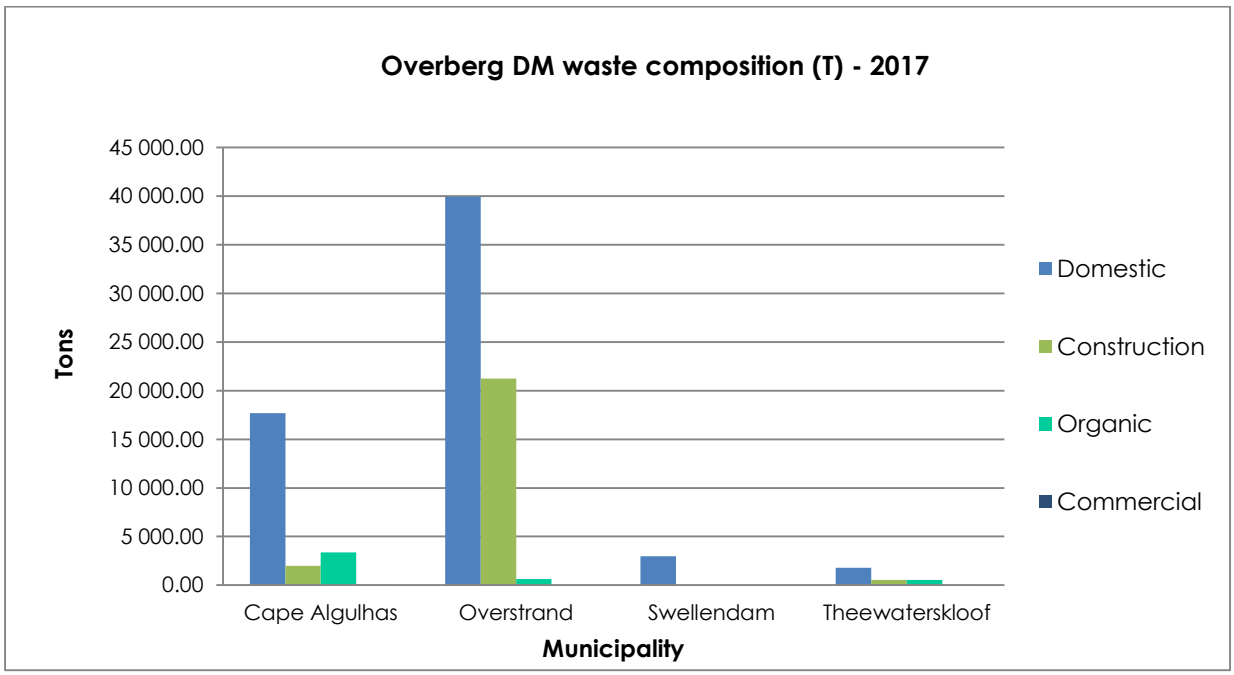


Figure 9: Overberg District Municipality waste composition for 2017

The total general waste disposed in the ODM **90 736.37 tons**, that is an increase of 4 459.19 tons (4.9% increase) since 2016. The total waste disposed includes municipal, construction, commercial and organic waste types. The increase is mainly due to the increased reporting frequency of the Swellendam Municipality and the correction of waste flows within the municipalities (i.e. construction waste was incorrectly reported as waste diverted from landfill in 2015) and may not be a true reflection of increased waste disposed of within the district. The Overstrand Municipality has disposed 61 844.45 tons and still contributes the most waste to the District, followed by Cape

Agulhas Municipality with 23 049.96 tons. See **Figures 8 and 9.** It should also be noted that the calculations for the Overberg District Waste Management regional facility namely Karwyderskraal Landfill, is also included for Overstrand as they are currently managing the facility and accepts waste from other municipalities.

The total waste diverted for the ODM has increased to **52 005.98 tons** in 2017 from 44 756.76 tons in 2016 and 35 353.40 tons in 2015. Overstrand Municipality is the highest contributor with 45.59% of waste diverted (of which 85% was due to municipal recycling) and Cape Agulhas has initiated similarly with 0.82% diversion. **See Figure 10.** This can be attributed to various municipal and private recycling and composting activities taking place within the municipalities. The combined rate of diversion Overberg District is approximately 36.43%, an increase of 14% since 2016. Swellendam and Theewaterskloof Municipalities did not report on any waste diverted from landfill for 2017 and these needs to be addressed in 2018.

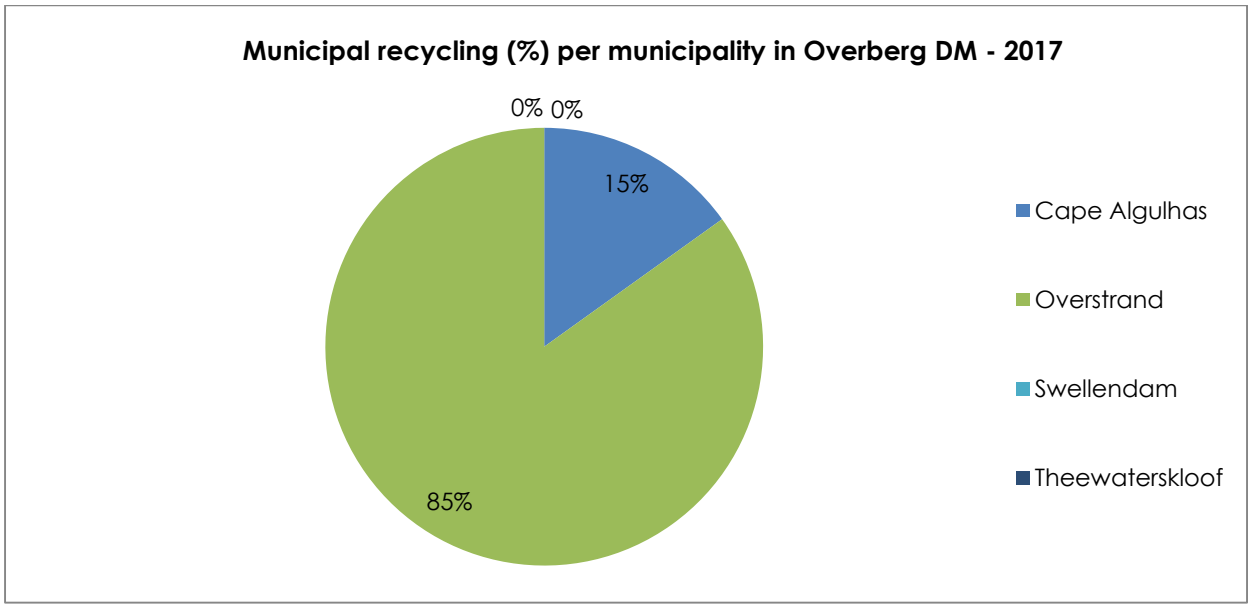


Figure 10: Waste diversion (municipal recycling) in the Overberg DM – 2017

The District generated **142 742.35 tons** of waste in 2017 compared to 131 033.94 tons in 2016. This has resulted in an 8% increase and must be noted that the increase of waste generated in the District is mainly due to the increased amount of waste diverted from landfill in the Overstrand Municipality and the additional increased reporting by the Swellendam Municipality, albeit only for the first six (6) months in 2017.

Overstrand, as an urban area, generates proportionally more organic waste than Cape Agulhas but most of this is diverted from landfill through chipping or composting facilities.

4.3.2. General waste summary for West Coast District Municipality

There are five (5) local municipalities in this District, namely Swartland, Bergrivier, Cederberg, Saldanha Bay and Matzikama. The Piketberg and Porterville Landfills accept construction and organic waste, where it is used for cover material and chipped respectively. All the municipal waste collected at these sites is transferred to Highlands Landfill and municipal waste from the Piketberg Materials Recovery Facility (MRF) and Porterville Drop-off is disposed at Highlands Landfill. Recycling is very active within the Bergrivier Municipality.

Vredenburg Landfill and Vredenburg MRF are located on the same premises where municipal waste is recovered at the MRF and the remaining waste is disposed. Waste from the Bergrivier Municipality is also disposed at the Vredenburg Landfill.

The West Coast District Municipality disposed **123 770.38 tons**, which is 40% less than what was reported for 2016 (172 893.99 tons). The decrease in reported tonnages for waste disposed in the district is mainly due to the increased reporting and reporting accuracy from the Saldanha Bay Municipality and the reporting of stockpiled cover material as waste diverted from landfill instead of disposed.

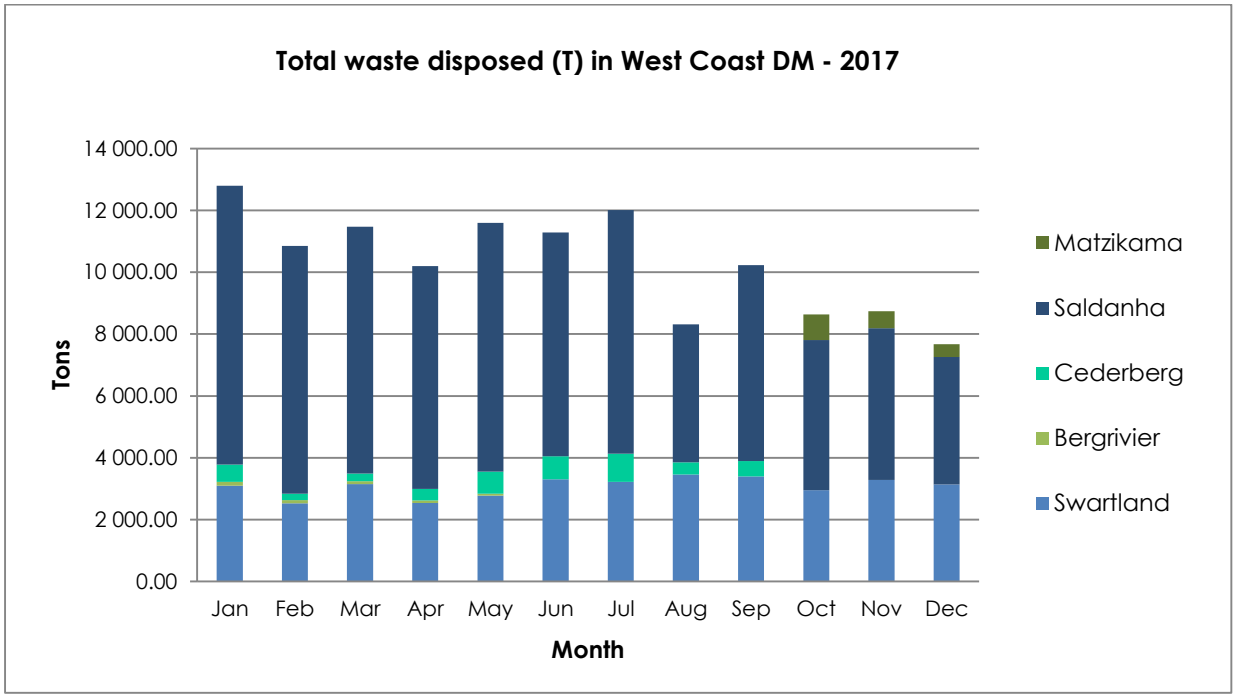


Figure 11: Waste disposed in WCDM - 2017

Figure 11 and 12 displays Saldanha Bay Municipality as the biggest contributor (80 045.00 tons or 64%) to the waste disposed in this District, as well as diverting almost half of what they generated in 2017. The Bergrivier Municipality has also increased their reporting but since they export most of their waste to the Swartland and Saldanha Bay Municipalities for disposal, they do not contribute significantly to the large increase. Numerous telephonic and electronic requests have been made

to Cederberg Municipality to report but no waste reports were received from them for October to December 2017.

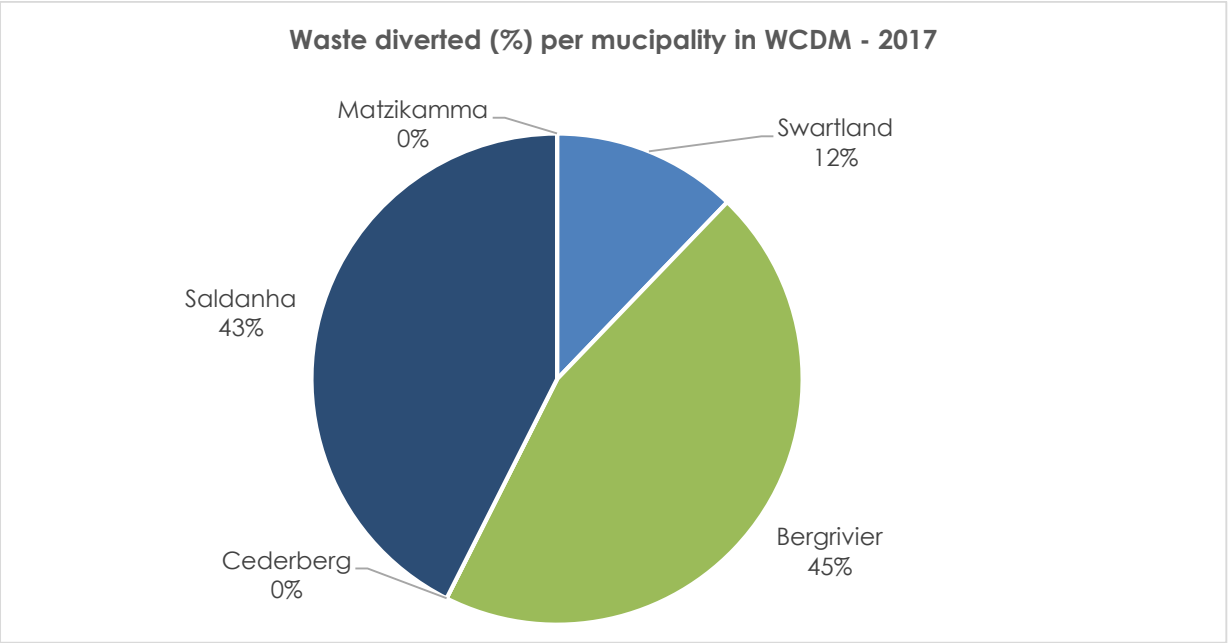


Figure 12: Waste diverted per Municipality -2017

Saldanha Bay Municipality contributes to the most tonnages of waste diverted from landfill with 70 093.58 tons (43%) of their waste diverted from landfill. Bergrivier Municipality have no disposal facilities within the Municipality and thus actively pursue waste reduction as this decreased the cost of waste management within the municipality. The rate of diversion for the WCDM is approximately 40.26% as a result of the high rate of waste diversion reportedly taking place by Saldanha Bay Municipality. The total waste diverted in the District is 83 974.17 tons, as compared to 6 895.36 tons in 2016.

4.3.3. General waste summary for City of Cape Town

The City of Cape Town (CoCT) currently operates thirty (30) waste management facilities within the Metropole area. The City has reported that **1 174 991.27 tons** of general waste had been disposed for 2017. This is a considerable decrease from 2 496 138.54 tons reported for 2016. See **Figure 13.**

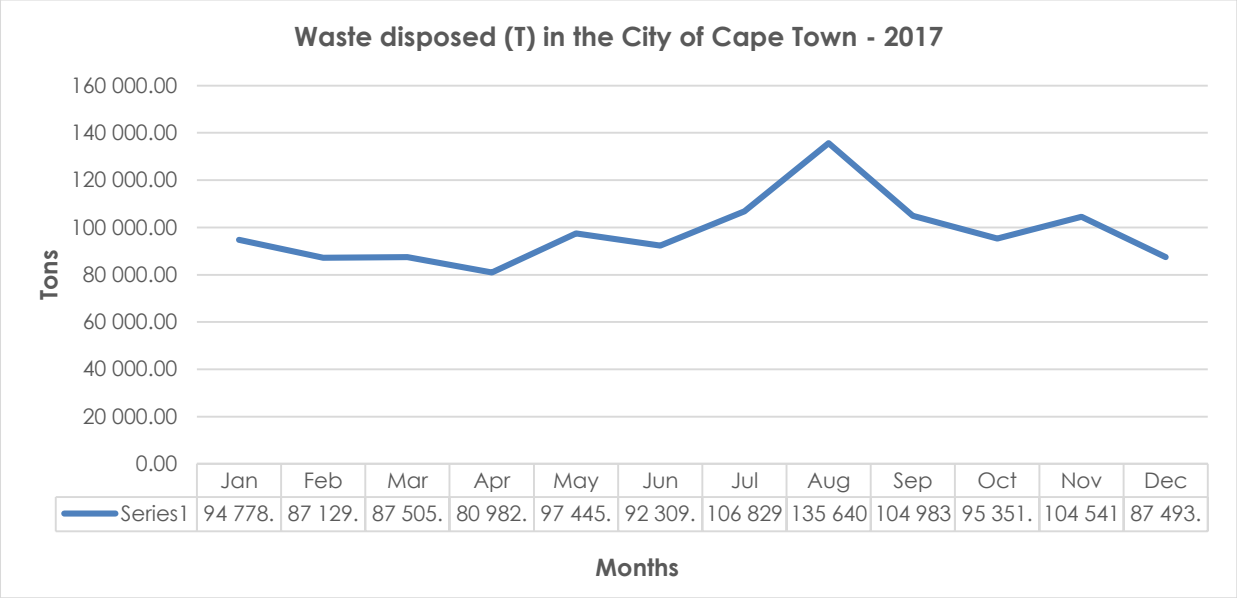


Figure 13: Waste disposed in the City - 2017

An amount of **1 626 315.23 tons** (58.06%) has been reported as diverted via Builders' Rubble (BR) stockpiled for cover, slope or roads at landfill sites, Garden Greens (GG) being chipped and various Waste Minimisation Programmes in 2017, considering in 2016, a 19.18% diversion rate was attained. The waste diversion rate is 19% compared to 45.31% in 2015, this is mainly due to the reduced amount of historic reporting of builder's rubble that had previously been stockpiled. See **Figure 14.** Overall, **2 801 306.50 tons** of general waste has been generated for 2017, a 10% decrease in waste generation since 2016.

