

SECTION 1

1. EXECUTIVE SUMMARY

KwaDukuza Municipality has developed a waste management plan and waste related legislative development and reform processes. The reform process is aimed at developing integrated waste management systems for the management of waste within KDM boundaries. Section 11 of the Waste Act, the Integrated Pollution and Waste Management Policy and the National Waste Management Strategy requires KDM to develop an integrated waste management plan. The reform process exercise began with the Status Quo Analysis of the waste generation and management systems within KDM.

The Status Quo Analysis Report is developed in line with the guidelines for developing an Integrated Waste Management Plan (IWMP) and forms Phase 1 of the development process of the municipal IWMP. IWMPs were identified in the National Waste Management Strategy (NWMS) document (2000 and 2010) as a tool to assist municipalities to provide effective waste management services. The status quo analysis investigated the amount and types of general waste currently generated, collected, transported, recycled, treated and disposed of.

The Status Quo analysis resulted in a report, which highlighted gaps in the current waste management practices. The gaps include, inter alia, institutional and organizational issues, socio-economic issues, technical and operational issues, waste minimization and recycling, waste information, enforcement and education and awareness issues. On the basis of the findings of the status quo analysis, the Municipality needs to develop an integrated waste management policy and review the refuse by-laws.

The Waste Management Plan sets a number of objectives, which have to be achieved by KDM. These include, waste minimization and recycling, provision of quality, affordable and sustainable waste management collection services, environmentally sound management of special waste streams such as hazardous waste, construction waste etc., waste treatment and disposal, capacity, education and awareness and effective waste information management systems.

In order to achieve the plan's objectives, Waste Management is required to develop and implement an integrated waste management plan which articulates strategies and initiatives for achieving integrated waste management. The Integrated Waste Management Plan has to translate the objectives into practice and address the current deficiencies and gaps in KDM waste management system.

IWMP is also a basic requirement of the Department of Environmental Affairs for departments responsible for waste management within municipalities in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) to address the waste minimisation and reduction challenge and enhance waste re-use and recycling.

The service changes identified in the Integrated Waste Management Plan will allow an integrated waste management collection system to address the waste reduction requirement and at the same time provide adequate and sufficient services to meet the needs of the people of KDM.

In this era of change in integrated waste management and with a shift in the industry towards adopting an environmentally responsible position and maximizing the use of the four R's (reduce, reuse, recycle, recover) in integrated waste management and utilization of resources. The IWMP outlines the core strategies for the integrated waste management systems for KDM, identifies the strategic priorities, goals and objectives and targets for the implementation of the core strategies, and it outlines the action plan for the implementation of strategic priorities and objectives.

The IWMP is divided into 11 distinct sections:

- ✚ Section 1: gives the executive summary
- ✚ Section 2: gives the status quo whereby the issues of base population; future population distribution, socio-economic levels and the current resources are discussed in depth
- ✚ Section 3: addresses the legislative requirements and the legal registers with specific focus on National legislation, the principles defined in the National government statutes and policies, provincial statutes and municipal policies that govern waste management. It must be noted that KwaZulu Natal suffers the death of waste management policies that govern integrated waste management. At the development of the plan the province was in the process of getting the provincial plan developed. The general provisions for Integrated Waste Management are discussed in this component
- ✚ Section 4 -6: addresses waste generation, coverage and the current waste handling mechanism of the different waste stream
- ✚ Section 7: addresses roles and responsibilities in integrated waste management. It is important to address roles and responsibilities as it allows the municipality to function without leaving grey areas
- ✚ Section 8: addresses the principles of the integrated waste management plan with specific focus on key challenges, the waste management challenges of the municipality, core strategies and strategic priorities
- ✚ Section 9: speaks to the strategies and priorities for an Integrated Waste Management. Setting and achieving the objectives of the plan is key in this section
- ✚ Section 10: focus on implementation of the plan with specific reference to monitoring, evaluation and reviews
- ✚ Section 11: zooms into the strategic goals and action plans. The human, financial required for the implementation are addressed in this section in depth.

This plan is an organic document requiring periodic reviews of the action plans in line with the actual resources needed to effect implementation of the action plans.

SECTION 2

2. STATUS QUO

KwaDukuza Municipality is settled in the ridges and the valleys of iLembe District Municipality as one of the four “family of municipalities” i.e. Maphumulo, Mandeni and Ndwendwe. KwaDukuza covers about 633km² of land, within its area of jurisdiction. The area includes a 50km stretch of coastline incorporating a range of sensitive coastal environments, river mouths and lagoons as well as significant urban developments in the southern sections. They are depicted in figure 1 below.

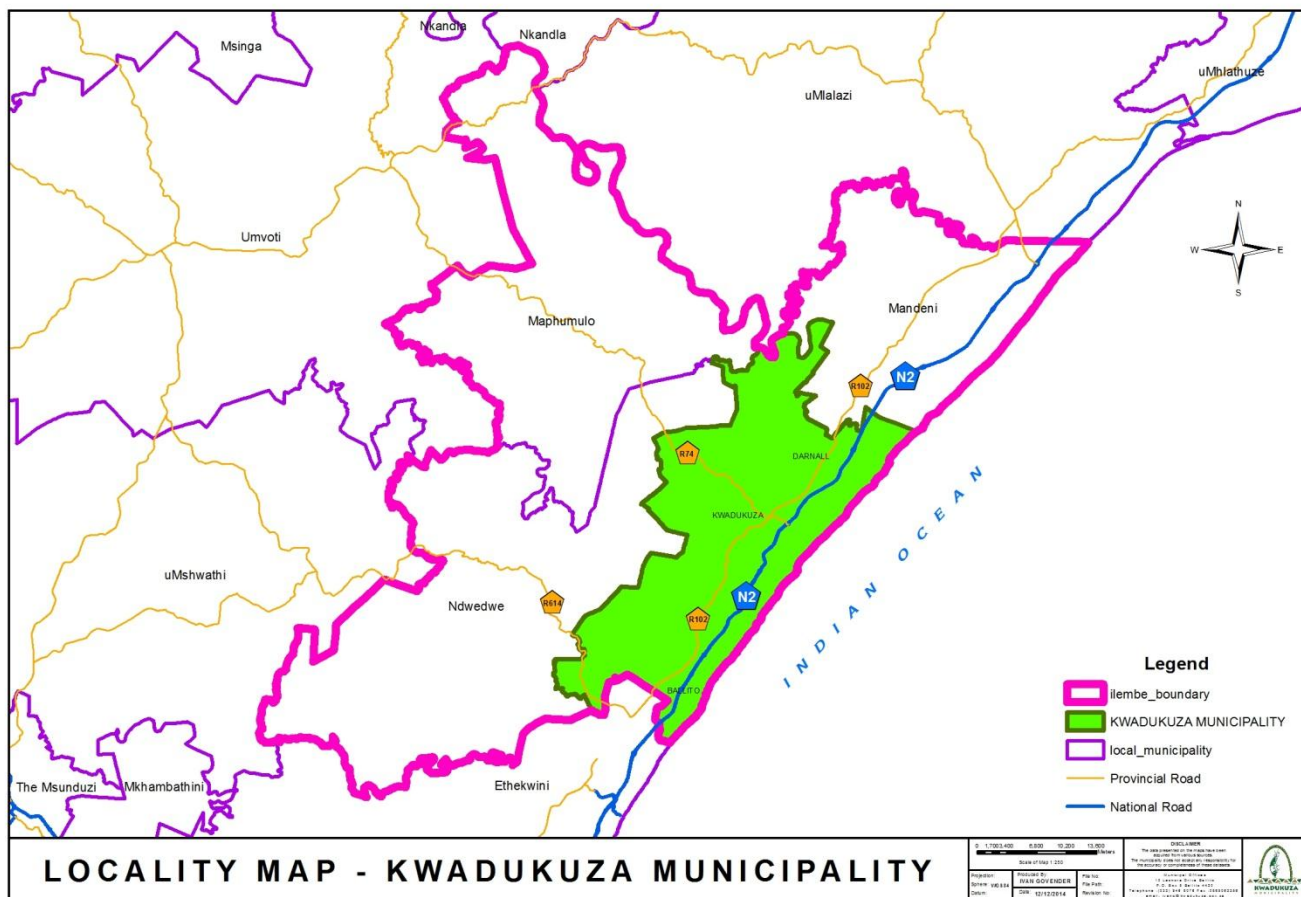


Figure 1: Map showing KwaDukuza Municipality within iLembe District Municipality

KwaDukuza municipality has a total area of 73 497.2 Ha, of which only 17 949.6 is untransformed (24.4%). The level of transformation by cultivation has left great concern on the municipality to conserve the remnant habitats because of the ecosystem services they naturally deliver to the community. Below is the map depicting sensitive areas **Figure 2** below.

