

ENVIRONMENTAL RESOURCES AND WASTE MANAGEMENT DEPARTMENT IWMSA SEMINAR

STATUS QUO: WASTE MANAGEMENT IN THE CoE

MJ MAGOLELA



**City of
Ekurhuleni**

TABLE OF CONTENT

- The Integrated Waste Management Plan
- Defining the geographical area
- Demographic comparison of municipalities
- Treatment and disposal
- Available Airspace
- Service area and estimated waste received per day
- Waste received from outside City of Ekurhuleni
- Percentage of different waste types disposed at the City of Ekurhuleni landfills
- Waste generation percentage in total tonnage by income groups
- Mini Waste Disposal facilities
- Waste Recycling
- Projection of monthly waste and recyclables for residential areas in the City of Ekurhuleni
- Challenges for the City of Ekurhuleni
- IWMP Goals
- 5 Implementation Instruments
- 6. Implementation planning

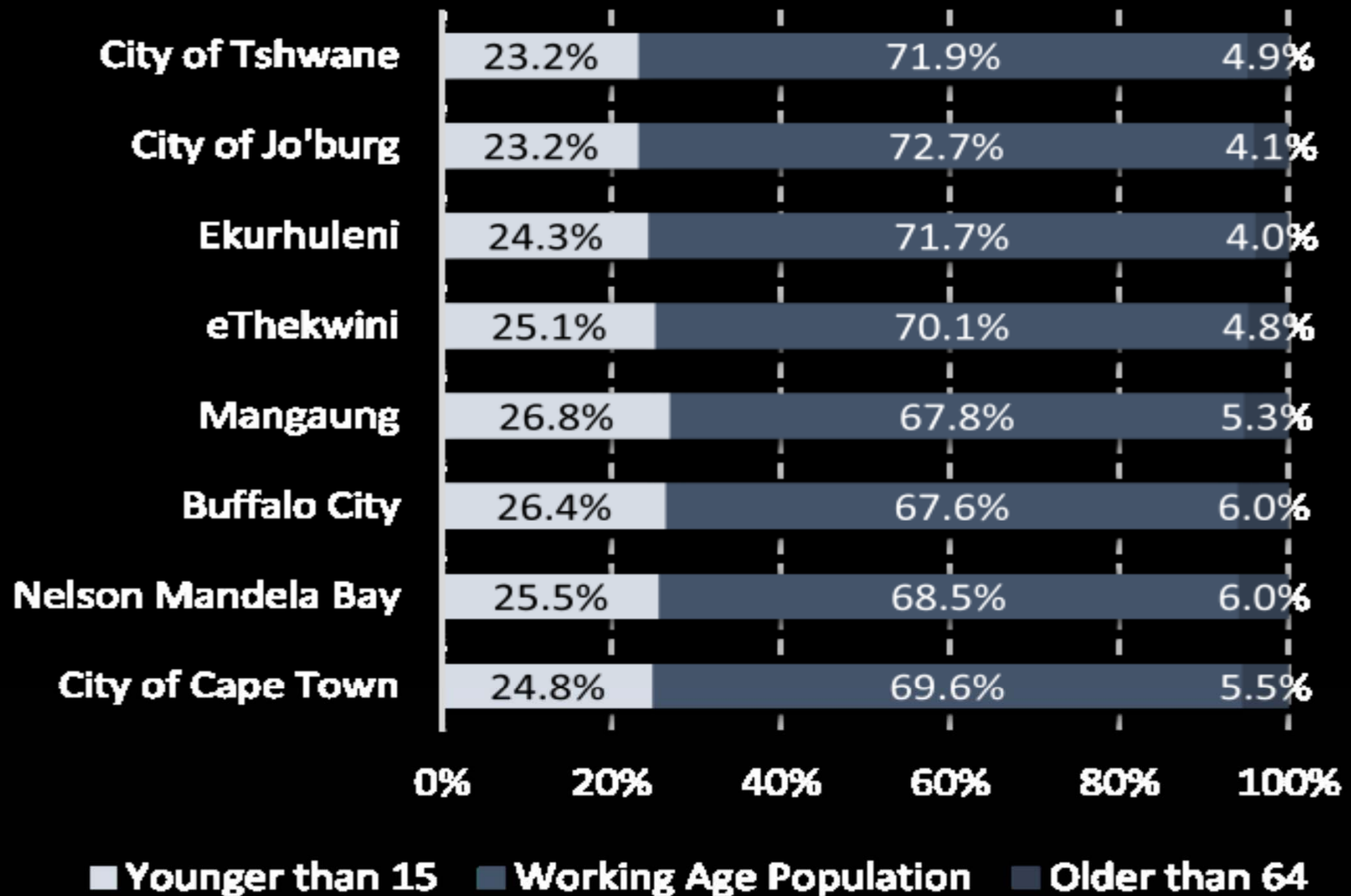
Geographical Area Description

- Situated in the Eastern region of the Gauteng Province and bordered by the metropolitan municipalities of Johannesburg and Tshwane.
- The City spreads over 15.6% of Gauteng's land mass equivalent of 1,975km².
- It is the fourth largest of the eight metropolitan areas in the country established as a metro in 2000 consists of nine towns namely Alberton, Benoni, Boksburg, Brakpan, Edenvale, Germiston, Kempton Park, Nigel, Springs and 17 townships.