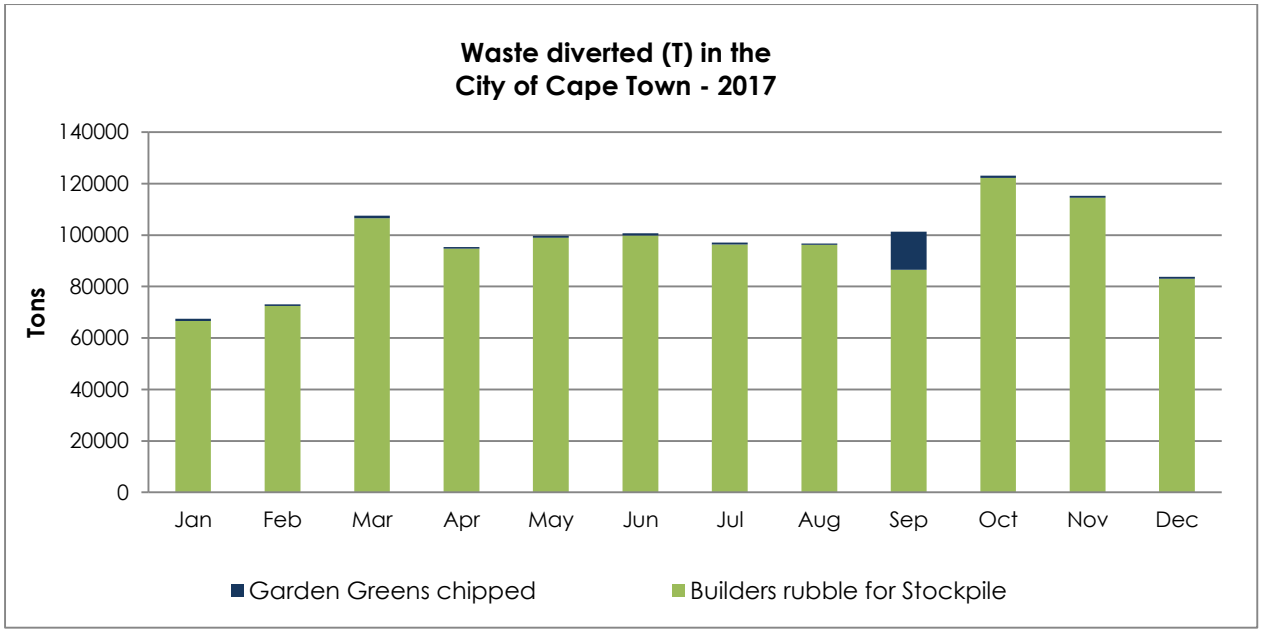


Figure 14: Waste diverted in the City – 2017

4.3.4. General waste summary for Cape Winelands District Municipality

There are five (5) local municipalities in the District namely Drakenstein, Stellenbosch, Langeberg, Breede Valley and Witzenberg.

The total waste disposed for the Cape Winelands District Municipality **161 314.15 tons** which is far less than what was reported and (558 195.83 tons) disposed in 2016. During 2017, Drakenstein Municipality's domestic waste contributed towards a third of the waste disposed in the District, 50 336.36 tons, see **Figure 15**. Stellenbosch Municipality closely followed with 40 177.14 tons disposed.

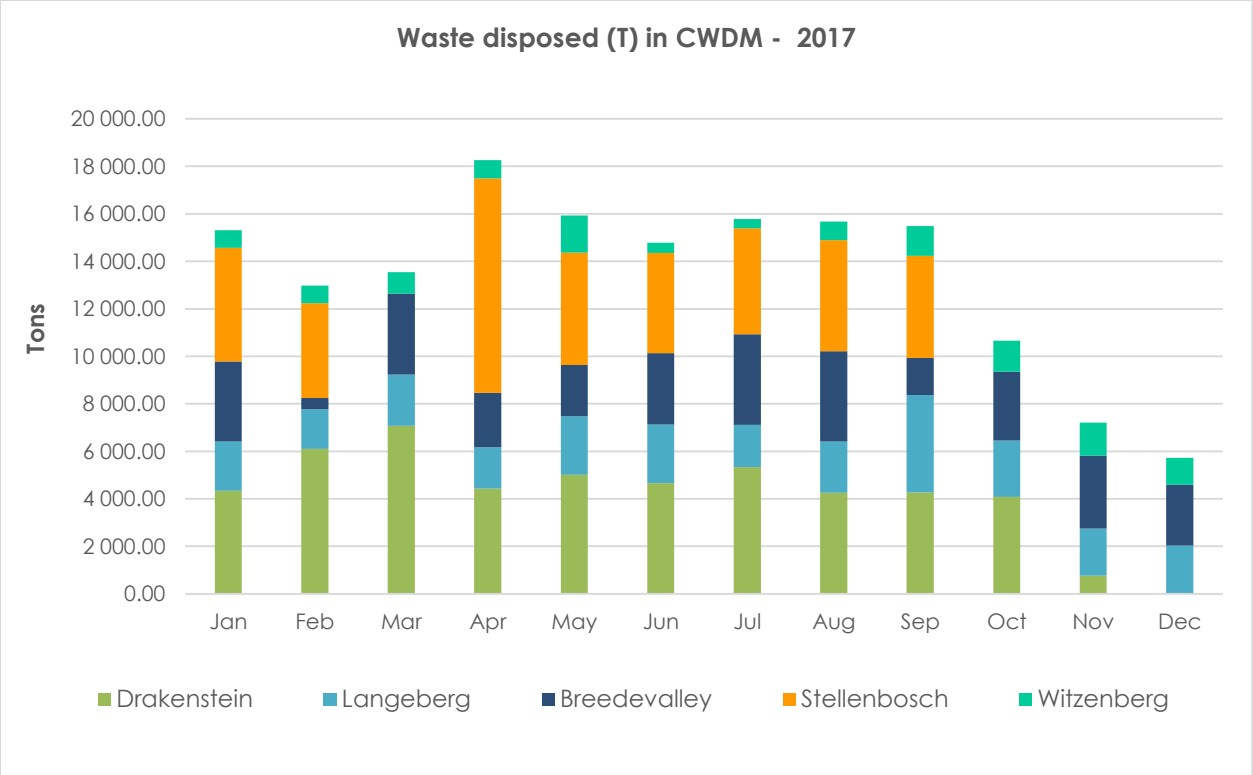


Figure 15: Waste disposed in CWDM - 2017

Although the figures for these two (2) municipalities are comparable, Stellenbosch Municipality has embarked on an aggressive waste diversion exercise whilst efforts were made by Drakenstein Municipality. Witzenberg Municipality does not have any waste diversion initiatives, however there are private recyclers who operate within the municipal boundaries. Diversion figures for this municipality are reflected in the graph below and thus represents the efforts of the private recyclers. See **Figures 16.**

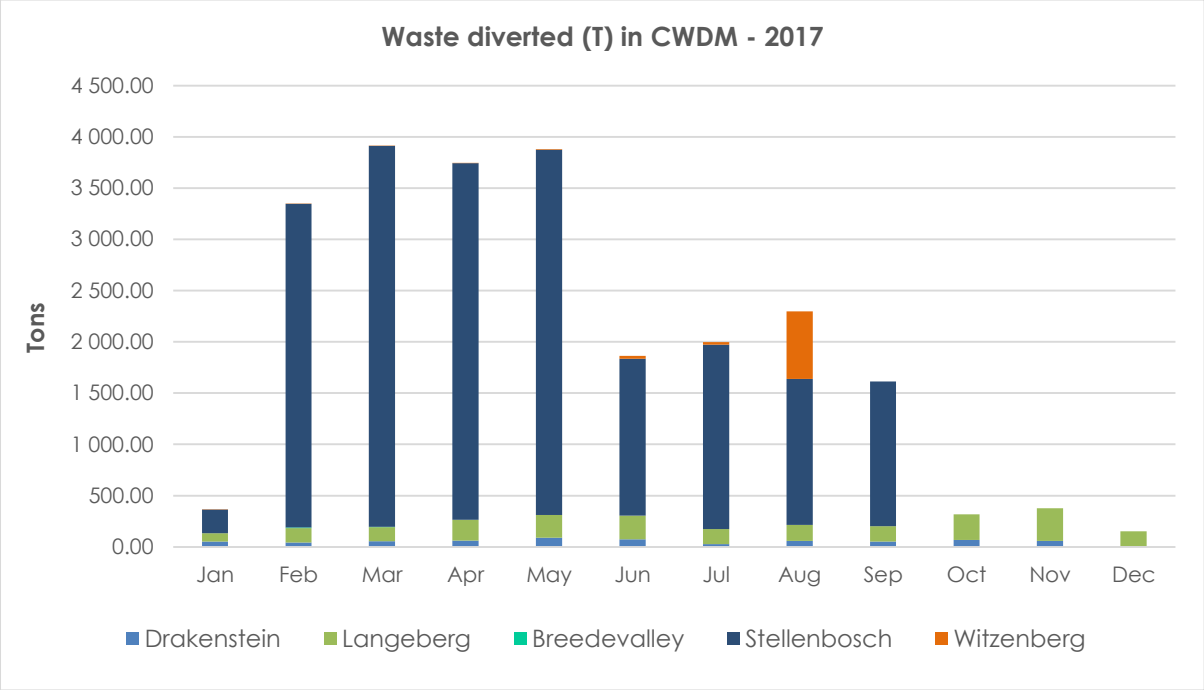


Figure 16: CWDM waste diverted in 2017

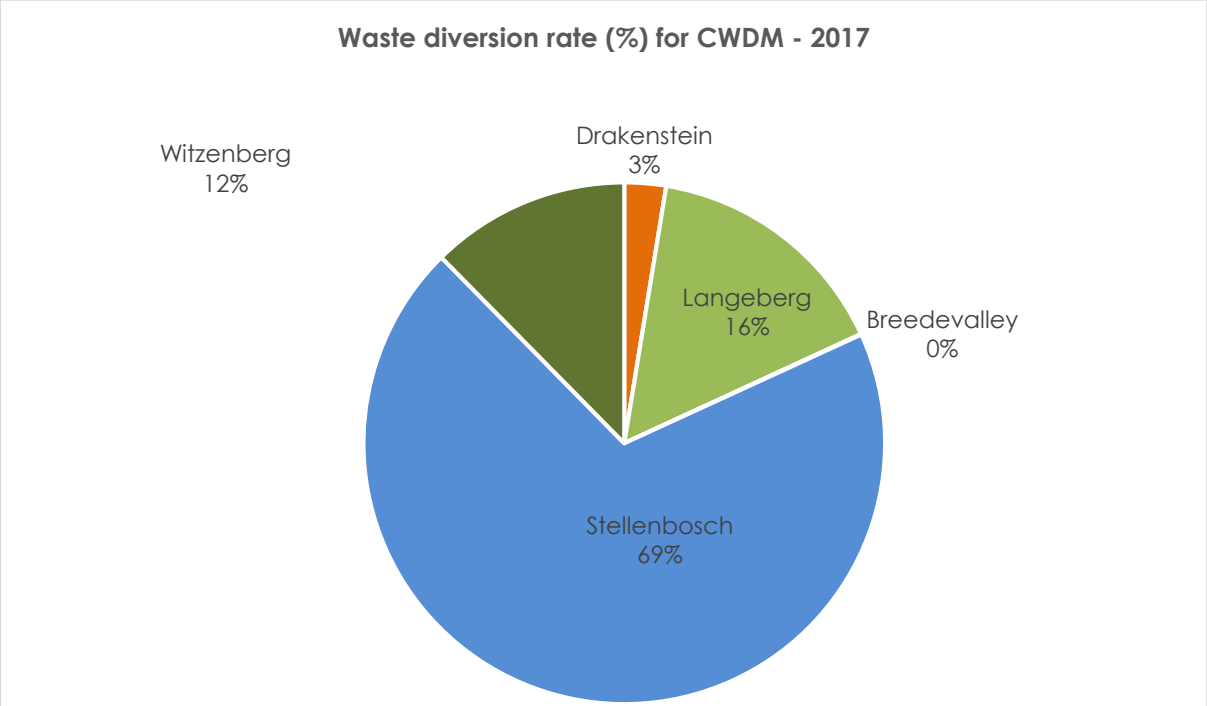


Figure 17: Waste diversion rates for CWDM – 2017

Although the overall diversion rate for the district is only 12.89 %, the individual diversion rates for the two major contributors, which is Stellenbosch and Langeberg Municipalities are 33.58% and 7.51% for respectively. For the remaining municipalities there has been little or no reporting on waste diverted from landfill and in some cases waste minimization efforts do take place, on a very small scale, and is this might result in under reporting. See **Figure 17**.

4.3.5. General waste summary for Eden District Municipality

There are six (6) local municipalities namely Kannaland, Mossel Bay, Knysna, Bitou, George and Oudtshoorn. PetroSA is situated in Mossel Bay Municipality and is a privately owned waste disposal facility that renders a service to certain municipalities within the EDM for the disposal of their general waste. During 2017, domestic waste values were reported by Mossel Bay, Knysna, Bitou and George Municipality at the PetroSA landfill, see **Figure 18**. No waste was reported for Oudtshoorn Municipality via IPWIS nor the Waste Calculators. Therefore, the totals discussed in this section only represents five (5) of six (6) municipalities in the EDM. The total waste disposed for this District is 251 262.98 tons resulting in a 66% increase since 2016.

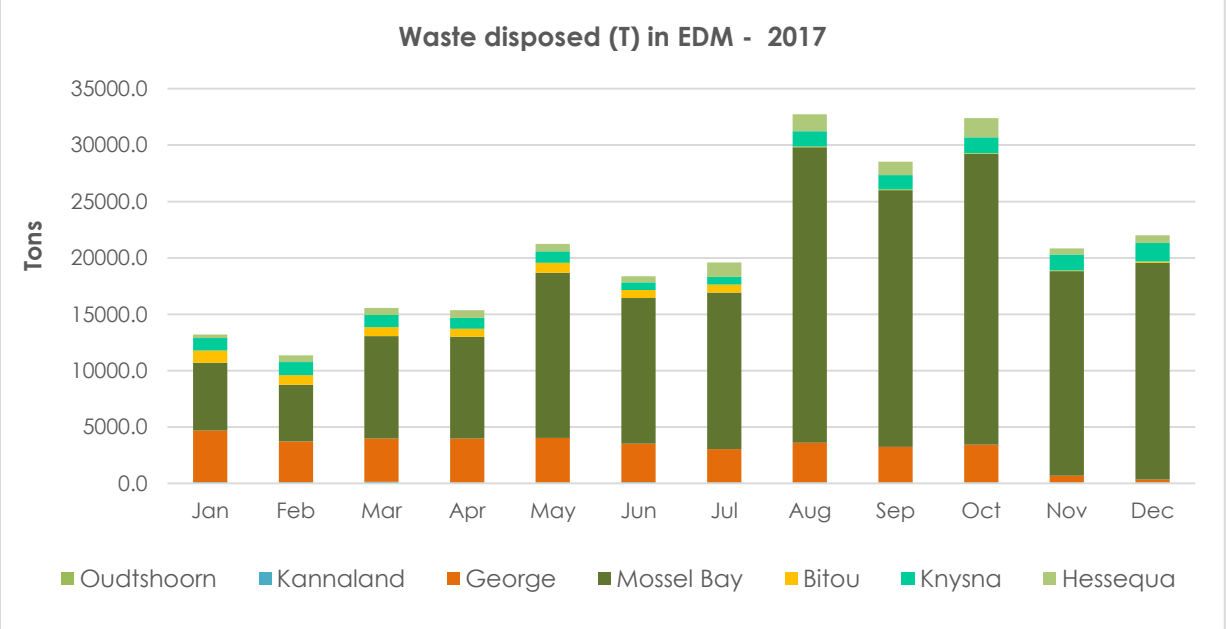


Figure 18: Waste disposed in Eden District - 2017

The total waste generated in the EDM amounts to **260 811.62 tons** for 2017 compared to 89 993.16 tons for 2016, which indicates a 65% increase in the waste generated. Mossel Bay Municipality is still the biggest contributor of waste disposed with 182 653.98 tons for the year, 20 355.75 tons being organic waste and 127 581.85 tons' builders' rubble (construction and demolition waste). Of the total waste disposed in the EDM **9 548.63 tons** (3.66% diversion rate) were diverted. This amounts to a 61% increase in waste diversion since 2016 and which is largely representative of municipal recycling taking place in George and therefore municipalities in this District need to target additional waste minimization initiatives. See **Figure 19.**

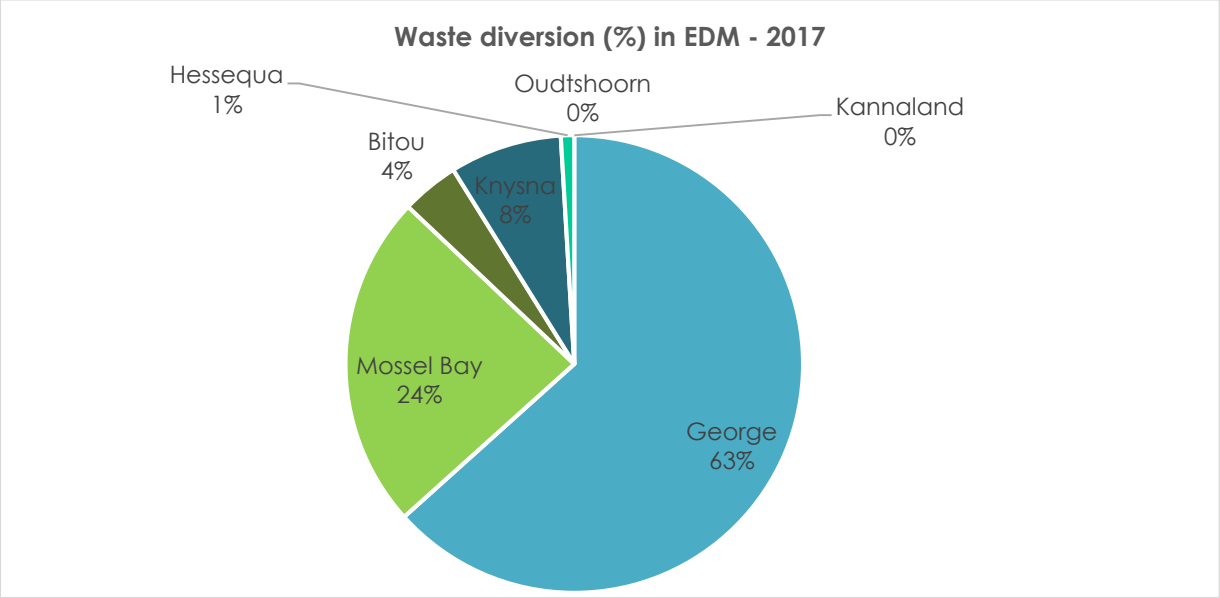


Figure 19: Waste diverted in Eden District - 2017

[1]In addition, Bitou Municipality embarked on a project to reduce the volume of builders' rubble to landfill. Through crushing builders' rubble to mix with clay, the project has managed to develop compressed earth building blocks to be reused in various construction projects. This is a significant contribution to solving the municipality's waste issue, as construction waste utilizes a large percentage of the current landfill airspace. (DEADP, Green Economy Report, 2016)

4.3.6. General waste summary for Central Karoo District Municipality

There are three (3) local municipalities namely Beaufort West, Prince Albert and Laingsburg municipality in the District. The waste generation and disposal totals reported in the Central Karoo District **(5 802.91 tons)** shows Laingsburg and Beaufort West Municipalities, as the biggest waste contributors in the District with 2 286.82 tons and 2 564.64 tons respectively. See **Figure 20**. Beaufort West Municipality were also the only municipality that reported on waste diversion in 2017.