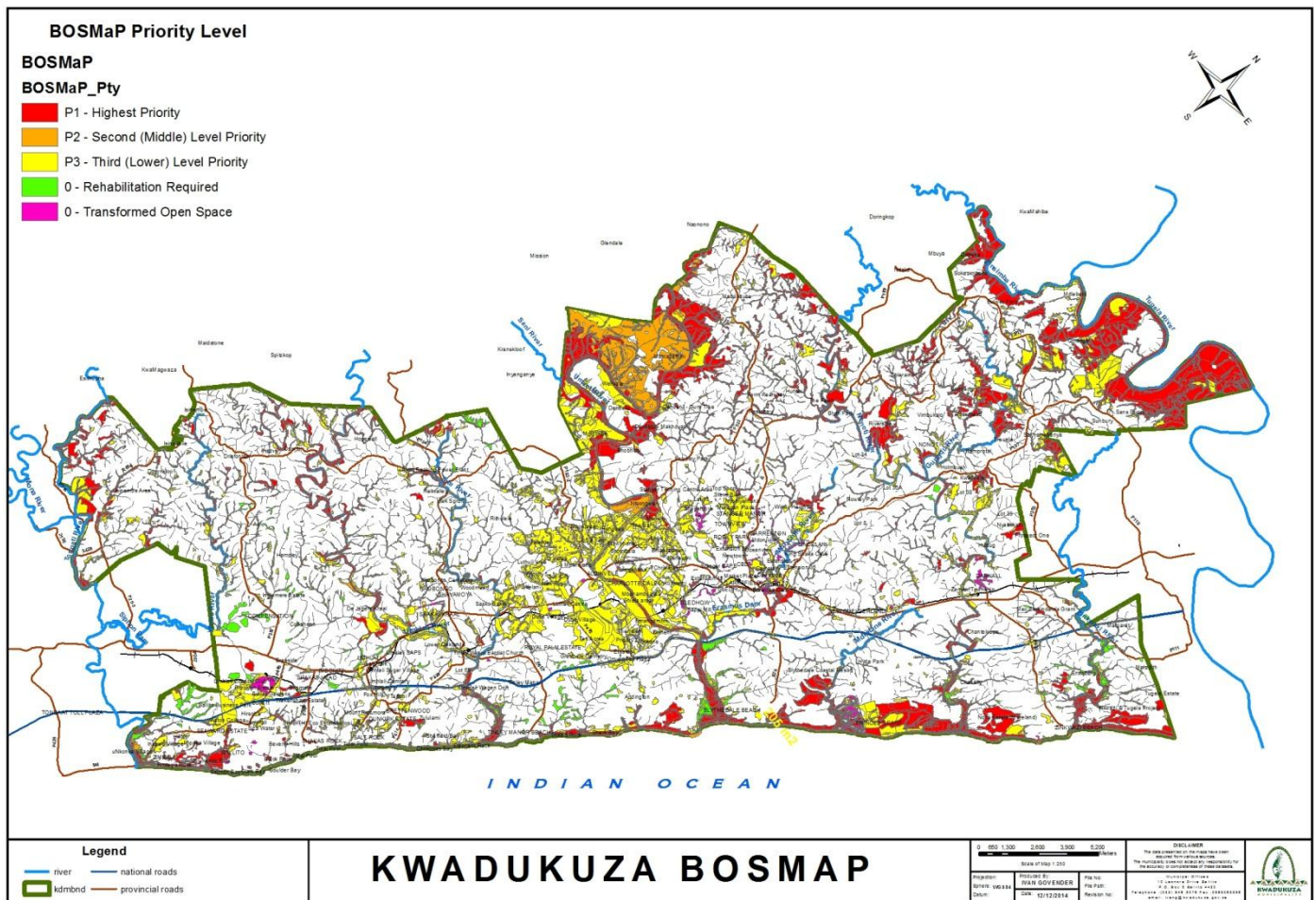


Figure 2: Map showing Priority Sensitive areas in KwaDukuza

The KwaDukuza municipal area stretches from the Zinkwazi River in the north to the UThongathi River in the South. It borders four Municipalities, viz, eThekweni, Ndwedwe, Maphumulo and Mandeni. It is one of the four municipalities that make up the ILembe District Municipality. KwaDukuza functions as the district node and dominant commercial centre in the ILembe District. KwaDukuza Municipality occupies a coastal and inland stretch of approximately 50 km in length and 14km in width, a variety of clustered and ad hoc settlements and small towns exist and are linked with a well-developed network of roads and rail infrastructure reflected in **Figure 3** below.

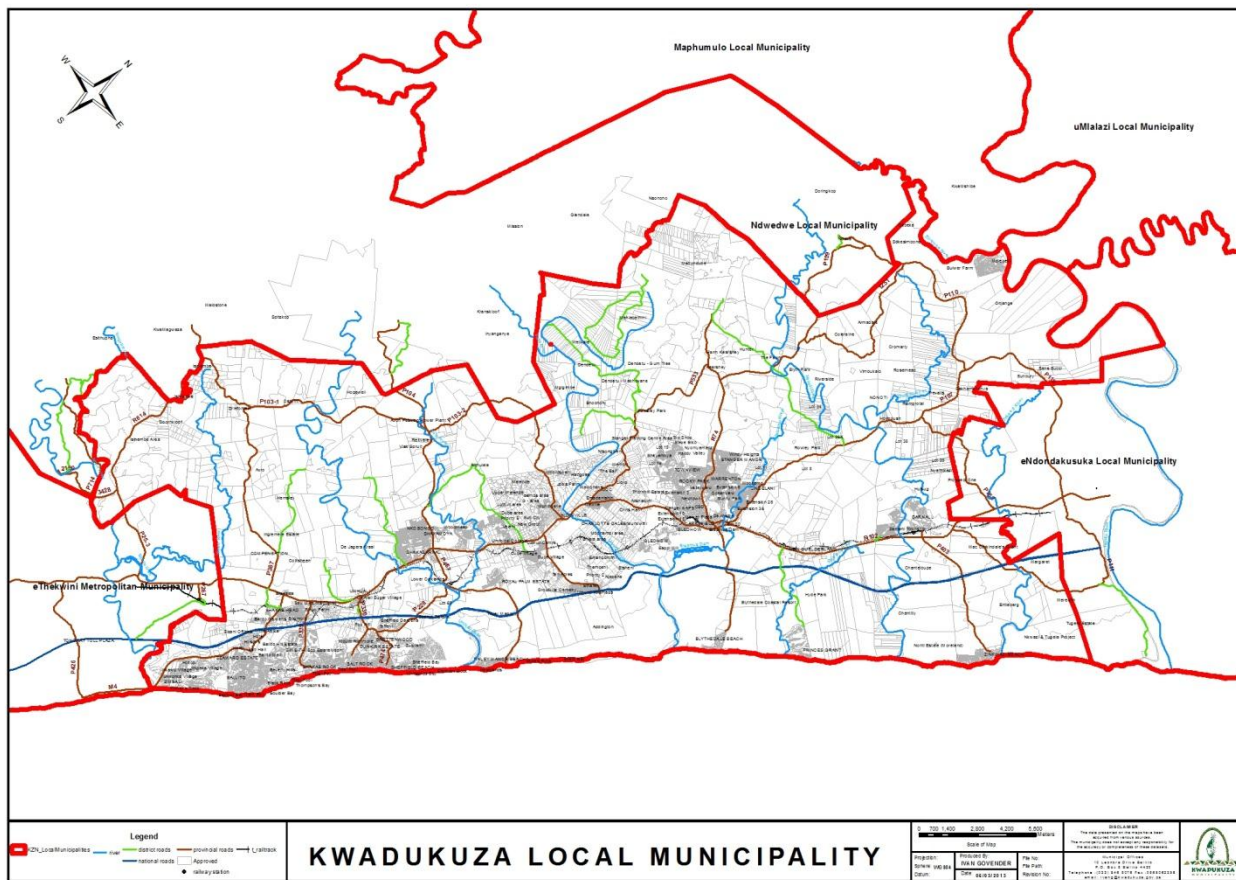


Figure 3: Map showing KwaDukuza Municipality within iLembe District Municipality

The key feature of KwaDukuza is the N2 Development Corridor that runs through it. KwaDukuza Municipality borders the Indian Ocean in the West with pristine beaches, and eThekweni in the South. The other families of municipalities are to the North and Eastern boarder of KwaDukuza Municipality. KwaDukuza Municipality comprises of the following villages with different type of services are indicated in Table 1 below.

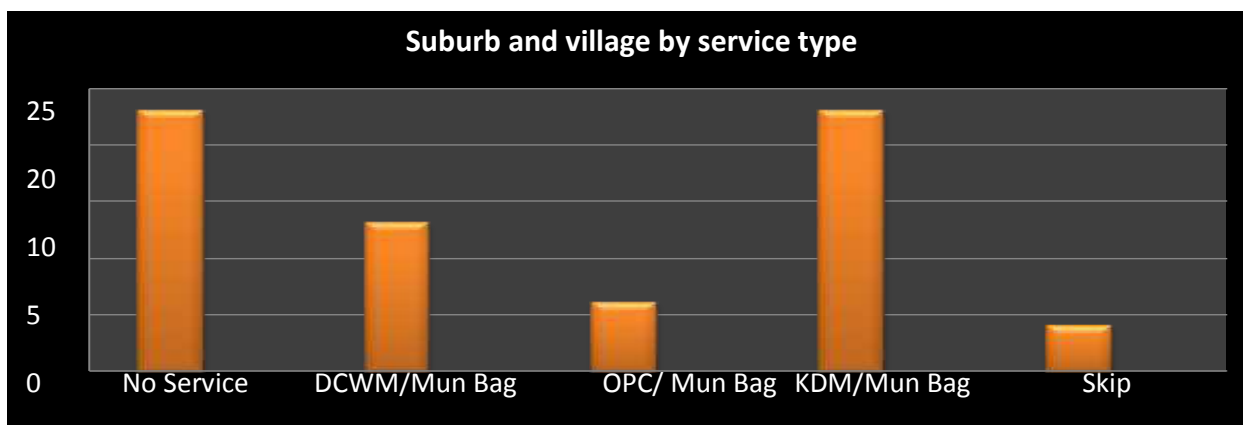
Table 1: Suburbs/Village in KwaDukuza Municipality by Ward and Type of Refuse Collection Services Rendered.

Ref No	Suburb/ Village	Ward No.	Types of Service
1.	Aldenville	Ward 10	No Service
2.	Ballito Bay	Ward 06	Municipal Bag/dcwm
3.	Black Rock	Ward 02	Municipal Bag/dcwm
4.	Blythdale	Ward 08	Municipal Bag/kdm
5.	Bulwer Farm	Ward 01	Municipal Bag/kdm
6.	Charlottedale	Ward 11	No Service
7.	Charltonville	Ward	
8.	Chris Hani	Ward 11	Municipal Bag/opc
9.	Compensation Beach	Ward 06	Municipal Bag/dcwm
10.	Cranbrook	Ward 09	No service
11.	Darnall	Ward 02	Municipal Bag/kdm
12.	Doctorskop	Ward	Municipal Bag/kdm
13.	Dawnville	Ward	Municipal Bag/kdm