SERVICE DELIVERY AREA	WASTE MANAGEMENT DEPOTS
SOUTH	Germiston, Boksburg, Alberton and Bedfordview
EAST	Brakpan, Springs, Benoni and Nigel
NORTH	Kempton Park, Edenvale and Tembisa

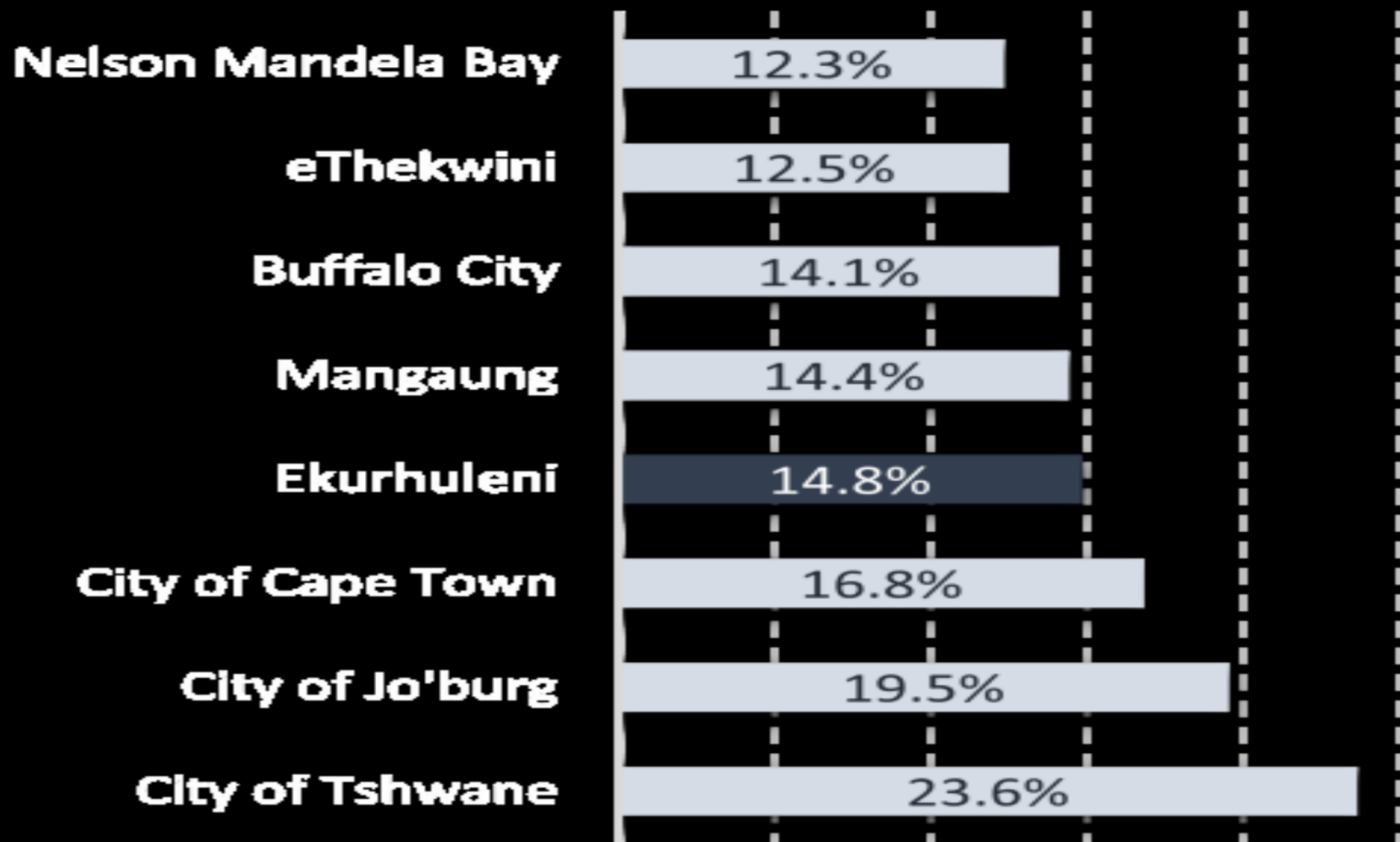
- There are 112 wards with 20 customer care centers and 10 waste management depots spread across the land mass of the City.
- There is over 125 informal settlements spread across the CCC management areas.
- The City is home to 3.38 million people with Ekurhuleni's rate of joblessness exceeding the provincial average by more than 3%, at 29.7%