Beaufort West Municipality has increased the frequency of their reporting for the two (2) facilities, namely Beaufort West Recycling and Vaalkoppies Landfill. Municipal reporting is still falling short from waste management facilities situated on the outskirts such as Nelspoort, Murraysburg, and Merweville. The inability of municipalities to employ gate controllers for monitoring waste entering the waste management facilities is an increasing concern that needs to be addressed.

Despite a training session with the District's "Youth Jobs in Waste" personnel in 2016, reporting for the Prince Albert Municipality were only done for a limited period and seized again. There is a significant lack of leadership and management buy-in enforcing the principles of integrated waste management in the Prince Albert Municipality. This is a matter of great concern in terms of environmental health and ecological sustainability as the municipality has negated to address

[1] Western Cape Government, Green Economy Report, 2016

integrated waste management. DEA&DP has assisted Prince Albert Municipality in 2017 and there has since been improvement in their reporting frequency.

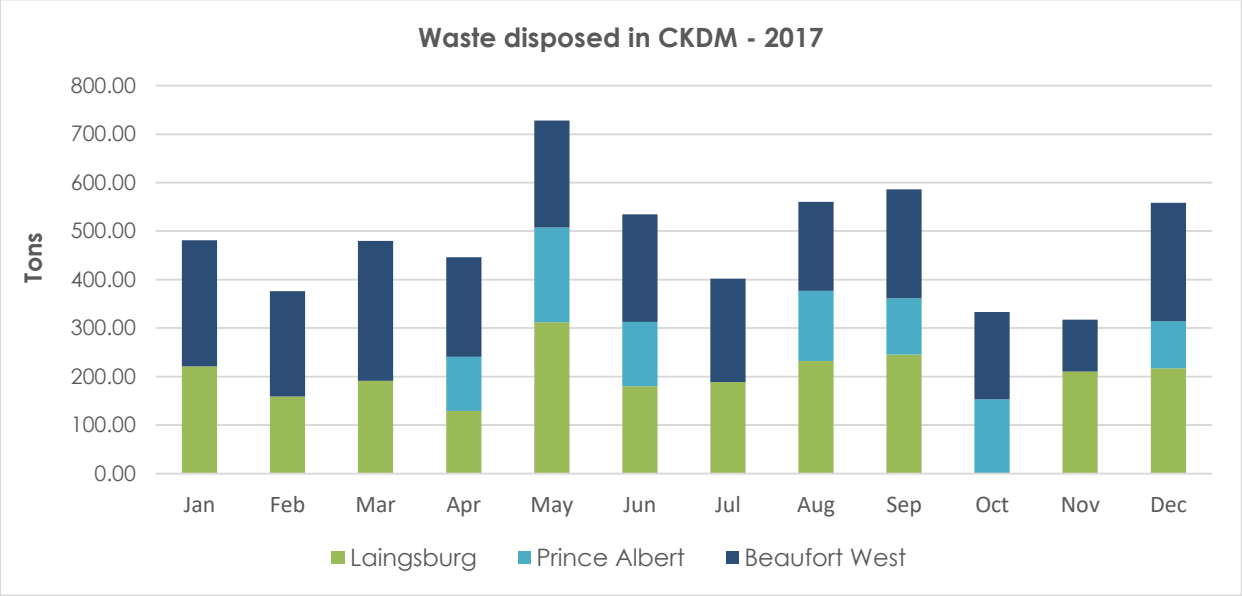


Figure 20: Waste disposed in CKDM - 2017

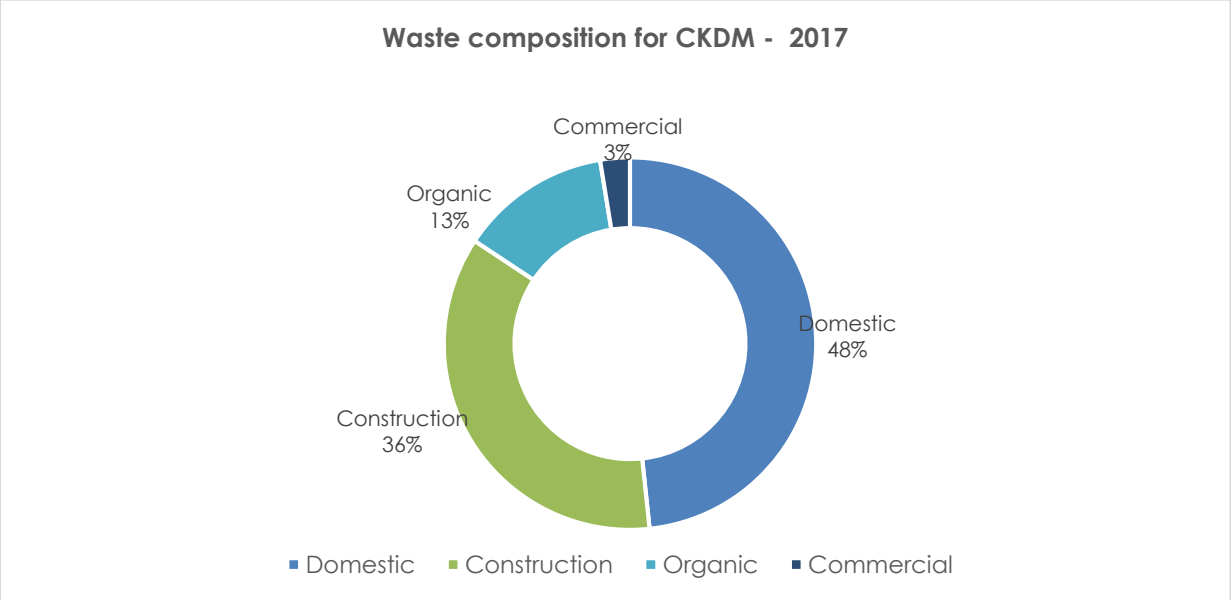
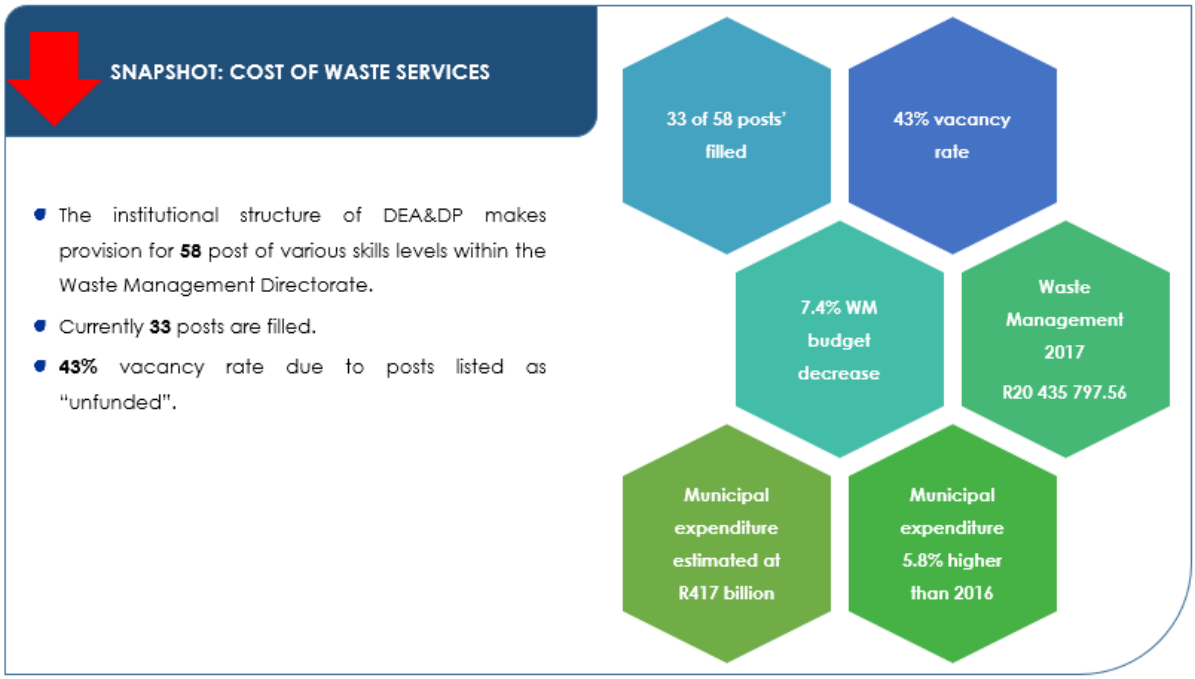


Figure 21: Waste composition for CKDM - 2017

The waste diverted in the CKDM amounts to **111.88 tons** (1.89% diversion rate) for the 2017 for municipal recycling, resulting in a 29% increase in diversion. The waste volumes generated have increased from 5 914.79 tons (33% increase), as compared to 3 943.53 tons in 2016. This is due to increased domestic waste generated in Beaufort West as compared to an increase in builders' rubbles generated in Laingsburg Municipality. Organic and construction waste in this District amounts to 761.60 tons and 2 088.08 tons respectively, with no waste diversion mechanisms taking place. See **Figure 21**.



5.1. Cost of Provincial waste management services

Table 8 below reflect the cost of Waste Management for the DEA&DP in the 2017 calendar year.

Table 8: Operation cost for Directorate Waste Management

Type of expenditure	Amounts
Compensation of employees	R17 276 387.75
Goods and services	R2 973 973.42
Payments for financial assets	R6 313.13
Transfers and subsidies	R43 426.19
Capital assets	R56 328.64
Grand total	**R20 435 797.56**

Together with the cost for projects, total cost of Waste Management to the Provincial Government is **R 20 435 797.56**, a **7.4%** decrease from 2016.

5.2. Cost of Municipal waste management services

The Department obtained financial OPEX and CAPEX (audited) for all local municipalities from Provincial Treasury and are financial summaries of waste management services. [2]Total municipal expenditure in 2017/18 is estimated to be R417 billion, increasing to R439 billion in 2018/19 and R467 billion in 2019/20. Expenditure for 2017/18 is 5.8 % higher than the 2016/17 MTREF. Municipal operating expenditure on the trading services consisting of water, electricity, waste water management and waste management is budgeted to increase from R166 billion in 2016/17 to R174 billion in 2017/18. In 2017/18 this equates to just over half the total operating expenditure of municipalities.

The information was taken from the 2016/17 and 2017/18 financial years i.e. from January to December 2017. The total municipal operational and capital expenditure for 2017 is **R2 623 640 217** and **R273 213 992** respectively. See **Table 9.**

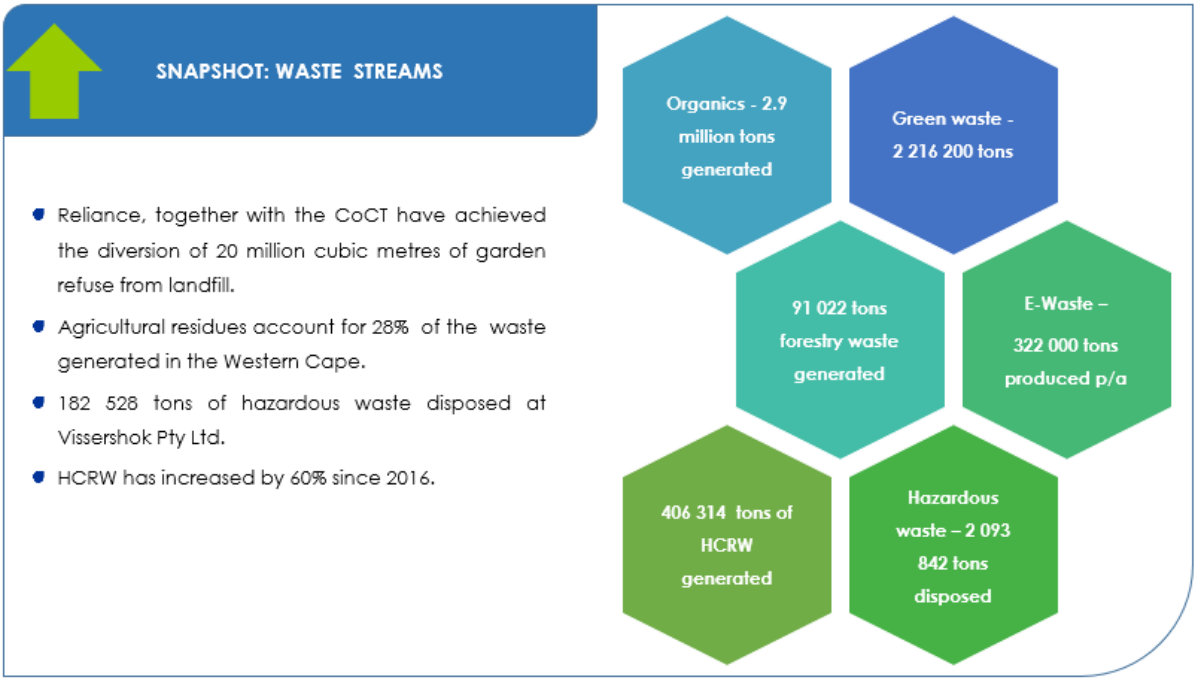
Table 9: Opex and Capex for 2017

Municipalities	Opex	Capex
City of Cape Town	R1 868 557 281	R194 552 867
Breede valley	R38 482 570	R8 411 732
Cape Winelands	R0	R0
Drakenstein	R121 705 260	R16 385 519
Langeberg	R26 052 738	R2 241 050
Stellenbosch	R41 263 429	R7 365 842
Witzenberg	R24 864 913	R2 873 351
Beaufort west	R12 676 752	R336 400
Central Karoo	R0	R0
Laingsburg	R1 529 267	R0
Prince Albert	R5 964 710	R0
Bitou	R32 693 074	R747 456
Eden	R2 038 648	R0
George	R79 944 118	R4 599 944

[2]http://www.treasury.gov.za/comm_media/press/2017/2017110801%20Media%20statement%20on%20local%20government%20adopted%20operating%20and%20capital%20budgets%20for%202017-18.pdf

Municipalities	Opex	Capex
Hessequa	R15 577 248	R432 811
Kannaland	R3 839 441	R0
Knysna	R29 465 170	R215 865
Mossel Bay	R36 256 307	R3 195 582
Oudtshoorn	R26 154 752	R2 972 982
Cape Agulhas	R16 330 801	R64 225
Overberg	R29 377	R0
Overstrand	R56 526 014	R98 225
Swellendam	R6 548 054	R1 995
Theewaterskloof	R65 447 042	R1 054 138
Bergrivier	R17 986 329	R1 973 147
Cederberg	R7 364 109	R88 610
Matzikama	R13 914 921	R235 655
Saldanha Bay	R45 222 683	R25 339 935
Swartland	R27 205 209	R26 661
West Coast	R0	R0

Note: All the municipalities have spent budgets on operational requirements however, at the time the data was requested and extracted, "R0" results were obtained for certain municipalities and might not be an accurate representation of the Opex and Capex for 2017.



6.1. Waste streams information collated by Directorate Waste Management: Waste Minimisation and Policy

Table 10 below was compiled using published source documents and information provided by stakeholders. DEA&DP continuously strives to ensure data obtained is relevant, accurate and current, albeit, there are instances where access to waste stream data is limited and unreliable.

Table 10: Generation data (tons) for waste streams of interest to DEA&DP (2017)

Organics	**Approximately 2.9 million tons per annum** GreenCape reports that approximately 2.9 million tons of organic waste is generated in the Western Cape per annum. The Department is proposing a ban on all organics from landfill within 10 years, initially aiming to reduce organics to landfill by 50% over the next 5 years. (GreenCape, Waste Economy: Market Intelligence Report 2017, 2017) [3]Reliance, together with the CoCT have achieved the diversion of 20 million cubic metres of garden refuse from landfill - making the Western Cape the first province in South Africa and falls in line with WCG's plan to divert all organic waste from landfills by 2027.
Green Waste	**2 216 200 tons**

[3]https://www.greencape.co.za/content/city-of-cape-town-partners-with-reliance-to-divert-20-million-cubic-metres-of-organic-waste-from-landfills/

	This total calculated using the agricultural and forestry residues as contained in the Waste Economy: Market Intelligence Report 2017 compiled by GreenCape. The Department initiated a Status Quo Report on Green Waste in 2016 and found that 5 local municipalities are diverting waste through various waste management processes. The report found municipal data management systems to be inefficient and non-existent, which makes quantification difficult.	
Abattoir Waste	West Coast: 9 258 tons CoCT: 23 009 tons Overberg: 4 219 tons Eden: 12 842 tons Central Karoo: 2 180 tons Cape Winelands: 24 595 tons	The potential estimates of abattoir waste produced per district in the Western Cape has been calculated from slaughter numbers reported by various abattoirs for 2015/2016 to the Department of Agriculture. It's estimated that a total **76 103 tons** of abattoir waste was published in the Western Cape for **2015/2016.**
Wood Waste	Forestry residues (wood waste) in the Western Cape amounts to **91 022 tons** per year. This total can further be broken down per District as follows: City of Cape Town: 10% Cape Winelands District: 5% Eden District: 70% West Coast District: 5% Overberg District: 10% Central Karoo District: No or limited information	(GreenCape, Waste Economy: Market Intelligence Report 2017, 2017)
Agricultural residue	**2 125 100 tons** (GreenCape, Waste Economy: Market Intelligence Report 2017, 2017)	The Status Quo Report on Green Waste considered agricultural residues. It found data management systems of municipalities are non-existent which made quantification difficult. Agricultural residues account for **28%** (2 million tons) of the waste generated in the Western Cape. These estimates are based on the size of the industry and the expected wastes generated. Agricultural residues include materials such as manure and

		green fodder that be reused on farms (e.g. left on the land for soil enhancement, fertilizer or repurposed for animal feed).