14.	Dendethu	Ward 01	No Service
15.	Driefontein	Ward 04	Municipal Bag/dcwm
16.	Ematendeni	Ward 11	No service
17.	Eradimishini	Ward 14	Municipal Bag/opc
18.	Etete	Ward 20	Municipal Bag/dcwm
19.	Ethafeni	Ward 07	Municipal Bag/dcwm
20.	Gledhow	Ward 15	Municipal Bag/kdm
21.	Glen Hills	Ward 13	Municipal Bag/kdm
22.	Groutville Dube Village	Ward 10	KDM Skip
23.	Groutville Mission	Ward 10	No Service
24.	Gungu	Ward	
25.	Hanguza	Ward 09	Municipal bag/opc
26.	Hopewell	Ward 04	No Service
27.	High Ridge	Ward 17	Municipal Bag/kdm
28.	Holmbush	Ward 03	No service
29.	Industrial Area	Ward 16	Municipal Bag/kdm
30.	Myundwini	Ward 09	No service
31.	Larkfield	Ward 19	Municipal Bag/kdm
32.	Lloyd	Ward 14	Municipal Bag/opc
33.	Lower Tugela NU	Ward 02	No Service
34.	Malende	Ward 09	Municipal Bag/opc
35.	Mawetheni	Ward 05	No Service
36.	Memory	Ward 15	No Service
37.	Mnyomawini	Ward 10	No Service
38.	Mvoti River Swamp	Ward 12	No Service
39.	Mgigimbe	Ward 09	No service
40.	New Groutville	Ward 09	No Service
41.	Njekane	Ward 12	No Service
42.	Nkobongo	Ward 08	Municipal Bag/dcwm
43.	Nkukhwini	Ward 11	No service
44.	Nonoti	Ward 03	No service
45.	Northlands	Ward 16	Municipal Bag/kdm
46.	Ntabaningi	Ward	
47.	Ntsongweni	Ward 09	No Service
48.	Ocean View	Ward 16	Municipal Bag/kdm
49.	Princes' Grant	Ward 12	Private service
50.	Rocky Park	Ward 19	Municipal Bag/kdm
51.	Shaka's Memorial	Ward 04	Municipal Bag/dcwm
52.	Shaka's Head	Ward 04	Municipal Bag/dcwm
53.	Shakaville	Ward 18	Municipal Bag/kdm
54.	Shayamoya	Ward 13	Municipal Bag/opc
55.	Sheffield Manor	Ward 06	Municipal Bag/dcwm
56.	Sheffield Beach	Ward 06	Municipal Bag/dcwm
57.	St. Christopher	Ward 03	No Service
58.	Stanger	Ward 19	Municipal Bag/kdm
59.	Stanger Central	Ward 19	Municipal Bag/kdm
60.	Stanger Height	Ward 16	Municipal Bag/kdm
61.	Stanger Manor	Ward 17	Municipal Bag/kdm
62.	Thembeni	Ward 12	Skip
63.	Thompson's Bay	Ward 06	Municipal Bag/dcwm
64.	Thornhill	Ward 19	Municipal Bag/dcwm

65.	Tidal Pool	Ward 06	Municipal Bag/kdm
66.	Town View	Ward 14	Municipal Bag/kdm
67.	Tugela Estate	Ward 02	No Service
68.	UCC informal	Ward 14	No Service
69.	Umhlali Beach	Ward 07	Municipal Bag/kdm
70.	Warrenton	Ward 16	Municipal Bag/kdm
71.	Willard's Beach	Ward 06	Municipal Bag/kdm
72.	Windy Heights	Ward 17	Municipal Bag/kdm
73.	Zinkwazi	Ward 02	Municipal Bag/kdm
74.	Zamani Township	Ward 02	Municipal Bag/kdm

Graph 1, below summarizes Table 1 above. The villages are characterized by having no service at all, contracted to Dolphin Coast Waste Management (DCWM) on municipal bag system, one person contractor (OPC) on municipal waste bag system, KwaDukuza Municipality (KDM) municipal bag waste collection system or skip waste collection. The skip services are usually placed at the periphery of the community but in some instances they were placed nearer to dwellings.



Graph 1: Villages and Suburb by Service Type

2.1 Base Population

The community survey 20071 reveals that the population of KwaDukuza Municipality was sitting at 162 055, compared 158 582 in 2001. The growth is very minimal at 2% between 2001 and 2007. This attributes that the annual growth was at 0.3%. Contrary to the above figures the 2007- 2012 IDP for KwaDukuza estimates that there are 172 000 residents in the municipality of which 68.4% comprises of the youth. Table 2 below indicates the population of KDM as per indication on Community Survey 2007.

Table 2: Population Distribution for KDM (data sourced from StatSA Community Survey)

POPULATION OF KWADUKUZA		
POPULATION	TOTAL POPULATION	TOTAL % OF THE POPULATION
Black	182284	79%
Coloured	2213	0.96%
Indian	32532	14%
White	12884	16%

2.2 Future Population Distribution

According to Table 2 above the population of KDM has grown by 2% between 2001 and 2007. This translates to 0.3% annual population growth in KwaDukuza. The growth in waste quantities is not directly proportionally to population growth but to the state of affluence of the population. It has been in Cities such as Cape Town that 50% of the waste is produced by 14% of the population.

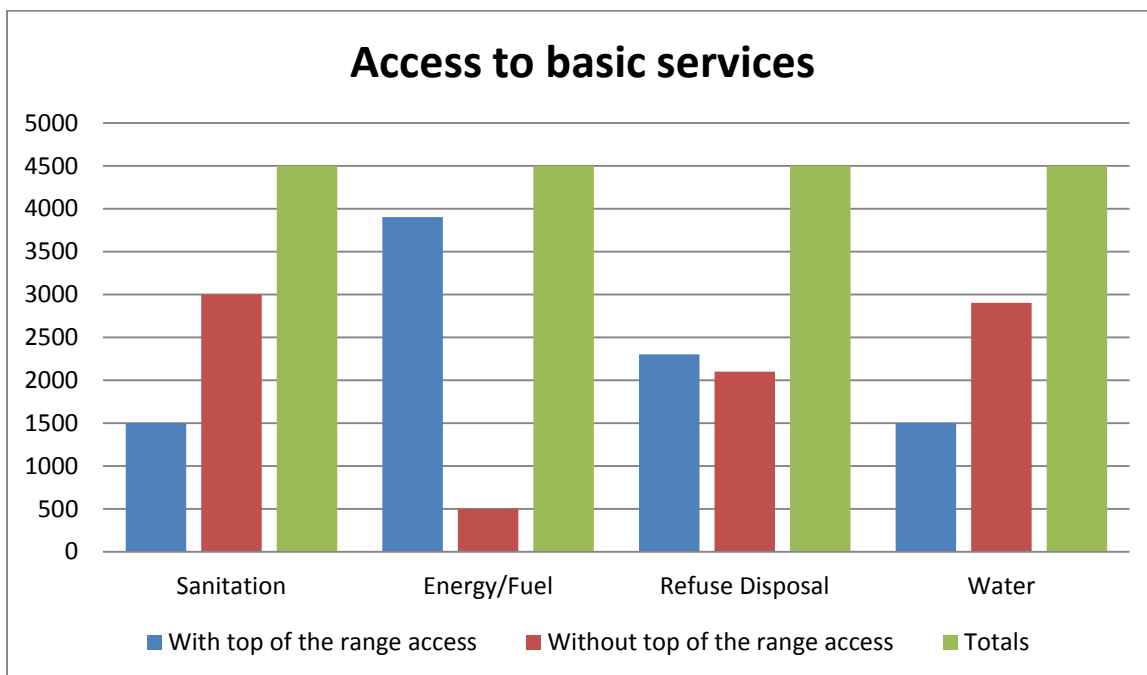
2.3 Socio-Economic Levels

Socio-economic levels are still showing the economic divide still have the remnants of the apartheid regime where some low income settlements border high income settlements as in the case of Shaka's Head and Ballito Bay. If we use tenure as the sole determinant of the socio-economic levels of KDM we can conclude that the split between the residents who own paid up properties in 2007 at 51.5% have declined by 0.2% compared to 2001 which was at 51.7%. Table 3 below depicts employment status in KDM.

Table 3: Employment Status of KDM (Data Source from StatSA)

EMPLOYMENT STATUS	
Employed	68418
Unemployed	22760
Discouraged	8021
Not Active	54956
Employment NA	77028

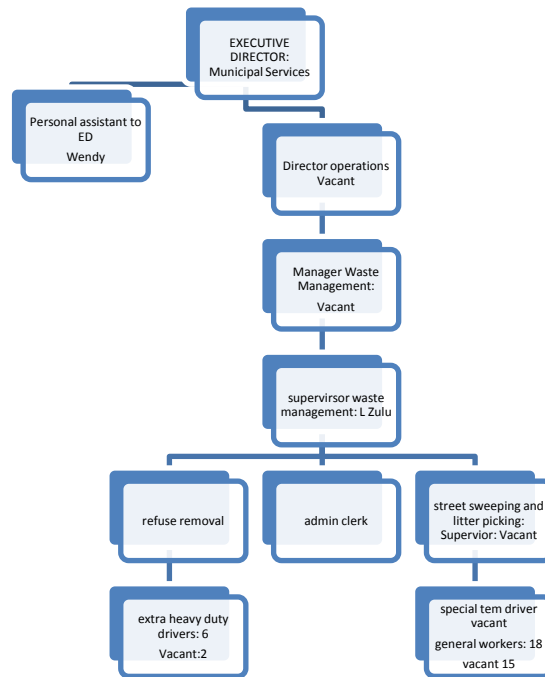
Other measures such as access to basic services have realized significant increase as depicted figure 5 below:



Graph 2: Access to basic education

Attention is drawn to refuse disposal which shows that about 20 000 households do not have access to the standard waste collection service which by default equates a bag service collected twice in a week. From the above data it can be concluded that access to basic services has a direct relationship with the economic status determined by tenure status

2.4 Current Human Resource (structure)



2.5 Current Fleet

2.5.1 KDM Waste Management Fleet

KwaDukuza Municipality runs the waste management unit with a fleet that is a combination of an aging fleet as well as new additions. The contrast goes to a truck as old as 18 and 2 years. The aging fleet may pose a challenge to consistent refuse removal as well as the inability to render skip removal services as it is seen in the pictures below. **Table 4** depicts the fleet in terms of registration, make, model, year of purchase and the mileage travelled by the vehicle.

Table 4: KDM Waste Management Fleet

FLEET NUMBER	REGISTRATION NUMBER	MAKE	MODEL AND YEAR	MILEAGE
255	NT 3371	Nissan	CW45-1993	946452
255	NT 25175	Nissan	CM12-1991	725739 (faulty speedo meter)
255	NT 8924	Mecerdes Benz	1412-1997	422375(faulty speedo meter)
255	NT 29128	Nissan	UD 80-2003	171946
255	NT 11752	Nissan	UD 80-2005	108088
255	NT 37929	Nissan	UD 90-2006	862364
255	NT 344 44	Isuzu	FVR-2007	36631
255	NT 43943	Isuzu	Mod-2007	58236
255	NT 21188	Nissan	Hardbody-2000	21188
255	NT 339 74	VW	Golf. 4I-2007	25690

Maintenance records were not available during the compilation of the Status quo report. The maintenance will assist in assessing the situation of service provision, spending on the vehicle. It was revealed in one of the meeting that the KDM was awaiting the delivery of an additional refuse removal truck. The truck will alleviate the current problem of non-removal due to vehicle breakdown.