Demographics-comparison



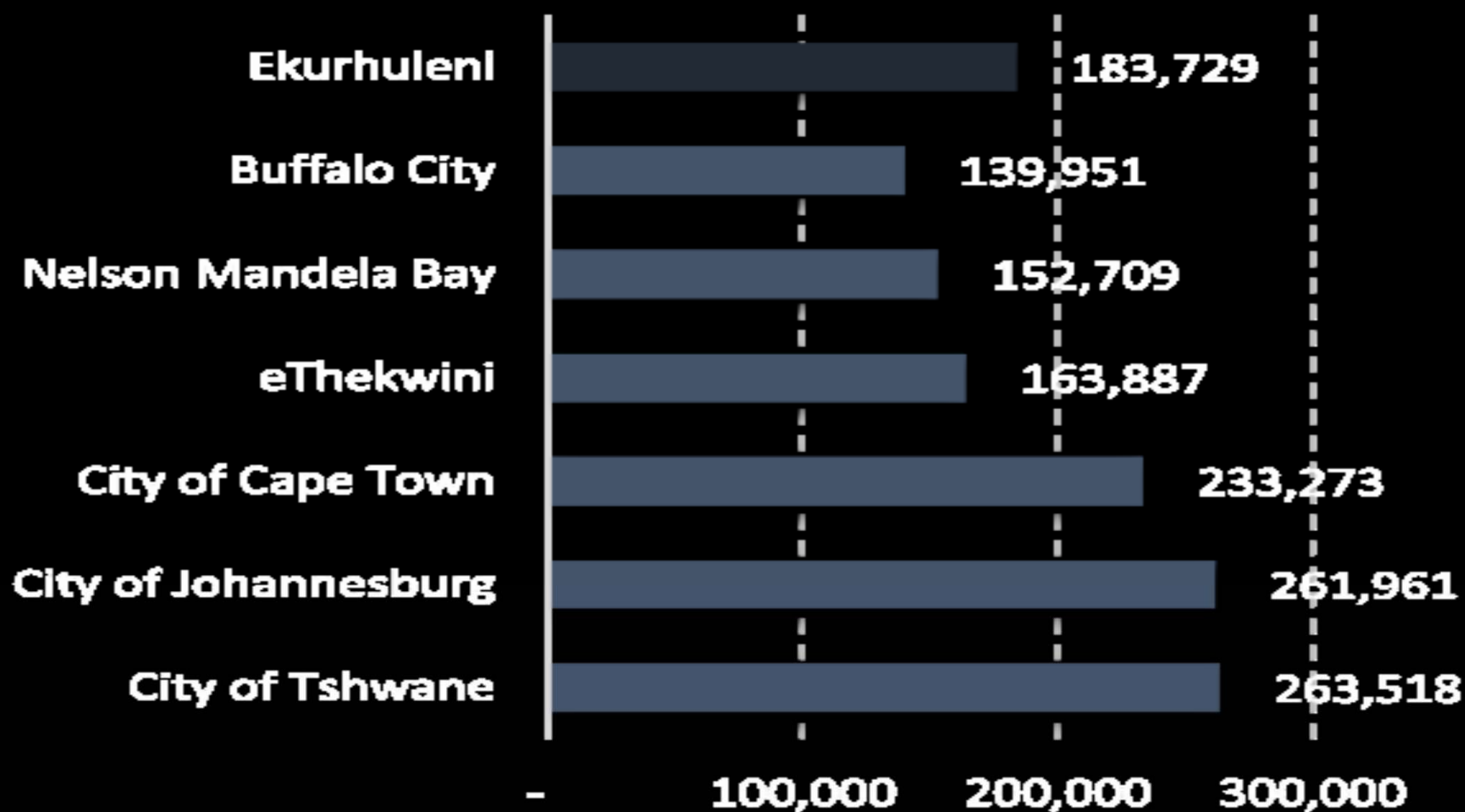
Demographics - comparison

% Tertiary Educated Population per Metro

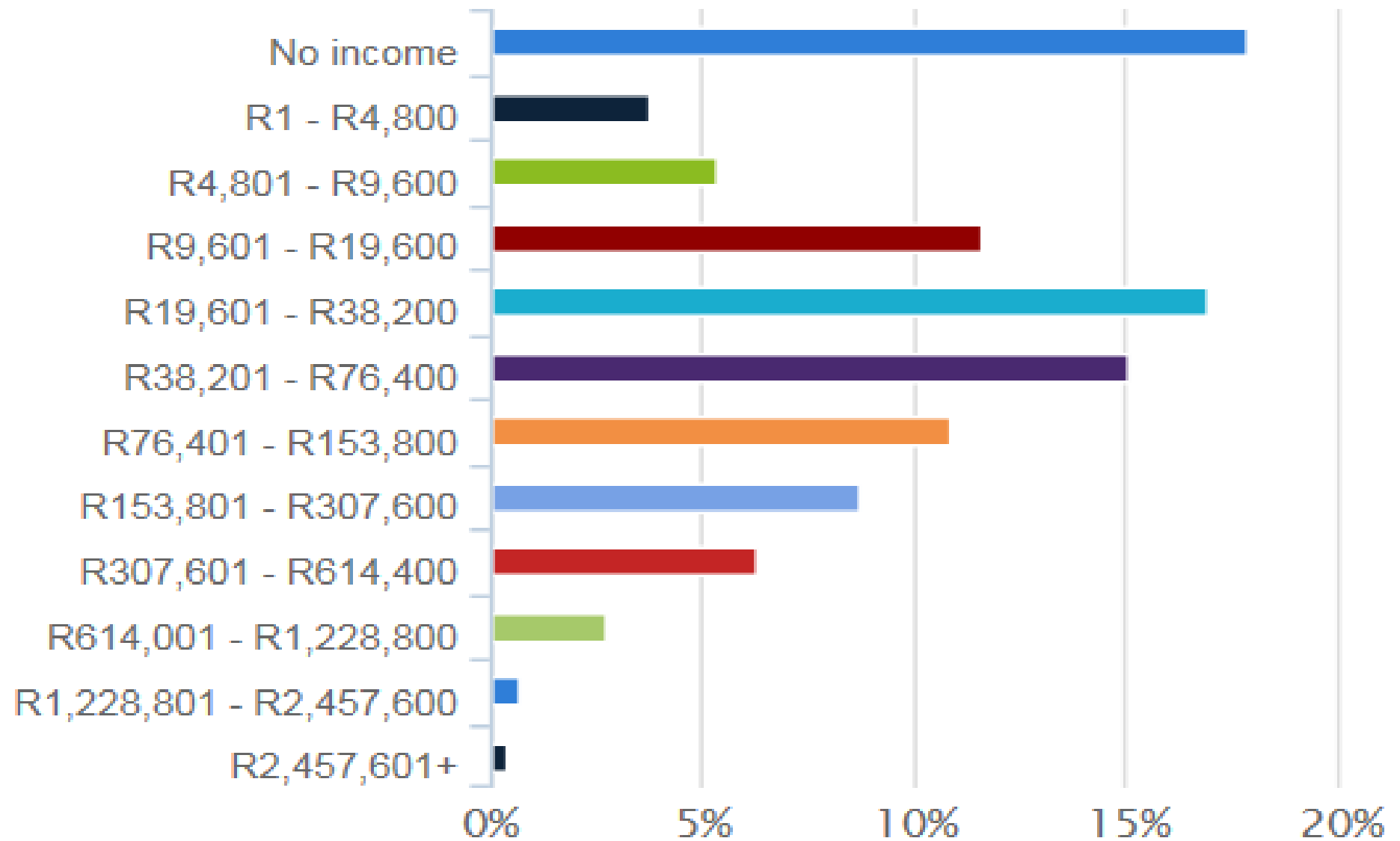


Demographics - comparisons

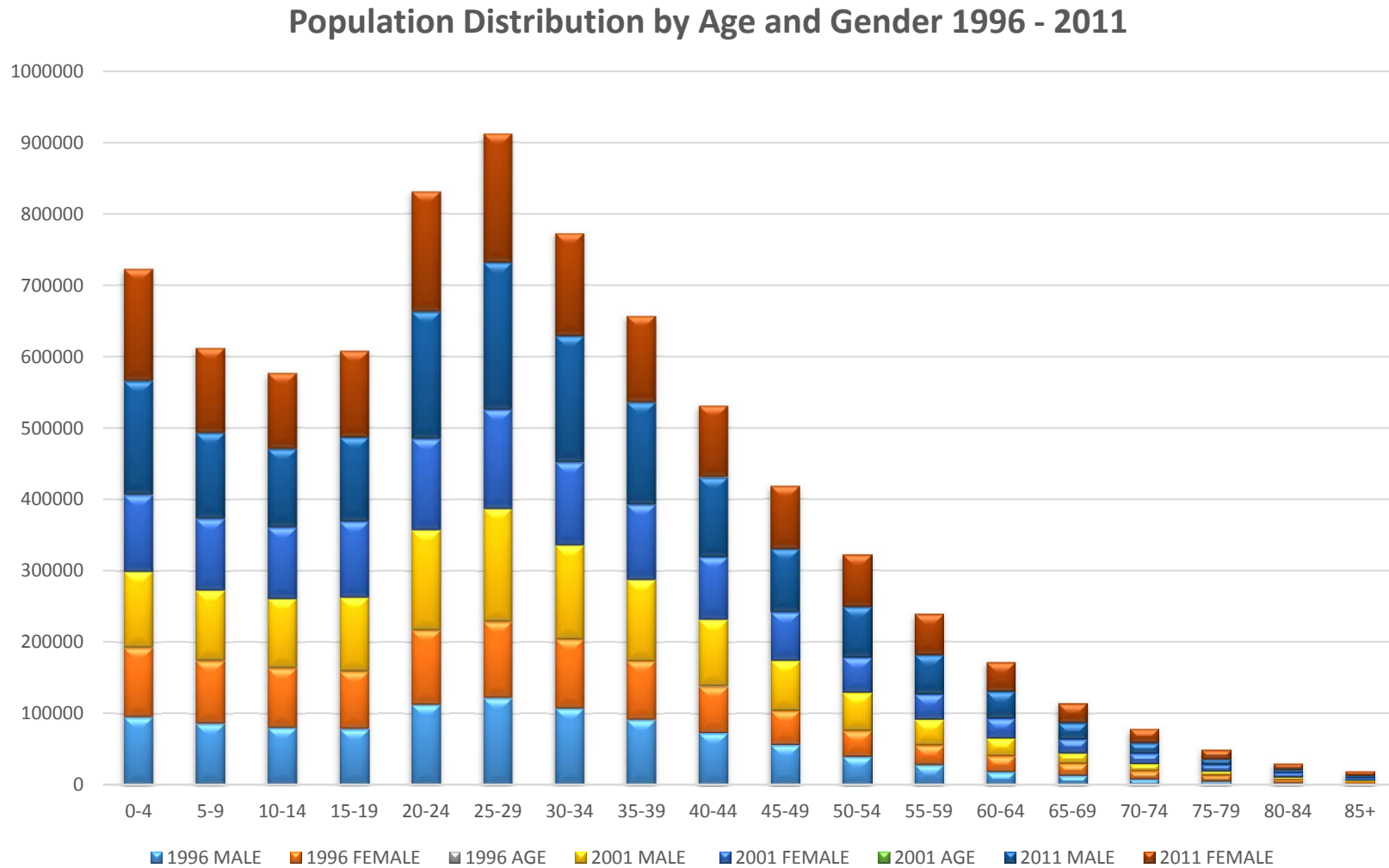
Weighted Average Annual Household income



Average Household Income



Population Distribution by Age and Gender 1996 - 2011



Treatment and Disposal

- Calculation of available airspace is based on weighbridge data at each site
- About 1.2 million tons of waste per annum is landfilled in the five (5) City of Ekurhuleni landfill facilities.
- The waste streams generated in the City of Ekurhuleni originate from households, commercial areas and industrial areas.
- About 47% of the waste that is disposed in the landfills comprise of general domestic waste.
- The City has adopted a split model of 60/40 outsourced and inhouse respectively for collection at residential and business districts areas.
- City collects and dispose its domestic waste at five of its own sites and Chloorkop Landfill Facility at the northern side of the City without any form of treatment except at limited rubble crashing and shredding of garden waste.
- Most of the industrial waste that comes to the landfills goes through some form of sorting to recover recyclables.
- Some pilot project for sorting at source were implemented in some areas of Tembisa and Wadeville.
- There are over 35 public off-loading facilities in the City

Treatment and Disposal

- All landfills closed and operational are subjected to environmental audit for compliance and management of risk

AIRSPACE FOR 5 CoE LANDFILLS – Jan 20

Name of landfill	Landfill area (Ha)	Total Tons Landfilled	Airspace volume consumed (m3)	Remaining airspace at end of month (m3)	Remaining years @25 000t/m
Weltevreden	128	29,853	19,650	932,364	3.11
Rietfontein	40	19,781	12,323	1,242,747	5.18
Platkop	220	11,591	7,750	2,927,260	24.39
Rooikraal	98.4	9,049	16,315	5,611,081	18.70
Simmer and Jack	60	14,312	13,593	81,564.27	3.02
TOTAL	546.4	84,586	69,631	10,795,016	54.4