Table 11 represents the waste composition for the Western Cape obtained from the GreenCape Market Intelligence Report (MIR) 2017. Even though the waste stream data compiled from MIR and DEA&DP varies, it provides a good comparison of the difficulty of obtaining reliable information of waste within the province.

Table 11: Western Cape waste composition (GreenCape, Waste Economy: Market Intelligence Report 2017, 2017)

Waste streams	Western Cape
Municipal Solid Waste	4 092 031
Organic waste	489 294
C&DW	1 704 500
Non-recyclable MSW	685 500
Mainline recyclables	1 200 800
Paper	295 200
Plastics	222 600
Glass	151 600
Metals	531 400
Tyres	18 080
Wet sewerage sludge	294 900
Commercial and industrial waste	881 000
Agricultural residues	2 125 100
Volatile animal waste	149 700
Forestry residues	91 100
E-waste	62 300
TOTAL CLASSIFIED WASTE	**7 702 280**

6.2. Hazardous waste

6.2.1. Construction and Demolition Waste

Within the CoCT, about 43 000 cubic metres (m^3) of builders' rubble is dumped at landfill every month. The current crushing capacity in the CoCT is in excess of 17 000 m^3 per month. With extra capacity and further investment, it is expected that a further 38 000 m^3 per month will be available in the next couple of years. (GreenCape, Waste Economy: Market Intelligence Report 2017, 2017). There are opportunities for crushing companies to tender within Stellenbosch Municipality and the City, where companies will be need to be accredited with the CoCT Solid Waste Department as a waste management service provider. Eden District and Drakenstein Municipalities are currently diverting builders' rubble from waste disposal facilities.

The Department drafted a Construction and Demolition Waste Management Guideline and will be completed in 2018. The Western Cape IWMP 2017-2022 highlighted the need for the development of a guideline to assist municipalities with the management, diversion and beneficial use of this specific waste stream.

The objectives of the guideline include:

- To provide guidance to municipalities with respect to facilitating the re-use and recycling of construction and demolition waste (C&DW) with the aim of diverting this waste type from WDFs;
- To give effect to Goal 3, Objective 1 of the provincial IWMP, which aims to "Minimise the consumption of natural resources"; and
- To assist municipalities in reaching the overall national waste diversion target

The guideline includes a policy and legislative overview of C&DW and highlights key concepts applicable to reusing/recycling waste. It provides an overview of the benefits of and barriers to C&DW recycling in the province and proposes mechanisms for facilitating recovery and increasing diversion.

6.2.2. E-waste

According to the e-Waste Association of South Africa, approximately **322 000 tons** of electronic waste is produced per year. Since 2009, e-waste recyclers have increased from two large companies to over 20 companies, which are located across the country and provide a variety of services from refurbishment to metal extraction. See **Table 12**. Together, these companies process 45,000 tons of e-waste, which accounts for only 12% of national waste. (Naidoo R. , Infrastructure News, 2017)

Table 12: e-Waste Classification (GreenCape, Waste Economy: Market Intelligence Report 2017, 2017)

e-Waste classification	Tons	Percentage recycled
Large appliances (stoves, fridges)	125 000	39%
Consumer equipment	78 000	24%
Information technology (IT) equipment	77 000	24%
Small household appliances (toasters, kettles, etc.)	40 000	13%

Electronic waste includes computers, laptops, cell phones, entertainment electronics, household appliances and less obvious items such as cables and spent fluorescent tubes as well as chemical liquid-based goods such as batteries and printer cartridges that have been discarded. [4]In 2016, 44.7 million metric tonnes of e-waste were generated, an increase of 3.3 million metric tonnes, or 8%, from 2014. Experts foresee e-waste increasing a further 17% to 52.2 million metric tonnes by 2021. In 2016, only about 20%, or 8.9 million metric tonnes, of all e-waste was recycled. (UN News Centre, 2017)

[5]In a recent study conducted by the Council for Scientific and Industrial Research (CSIR), the Department of Science and Technology (DST) and research and development organisation, Mintek, it was found that approximately 90% of printed circuit boards and 80% of plastic recovered from e-waste in the country are exported for reprocessing. As only a small percentage is recycled, most e-waste is locked up in office buildings, homes, storerooms, etc. and forgotten. There is however, no data specific to the Western Cape and most of the e-waste processors in the Western Cape operate under the legislative threshold (treatment of less than 500kg of hazardous waste per day).

DEA&DP has over the years, conducted several studies on hazardous waste management. A Hazardous Waste Status Quo report compiled in the 2016/2017 financial year and e-waste was one of the waste streams covered in this report. It was however clear from this initial review, that a more focussed look at e-waste management was required. The Provincial IWMP Implementation Plan also highlighted the need for an e-waste status quo. In 2017, DEA&DP initiated a Status Quo Report on e-Waste and conducted meetings with key stakeholders to scope the project, identify any possible overlapping of efforts and ensure outputs contributed to the e-waste sector. The Status Quo Report focuses on e-waste management within municipal buildings, which includes information and communication technology equipment (ICT) and consumer electronics. A survey was developed and distributed to the waste management officers and ICT managers of all district

[4] http://www.un.org/apps/news/story.asp?NewsID=58285#.Wny2Nk3xumQ
[5] http://www.infrastructurene.ws/2017/05/04/why-sa-is-losing-out-on-full-e-waste-recycling-potential/

and local municipalities to obtain information on their e-waste management practices. Feedback to the survey was generally poor with the exception of the City of Cape Town. Preliminary results indicate that **desktop PCs**, **laptops** and **printers** were the main types of e-waste generated and most sold at public auctions or given to private contractors for sorting, re-use or recycling.

6.2.3. Hazardous Waste

Hazardous waste may be generated from household, agricultural sector, manufacturing processes, medical facilities and research institutions, etc., must be handled with precaution and disposed at licenced hazardous waste management facilities. The DEA&DP drafted a Hazardous Waste Status Quo Report, which provides a state of hazardous waste in the province and highlights the hazardous waste streams that require attention. The recommendations of the Hazardous Waste Status Quo Report are incorporated into the WC IWMP implementation plan. There are only two (2) waste disposal facilities within the Western Cape Province that are authorized and capable of accepting hazardous waste for disposal namely the City of Cape Town's Vissershok Landfill site and the privately owned, Vissershok Pty Ltd, Enviroserv/Averda Vissershok Landfill site.

Figure 22 is a summary of the waste quantities received from the two entities of hazardous waste disposed over the 2017 period:

Figure 22: Hazardous waste disposed at the City of Cape Town and Enviroserv/Averda

A total amount of **235 710,55 tons** of hazardous waste was disposed during 2017 in Western Cape. Inspection of data provided for 2017 from Vissershok Pty Ltd hazardous waste management facility

has shown that inorganic and organic hazardous waste, in different forms, contribute the majority of the waste that is disposed, see **Table 13 and Figure 23.**

Table 13: Quantities of various waste streams disposed at Vissershok Pty Ltd hazardous waste management facility for 2017

Waste Types	SAWIS Codes	2017 (Tons)
Inorganic Waste (Solid)	HW05-02	97 724
Waste Oils	HW07-01	4864
Sewage sludge	HW20-01	58 767
Other Organic Waste Without Halogen or Sulphur (liquid & sludge)	HW11-01	6453
Inorganic Waste (Liquid & sludge)	HW05-01	10 983
Other Organic Waste Without Halogen or Sulphur (solid)	HW11-02	6738
Asbestos Containing Waste	HW06-01	7411
Bottom ash	HW15-01	6640
Mineral Waste	HW17	2163
Total		**182 528**

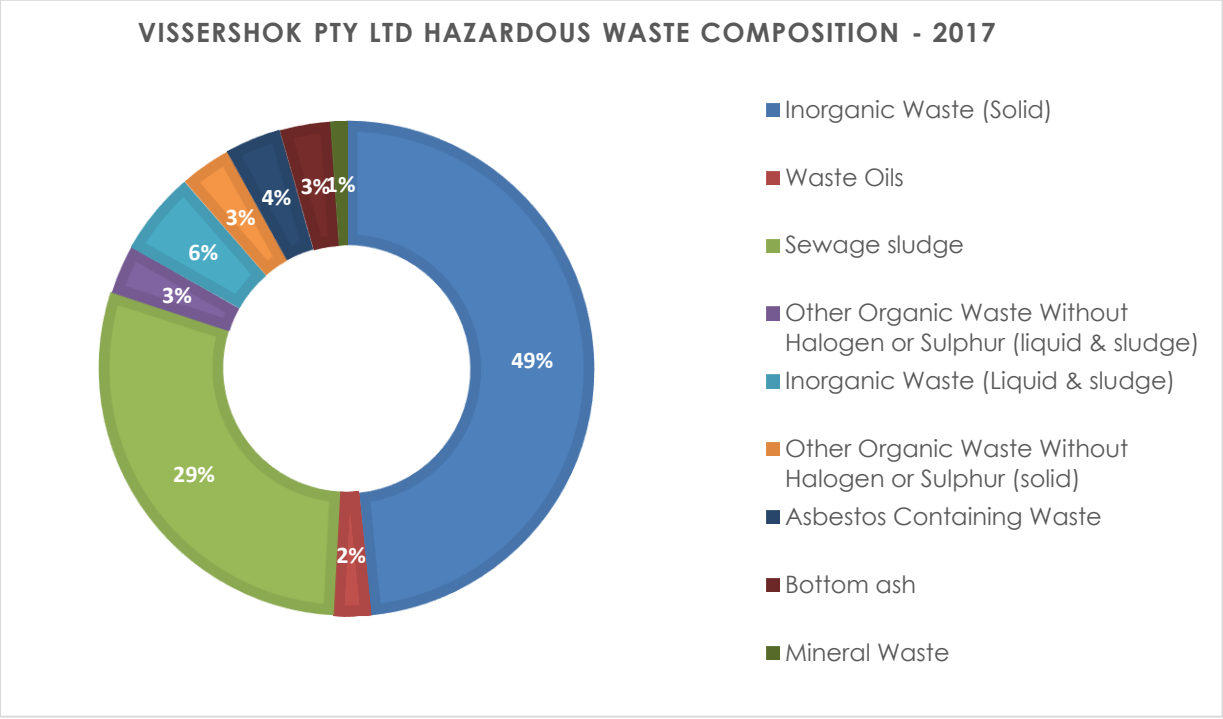


Figure 23: Vissershok Pty Ltd Waste Disposal Data 2016

6.2.4. Health Care Risk Waste Generated

Health Care Risk Waste (HCRW), being a category of Hazardous waste, generated and reported has **increase by 60%** since 2016. **Figure 24** indicates the City of Cape Town generated 406 314 tons of HCRW in the Province, while the least was generated in the CKDM area with 31 tons. Figure 25 represents the health care risk waste composition.

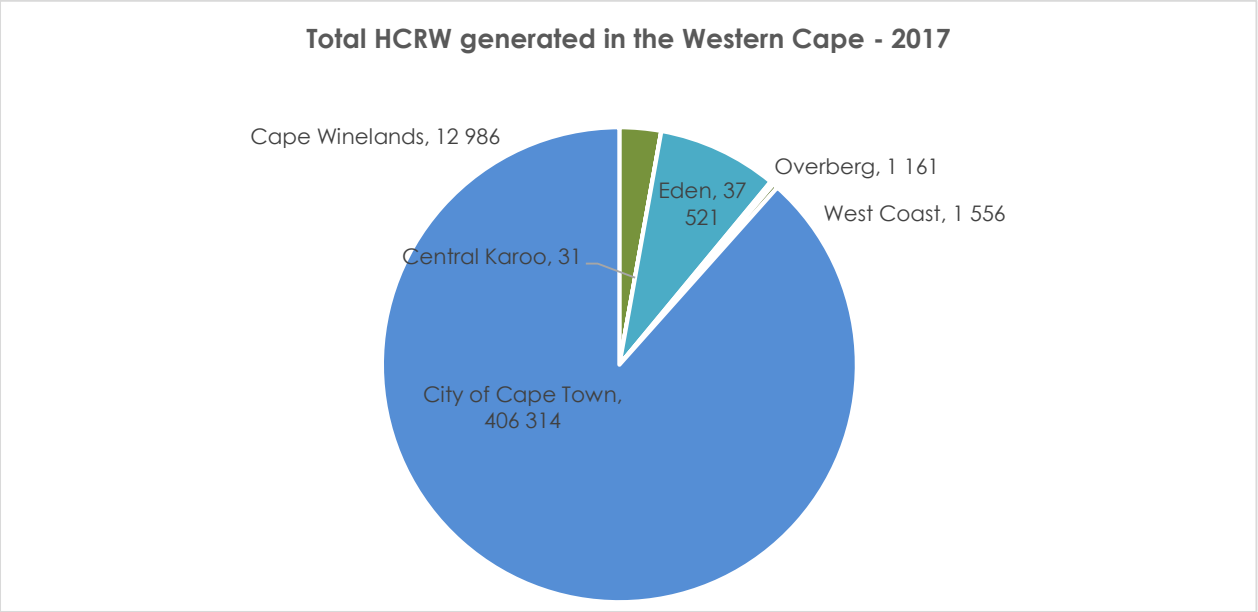


Figure 24: Western Cape HCRW generation for 2017

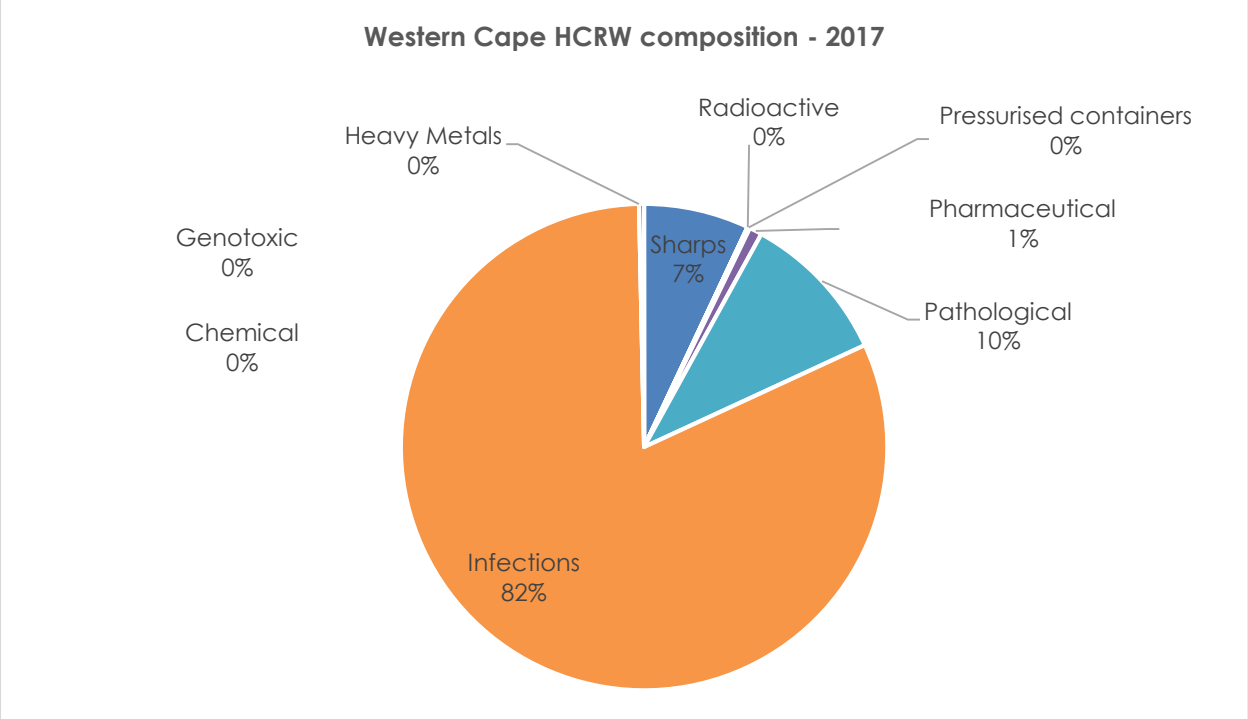


Figure 25: Western Cape HCRW composition for 2017

The GMC Integrated Waste Management Evaluation for 2017 included the evaluation of waste collection systems available and implemented for business and commercial properties, as well as farms, by the Municipality. The aim was to understand tariff systems implemented by municipalities to recover the costs for waste collection services provided and to reward good practices observed. Through this, the urgency for systems demonstrating "pay as you throw" tariffs to reduce the volumes of waste is highlighted. Evaluation of waste collection systems encourages participation in the municipal waste reduction mechanisms. In terms of the Constitution and the Municipal Systems Act (No. 32 of2000) (MSA), municipalities are responsible for ensuring that adequate waste collection and disposal facilities are available to meet the need within their municipal area.

The information provided in **Table 14** was sourced from the Portfolios of Evidence submitted by all municipalities participating in the Greenest Municipality Competition. Municipal tariff systems are important as they encourage the implementation of programmes that will extend the lifespan of waste disposal facilities. See **Tables 15 to 20**. It also demonstrates the importance of the availability of effective waste collection systems for households, business, commercial entities and farms.