Picture 1: Overflowing Waste Bins in Groutville (Photos taken by the project manager on 14/01/10)

2.5.2 LANDFILL AND LANDFILL EQUIPMENT

KDM recently decommissioned Shakaville Disposal Site. Currently waste is disposed at two sites that are privately owned. KDM registered a single piece of equipment as part of their landfill equipment which is described in **Table 5** below. The piece of equipment was used at Shakaville disposal site which currently is no longer in use. The machine was showing signs of vandalism as shown on **Annexure A**: for pictures of the Fleet and Equipment by photos.

Table5: KDM LANDFILL EQUIPMENT

Fleet Number	Registration number	Make	Model and year	Mileage
255	NT 90307	Agricore Dumper	1997	None

2.6 OTHER EQUIPMENT

KDM has deployed refuse bins within the jurisdiction of the municipality in different makes and models. The serve as litterbins in residential, commercial and residential area as indicated on Table 6 below.

TABLE 6: OTHER EQUIPMENTS FOR WASTE HANDLING IN KDM

NO	LOCATION	MAKE	MODEL	YEAR
6	Around KDM	6m ³	Skip	None
2	Around KDM	2m ³	Skip	None
89	CDB	Concrete	Street litterbin	None
34	Taxi and Bus Rank	Concrete	Litterbin	None
18	Public Area	Concrete	Litterbin	None

SECTION 3

3. LEGISLATIVE FRAMEWORK

Integrated Pollution and Waste Management is defined as: Integrated pollution and waste management is a holistic and integrated system and process of management, aimed at pollution prevention and minimization at source, managing the impact of pollution and waste on the receiving environment and remediating damaged environments. (White Paper on Integrated Pollution and Waste Management for South Africa, 2000, p.11).

The Municipality subscribes to the Waste Management Hierarchy of the National Waste Management Strategy (NWMS) as a method of minimizing impacts due to waste that will be landfilled. The IWM Plan aligns all waste management services provided in the Municipality's boundaries with the NWMS and will contribute to the implementation of the national and concurrent Provincial strategies to minimize waste at the local level.

3.1 LEGISLATIVE FRAMEWORK FOR WASTE MANAGEMENT SERVICES

The legislative framework include National and Provincial statutes, policies, and international protocols to which South Africa is a signatory. There are various Municipal-related regulatory and policy documents that contextualise the scope and principles of the plan to enable the management of waste in an integrated, sustainable, equitable and responsible manner in order to maintain a safe and a healthy environment.

Waste in South Africa is currently governed by means of a number of pieces of legislation, including:

- ✚ National Environmental Management: Waste Act 59 of 2008
- ✚ The South African Constitution Act 108 of 1996
- ✚ Hazardous Substances Act 5 of 1973
- ✚ Health Act 63 of 1977
- ✚ Environment Conservation Act of 1989
- ✚ Occupational Health and Safety Act 85 of 1993
- ✚ National Water Act 36 of 1998
- ✚ The National Environmental Management Act 107 of 1998
- ✚ Municipal Structures Act 117 of 1998
- ✚ Municipal Systems Act 32 of 2000
- ✚ Mineral and Petroleum Resources Development Act 28 of 2002
- ✚ National environmental management: Air Quality Act 39 of 2004
- ✚ KwaDukuza Refuse Management By-Laws

3.2 PRINCIPLES DEFINED ON NATIONAL GOVERNMENT STATUTES AND POLICIES

- ✚ Constitution, S.24: A clean and healthy environment to be sustained and protected for the benefit of future generations – a collective responsibility;
- ✚ Constitution Schedule 5B, and Local Government Municipal Systems Act: Local government to ensure provision of waste management services;
- ✚ National Environmental Management Act –
 - ❖ “Cradle-to-grave” responsibility of manufacturers and users;
 - ❖ “The-polluter-pays” principle and responsibility of waste generators.
- ✚ White Paper on Integrated Pollution and Waste Management for South Africa
 - ❖ Duty of care principle;

- ❖ Trans-boundary movement of waste;
 - ❖ Universal applicability of regulatory instruments.
- ✚ National Waste Management Strategy principles of waste minimization to prevent pollution, save landfill airspace and sustain the environment;
 - ✚ Minimum Requirements for Landfill Sites, Vol. 1, 2, 3; or as amended
 - ✚ Batho Pele Principles for service delivery to the public by the public service;
 - ✚ Expanded Public Works Programme (EPWP): utilization of local labour on short-term projects, preferably using labour from communities in need.

3.3 PROVINCIAL STATUTES AND POLICIES

The provincial government was in a process of developing statutes and policies that governs waste management in the province during the development of KwaDukuza Municipality's Integrated Waste Management Plan. There will be limited reference to provincial regulations on waste on this document.

3.4 THE MUNICIPAL'S STRATEGIC DEVELOPMENT FRAMEWORKS AND POLICIES

Chapter 5, in Section 26 (f) requires municipalities to in operational strategies in their Integrated Development Plan (IDP). Some of the key development frameworks and policies addressing waste issues include:

- ✚ IDP for strategic planning and financing the IWMP;
- ✚ Local Economic Development Strategy in terms on managing and creating an environment for implementation of economic projects linked to integrated waste management principles.
- ✚ Environmental Management Framework in terms of addressing the ecological footprint of Integrated Waste Management framework
- ✚ Disaster Management Policy in terms of addressing waste management issues during disasters.
- ✚ Tariff Policy in terms of setting tariffs for waste management
- ✚ Supply chain management in terms of addressing procurement of services and products for integrated waste management.

3.5 GENERAL PROVISION FOR INTERGRATED WASTE MANAGEMENT

3.5.1 *The Municipality's Prerogative for a suitable Service Mechanism/Provider*

It is the municipality's duty to ensure that a Waste Management Service, consisting of "cleansing, refuse removal, refuse dumps and solid waste disposal", is provided in the municipal area of jurisdiction, and per the requirements of the Local Government Municipal Systems Act, or MSA. The selection of a suitable, equitable and sustainable service delivery mechanism for waste management services is, therefore, the Municipality's duty and prerogative as the service authority and regulator within the municipal boundary, once it has complied with the determination of the criteria in accordance with the statutory mechanisms.

Currently the Municipality provides waste management services through a contracted service provider in the South while service are provided in house in the North.

3.5.2 *Regulation and Control by the Municipality as a Service Authority*

The Municipality is the de facto Service Authority for waste management services at the local government level. For the purposes of interpreting the Municipality's Plan, and in alignment with National policy, "waste management" is defined as "the avoidance, separation, reuse, containment, diversion, cleaning, handling, transportation, interim storage, recycling and disposal of waste other than untreated sewerage". "Waste management services" include activities that

individuals, organizations or business entities are responsible for on their premises or property. The provision of a waste management service is, thus, subject to statutory requirements, and conditions set by the Municipality in terms of its mandate to govern the municipality. This includes specialized collection, processing or treatment by hand or machines, disposal services, the operation of vehicles and machines used for waste management, the establishment of infrastructure and equipment by external entities or individuals. The provision of all waste management services by internal or external entities within, or that cross the municipality's boundaries will be regulated through applicable by-laws read in conjunction with applicable policies.

To operate inside the municipality's boundaries, any entity engaged in waste management practices may need to be registered and accredited in writing by the municipality. In addition, where statutes or codes of practice require a different written accreditation, authorization or permit to be issued by a National Department, this must also be obtained before operations may start. As per legislative and the NWMS requirements, certain categories of waste are subject to recording, auditing and reporting requirements as determined by Schedule 5B of the Constitution (Act 108 of 1996), Local Government Municipal Systems Act (Act 32 of 2000) provided for by the MSA, S.77 and 78 in terms of the MSA, S.81.

3.5.3 Intergovernmental Roles and Responsibilities

The municipality recognizes that it has a responsibility to abide by statutes, policies and guidelines that are introduced by National and Provincial Departments from time-to-time.

In this regard, the municipality acknowledges the regulatory oversight that must be exercised in terms of legislative compliance as well as the allocation of funds in aid of achieving National and Provincial objectives at the local government level. Conversely, these Departments have a responsibility to ensure that timeous communication and the intergovernmental transfer of funds enables the municipality to execute its duties and obligations.

3.5.4 Stakeholder Responsibilities

The principles of "prevention-before-waste-generation", "waste separation, streaming and diversion", and "cradle-to-cradle" are fundamental to the implementation of a waste minimization plan able to achieve the plan's targets. With reference to waste avoidance and minimization extends backwards in the production, consumption and waste generation cycle, and will require the co-operation and additional effort of the manufacturers and producers in terms of "Cleaner Production and Sustainable Consumption" and "Extended Producer Responsibility" (EPR) initiatives, and participation by the consumers of goods as part of individual waste minimization effort. All waste management services provided by or on behalf of the municipality will attract charges and rates according to the Municipality's Tariff Policy. External waste management entities that have not been contracted by the municipality to provide services on its behalf, i.e. where the municipality elected not to provide a service, must recover their costs according to their own terms of contract with a customer.

Service providers may provide waste management services only after the municipality has exercised its duty and prerogatives in terms of the MSA, and must have a legitimate standing to operate a sustainable and responsible waste management business, provided that it is done in accordance with the principles and standards to be set out in the Plan, and in accordance with the applicable statutes and regulations.