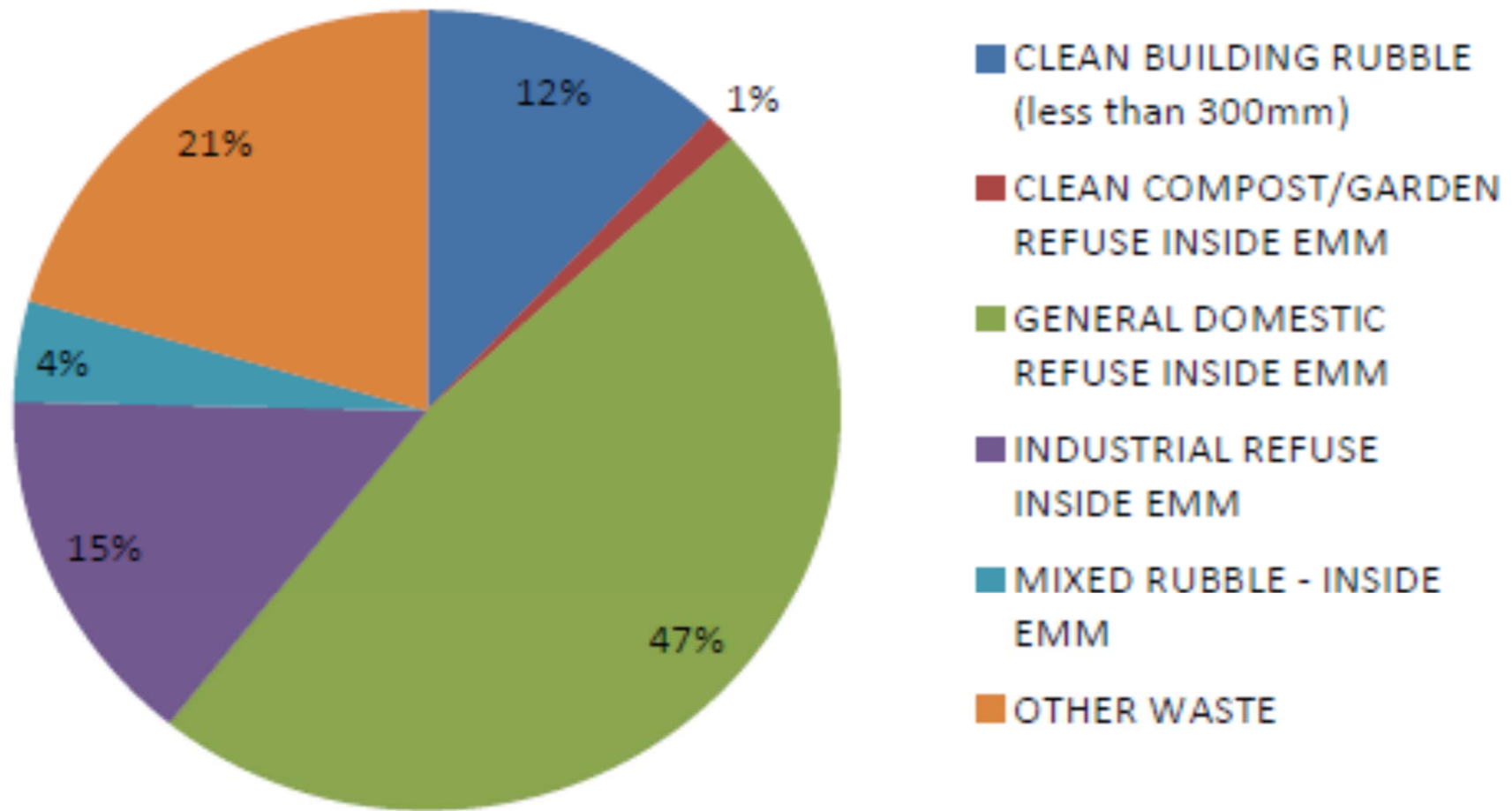
Active landfill sites in the City of Ekurhuleni: Service area and estimated waste received per day

No	Name	Service Areas	Tons of waste disposed per day
1	Weltevreden	Eastern Region Benoni, parts of Brakpan & Boksburg	995.1
2	Rietfontein	Eastern Region Nigel, Tsakane, Kwa-Thema & Springs	659.4
3	Rooikraal	Southern Region Katlehong, parts of Germiston & Boksburg	301.6
4	Simmer & Jack	Southern Region Parts of Boksburg, Germiston & Bedfordview	477
5	Platkop	Southern Region Alberton, Thokoza, Voslorus & part of Katlehong	386

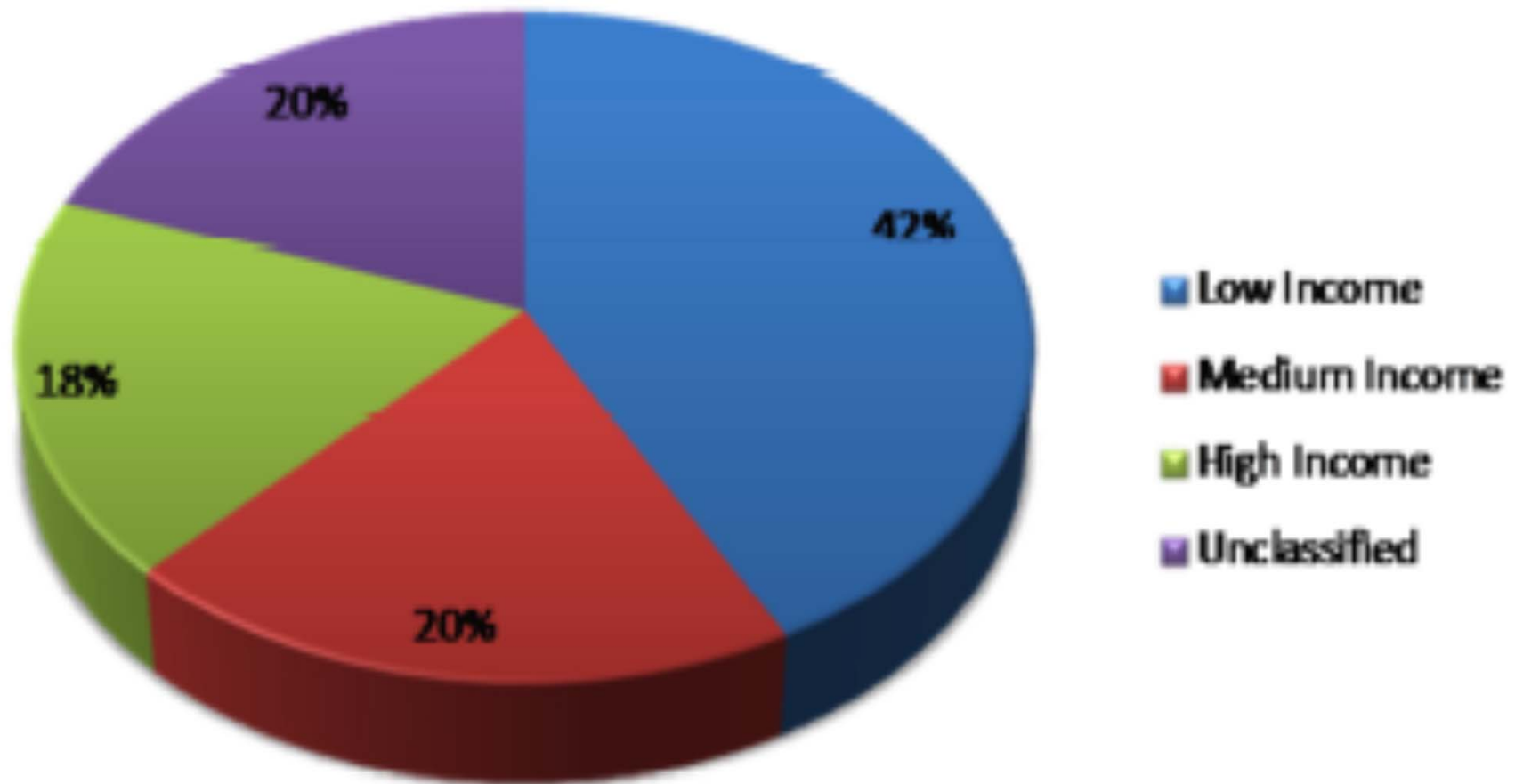
Waste received from outside City of Ekurhuleni