Table 14: Western Cape Municipal waste collection - 2017

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
Mossel Bay **Note:** Increase in the number of businesses providing the removal of builders' rubble.	Weekly waste collection service is provided.	A kerbside collection service is provided to all residences. Skip collection of household general waste for informal residential areas. Garden waste collection (small amounts) on domestic refuse removal days. Open days for collection of household hazardous waste. Drop-off facilities available for collection of household hazardous waste, (including waste oil and e-waste).	Once per week as a set service. Additional services are available at request.	Kerbside collections for residences at a set tariff. Kerbside collections for businesses with a fixed increased tariff for once a week collections. Additional services are available at request and additional cost.	Onsite collection of general waste for farms in certain areas e.g. Herbertsdale. Skip collection of household general waste. Drop-off service available at Kwanonqaba and Sonskynvallei.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
Knysna Municipality	Provision of weekly kerbside collection for formal residences and a door-to-door service to informal residential areas.	Bags are provided to informal residential area households for waste collection services. Garden waste collection is provided at kerbside. Two (2) bags of garden waste are allowed for weekly kerbside collection.	A daily waste collection service is provided at events. A twice per week service is provided to businesses in the CBD – one (1) collection during the week and one collection on Sundays. Additional collection services are provided on a pre-arranged basis.	Kerbside and door-to-door collection is provided to residences – formal and informal. Onsite /kerbside collection is provided to businesses. Onsite collection is done at events. A drop-off service is available at the Refuse Transfer Station to farms operated as business/commercial/industrial properties.	Most of the farms are operated as commercial or industrial properties. Private waste collectors are utilised. A drop-off service is provided to them at a pay-as-you-throw rate.
Hessequa Municipality	A weekly service provided to households. Residents must supply their own refuse bags. Builders' rubble collection service is	A kerbside collection service is provided to all residences.	Waste collection is done twice weekly. Daily collection is done in some cases (unspecified).	Kerbside collection services are provided.	Weekly collection services are provided to farms and located on nine (9) main roads in the Municipality.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
	done on pre-arrangement. E-waste open days are arranged for the collection of e-waste.				Drop-off services are available at waste disposal facilities.
George Municipality	A weekly service provided to households.	A kerbside collection service is provided to all residences. Garden waste, builders' rubble and hazardous waste collection services are available.	Services are provided once a week.	Kerbside waste collection takes place at the business premises. A fixed increased tariff is charged.	Farms receive a weekly waste collection service.
Bitou Municipality	A weekly service provided to households.	A kerbside collection service is provided to all residential areas. A garden waste collection service is available at request for which a specified tariff applies.	Services are provided weekly.	A kerbside collection is provided as a "pay-as-you-throw" tariff.	A collection route was implemented for the farming area in Harkerville and around the airport. A drop-off service is provided at the Refuse Transfer Station or WDF.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
					A waste collection service covers most farms in the Municipality. A pay-as-you-throw tariff is implemented.
Overstrand Municipality **Note:** International export requirements forces farmers to dispose of waste in a responsible manner, at a licensed waste disposal facility.	A weekly service is provided to households. Skips in the informal residential area are collected on a daily basis.	Garden waste collection is allowed for kerbside collection for one (1) bag per week. A Drop-off service is available for clean builders' rubble. Mixed builders' rubble disposal is allowed and charged per tonnes. A drop-off service is allowed for hazardous waste (including lightbulbs, waste oil and e-waste).	Services are provided weekly.	Kerbside/onsite collection at a fixed tariff for office general waste. Drop-off facilities are available for industrial waste drop-off. The service is available free of charge for ≤1 ton. Kerbside collection of recyclables is a free service. Collection service is charged on a "pay-as-you-throw" system.	A drop-off service is available to farms. The service is free for ≤1 ton of general waste.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
Breede Valley Municipality	A weekly service is provided to households.	A kerbside collection service is provided to all residences. Waste can be disposed in skips are placed in residential areas for community. Garden waste and builders' rubble collection service is available.	"Pay as you throw" system is implemented. A free of charge service is implemented for recyclable material. Collection is done separately from normal household waste collection through a contractor.	Kerbside/onsite collection for business premises.	Drop-off services are available at no cost to farms to dispose at Touwsrivier Refuse Transfer Station, De Doorns and Worcester waste disposal facilities.
Stellenbosch Municipality	A weekly service is provided to households.	A kerbside collection service is provided to all residences. Skips are provided to and removed from informal residential areas. Hazardous waste collection services are available for residents on specific collection	Waste collection services are provided thrice per week. Availability of the service extends to five times per week at request. A fixed increased tariff applies. A pilot project was initiated at twenty (20)	Kerbside collection services are provided.	A service is provided weekly to farms. A fixed increased tariff applies. A drop-off service is available at Stellenbosch WDF.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
		days by the Municipality. This project has been implemented in the Franschhoek area. Garden waste can be dropped off at the WDF.	at 20 restaurants for organic waste for 5 days per week.		
Drakenstein Municipality	A weekly service is provided to households.	A kerbside collection service is provided to all residences. Skips are provided to and removed from informal residential areas. Garden waste collection services are available on request.	Waste collection services are provided to businesses, as per their requirements. A fixed increased tariff applies.	Kerbside collection services are provided.	Onsite collection services are provided as per agreement with skips or wheelie bins. A drop-off service is also provided at Wellington WDF to farms.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
Langeberg Municipality	A weekly service is provided to households.	A kerbside collection service is provided to all residences. Skips are provided to and removed from informal residential areas. Garden waste removal services are available.	Collection services are provided once a week interval but is available twice or thrice per week at request.	Kerbside collection services are provided. Bulk waste removal services are available at request.	No collection services are provided to farms. Drop-off services are available and utilised by farms.
Cederberg Municipality	A weekly service is provided to households.	All residential areas receive a weekly kerbside collection service. Garden waste and builders' rubble collection services are available.	The Municipality provides a weekly service to businesses.	A kerbside collection service is provided to businesses.	No collection services are provided to farms.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
Saldanha Bay Municipality	A weekly service is provided to households.	Skips are provided to and removed from informal residential areas. A weekly kerbside collection service is provided to formal residential areas. Garden waste is allowed into the refuse bin collected at kerbside. A skip collection service is provided for builders' rubble. A drop-off service for hazardous waste is available at the Vredenburg MRF for residents.	Businesses indicated the frequency of waste removal and billed according (fixed tariff system).	A kerbside collection service is provided by means of wheelie refuse bins and skips.	A weekly kerbside collection is provided to farms as per the regular refuse removal route. A drop-off service is available and utilised by farms who do not receive a kerbside service. This service is available at the Refuse Transfer Station and WDFs.

Municipality	Frequency of collection for residential areas	Type of collection services for residences	Frequency for businesses and commercial	Type of collections services	Farms
Swartland Municipality	A weekly service is provided to households and includes garden waste.	Kerbside collection services are provided to all residents. Garden waste removal services are provided to Moorreesburg on Tuesdays. Five (5) bags are provided per month to equitable share homes. Skips are provided to and removed from informal residential areas.	A waste collection service of up to five (5) times per week, is provided. A fixed increased tariff applies and if businesses recover waste for recycling, the tariff can decrease according to the "pay-as-you-throw" system.	Kerbside waste collection services are provided.	A drop-off service is provided at a "pay-as-you-throw" tariff. A drop-off service is available for recyclables, free of charge. Farms on the main routes can request a collection service.

Table 15: CoCT refuse removal tariffs 2016/2017

REFUSE REMOVAL TARIFFS OF CITY OF CAPE TOWN DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2015/2016**	**TARIFF 2016/2017**
City of Cape Town	Property owner with property valued from R1 up to and including R100 000 (100% rebate)	240L bin	1	118.5	127.90
	Property value between R100 001 up to and including R150 000 (75% rebate			88.9	95.90
	Property value between R150 001 up to and including R350 000 (50% rebate)			59.3	63.90
	Property value between R350 001 up to and including R400 000 (25% rebate)			29.6	32.00
	Hostels, Flats, Retirement villages - excluding Single Residential	240L bin	3	355.3	383.40
	Residential and non residential	85L bin	1	Free	Free

REFUSE REMOVAL TARIFFS OF CENTRAL KAROO DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE/TYPE OF WASTE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
Laingsburg	Household			83	103.00
	Businesses and offices			392	482.00
	Garden refuse			137.6	170.00
	Compost bins				
		Garbage bags		2.3	2.85
Prince Albert					Unknown
Beaufort West					Unknown

Table 16: CWDM refuse removal tariffs 2017/18

REFUSE REMOVAL TARIFFS OF CAPE WINELANDS DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE/TYPES OF WASTE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
Drakenstein		240L bin	1	2,347.81	2,575.55
			2	6,399.40	7,020.14
			3	10,824.08	11,874.02
			5	18,267.73	20,039.70
		770L bin	1	8,029.39	8,808.24
			2	21,889.33	24,012.60
			3	37,018.90	40,609.73
Witzenberg	Res. Prop. ≤ 100 000	2 refuse bags or less			157,09

REFUSE REMOVAL TARIFFS OF CAPE WINELANDS DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE/TYPES OF WASTE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
	Res. prop > 100 000 ≤ 150 000				169,18
	Res. prop > 150 000 ≤ 200 000				181,26
	Res. Prop > 200 000 ≤ 500 000				193,34
	Res. prop > 500 000 ≤ 800 000				210,26
	Res. prop > 800 000 ≤ 1 000 000				217,51
	Res. prop > 1 000 000				241,68
	Other properties	240L bin	1		302,10
			2		604,20
			3		906,30
		770L bin	1		725,04
			2		1450,08
			3		2175,12
Stellenbosch	Indigent household (250 m²) and max. value R200 000	3 closed bags	1	R 98,25	107,09
	Basic residential collection	3 closed bags or 240L bin	1	R 127,20	138,65
	Hostels, flats, old age/retirement villages	Blue lid 240L bin	3	R 451,33	491,95
	Business and commercial	3 standard refuse bags or 240L bin	1	R 150,44	163,98

REFUSE REMOVAL TARIFFS OF CAPE WINELANDS DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE/TYPES OF WASTE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
		3 standard refuse bags or 240L bin		R 451,33	491,95
		240L bin		R 752,20	819,90
	Restaurant (food waste only)		5	R 370,00	403,00
Breede Valley	household/Flat	240L bin or 3 Black bags	1	145,61	177,00
	Hostels			120,18	146,00
	Residential homes used for home industries/businesses or career practices			185,96	225,00
	Commercial		1	2 689,47	3254,00
			2	4 495,61	5438,00
			3	6 285,09	7603,00
			4	8 083,77	9778,00
			5	9 874,56	11944,00
			6	11 663,16	14108,00
			7	13 537,72	16375,00
	Sport clubs, educational (crèche's, schools and colleges), institutions and old age homes, churches		1	989,47	1197,00
			2	1 593,86	1928,00
			3	3 188,60	3857,00
			4	4 250,88	5142,00
			5	5 290,35	6399,00
			6	6 346,49	7677,00
			7	7 405,26	8957,00
	Municipal (departmental)			1 773,68	2146,00

REFUSE REMOVAL TARIFFS OF CAPE WINELANDS DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE/TYPES OF WASTE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
Langeberg	**General**: informal housing and indigent tariff		1, 2 or 3	108,55	121,58
	General: bulk removal and perishable products			859,36	962,49
	Mega industries: Langeberg & Ashton foods			15 652,89	17531,24
	Langeberg & Ashton foods			12 298,72	13774,36
	Fruits packers			1 613,18	1806,76
	Parmalat			3 015,27	3377,10
	All wine cellars			1 507,64	1688,55
	Small cheese factories				
	Moreson			1 085,51	1215,77
	Sport ground			98	109,76
	Rejected material: Robertson Abattoir			10 221,79	11448,41
	Robertson Abattoir (manure)			6 663,76	7463,41
	Excull				
	Bonnievale abattoir			4 839,52	5420,26
	Delgado fishery			3 663,56	4103,19
	Parmalat			12 905,38	14454,02
	Municipal departments		1	108,55	121,58
			2 or 3	437,23	489,70

Table 17: ODM refuse removal tariffs 2017/18

REFUSE REMOVAL TARIFFS OF OVERBERG DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
Overstrand	Household		1	166.74	176.74
Theewaterskloof	Domestic refuse and sport clubs	3 standard refuse bags/ wheel bin	1		163.20
	Catering premises	standard container	3		638.40
	Non- catering premises and hospitals	standard container	2		437.50
		Bulky refuse except industries	1		1758.40
			2		3516.80
			3		5275.20
			4		7033.60
			5		8792.00
			Special Removals on weekends (Sun & Sat)		2227.50
Cape Agulhas					
Swellendam	Agricultural properties		Removal service per service per month	5 5.21	67.97
	Industries			3 23.37	398.13
	Residential			1 10.56	136.12
	Deviant/consent consumers/small businesses			1 33.45	164.30

REFUSE REMOVAL TARIFFS OF OVERBERG DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
	Cafes/supermarkets/grocery/liquor stores/hotels			228.73	247.03
	Hotels/hospitals/clinics			1 64.83	202.94
	Medium big businesses			2 086.17	2568.49
	Large businesses (malls)/large industrial businesses			6 376.79	7851.10

REFUSE REMOVAL TARIFFS OF THE WEST COAST DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
Swartland	Household/business	Black bags or 240L bin/ (2*85L drum)		122.19	129.52
Saldanha	Single residential sites, small holdings & residential accommodation businesses	240L bin	1		176.23
	Business and industrial premises	240L bin	1		180.00
			2		271.00
			3		359.00

REFUSE REMOVAL TARIFFS OF THE WEST COAST DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
		6 m³ skip			1632.28
	Special and Expired food removals	240L bin			359.04
	Removal and disposal of cats				9.47
	Removal and disposal of dogs				18.95
	Removal of larger animals				42.11
	Amusement parks, circuses and similar entertainment businesses	240L bin			359.04
		6 m³ skip			1713.77
	Schools, churches, and charity events	240L bin			107.98
		6 m³ skip			514.39
	Building rubble	6 m³ skip			1632.28
Matzikama	Residential/small offices/hair saloon		1	141.22	150.00
	Churches/schools /residences/old age home			194.11	207.00
	home stores			288.85	307.00
	Previous DMA Management Area			62.56	67.00
	hospital			7 601.33	8088.00
Cederberg	Basic charge: Households		1		81.93
	Businesses		1		91.29
			2		167.58
			3		255.44
			4		346.42
			> 4		440.56

REFUSE REMOVAL TARIFFS OF THE WEST COAST DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
	Schools				168.68
	Hospital				252.36
	School residences				
	Church and halls				85.02
	Nursery schools				
	Old age homes				499.33
Bergrivier	Household		1	191	202.00
	Businesses	2 bags	1	666	706.00
	Garden refuse	By cargo or part thereof		170	180.00
		Garbage bag per pack of 25		39	41.00
		Rubble by cargo or part thereof		352	373.00

REFUSE REMOVAL TARIFFS OF CENTRAL KAROO DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE/TYPE OF WASTE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
Laingsburg	Household			83	103.00
	Businesses and offices			392	482.00
	Garden refuse			137.6	170.00
	Compost bins				
		Garbage bags		2.3	2.85
Prince Albert					Unknown
Beaufort West					Unknown

REFUSE REMOVAL TARIFFS OF EDEN DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
Mossel bay	Households, crèches, churches	1 bag	1	135.16	155.43
	Old age home, hospitals, clinics and schools			67.58	77.71
George	Hotels, hospitals…	2*240L bin	3	10 878	
	Guest houses…	7 black refuse bags or 240L bin	1	2 831	
	Caravan parks	240L bin	1 a week/site	140	
	Industries	2*240L bin	1	5 661	
	Schools / school hostels	2*240L bin	3	10 878	
		Bulk (1700 litre)	3	26 250	
	Churches and church halls	7 black refuse bags or 240L bin		2 831	
	Holiday chalets	240L bin	1 a week/chalet	577	
	Uniondale / Haarlem: Res.	7 black refuse bags	1	42	
	Uniondale / Haarlem: Bus.	Refuse bags	2	90	
	To all vacant Erven			1 729	
	Botanical Garden	240L bin	1	2 831	
	Residences, flats…	7 black refuse bags or 240L bin	1	1 729	
Bitou	Domestic/churches/crèches	110L bin	1	2 388	2567.00

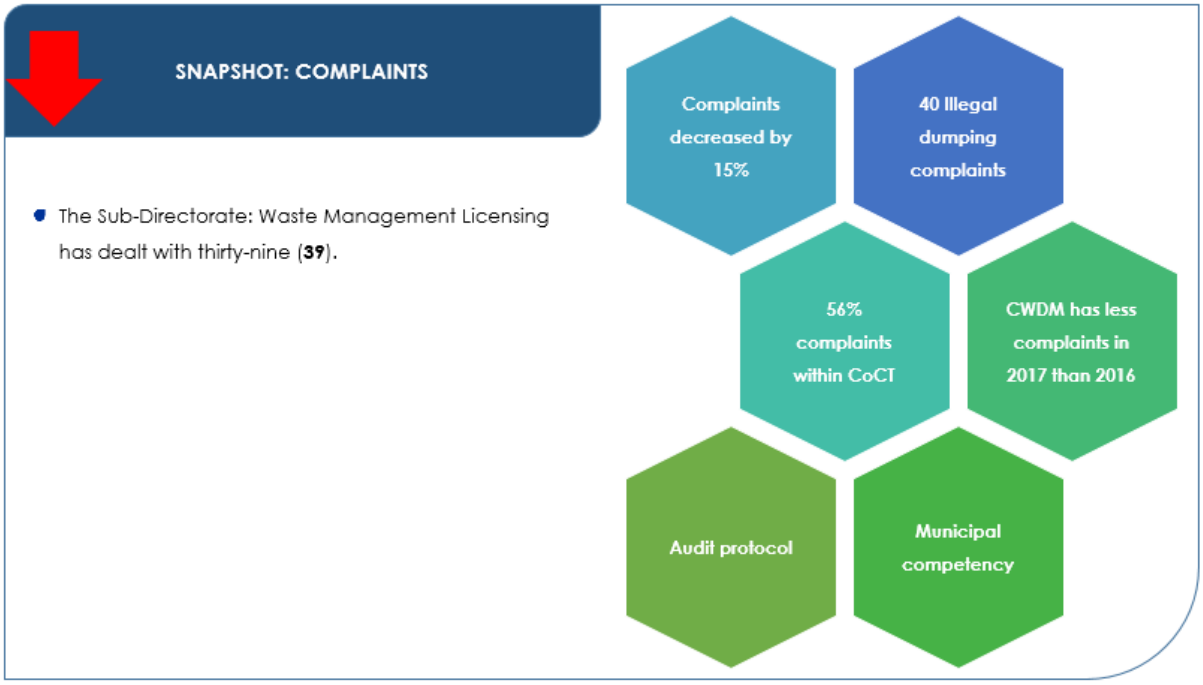
REFUSE REMOVAL TARIFFS OF EDEN DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
			2	4 775	5133.00
	Domestic	240L bin	1	2 502	2693.00
			2	5 010	5386.00
	Group housing			2 388	2567.00
	Business/commercial	110L bin	1	3 106	3339.00
			2	6 211	6677.00
			3	9 317	10016.00
			Daily removal	15 528	16693.00
		240L bin	1	3 415	3671.00
			2	6 831	7343.00
			3	10 246	11014.00
			Daily removal	17 076	18357.00
	PDI Areas	110L bin	1	1 552	1668.00
		240L bin	1	1 708	1836.00
	Garden refuse	Up to half load		422	454.00
		Full Load		847	911.00
		Plastic Bag		199	214.00
		Up to half Load - Sub-economic		213	229.00
Knysna	Accommodation	170L bin	1	1 568	1717.00
	Commercial			8 801	9637.00
	Light Industry			1 050	1150.00
	Government: general			913	1000.00
	Government: schools			777	850.00
	Priv: Domestic			425	465.00