SECTION 4

4. WASTE GENERATED IN KWADUKUZA MUNICIPALITY

Generally the refuse bags weigh between 1 – 5 kg per collection point. The dry component (packaging material) of the waste constitute about 45% in volume of the waste while the balance of 55% percent is composed of kitchen waste mostly food waste or remains. The current scenario below:

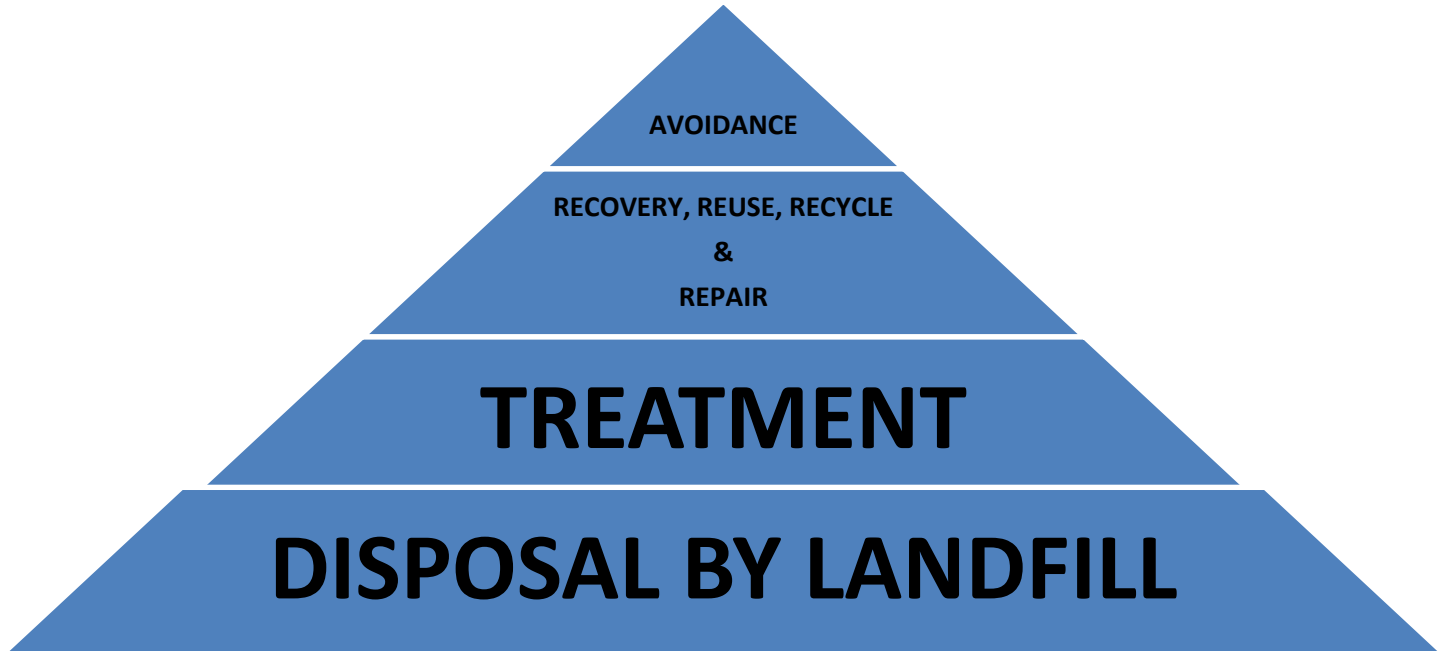


Figure 4: Current Waste Management Practice in KDM

Figure 4 above denotes that currently KDM's approach to waste disposal prefers waste disposal by Landfilling while recovery is not initiated by the municipality where it has been initiated. The private sector is leading when it comes to waste minimization, though the quantities are yet to be established. The preferred practice in line with the National Waste Management Strategy is demonstrated in **Figure 5** below. Waste avoidance takes a bigger chunk of the waste management practice in terms desirability unlike in **Figure 4** where it is allotted a small and insignificant space in demonstrating the current waste management practice.

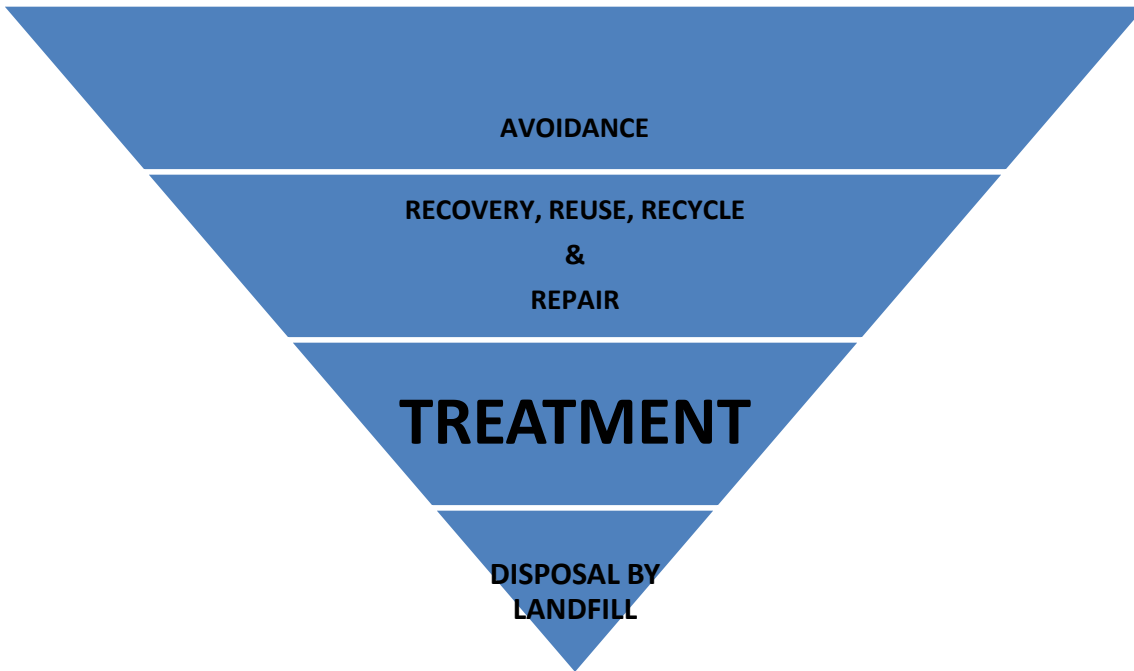


Figure 5: Preferred Waste Handling for KDM

4.1 WASTE VOLUMES AND TYPES

Figure 6, demonstrates the richness of the waste that is produced within the municipality especially from affluent areas. This shows the potential that waste has in economic development if harnessed in the right direction. From figure 8 it is evident that paper products are occurring in plenty around the municipality. From Figure 8 it can be deduced that most of the waste that is landfilled within KDM is resource constituting approximately 62% of the commodities. If all the material was recovered it will be essential landfill space saving activity and other spin offs that come from jobs that will be created when removing the recyclables.

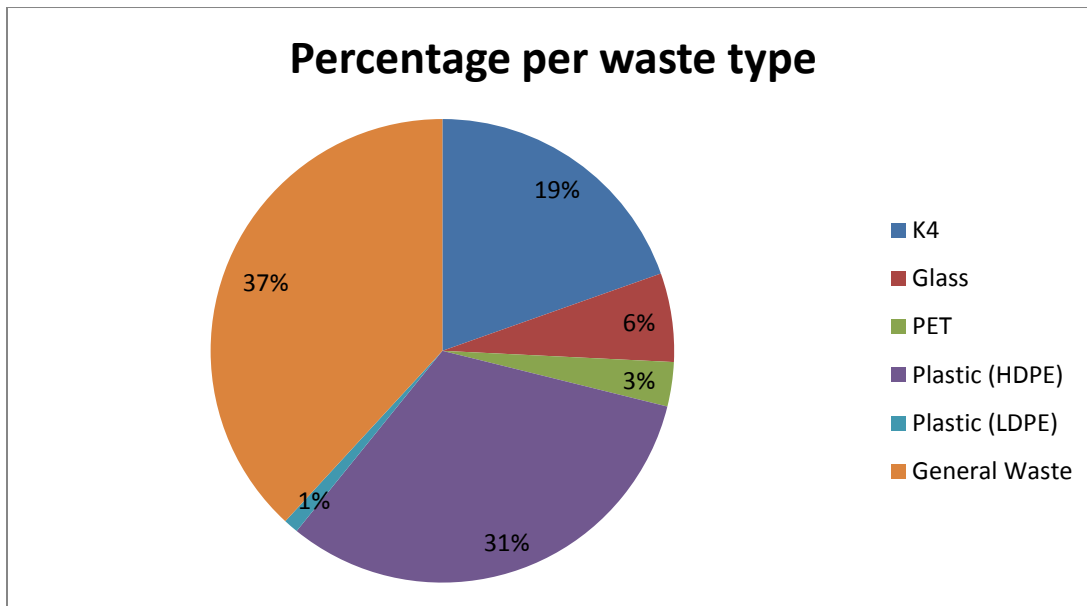


Figure 6: Percentage Waste Per Type

SECTION 5

5. WASTE COVERAGE

As indicated in Graph 2 above, that approximately 20 000 (47%) households do not have access to waste management services. They mostly have a service that is below the standard waste collection which is a municipal refuse bag collected twice in a week. The 43, 4% households are subject to less often removal, communal refuse dump while 3,6% of the households do not have refuse removal services or they are using other methods which may include illegal dumping.

The current waste services rendered are:

- ✚ Kerbside waste collection for residential, commercial and industrial.
- ✚ Street sweeping and litter picking for some residential, commercial services and industrial
- ✚ Skip waste services
- ✚ Collection of dead animals from the residential, commercial and industrial areas. Transport and disposal of condemned foodstuff.

SECTION 6

6. Current Waste Handling Mechanism

KDM is responsible for waste management in the municipality however some of the responsibilities have been contracted out without adequate supervision. This is attributed to the shortage of personnel for this purpose. Current waste handling practices are discussed below.

6.1 Domestic waste

Domestic waste which comprises of wet waste from the kitchen waste as well as other dry waste such as cans, plastic, paper, cardboard, used disposable nappies is collected by the municipality in the Northern part of the Municipality while the South is currently on a contract, therefore serviced by a service provider. The collection methods are municipal refuse bag, skip and communal waste collection system which are further discussed below.

6.1.1 Municipal Refuse Bag system

Currently the municipality provides the bags for waste storage and collection to the residential area on the same day as the collection day. In some areas the retrieval rate of the bags is around 40%, e.g.

- ✚ 500 bags are distributed in a specific area
- ✚ 200 bags are collected on a specific area referred above.
- ✚ 300 bags are unaccounted for as they may have been used by the community for other purpose than waste storage.

Three hundred bags lost every day equates to 6 600 bags lost in a month and then amounting to 79 200 bags lost annually. This means the municipality loses approximately R39 600 on un-accounted bags. Given that waste collection is currently done twice in a week the actual loss may be bigger as this example is based on a single collection area once a week.

Some of the challenges that were reported by the Ward Environmental Committee representative are:

- ✚ Plastic bags do not reach residents that are far from the main streets.
- ✚ Filled bags are sometimes collected later or not collected at all without prior notice to the community.
- ✚ Whenever bags are torn during collection or prior to collection the collection teams do not clean up the mess around the areas.
- ✚ Sometimes collection continues until 22H00, when they started late.
- ✚ Where collection has been skipped there will be no redress until the next collection day.