Landfill Facility	Tonnages received per waste type						
	Domestic waste outside CoE	General domestic refuse outside CoE	Industrial refuse outside CoE	Industrial waste outside CoE	Mixed rubble outside CoE	Lesedi Local Municipality	Total
Rooikraal		15.10	1.94	0.86			18
Rietfontein	0.26		352.20	1.88			354
Platkop		1 075.52			11.84	25 800.06	26 887
Simmer & Jack			3.66	3.66			7.32
Weltevrede							0.00
Total	0.26	1 090.62	357.80	6.40	11.84	25 800.06	27 267

Percentage of different waste types disposed at the City of Ekurhuleni landfills



Waste generation percentage in total tonnage by income groups



Mini Waste Disposal facilities

- The City of Ekurhuleni operates 34 mini waste-disposal sites mostly located in the residential areas and industrial areas.
- Some of the sites are not permitted as they were established way back before current legislation.
- A public offloading facility master plan was develop current provides a roadmap to develop small, medium and large site to serve the needs of the community.
- Each site are allocated certain responsibilities for waste minimization, number of these were recently finalized especially in previously underserviced areas.
- There is a five year target to develop 10 of these sites in former township areas linked to the IDP.

Waste Recycling

- The City has established a waste minimization unit that focus on providing support to community based recycling cooperatives – infrastructure and skilling
- Five kerbside recycling pilot projects developed in Actonville, Wattville and Thembisa.
- Recycling initiatives has shown a significant increase in the past few years, resulting in more waste diverted from landfills by over 30 private recycling companies majority located in the CoE – market for small players.
- The metal, glass, paper and plastic industries are driving many recycling initiatives with participation of informal and small buy back centers at the low end of the value chain.
- Drop-off facilities and buy back centers have been established where members of the public can take their recyclable material.
- National Waste Management had set a target to divert 25% of recyclables from landfill sites for re-use, recycling or recovery by 2016 – this has not being achieved.
- The population's mind-set has been changing towards recycling and waste minimization although at very slow pace.
- Lack of municipal incentives to encourage recycling at source add to the lack of interest or the slow pace of recycling at community level.

Recovery programme

- The City of Ekurhuleni has established a landfill gas extraction and utilisation programme at four of its landfill sites; Rooikraal, Rietfontein, Weltevreden and Simmer & Jack.
- The extraction and utilisation of landfill gas reduces harmful greenhouse gas (GHG) emissions and prevents explosion hazards at the landfill sites from the accumulation of methane gas.
- At Simmer and Jack part of the methane gases are fed into the generator and produce 1 megawatt of electricity
- The City also signed 45 independent power producer agreement for the use of renewables to generate electricity

Projection of monthly waste and recyclables for residential areas in the City of Ekurhuleni

Major Residential Area	Population				Total Waste Generation (ton/month)				Recyclables (ton/month)			
	2011	2015	2020	2035	2011	2015	2020	2035	2011	2015	2020	2035
Alberton	126 636	139 619	157 735	227 446	3085	3401	3843	5541	771	850	961	1385
Bedfordview	28 917	31 882	36 018	51 937	846	933	1054	1520	212	233	264	380
Benoni	266 034	293 308	331 366	477 814	5829	6426	7260	10468	1457	1607	1815	2617
Boksburg	307 296	338 800	382 761	551 923	6395	7050	7965	11486	1599	1763	1991	2871
Brakpan	187 650	206 888	233 733	337 031	3591	3959	4472	6449	898	990	1118	1612
Daveyton	105 651	116 482	131 596	189 756	1570	1731	1955	2819	392	433	489	705
Edarvale	54 048	59 589	67 321	97 074	1642	1810	2045	2949	411	453	511	737
Ekurhuleni	168 729	186 027	210 165	303 048	3069	3383	3822	5511	767	846	956	1378
Etwatwa	114 345	126 068	142 426	205 371	1563	1724	1947	2808	391	431	487	702
Germiston	229 599	253 138	285 983	412 374	4623	5097	5759	8304	1156	1274	1440	2076
Katlehong	379 044	417 904	472 129	680 787	5525	6092	6882	9924	1381	1523	1721	2481
Kempton Park	249 858	275 474	311 217	448 761	5766	6357	7182	10356	1442	1589	1796	2589
KwaThema	86 871	95 777	108 205	156 026	1304	1438	1624	2342	326	359	406	586
Nigel	53 484	58 967	66 618	96 061	1045	1152	1301	1877	261	288	325	469
Olifantsfontein	51 267	56 523	63 857	92 079	803	885	1000	1442	201	221	250	360
Springs	85 593	94 368	106 613	153 730	1845	2034	2298	3313	461	508	574	828
Tembisa	275 196	303 409	342 778	494 269	4470	4928	5567	8028	1117	1232	1392	2007
Tokoza	84 444	93 101	105 182	151 667	1249	1377	1556	2243	312	344	389	561
Tsakane	162 075	178 691	201 877	291 097	2399	2645	2988	4309	600	661	747	1077
Vosloorus	89 979	99 204	112 076	161 608	1536	1693	1913	2758	384	423	478	690
Wattville	71 754	79 110	89 375	128 875	1110	1223	1382	1993	277	306	346	498
TOTAL	3 178 470	3 504 331	3 959 030	5 708 734	59 263	65 338	73 816	106 439	14 816	16 335	18 454	26 610