REFUSE REMOVAL TARIFFS OF EDEN DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
	School/education			673	737.00
	Sport Organisation			801	878.00
	Church			9	10.00
	Domestic residential			937	1026.00
	Old age homes			1 867	2044.00
	Business and other properties	1 wheelie bin per premises		1 755	1922.00
		2-3 wheelie bin per premises		10 504	11502.00
		4-5 wheelie bin per premises		21 010	23006.00
		6-7 wheelie bin per premises		31 514	34508.00
		8-9 wheelie bin per premises		42 020	46011.00
		10-11 wheelie bin per premises		52 524	57514.00
		12-13 wheelie bin per premises		63 029	69017.00
		14-15 wheelie bin per premises		73 535	80521.00
		16-18 wheelie bin per premises		94 544	103526.00
		19- 20 wheelie bin per premises		105 049	115028.00
		21-28 wheelie bin per premises		147 068	161040.00

REFUSE REMOVAL TARIFFS OF EDEN DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
		29-30 wheelie bin per premises		157 574	172543.00
		31-47 wheelie bin per premises		159 326	174462.00
		48-49 wheelie bin per premises		260 887	285671.00
Kannaland	Residential	4 Black bags	1	163.51	
	Small Businesses	7 Black bags		202.47	
	Hotels B&B's and self-Catering			204.38	
	Old Age Homes and Frail Care centres			163.51	
	Residential and Small Business		1/fortnight	85.36	
Hessequa					Unknown
Oudtshoorn	Residential			1303	1438.50
	Business per 85dm³			11,80	13.00
	Garden refuse by owner			No charge	No charge
	Garden refuse by Contractor				50.00
	Building Rubble removed by owner				No charge
	Building Rubble removed by Contractor				
	Building Rubble removed by Municipality				570.00

REFUSE REMOVAL TARIFFS OF EDEN DISTRICT MUNICIPALITY (RAND/cent)					
MUNICIPALITIES	**PLACE**	**VOLUME**	**FREQUENCY/WEEK**	**TARIFF 2016/2017**	**TARIFF 2017/2018**
	Removal and Cleaning of refuse after function				1140.00

8. Complaints



The Department has a waste regulatory function to handle waste management complaints associated with waste management facilities and the general public. Members of the public frequently report on the illegal disposal of waste to land or the mismanagement of both unlicensed and licensed waste management facilities. The Sub-Directorate: Waste Management Licensing has dealt with thirty-nine **(39)** complaints during the period January to December 2017, a **15% decrease** since 2016. See **Figure 26 and 27.** The Department received the majority of complaints within the City regarding dumping of waste, including general waste and inert builders' rubble or construction and demolition waste. As the City is continuously growing through the construction of new developments, the disposal of construction and demolition waste becomes more of a challenge, particularly in areas where hauling construction waste is expensive. The Department received many complaints within CWDM in 2016 compared to 2017, due to increased burning incidents and other operational issues, resulting in nuisances. Complaints in the other districts have decreased due to waste management strategies implemented to become complaints with waste management licences and permit conditions.

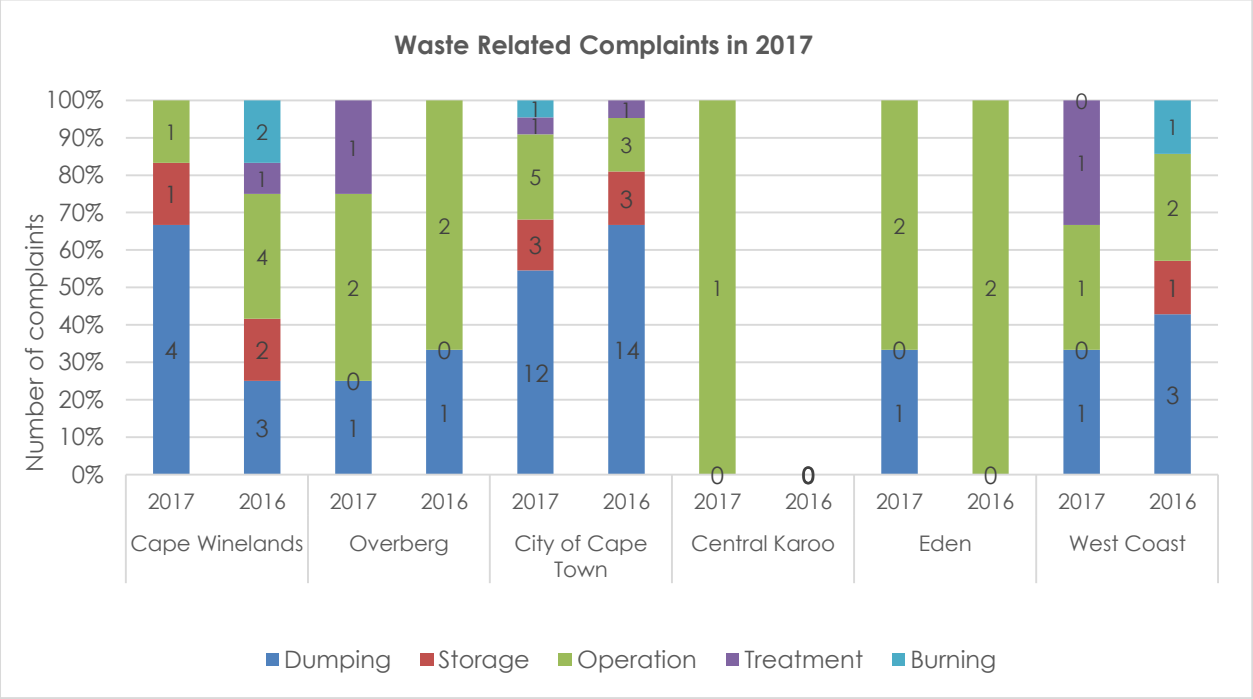


Figure 26: DEA&DP Complaints in 2017

Most of the complaints become the responsibility of the municipalities to clean up and in turn it puts pressure on financial and operational resources. It further depletes the landfill airspace capacity of the municipalities and can cause bigger environmental impacts. The municipalities need to be further encourage to provide waste management facilities such as drop off points and regularly servicing and collecting waste to avoid further illegal dumping. The municipalities should also focus on utilising and/or enclosing the open spaces within the municipal areas to avoid opportunities for illegal dumping. The municipalities should also consider increasing raising the awareness around waste management as well as penalties.

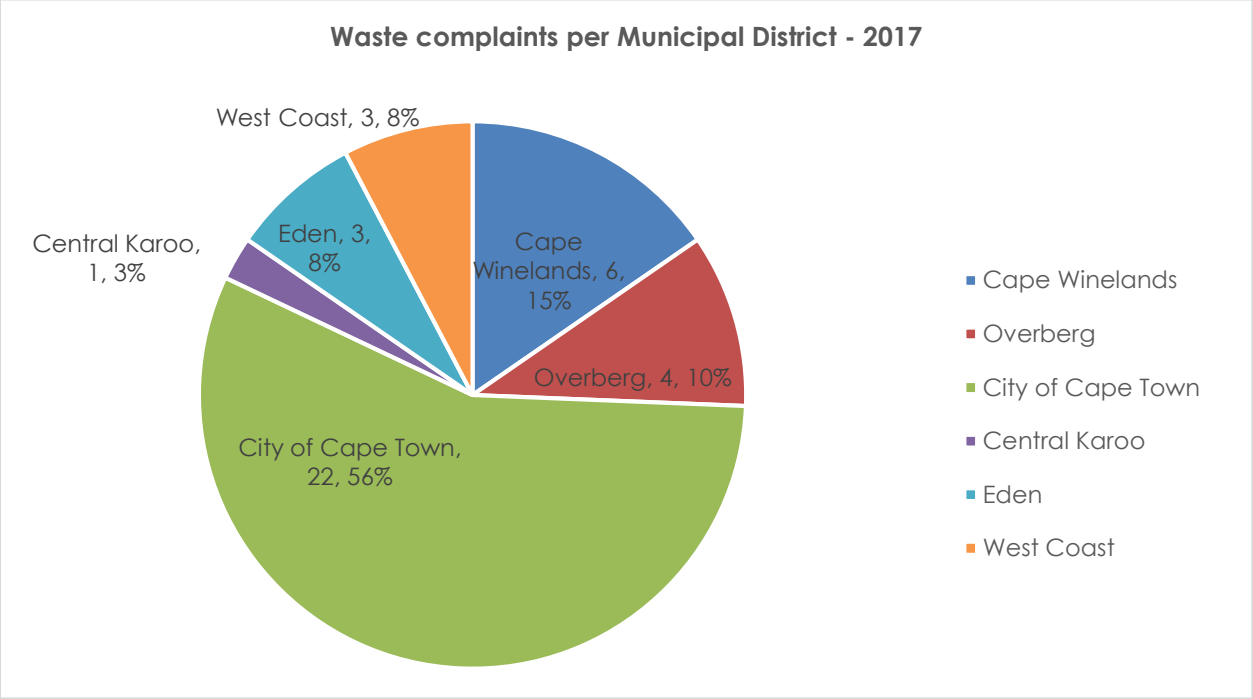
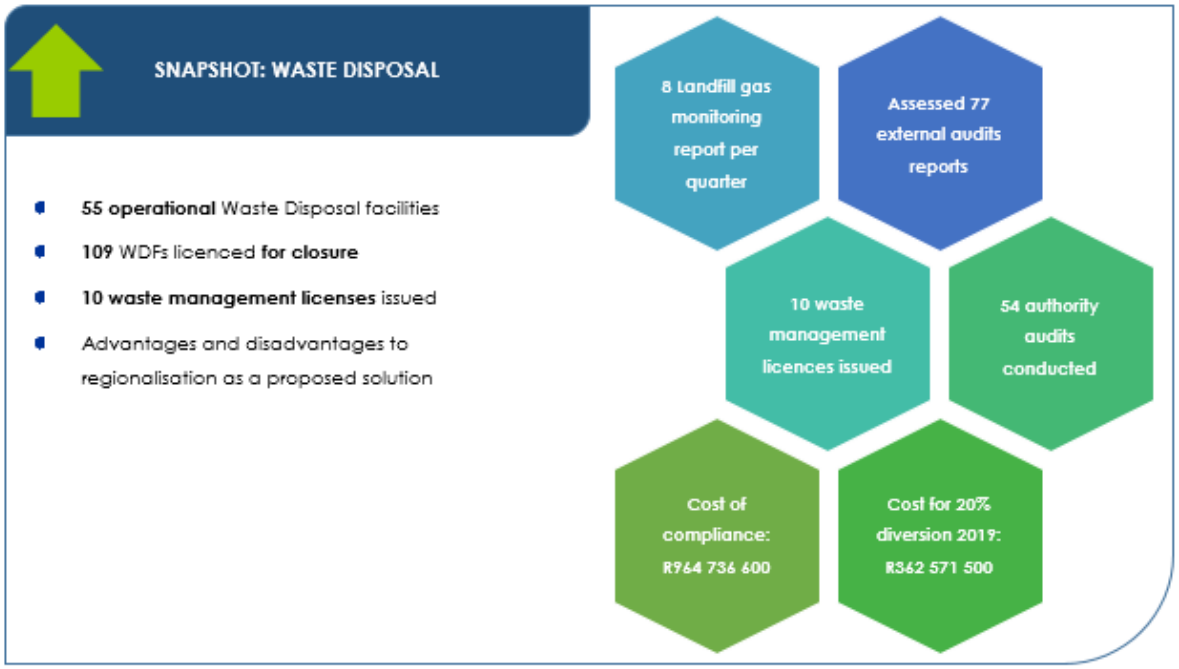


Figure 27: Waste Complaints per Municipal district - 2017



9.1. State of Waste Disposal Facilities in the Province

There are **fifty-five (55) operational Waste Disposal facilities (WDFs)** in the Western Cape. **Figure 28** depicts the percentage of operational WDFs per municipality.

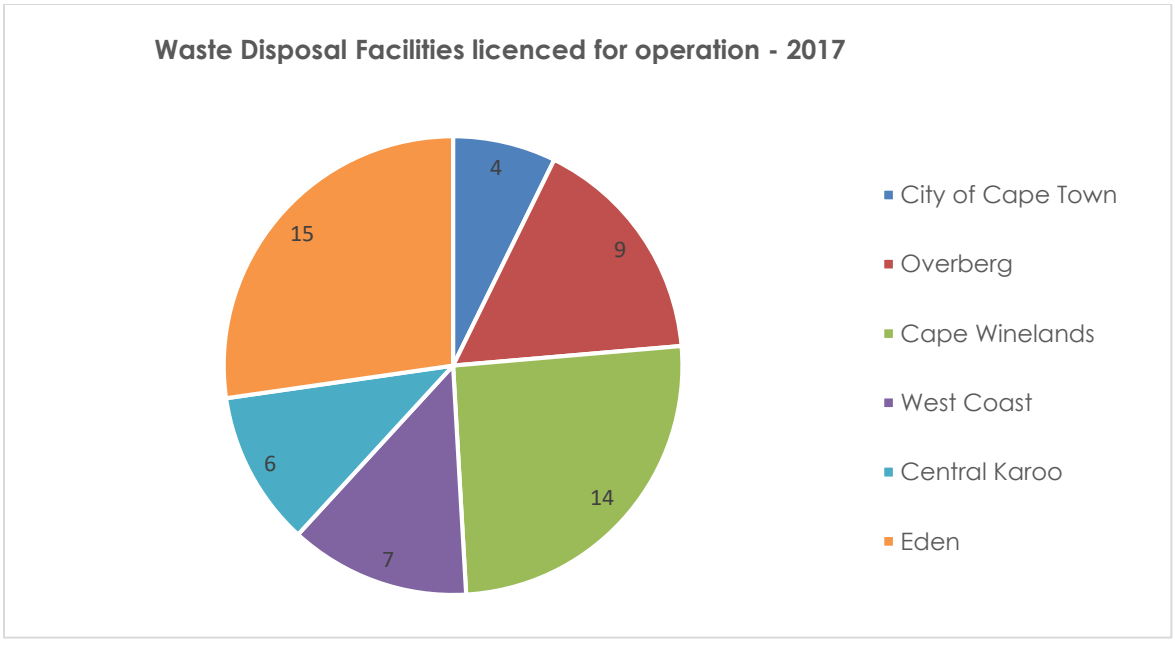


Figure 28: Operational WDFs in the Western Cape - 2017

The WCDM has seven (7) licensed operational WDFs. CKDM has six (6) licensed operational WDFs and ODM has nine (9). CWDM has fourteen (14) licensed operational WDFs. Within the City of Cape Town's municipal area, there are four (4) operational WDFs of which one (1) WDF is privately owned, while EDM has fifteen (15) operational WDFs. The City of Cape Town has closed most of their operational facilities as they moved towards regionalisation of waste management services.

There are **one hundred and nine (109) WDFs licensed for closure** in the Western Cape, see **Figure 29**. Within the WCDM there are 34, ODM has 20, EDM has 15, City of Cape Town has 23, CKDM has 1 and CWDM has 16 WDFs licensed for closure.

In some instances, municipalities opt to close smaller landfill facilities and combine resources to fund both the licensing and operation of a regional waste management disposal facility. This approach has the benefit that municipalities can combine funding to cover the costs incurred by the licensing and operation of the regional facility, thereby decreasing the individual municipal waste management facility costs. However, large distances between the areas where waste are generated and the regional waste management facilities can incur very high transportation costs. The costs of decommissioning and closing smaller municipal waste disposal facilities can also be very high. These required waste disposal facilities also have the benefits of economics of scale. The funding of the construction and operation of these facilities is complex since multi parties are involved in the project.

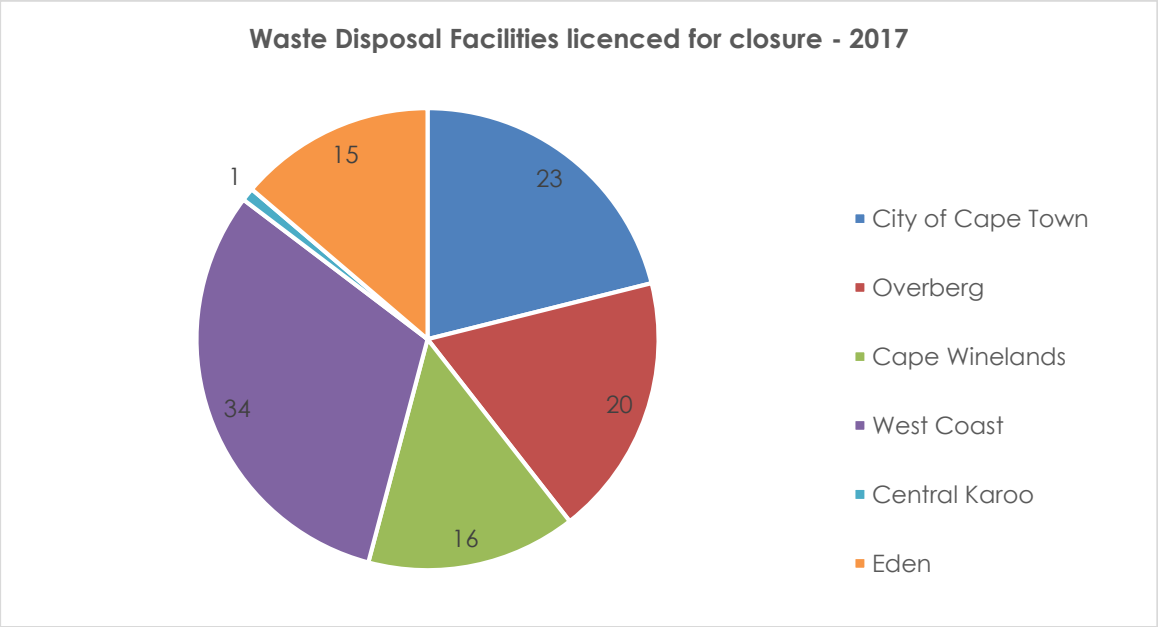


Figure 29: Closed WDFs in the Western Cape - 2017

9.1.1.1. Licensing of waste management facilities

Chapter 5 of NEMWA, as amended, makes provision for the licensing authority to issue a waste management licence upon receipt of an application with the associated Basic

Assessment/Scoping and Environmental Impact Reporting processes. The licensing process is governed by the NEMA Environmental Impact Assessment Regulations, 2014 (Government Notice (GN) No. R. 982 of 4 December 2014). Activities that require a waste license are listed in GN No. 921 of 29 November 2013.