6.1.2 Skip waste Collection Service

The municipality renders skip waste services to some of the communities that are not accessible by the waste collection truck in a 2.2m³ and 6m³ containers serviced once a week. The service is characterised by littering around the skip as it is not user friendly to those that are challenged by the height of the skip as well as the wind that constantly blow away the waste from the skip. Below is the map showing where skips are located throughout the municipality.

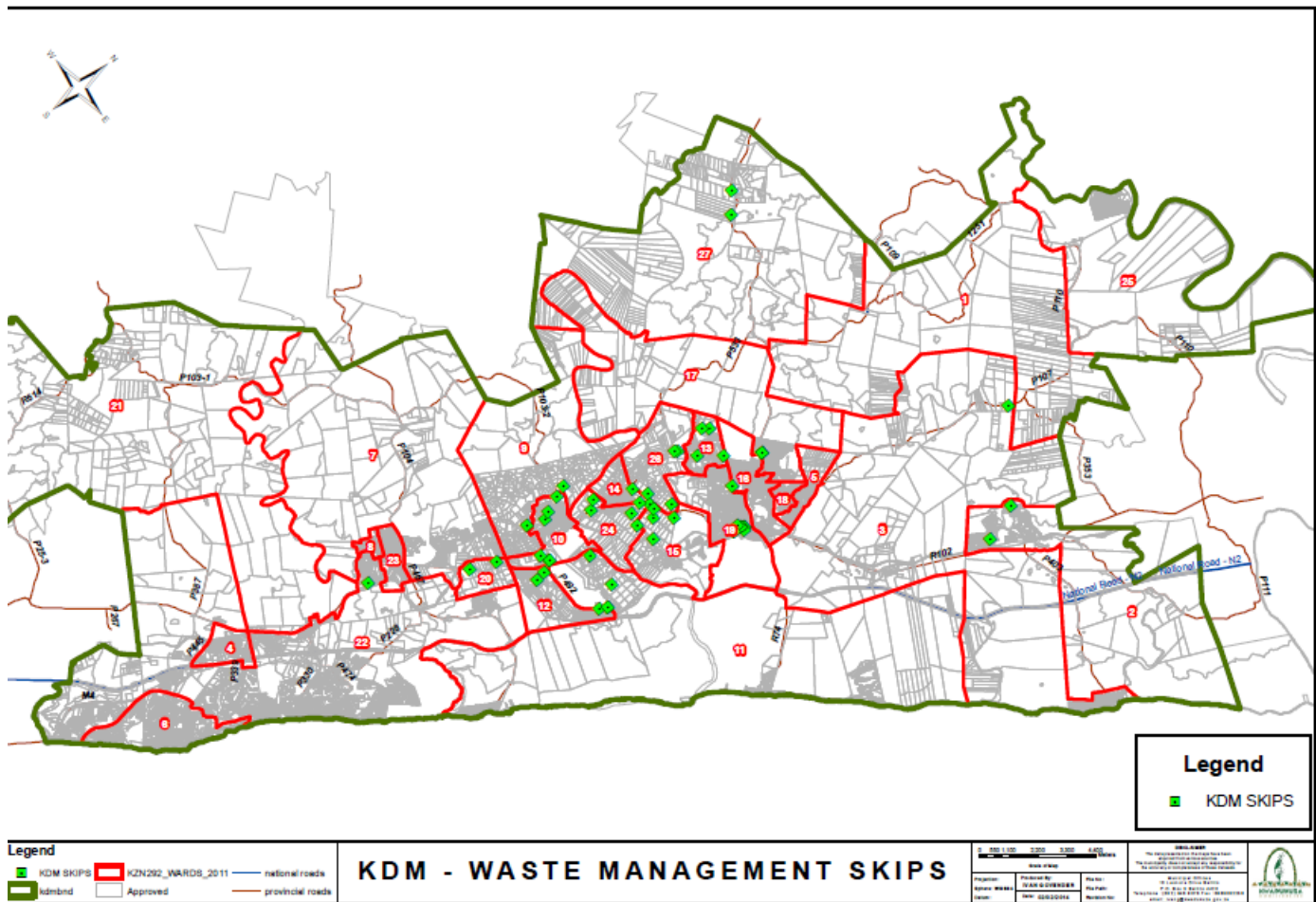


Figure 7: KDM Waste Management Skips

It was also established from the Environmental Ward Committee Members that during collection the collection teams do not clean around the skip area for illegally dumped waste as well as windblown litter or dumped on the ground by the elderly or small kids as depicted on the picture below.



Picture 2: inappropriate waste dumping

Skip Waste is collected once a week for all areas currently under the area of jurisdiction, unless there is a need to collect more than the planned collection.

6.2 Business and Industrial Waste

Business and Industrial Waste is currently handled on the need basis ranging from three times to a daily collection services. The waste is stored in a variety of containers for collection which includes:

- ✚ Municipal refuse bags
- ✚ 2.2m³ and 6m³ containers
- ✚ 210ℓ steel drums
- ✚ Rarely 240ℓ wheelie –bins.

During the site visit some private skip waste services providers were spotted in the industrial area though it was not established if they were rendering services to them. The use of 210ℓ drums remains a challenge for the waste collection team resulting in back injuries or cuts. KDM has introduced a project of introducing more wheelie bins to avoid the incidents of waste collectors being injured on duty and health and safety unit is assisting

6.3 Garden Refuse

The Parks and Garden Department renders the service to community. In the north the garden waste is disposed at the landfill site which owned and operated by the private sector. In the South approximately 2000m³ of garden waste is handled a month by private transfer station and processed and sent to a composting facility in a mulch format.

6.4 Illegal Dumping

Waste Management is currently responsible for clearing illegal dumping in the North while the private sector is responsible for the South. More resources are spent in clearing in the municipality. The evidence of illegal in private and public land was imminent around the municipal area especially the north. Illegal dumping in the north may be associated with the location of the waste disposal site in the municipality, the ability of the residents on wheelbarrow to reach them.

6.5 Toxic and Hazardous Waste Handling

KDM does not handle toxic and hazardous waste for the municipality. This is handled by the Dolphin Coast Management Landfill.

6.6 Waste Generated from Spill

Depending on the type of the spill, most spills are currently handled by Civil & Roads Department as well as Public Safety.

6.7 Waste Generated from Disasters

The responsibility is not allocated as it is not covered in the list of functions. At the meeting it was agreed that the following departments are responsible for rendering the service as and when required:

- ✚ Waste Management
- ✚ Beaches
- ✚ Parks and Gardens
- ✚ Public Safety
- ✚ Civil and Roads

6.8 Transfer and transport of the waste

KDM does not provide any transfer of waste in the area of jurisdiction while they are responsible for collection and transport of waste to landfill. Within the area of jurisdiction there is one transfer station in the South handling approximately 6 400 tons/month of mixed waste, 2000m³/month of garden waste as well as 450 ton/month recyclables. The facility is owned and operated by Dolphin Coast Waste Management. Currently KDM is in a process of rehabilitating the transfer station so it will operate as soon as possible. The Shakaville transfer station below:

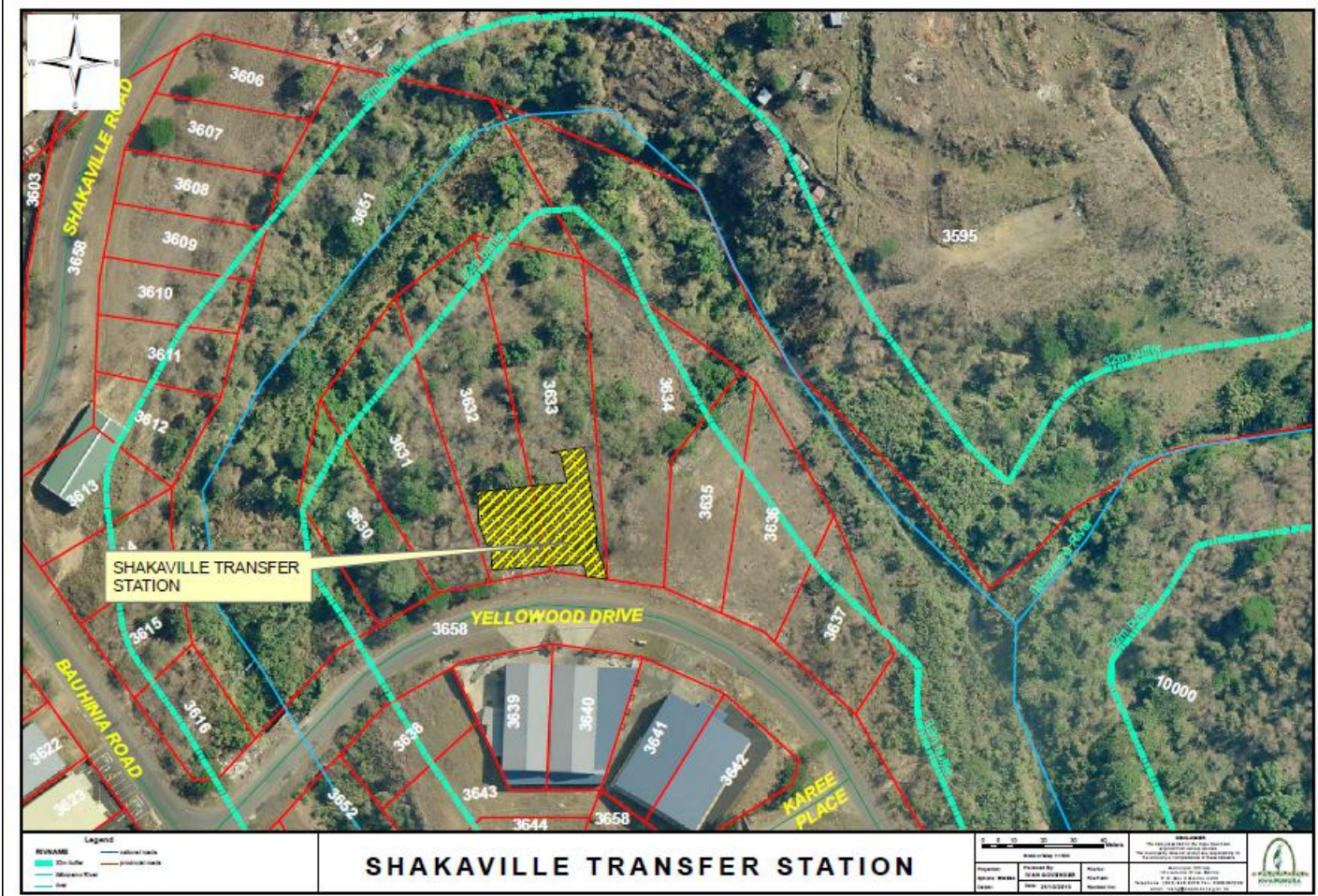


Figure 8: Shakaville transfer station

6.9 Waste Minimization

With the exception of the private sector initiatives, the municipality does not have any initiatives to minimize waste. **Table 7** below outlines the waste minimization companies and their waste stream they currently cover. Currently waste avoidance, waste separation and recycling is not part of the refuse management initiatives as they are not part of the current initiatives by the municipality

Table 7: Waste Minimization by Service Provider and Type

Company	Paper	Cardboard	Plastic	Scrap Metal	Glass	Other
DCWM	✓	✓	✓	✓	✓	✓
Reclamation	X	X	X	✓	X	X
Premier	✓	✓	✓	✓	✓	✓
Mrs L Marsh	✓	✓	✓	✓	✓	✓

6.10 Waste Treatment and Disposal

Shakaskraal Disposal Site was used by the municipality until the early part of November 2009. The site was not permitted and not much information was retrieved from the officials as they have no information on the site.