Estimated Waste generation and recyclables

Period	Population	Projected Waste Generation (tons/month)	Projected Recyclables (tons/month)
Year 2011	3 178 470	59 263	14 816
Year 2015	3 504 331	65 338	16 335
Year 2020	3 959 030	73 816	18 454
Year 2035	5 708 734	106 439	26 610

Challenges for the City of Ekurhuleni

- Increasing inflow of migrants into the city that place a strain on the infrastructure and ability to provide services.
- Number of households in the City of Ekurhuleni has grown at a faster rate than the national one, increasing the service delivery demands.
- High proportion of young people under 35 years with low skills levels unemployed.
- The existing costing model for waste services is a base on bin size with respect to the domestic service, flat monthly payments unrelated to the quantity (volume or weight).
- Our customer's faces zero costs at the margin for generating additional waste for disposal.
- Preservation of airspace for the disposal of refuse remains a huge challenge for the metro, especially in the Northern Service Delivery Region.
- The pending declaration of waste management services as part of the city's essential services will afford greater flexibility in planning and deploying HR resources and reduce overtime expenditure.
- High breakdown of vehicles resulting in huge shortage that leads to backlogs unpredictable collection schedule.
- Exploding costs of running public offloading facilities (zero rated)
- Growing demand for zero rated services from the indigent register

Challenges for the City of Ekurhuleni

- Increasing number of hijacked buildings which cannot be billed because a bin is attached to property rate and taxes.
- Inaccurate data of population size receiving waste management service makes planning complex.
- Uncontrolled environment for informal waste pickers creates huge number of challenges which includes operations, compliance to license conditions.
- The growing scourge of illegal dumping which can be attributed to a number of variables including illegal land use, inadequate by-law enforcement etc.
- The City does not own a landfill in the northern service delivery region and currently buys airspace from a private disposal site called Chloorkop landfill site.
- Identified as some of the fastest growing clusters are namely, Midstream and extensions, Clayville and the extensions, Olifantsfontein, Bapsfontein, Serengeti, Glen Erasmia, Pomona, Essellen Park extension and Bredell which constitutes the catchment area for the North.

Goal 1: Promote waste prevention, minimisation, separation at source, recycling and recovery

Immediate goals	Short term goals	Medium term goals	Long term goals
The Waste Hierarchy is well known and needs to be implemented in CoE to ensure a sustainable waste management approach	Engage with community and informal recyclers in the communities and improve the extent of recycling and quality of recyclables	Need to divert waste from the landfill and utilize it for energy recovery in order to offset the cost of landfilling and managing the landfill aftercare period	Ensure that waste prevention, minimisation, and recycling procedures and practices are adopted by all sectors of society and that salvaging at landfills is phased out completely
Requirement for any form of waste management treatment or disposal contract to add to the potential for job creation	Need to investigate the feasibility of a form of energy recovery from waste that does not involve landfill Ensure sufficient waste volumes to the required landfills in order for the CoE CDM landfill gas project to continue	Definite need from the public for the Municipality to develop infrastructure geared towards the reduction of waste to landfill	
An effective reduce, re-use and recycle strategy is implemented;	Development and implementation of appropriate economic instruments and other financial incentives	Development and implementation of appropriate economic instruments and other financial incentives	
An appropriate and safe waste reclamation programme at the dumpsite is in place	Adoption of measures aimed at facilitating and coordinating the implementation of existing successful waste minimisation and recycling initiatives	Adoption of measures aimed at facilitating and coordinating the implementation of existing successful waste minimisation and recycling initiatives	
The informal recyclers play a role in recycling and there is a need to involve and formalize them	Development and implementation of a programme for the dissemination of information by DEA concerning the techniques, opportunities and benefits associated with cleaner production, waste minimisation and recycling	Public Private Partnership be considered in terms of a feasibility study Ensure that the informal pickers are accommodated to ensure that they are catered for as removing the recyclables from the final waste would have a devastating impact on their livelihoods.	

Goal 2: Ensure the effective and efficient delivery of waste services is provided throughout CoE

Immediate goals	Short term goals	Medium term goals	Long term goals
Adherence with the weekly waste collection schedule/calendar for formal households	Increased provision of waste management services in line with the waste management every year 88 000 240l bins rolled – out in line with the mass roll out program	Increased provision of waste management services in line with the waste management every year 88 000 240l bins rolled – out in line with the mass roll out program	Increased provision of waste management services in line with the waste management every year 88 000 240l bins rolled – out in line with the mass roll out program
All informal settlements with access to basic waste management services	Recycling containers should be provided throughout the municipal area and in areas where skips are to be used	Ensure that the landfill site meets minimum requirements and licence conditions	A total of 37, 300 new indigent households registered
Increased provision of waste management services in line with the waste management every year 88 000 240l bins rolled – out in line with the mass roll out program	Increased registration of new indigents. About 8,164 new indigent households approved per annum	Increased registration of new indigents. About 8,164 new indigent households approved per annum	To provide an appropriate, affordable and sustainable waste collection service to all the people of the municipality
Skips are appropriately placed, properly managed and controlled	Disposal infrastructure to meet required standards	CoE provides effective waste collection throughout the municipality	To ensure that all unavoidable waste is safely collected, transported and disposed of at the landfill site operated in accordance with the DWAF minimum requirements
Increased registration of new indigents. 4,565 new indigent households approved	Appropriate and sufficient capacity exists to ensure that the landfill is well-managed and properly run	Alternative funding sources should be investigated in order to assure financial sustainability of waste recycling strategies and promote local economic development projects and job creation	