Ten (10) waste management licences were issued for the period 1 January 2017 to 30 December 2017, see **Table 21**. Three (3) licence were new applications, and seven (7) were variations to existing authorisations or transfers of ownership. The types of facilities that were licenced consisted of two (2) MRF's, four (4) WDF, one (1) refuse derived fuels facility, one (1) recycling facility and one (1) Construction and Demolition waste crushing facility. No licence applications were made during the period 1 April to 30 June 2017.

Table 18: Waste Management Licences issued for 2017

No	Type of Application	Licence Holder	Date of Issue	Municipality	Type of WMF
1	WML	JVZ Construction (Pty) Ltd	18-Jan-17	Drakenstein	C&D waste crushing Facility
2	Variation of the WML	Saldanha Municipality	03-Feb-17	Saldanha	WDF
3	Variation of the WML	Smartmatta (Pty) Ltd	06-Feb-17	City of Cape Town	MRF
4	Transfer of Holdership	Averda (Pty) Ltd	06-Feb-17	City of Cape Town	MRF
5	WML	New Horizons	24-July-17	City of Cape Town (Private)	RDF
6	WML	Propet (Pty) Ltd	22-Sep-17	City of Cape Town	Recycling facility
7	Variation of the WML	Smartmatta (Pty) Ltd	6-Nov-2017	City of Cape Town (Private)	MRF
8	Variation of the WML	Elands Bay WDF	12-Dec-17	Elands Bay	WDF
9	Variation of the WML	Klaarstroom WDF	12-Dec-17	Prince Albert	WDF
10	Variation of the WML	Leeu-Gamka WDF	15-Dec-2017	Prince Albert	WDF

Variation of existing Waste Management Licences

The first objective of the Variation Project which was initiated by the DEA&DP in 2017, was to achieve the National and Provincial waste diversion and waste information targets. The second objective was to remove redundant waste permit and licence conditions. The DEA&DP has achieved these objectives through non-substantive variations to existing authorisations to ensure that diversion targets are included and redundant conditions are removed and replaced.

This variation process was to ensure Municipalities put plans in place and also action the diversion of organics from operational waste disposal facilities, as the licence conditions are enforceable and the Municipalities need to comply accordingly. The Department is currently reviewing eighty-eight (88) existing operational waste management permits and licences in order to align the authorisations with current waste legislation, remove redundant conditions and to include the new conditions.

The key inclusion to reduce the organics to landfill in these authorisations is for the diversion of 50% of organic waste by 2022, and 100% organic waste by 2027. Municipalities were informed of the planned amendments and given an opportunity to provide input into the process. The project started in April 2017 and will be concluded by March 2018.

9.1.1.2. Funding for waste management facilities

Licences must adhere to stringent requirements in accordance with the National Environmental Waste Act 2008 (Act No, 59 of 2008, National Norms and Standards of Disposal of Waste to Landfill (Government Notice No. R 636 of 23 August 2013). These Norms and Standards specify the types of liners and capping which is endorsed by the Department of Water and Sanitation, who have imposed these stringent capping and liner requirements in their Record of Decisions (RoDs), for the water use licences. These stringent liner requirements have increased the construction costs of compliance exorbitantly. Insufficient landfill operating budgets result in inefficient on-site operations and maintenance. Municipal councils, which are responsible for budget allocations, do not recognise waste management as a priority service. As a result, waste management budgets tend to be relatively low compared to those of other services. Municipalities are encouraged to apply for Municipal Infrastructure Grant (MIG) funding (managed by the Department of Local Government) to enable them to acquire the relevant infrastructure, to effectively operate their facilities. This funding requires proper planning and alignment with their respective IWMPs and IDPs to ensure the allocation of funds for identified projects. The MIG funding is not available to District Municipalities as they do not have the mandate to service communities within their jurisdiction.

Generally, tariffs are not linked to the volume of waste generated. While considered best practice, this linking is generally very difficult to implement and requires sophisticated weighing equipment and a revised billing system, which translates into increased technical costs.

- *The regionalisation of waste management services*

In some instances, municipalities decide to close smaller disposal facilities and combine resources with other municipalities to fund both the licensing and operation of regional waste management

services. Most municipalities have similar problems such as lack of landfill airspace, increasing waste volumes and limited human and financial resources.

This approach has many advantages and disadvantages as the District Municipalities are unable to access these funds causing financial constraints for proposed regionalisation, affecting the benefits associated with the combined funding.

Advantages of regionalisation:

- By combining the resources to cover the costs incurred for the licensing and operation of the regional facilities, thereby decreasing the individual municipal contribution and ensuring compliance to the environmental authorisations of the regional waste management facilities.
- The services in the respective municipalities can be delivered at a reduced cost due to combined municipal funding resources.
- The environmental burden in terms of compliance, financial and human resources is spread equally amongst the participating municipalities.
- The feasibility of best practicable options amongst participating municipalities can be increased and proven to be more sustainable. These regional waste management facilities have the benefits of improving the cost benefits by improving the economies of scale.

Disadvantages of regionalisation:

- Depending on the selected location of the regional disposal waste management facilities, large distances between the municipal areas where waste is generated and the regional waste management facilities, can incur very high transportation costs.
- The lack of appropriate cost reflective tariffs and models. This can result in negative cost projections for of transport, collection and disposal at the regional disposal waste management facilities.
- The costs of decommissioning and closing smaller municipal waste disposal facilities can also lead to a huge capital investment.

9.1.1.3. Departmental Compliance Audits of Waste Management Facilities

The Department developed a protocol in 2015 to audit permitted/licenced waste facilities within the Western Cape. This auditing methodology used at waste disposal facilities had limitations and the DEA&DP has since been amended and took into consideration the review of all operational conditions associated with the Waste Management Licence and the environmental authorisations. The audit protocol is a template with audit methodology to conduct compliance audits on the permitted/licenced facilities regulated by the Department. It was designed to be streamlined and adopts a uniform auditing approach by both the regulator (DEA&DP) and the waste management facility Permit/Licence Holders. It allows data recorded to be evaluated and reported in the same manner by both the DEA&DP and the Permit/Licence Holders.

The protocols allow the Licence Holders to conduct internal audit regulation and to align their auditing process to the DEA&DP requirements. Internal audit templates have also been for Composting and Material Recover Facilities.The licensed waste management facilities within the Western Cape are audited against the conditions of their environmental authorisations. Each auditable licence condition is assigned a compliance score (**Table 22 and 23**), with the following acronyms and scoring system:

Table 19: Acronyms and scoring terminology

Acronym	Description	Compliance Score
NC	Non-compliant	0
PC	Partially compliant	1
C	Compliant	2
NA	Not audited	-

An average compliance score is then determined from which the overall compliance percentage is determined. This is typically summarised in **Table 23** below:

Table 20: Example of audit values assigned

Overall compliance rating	Status Indicator		Action	Compliance status determination method
85 – 100 %	Green	X	Minor improvements required	84.5 ≤ X ≤ 100%
65 – 84 %	Amber	X	Improvements required	64.5% ≤ X < 84.5%
0 – 64 %	Red	X	Major improvements required	< 64.5%

Departmental audits are conducted at facilities to address the non-compliances to licence conditions. A detailed action plan must be submitted by the license holder indicating timeframes, the responsible persons and financial resources to become compliant. The majority of compliance audits are conducted on WDFs, however this also includes other waste management facilities such as transfer stations and composting facilities within the Western Cape. The targets associated with the number of facilities audited are based on the Department's as well as the associated Departmental Strategic Planning targets. The target of eighteen (18) facilities per quarter equals seventy-two (72) facilities for the 2017/18 financial year which are based on the human resource capacity and financial constraints within the Directorate: Waste Management.

Figure 30 depicts the compliance audits conducted, per district municipality for the 2017 Annual Performance Plan. These audits revealed that 69% of facilities were non-compliant (red), 17% partially compliant (amber) and 14 % compliant (green). The Department continuously provides assistance and direction, which entails giving direction on the non-compliances and promoting best operating procedures and commenting on municipal action plans, drafted by the Solid Waste Managers detailing the actions and timeframes to be taken to ensure the non-compliance issues on the audit reports are addressed.

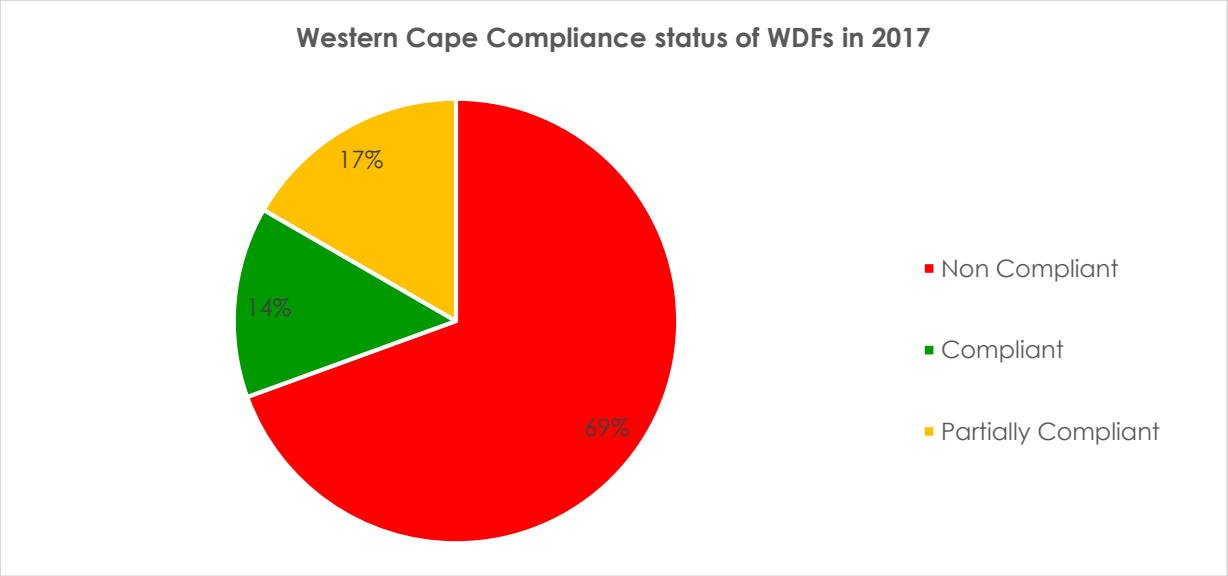


Figure 30: WDFs Compliance status for 2017

Figure 31 represents **fifty-four (54)** of seventy-two (72) audits identified for auditing in the Western Cape from April to December 2017. The City of Cape Town has five (5), Cape Winelands District Municipality with eleven (11), Central Karoo District Municipality with four (4), Eden District Municipality with twenty-five (25), Overberg District Municipality with twelve (12) and West Coast District Municipality has fifteen (15). Of the seventy-two (72) facilities audited, five (5) facilities were private facilities. The common problems experienced at the municipal facilities are lack of cover material, compaction windblown litter, fencing, storm water management, machinery and component security and operational staff.

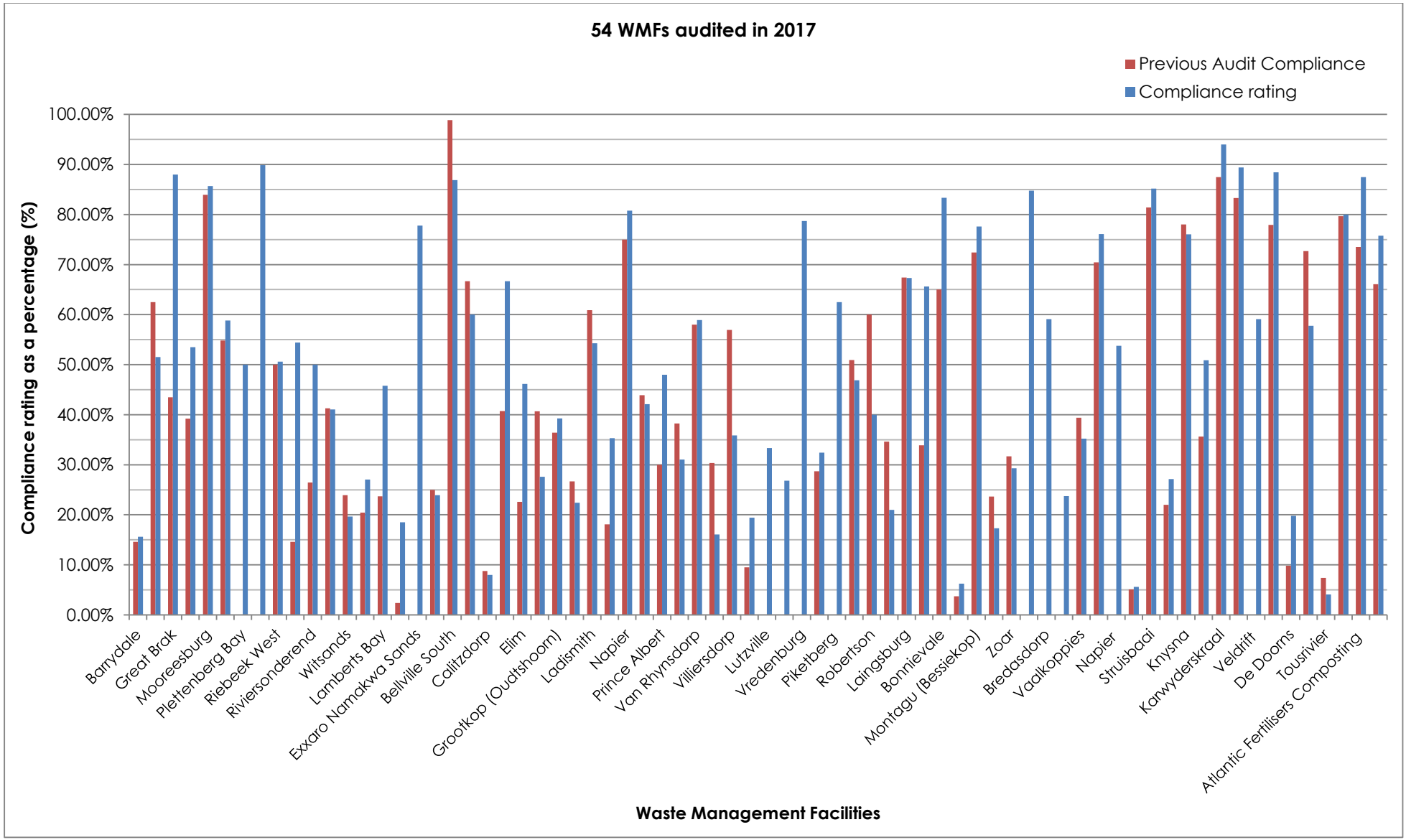


Figure 31: Waste Management Facilities audited in 2017

9.1.1.4. Review of external audit reports

External audits are stipulated as a requirement in the waste management licences issued by the Licensing authority to any WDFs. It is required of WDFs must conduct four (4) internal audits and one (1) external audit report. The external compliance audit reports are compiled by an external service provider appointed by the municipality to provide an objective assessment of the compliancy against the environmental authorisation conditions and submitted to the Licensing authority. The Department reviews these reports for completeness and requests the license holder, in writing, to implement the recommendations of the auditor. **Seventy-seven (77) external audit reports** have been received for the 2017 financial year and assessed by the Department.

9.1.1.5. Landfill gas monitoring

Landfill gas is a major contributor to greenhouse gases and global warming. Landfill gasses are produced through bacterial decomposition, volatilization and chemical reactions of the organic waste disposed. Chemical reactions occur when different waste materials are mixed together during disposal operations. Additionally, moisture plays a large role in the speed of decomposition. Generally, the more moisture, the more landfill gas is generated, both during the aerobic and anaerobic conditions. Furthermore, methane is highly explosive and can have a major impact on occupational health and safety at the various waste disposal facilities.

The Department embarked on a project to determine the baseline data for landfill gas at waste disposal facilities in the Western Cape, where preliminary methane specific determination is done, to assist Municipalities to further investigate or implement mitigation measures. Methane (CH4) is a colourless, odourless asphyxiant, flammable, non-toxic gas that is lighter than air with a vapour density of 0.6. CH4 is explosive between the concentrations of 5% - 15% by volume in air, as per the Department of Water Affairs, Minimum Requirements for Waste Disposal by Landfill, Second Edition, 1998. This concentration range is referred to as the explosive range with the two extremes being referred to as the lower explosive limit (LEL) and upper (UEL) explosive limit respectively. CH4 levels at WDFs are determined by selecting measuring points in and around the waste body for the measurement of methane gas concentration. The measuring points are determined by establishing where older waste was disposed of, particularly in areas where the decomposition of the solid waste has already begun. The results of the landfill gas monitoring exercise were compiled into a Landfill Gas Report and the findings communicated to the relevant municipality.

Table 24 displays the landfill gas monitoring conducted at the following facilities during the 2017, where the Department has a quarterly target of **eight (8)** gas monitoring reports. The sites producing methane of notable levels are in bold text.