Currently all the waste produced in the South and the North is disposed at a privately owned site on an agreement between Dolphin Coast Landfill Management and the KwaDukuza Municipality. KDM disposes approximately 56 tons at R496/ ton. KDM Disposal Site depicted below:

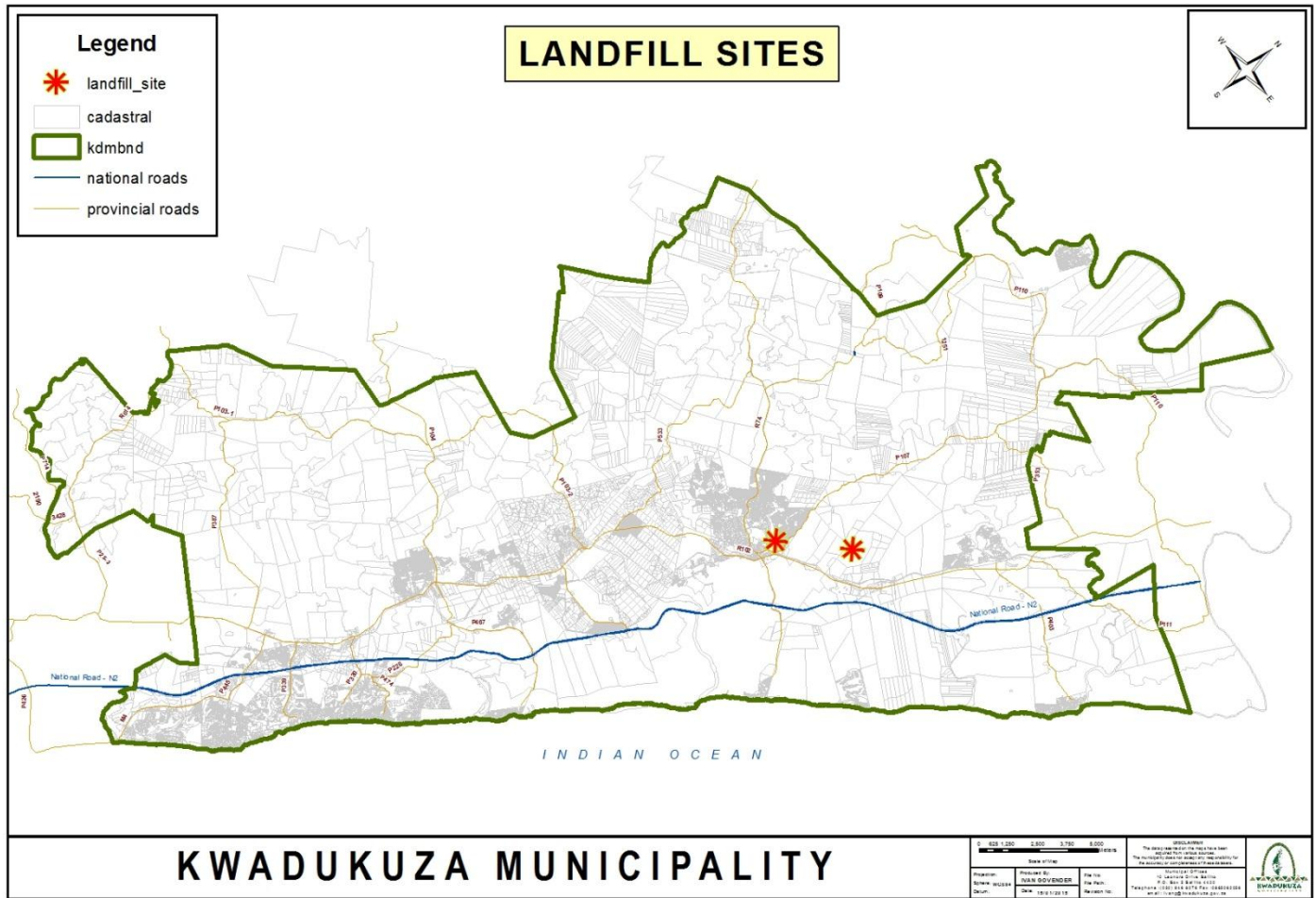


Figure 9: Landfill Sites

6.11 Sustainable Waste Management

KDM is currently developing a greening policy for the municipality which is currently on a draft stage based on the sustainable development principles.

SECTION 7

Currently the roles and responsibilities are not clearly defined for each sector in the municipality, though it is traditionally accepted that waste management directorate is responsible for general waste management. At a meeting held on Wednesday, 9 December 2009 between the consulting team and the officials of the Municipality it was agreed that roles and responsibilities were not clear as indicated in **Annexure B** List of Functions Roles and Responsibilities.

It is essential to have clear defined roles and responsibilities amongst department or directorate as grey areas may result in under delivery of services or worse underutilization of scarce human and financial resources. To prevent duplication and assumption of services it is important to define the roles and responsibilities to ensure that services rendered are in line the requirements of the municipality.

SECTION 8

PRINCIPLES OF THE PLAN

The Integrated Waste Management Plan (IWMP) takes into account the relevant national and provincial government policies, legislation and strategies. KDM in response to the National Environmental Management: Waste Act 59 of 2008, particularly Section 11(4), Revised Integrated Waste Management By-Laws, National Waste Management Strategy and Action plans and the National Integrated Pollution and Waste Management Policy have formulated this Integrated Waste Management Plan (IWMP).

The foundation of the plan is based on the principles of Integrated Waste Management and the waste hierarchy (Table 8). An additional principle, which needs to be considered, is the creation of conditions that support and encourage responsible behaviour, particularly amongst generators, service providers and regulators.

Table 8: INTEGRATED WASTE MANAGEMENT AND THE WASTE HIERARCHY APPROACH (SOURCE: NWMS 2000)

Waste Hierarchy	
Cleaner Production	Prevention
	Minimisation
Collection and Transport	Recovery
	Re-use
Recycling	Re-use
	Recovery
	Composting
Treatment	Physical
	Chemical
	Biological
	Destruction
Disposal	Landfill

8.1 Objectives of the integrated waste management plan

This plan conceptualizes the first attempt at setting out a strategy for future waste management and planning for KDM. It encourages a shift away from traditional waste management principles into an integrated waste management principles. Sustainable waste management is the key driver of the plan with emphasis on waste avoidance, waste reduction, reuse, recycling, treatment and safe disposal. The primary objective of the plan is to integrate, improve and optimise waste management in order to maximise efficiency by providing an adequate and equitable integrated waste management service to residential, commercial and industrial clients, while minimizing the environmental impacts and financial costs in order to contribute in the improvement of the quality of life of all people in KDM.

The reliance on disposal to land should no longer be the only option for the future. Current waste practices are not only detrimental to the environment but cause a significant loss of valuable resources in the waste and the risk of long-term pollution to the physical environment. Change in waste management strategy is a requirement for the municipality to effectively for KDM to successfully manage the minimum resources available within the Municipality to manage waste. It must however be noted that KDM currently does not have an Integrated Waste Management Policy, making it difficult to derive strategic objectives from the policy without reference to the work contained in the Status Quo Report above. Some of the gaps identified are discussed below.

8.2 Key issues addressed by the integrated waste management plan

Some of the strategic issues and gaps in the current waste management practices.

Table 9: SUMMARY OF DEFICIENCIES AND GAPS

STRATEGIC ISSUES	GAPS
Financial Arrangements	<ul style="list-style-type: none"> ✚ Funding model for cleaning services flawed ✚ Completeness of revenue not examined ✚ Return of assets not realised. ✚ Clear rebate system for the indigent
Waste Information Management	<ul style="list-style-type: none"> ✚ Base population in StatsSA differs from the population reflected on the IDP ✚ Poor record keeping for vehicle and maintenance. ✚ No waste information system for the municipality.
Waste Collection Services	<ul style="list-style-type: none"> ✚ No supervision of the contracted services especially in the South of the municipality. ✚ Waste collection coverage is currently at 56,6%. ✚ Non standardized waste collection system within the municipality ✚ Skip waste collection not synchronized with the disposal patterns leading to overflows. ✚ Limited number of skips for the municipal collection area. ✚ Collection of dead animals limited to certain areas and not well co-ordinated. ✚ Lack of formal waste separation programme within the municipality ✚ Distribution of municipal refuse bags not effective.
Garden Waste and Composting	<ul style="list-style-type: none"> ✚ Current there is no collection system for garden waste in the municipality. ✚ Only one privately owned garden waste site exist in the South of the Municipality.
Legal compliance	<ul style="list-style-type: none"> ✚ KDM non compliance with the provision of Section 24 of the constitution in terms of protecting the citizens environmental rights ✚ Non compliance with the requirements of the waste legislation and permit for the closure of Shakaville waste disposal facility ✚ Non compliance with the provisions of the Waste Act and its regulations ✚ Waste Management By-laws not reviewed ✚ Waste Management By-laws enforcement very limited ✚ Non inclusion of environmental levies on the current waste management by-laws ✚ Current by-laws are without penalties for transgressors. ✚ Review of the enforcement authority for waste management by-laws pending.
Contract Management	<ul style="list-style-type: none"> ✚ Limited capacity for contract management in the municipality ✚ No contract with business and industrial clients

	as well as their waste auditing
Waste Disposal	<ul style="list-style-type: none"> ✚ Location of waste sites promoting illegal dumping in some areas ✚ Only two disposal facility for the municipality ✚ No system to handle toxic and hazardous waste in the municipality.