Goal 3: Ensure that the legislative tools are developed to deliver on the Waste Act and other applicable legislation such that plans and policies enable effective waste management services and are integrated into all municipal plans

Immediate goals	Short term goals	Medium term goals	Long term goals
Hazardous and Medical waste is properly managed	Plans and policies are integrated and comply with National legislation, regulations, Provincial ordinances, municipal by-laws and national and international treaties	A fully integrated waste information system is in place	Waste management is integrated into all the plans and programmes of CoE municipality and comply with legislation and regulations to ensure that services are optimised and are cost effective and that waste management forms part of all other plans
Develop/ amend waste by-laws			

Goal 4: Sound budgeting and financing of waste management services for adequate physical and human resources in place to ensure cost-effective waste management

Immediate goals	Short term goals	Medium term goals	Long term goals
Improve monthly reporting on waste collection service.	Training financial reporting	Appropriate and sufficient equipment is in place to ensure effective service delivery.	Ensure that sufficient funds are in place to ensure that waste management is carried out effectively and that services are delivered to all residents of CoE
Collection of rates and tariffs must be more efficient to ensure sustainability.	Projects that are proposed must demonstrate value for money, be sustainable	Landfill infrastructure is adequate and appropriate and suited to future development	
Income from waste tariffs must go to waste projects and infrastructure.	Adequate funds are in place and systems are cost effective		
Full cost accounting or <i>True cost accounting</i> must be adopted to ensure that all benefits and costs are taken into account.	Vehicle maintenance and replacement policy in place		

Goal 5: Ensure the safe and proper disposal of waste whilst having sufficient and appropriately skilled staff utilised optimally to ensure that waste management is effectively carries out in CoE

Immediate goals	Short term goals	Medium term goals	Long term goals
Designate waste management officers	Train waste management officers	Train waste management officers CoE municipality is adequately capacitated to ensure effective service delivery	The staff compliment must be fully productive and properly capacitated to carry out their designated functions

Goal 6: Education and awareness to ensure that the people of CoE are aware of the impact of wasteon their health, well-being and the environment, and are informed of the waste management programmes planned by the municipality

Immediate goals	Short term goals	Medium term goals	Long term goals
Consult sufficiently with the residents before implementing any waste treatment alternatives. The residents must be made aware and well educated about the proposed alternative treatment methods. Any impacts on the municipal rates, level of service and job opportunities must be well communicated	Consult sufficiently with the residents before implementing any waste treatment alternatives. The residents must be made aware and well educated about the proposed alternative treatment methods. Any impacts on the municipal rates, level of service and job opportunities must be well communicated	Consult sufficiently with the residents before implementing any waste treatment alternatives. The residents must be made aware and well educated about the proposed alternative treatment methods. Any impacts on the municipal rates, level of service and job opportunities must be well communicated	Consult sufficiently with the residents before implementing any waste treatment alternatives. The residents must be made aware and well educated about the proposed alternative treatment methods. Any impacts on the municipal rates, level of service and job opportunities must be well communicated
Ensure that the residents of CoE are adequately educated to understand the vitally important need of waste to be managed properly to ensure the well-being of the residents and environment	Develop an education and awareness strategy and training materials to roll out education and awareness campaigns	Education and awareness campaigns implemented in a sustainable manner	

Goal 7: Compliance and enforcement			
Immediate goals	Short term goals	Medium term goals	Long term goals
Amend and finalise new by-laws	Introduction and enforcement by-laws	Waste management services cannot be the responsibility of CoE alone. There is a need to foster relationship with the private sector formal and informal to get the desired results	

Areas that requires continual improvement

1. Awareness, education and information dissemination

Waste management education and awareness under the new department has not taken place. CoE waste management must develop a waste awareness, education and information dissemination strategy.

2. Community participation

The involvement of ward environmental teams in the municipality or ward councillors is very low. It is required that the service be intensified in all communities.

3. Cooperation, coordination and partnerships

Waste management services cannot be the responsibility of CoE alone. There is a need to foster relationship with the private sector formal and informal to get the desired results.

4. Municipal Waste By-Laws

The current CoE by-laws are under review as there were numerous by-laws to be consolidated in the formation of the metro. CoE's current Solid Waste By-Laws ("the by-laws") were promulgated on 6 March 2002.

5. Human Resources

Balanced workforce and Disciplined staff members

Strategic intervention to support the IWMP Goals

- Feasibility study for the development of Alternative Waste Treatment Technologies (AWTT): GIFA
- Deployment of bulk walk in container in the informal settlements
- Mechanization of informal litter pickers through Tuk tuks
- Service point audit for waste management
- Declaration of waste essential services
- Recovery programme -Independent power producer
- Re-balancing workload and resources while maintaining efficiencies through the 60/40 split plan
- Promoting education and awareness in all 112 wards through a Clean city programme- 1200 participants
- Rubble crushing at Simmer and Jack.
- Shredding of garden refuse at all sites except Platkop

Waste Management KPI and Targets

Outcomes	KPI	Target	Budget
ENV3. Increased access to refuse removal	Percentage of known informal settlements receiving integrated waste handling services	119	R34 789 516.77
Improved level of cleanliness in Central Business District Areas	Cleanliness level of Ekurhuleni Metro central business district (CBD) areas as determined by WMS Gauteng Waste Standards	Level 3	R385 000
Increased provision of waste management services	Number of formal households with access to refuse removal	718645	R 226 345 715.75
Increased compliance with the minimum requirements for waste disposal by landfill	Number of landfill sites compliant and reported on with the minimum requirements for waste disposal by a landfill	13	R 340 900
Increased waste minimization	Number of public offloading facilities constructed in the Townships	4	
Increased waste minimization	% of recyclable waste reclaimed or diverted from the landfill sites	5%	

THANK YOU