Table 21: Methane gas levels measured at facilities

Quarter	Facility	Type	Date	Max. CH4 (by volume) level detected
January – March 2017	Prince Alfred Hamlet WDF	WDF	11 Jan 2017	0%
	Barrydale WDF	WDF	12 Jan 2017	0%
	Bontebok WDF	WDF	12 Jan 2017	0%
	Moorreesburg WDF	WDF	16 Jan 2017	0%
	Riebeeck West WDF	WDF	16 Jan 2017	0%
	Plettenberg Bay WDF	WDF	18 Jan 2017	0%
	Melkhoutfontein WDF	WDF	18 Jan 2017	0%
	Great Brak WDF	WDF	19 Jan 2017	0%
	Gwaing WDF	**WDF**	**19 Jan 2017**	**17.25%**
April – June 2017	Calitzdorp WDF	WDF	5 Apr 2017	0%
	Van Wyksdorp WDF	WDF	5 Apr 2017	0%
	Van Rhynsdorp WDF	WDF	12 Apr 2017	0%
	Vredendal WDF	WDF	12 Apr 2017	0%
	McGregor WDF	WDF	13 Apr 2017	0%
	Citrusdal WDF	WDF	13 Apr 2017	0%
	Villiersdorp WDF	WDF	26 Apr 2017	0%
	Caledon WDF	**WDF**	**26 Apr 2017**	**2%**

Quarter	Facility	Type	Date	Max. CH4 (by volume) level detected
July – September 2017	Porterville WDF	WDF	19 July 2017	0%
	Leeu Gamka WDF	WDF	25 July 2017	0%
	Montagu (Bessiekop) WDF	WDF	26 July 2017	0%
	Bonnievale WDF	WDF	27 July 2017	0%
	Bredasdorp WDF	WDF	2 Aug 2017	0%
	Ashton WDF	**WDF**	**2 Aug 2017**	**1.05%**
	Worcester WDF	WDF	3 Aug 2017	0%
	Laingsburg WDF	WDF	3 Aug 2017	0%
October – December 2017	Napier WDF	WDF	11 Oct 2017	0%
	Gwaing	**WDF**	**20/ Oct /2017**	**15%**
	Karwyderskraal	WDF	18/ Oct /2017	0%
	Uniondale	WDF	19/ Oct /2017	0%
	Albertinia	WDF	18/ Oct /2017	0%
	Vaalkoppies Beaufort West	WDF	13/ Oct /2017	0%
	De Doorns	WDF	05/ Oct /17	0%
	Tulbagh	WDF	04/ Oct /2017	0%

9.2. Waste Management Infrastructure within the Western Cape

9.2.1. Municipal Infrastructure Study

In 2016, the Department commissioned a service provider to conduct the assessment and quantification of the municipal integrated waste management infrastructure needs of the five District Municipalities (Central Karoo, Overberg, Cape Winelands, West Coast and Eden), and excluded the Metropole of the City of Cape Town. The study was to establish:

1. The cost for the municipalities to comply with the environmental authorisations (permits and licences);
2. Determining the additional infrastructure required to achieve a 20% diversion of waste from Landfill by 2019, and
3. Establish what the additional infrastructure required for municipalities to remain compliant up to 2030.

Table 22: Western Cape Cost of Compliance for Municipalities

District	Operational	Rehabilitation	20% diversion by 2019	Needs up to 2030
Central Karoo	R 18 888 100	R 5 264 700	R 6 408 000	R 76 385 700
Overberg	R 24 059 500	R 160 411 600	R 46 454 200	R 131 770 800
Cape Winelands	R 33 778 700	R 216 068 300	R 85 441 300	R 310 525 300
West Coast	R 32 865 700	R 238 264 200	R 100 702 000	R 215 093 400
Eden	R 47 253 400	R 187 882 400	R 123 566 000	R 358 386 700
Sub-Total	**R 156 845 400**	**R 807 891 200**	**R 362 571 500**	**R 1 092 161 900**
Total				**R 2 419 470 000**

Table 25 indicates an immediate funding requirement of R 156,845,400 for infrastructure needed to be compliant with existing Waste Management Licences for operational waste management facilities and a further R 807,891,200 for closed waste management facilities. R 362,571,500 is required to establish the waste management infrastructure to achieve a 20% diversion from landfill in 2019. After the above targets for diversion and compliance have been met, a further R 1,092,161,900 is required for waste management infrastructure to remain compliant up to 2030. The entire costs associated with the infrastructure needs sum to R 2, 419, 470, 000 (Two point four one nine billion Rand) calculated in 2016.

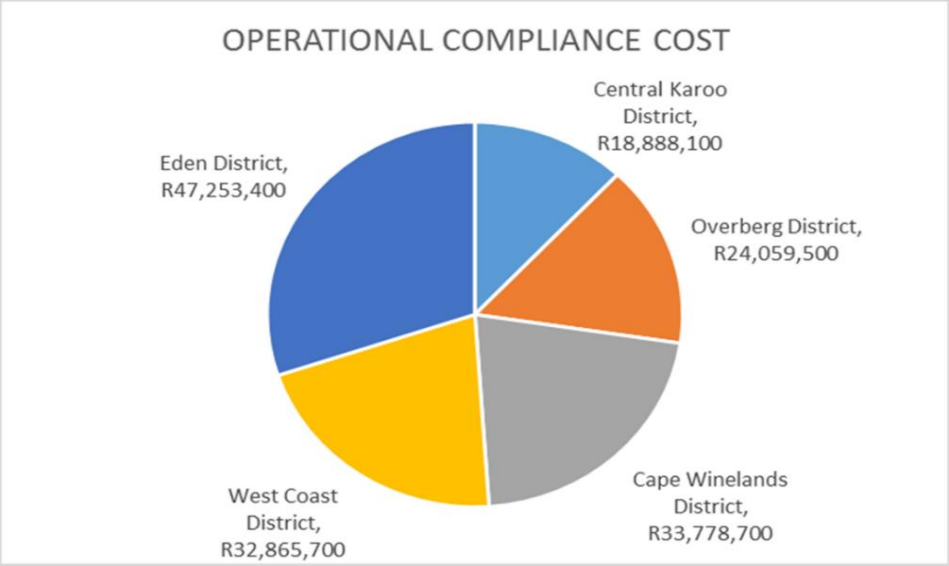


Figure 32: The cost of operational compliance per municipal district.

The Eden District has the largest cost required to meet operational cost for waste management infrastructure at present and Central Karoo District the lowest. See **Figure 32**.

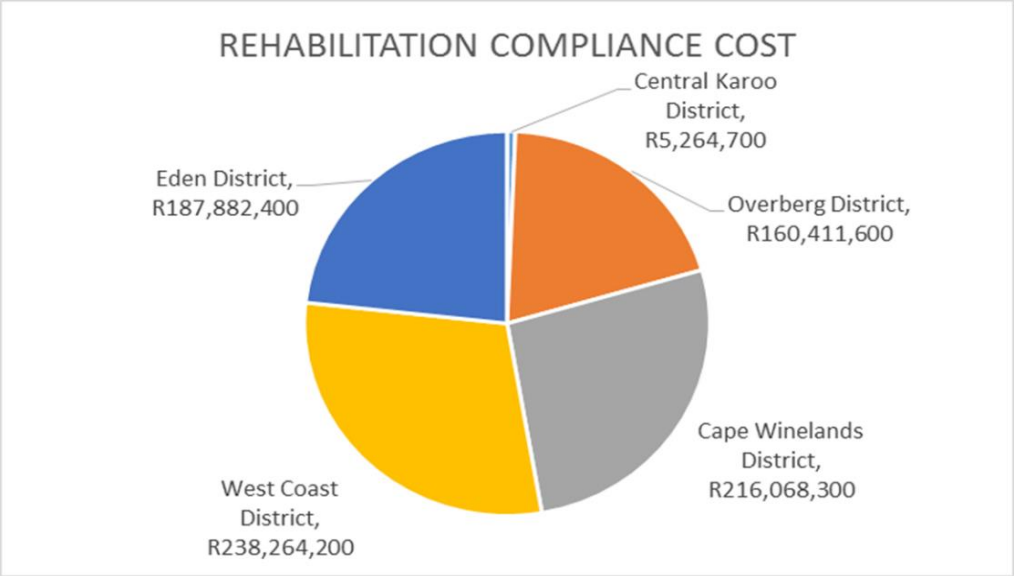


Figure 33: The cost of rehabilitation compliance per municipal district

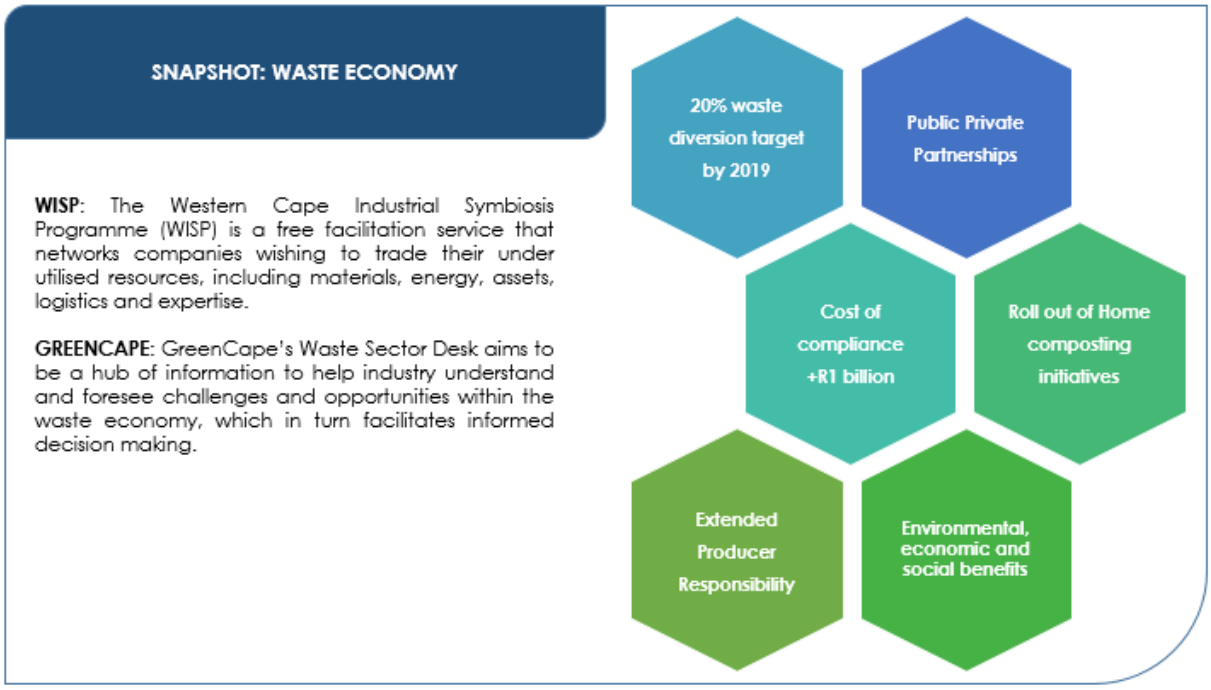
On the other hand, the West Coast District has the largest cost to comply with rehabilitation requirement for waste management infrastructure. See **Figure 33**.

Distilled from the Municipal Infrastructure Study the DEA&DP has identified the following existing and additional required waste mangemnet facilities within the Western Cape. The cost for compliance has also been indicated by **Table 26**.

Table 23: Municipal Infrastructure Study - Additional requirements

	Phase one of project					Phase two of Project				
	Central Karoo	**West Coast**	**Eden**	**Cape Winelands**	**Overberg**	**Central Karoo**	**West Coast**	**Eden**	**Cape Winelands**	**Overberg**
Recovery & recycling										
General waste	8	15	8	10	13	5	24	13	5	7
No, location & types of facilities	0 Facilities	17 Facilities	11 Facilities	12 Facilities	13 Facilities	5 Facilities	15 Facilities	13 Facilities	5 Facilities	7 Facilities
Cost of compliance	**R -**	**R 261 029 300.00**		**R 10 736 800.00**	**R 9 764 400.00**	**R 13 401 500.00**	**R 67 053 000.00**	**R 248 151 100.00**	**R 50 947 600.00**	**R 28 948 000.00**
Treatment										
General waste	0	0		2	0	0			0	0
No, location & types of facilities	-	-		2	-	-			-	-
Cost of compliance	**-**	**-**	**R 202 636 200.00**	**R 10 736 800.00**					**-**	**-**
Disposal										
General waste	8	31		20	25					
Current Average for District Disposal cost	R 180	R 339.54	R 170.94	R 537.06	R 242.00	N/A	N/A	N/A	N/A	N/A
Closed	0 Closed Facilities	6 Closed Facilities	15 Closed facilities	12 Closed	18 Closed	2 Facilities will be closed	2 Facilities will be closed	8 Facilities will be closed	6 Facilities will be closed	2 Facilities will be closed
Operational	8 Operational Facilities	25 Operational Facilities	13 Operational Facilities	8 Operational	7 Operational	3 Facility expansions	3 Facility expansions	2 Facility expansions	1 New Facility and 1 Facility expansion	3 Facility expansions
Cost of compliance	**R 24 152 800.00**	**R 271 129 900.00**	**R 190 101 000.00**	**R 239 110 200.00**	**R 174 702 000.00**	**R 62 984 200.00**	**R 148 040 400.00**	**R 110 235 600.00**	**R 259 577 700.00**	**R 102 822 800.00**

Municipalities were requested to supply the cost of waste disposal within their Municipalities and the below table illustrates the information submitted to the Department. It must be note that this is based on the tariff charged at the gate to disposal facilities and not on the total cost of waste management to the Municipality. The Bergrivier Municipality however included the transport cost as they do not have any disposal facilities within the municipality and utilised facilities within other municipalities.



10.1. Waste Economy 2017 Market Intelligence Report - GreenCape

In 2017, GreenCape undertook a Market Intelligence Report as to the potential of the waste economy within the Western Cape. The report was concluded early in 2017 and as the bulk of the investigation was conducted in 2016 a short summary of the main findings of the report is included in this report.

The report outlined the waste management landscape and how it is changing. The main aim was to identify the potential opportunities the waste management landscape presents for businesses and investors.

However, achieving the goal of the Roadmap by 2022 (Scenario 3) would only unlock R9.2 billion resource value into the economy (DST 2014). By 2019, South Africa is aiming to reach the target of 20% waste division (by weight) (DEA&DP 2015). For the Western Cape this means diverting 1.5 million tonnes per annum, of which 800 000 tonnes are municipal solid waste (MSW) (DEDAT 2016). DEA&DP estimates that the cost of mere compliance is in excess of R1 billion. To achieve a 20% diversion rate by 2019 it is estimated that municipalities would need to invest a further R1 billion in implementing of Alternative Waste Treatment (AWT) infrastructure.

According to the report municipalities will have to look into innovative and alternative ways of funding these support functions. This includes partnerships with the private sector, where provincial and national government play a role in the implementation of extended producer responsibility (EPR) and allow for the levies charged to assist with some of the infrastructural and operational demands. Unlocking post-consumer waste and increase feedstock requirements for large-scale

alternative waste treatment facilities (such as waste to energy) will require partnerships between private industry and municipalities.

GreenCape see current opportunities for businesses and investors in the waste sector in the Western Cape that are primarily focused on recyclables (plastics), organics, e-waste, and construction and demolition waste (C&DW).

For the full report and further queries please contact GreenCape's Waste Sector Desk: waste@green-cape.co.za

10.2. Western Cape Industrial Symbiosis Programme - Department of Economic Development and Tourism

The Western Cape Industrial Symbiosis Programme (WISP) develops mutually profitable links between companies from all industrial sectors, so that underutilised resources such as energy and water, and/or materials from one company can be recovered, reprocessed and re-used by others. This strategy has several economic and environmental benefits.

The programme uses actual business opportunities as the mechanism for encouraging resource efficiency and its holistic approach sees it actively dealing with ALL resources including water, energy, materials, logistics, assets and expertise. The programme is based on the highly successful national programme in the UK (NISP), which demonstrated that industrial symbiosis has the potential to significantly reduce industrial and commercial waste and comprehensively lessen the adverse environmental impacts of business.

WISP is a free facilitation service initiated by the Western Cape Government and delivered by the sector development agency GreenCape. WISP enables synergies to happen by filling the gaps that its members, especially SMEs, could experience due to the lack of time or dedicated expertise needed to identify and implement resource, waste and energy efficient practices. The diversity of the industries in which WISP operates, and the variety and size of its business members, means that WISP has the potential to generate significant economic, environmental and social benefits from the synergies and projects that it brings about.

WISP works hand in hand with leading trade associations, manufacturers and other organisations to add real value to business. We are working in collaboration with the Cape Chamber of Commerce and Industry (CCOC), National Cleaner Production Centre (NCPC), Economic Development Partnership (EDP) and the City of Cape Town (CoCT).

For further information, contact WISP at wisp@green-cape.co.za

10.3. Green economy in Municipalities

- Rollout and expansion of the home composting initiative

Rollout of composting containers in Cape Town to enable new industries and business through stimulation of the market and to reduce the disposal of methane-forming organic waste in landfills. 6 000 Home Composting Containers were successfully rolled out to residents during 2016. A further 5 000 Home Composting Containers are planned to be rolled out by 30 June 2017.

- Material recovery at landfill sites

To divert as much recyclable and re-usable material dropped off at the City's Drop-off sites as possible from landfill into either the recycling or re-use economy. The service is currently at full-scale at the "Collections" Drop-Off sites, but is currently in the planning phase to be rolled out initially to two "Disposal" Drop-Off Sites.

- "Think Twice" kerb-side recycling collection and separation at materials recovery and sorting facilities

This will stimulate inclusive business development (may include cooperative or SMME approaches) in the recyclables collection and sorting sectors and feed the end markets for recyclables. The service is operating "full-scale" in certain pilot areas, and a 10 or 20-year plan needs to be developed in the next IDP cycle to roll out similar types of services in other areas, which may include the development of further City sorting facilities.

11. Sign Off

I, Eddie Hanekom, hereby approve the Annual State of Waste report for 2017.

29-03-2018

Director: Waste Management Date

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13. Note on Data

Municipal Solid waste data should be considered with a degree of caution due to inconsistencies in definitions, data collection methodologies, and completeness of data.

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