8.3 The Waste Management Challenges for the Municipality

From the analysis of the gaps identified in the Waste Status Quo Report in KwaDukuza Municipality the following needs were identified; waste avoidance, minimisation, diversion, extending access to residential waste collection services, resource recovery infrastructure, waste drop off facilities, human and other resources, waste education, awareness and waste information management systems.

The key factors, which will influence future waste management in KDM, include the following:

- ✚ Strategic waste management planning for a 5 year planning horizon (2010 –2015).
- ✚ Implementation of integrated waste management principles promoting avoidance, prevention, minimisation, reuse, recycling and safe waste disposal.
- ✚ Extension of basic waste management services to all residents of KDM.
- ✚ Prevention of health risks and environmental pollution from waste management activities and facilities.
- ✚ Implementation of a waste information system.
- ✚ Institutional strengthening and capacity building.
- ✚ Public awareness raising regarding environmental and waste management issues.
- ✚ Review of the Refuse Removal By-laws
- ✚ Rehabilitation of Shakaville Disposal Site.

Table 10 below summarizes the waste management needs for KDM, translated from the key factors above. It must however be noted that the development of the IWMP ran parallel with the development of the Shakaville rehabilitation plan as well as the review of the refuse management by-laws.

TABLE 8: INTEGRATED WASTE MANAGEMENT NEEDS FOR KDM

STRATEGIC	NEEDS	PURPOSE
Waste Information System and Management	<ul style="list-style-type: none"> ✚ Develop and manage a credible Waste Information System 	<ul style="list-style-type: none"> ✚ Legal requirement for reporting on waste management activities ✚ To provide empirical information for planning and research
Waste Collection Services	<ul style="list-style-type: none"> ✚ Extension of waste collection services 	<ul style="list-style-type: none"> ✚ Legal requirement
Garden Waste and Composting	<ul style="list-style-type: none"> ✚ Development of waste drop of sites and composting plants ✚ Development of garden waste collection system 	<ul style="list-style-type: none"> ✚ Reduce waste to landfill

Disposal	<ul style="list-style-type: none"> ✚ Reduce waste to landfill in line with the Polokwane Declaration 	<ul style="list-style-type: none"> ✚ Legal compliance
Waste minimisation and recycling	<ul style="list-style-type: none"> ✚ Formalize waste minimization and recycling 	<ul style="list-style-type: none"> ✚ Legal compliance ✚ Local economic development
Institutional/Organizational	<ul style="list-style-type: none"> ✚ Develop current waste management team ✚ Recruit capable members to augment the current team ✚ Develop contract management skills ✚ Development and implementation of a funding model for street cleansing 	<ul style="list-style-type: none"> ✚ Personnel development ✚ Legal compliance
Education, capacity building and awareness needs	<ul style="list-style-type: none"> ✚ Development and implement an education and awareness strategy 	<ul style="list-style-type: none"> ✚ Community and personnel empowerment

8.4 Core Strategies and Strategic Priorities

In the development of the integrated waste management system for KDM, an evaluation of the different strategies, priorities and initiatives was undertaken to identify the appropriate and practical waste management strategies and priorities for KDM. The evaluation was done in terms of environmental, social and economic impacts of the different interventions on the waste stream.

8.5 Commitment to integrated waste management approach

- ✚ The Municipality will take all reasonable and practical actions within its control to facilitate the achievement of the National Government adopted targets of 50% reduction of generation of waste and 25% reduction in the amount of waste disposed of in South Africa by the end of the year 2012 or as practical a time frame as can reasonably be achieved.
- ✚ The Municipality subscribes to the principles of the waste hierarchy, waste avoidance and minimisation, ecologically sustainable development, efficiency and economy of scale.
- ✚ The Municipality will pursue the reduction of waste for its area within its parameters of control in the most appropriate sustainable and expeditious way and time frame.
- ✚ There will be a reliance on integration, supporting facilities and infrastructure together with partnership and co-operation with the provincial and national government.
- ✚ The process will be open and transparent to all parties including government, business and the community at large with a focus on consultation and consensus.
- ✚ By-law enforcement.

8.6 Strategic Outcomes

KDM seeks to achieve the following outcomes through its Integrated Waste Management Plan:

8.6.1 Appropriate and Environmentally Sound Management of Waste

During the initial studies it was observed that all communities need to have an integrated waste management services that are equitable, accessible and affordable. All waste management activities must meet certain environmental standards set in the Waste Management Act as well as the framework legislation in the National Environmental Management Act. Clear roles and responsibilities between municipal departments as well as the private sector are necessary to provide integrated waste management services.

SECTION 9

Strategic and Priorities for an Integrated waste management

This section sets out the strategies, strategic priorities and, objectives for achieving the integrated waste management plan vision for effective and efficient waste management. These strategies and priorities chart the direction the Municipality will follow in implementing the waste management policy.

The Municipality waste management policy sets out objectives and targets that will have to be achieved in the short, medium and long term. These plan objectives and targets direct the waste strategy that the Municipality will adopt in response to the waste challenges within the Municipality. The plan objectives are to:

- ✚ encourage prevention of waste generation and reduction of waste requiring landfill
- ✚ divert up to 40% of all general paper, plastic, cans and glass for purposes of recycling.
- ✚ divert up to 30% of all organic wastes from landfill sites to composting facilities
- ✚ develop resource recovery infrastructure
- ✚ promote waste minimisation and recycling
- ✚ collect accurate waste information and develop waste information management systems enforce waste management by-laws
- ✚ develop waste management education and awareness programmes

9.1 Achieving the plan objectives

The overarching goal of the Waste Management Plan is to ensure that waste is managed in an environmentally sound manner and in an integrated way so as to prevent harm to the health of the people and the environment. The intention is to move away from the “end of pipe” approach to an integrated waste management approach based on the waste management hierarchy (avoidance, minimisation, re-use, recover, recycle and dispose).

9.2 Strategies and priorities for an integrated waste management approach

Within the framework of the policy objectives and mandate, the Municipality has identified three core strategies and six priorities for achieving integrated waste management. The strategies and the priorities represents broad deliverables of the policy, which address major issues which the Municipality faces and is driven to achieve and to ensure sustainable and integrated waste management.

9.2.1 Core Strategies

The three core strategies are as follows

Strategy 1: Waste Avoidance and Minimisation

Strategy 2: Reduction and Resources recovery

Strategy 3: Management of residual waste

9.2.1.1 Waste Avoidance and Minimisation Strategy

Waste avoidance is the preferred strategy for waste management and is aimed at preventing or avoiding waste, which is generated within the Municipality. The Waste avoidance or minimisation strategy is aimed at avoidance of waste through the adoption of eco-efficiency and waste avoidance measures. It is the most cost effective waste management intervention. Waste avoidance is best implemented at point of source. Waste avoidance conserves natural resources, reduces the amount of waste requiring disposal to landfill thereby increasing the airspace capacity. Avoiding generation of waste also reduce energy consumption and air/land/water pollution and is fundamental to sustainable development.

In order to prevent waste generation an effective waste management system placing shared responsibility on waste generators to avoid waste is required. This can involve elimination of waste in the production processes by modifying or changing the process, adopting new technology or using another material as substitute to prevent waste generation, teaching consumers to change their shopping behaviour by buying in bulk, choosing products with an appropriate lifespan in minimal packaging.

9.2. 1.2 Resource Recovery

The Resource Recovery strategy is aimed at reducing the volume of waste requiring disposal while maximising the economic value of resources during its life cycle through reuse, recycling, and reprocessing and energy recovery in preference to disposal. In terms of the resource recovery strategy wherever waste cannot be avoided, resources should be recovered through the most efficient downstream reprocessing or beneficial reuse option. The goal is to maximise the resources economic value and to reduce the need for expensive treatment and disposal management options.

The need to pursue resource recovery is driven by a combination of additional economic and environmental factors such as:

- ✚ The need to conserve finite resources;
- ✚ The need to reduce energy consumption;
- ✚ The need to reduce reliance on landfill; and
- ✚ The reality of increasing waste disposal costs.

Resource recovery is most successful when it occurs at the “waste” process output at source. This allows the immediate incorporation of the resource to another onsite process as a raw material to compete with or replace virgin resources, or offsite through a waste exchange or reprocessing mechanism to produce a new product or service. This also minimizes the potential for recoverable to become co-mingled and contaminated with other wastes and therefore compromised in value as a marketable commodity.

Key factors in resource recovery include the need to:

- ✚ Understand the availability of materials;
- ✚ Identify opportunities to divert resources from waste stream through an understanding of potential markets for materials.
- ✚ Identify quality and performance requirements critical to market success;
- ✚ Remove impediments to legitimate diversion and market development; and
- ✚ Facilitate diversion of waste from landfill through increased resource recovery infrastructure and financial incentives.
- ✚ Waste separation at source and appropriate waste collection and transport systems to handle separated waste.

9.2. 1.3 Management of Residual Waste Strategy

Even with a significant reduction of the volume of waste being produced and a greater emphasis on waste reuse and recycling, there will always be a portion of the waste stream that cannot be practicably or economically avoided or recovered. Residual waste has to be managed in environmental sound manner. Information and information management systems, sustainable collection services, capacity, education and awareness programmes and robust treatment and disposal systems have to be in place to handle those residual wastes responsibly, with the objective being to protect human health and the environment through sound management

programs. A core strategy therefore is to minimize or eliminate the risk of any significant adverse effects associated with the management of waste streams and the operation of waste treatment and disposal facilities.

This Residual Waste management strategy is aimed at ensuring that:

- ✚ There is adequate information and effective information management systems;
- ✚ Waste is appropriately treated and processed prior to their disposal in accordance with relevant laws, regulations, standards and guidelines;
- ✚ Waste is disposed of in an environmental sound manner;
- ✚ All the citizens of the municipality have access to affordable, adequate and sustainable wastes collection services; and
- ✚ The responsible agent and communities have adequate capacity, education and awareness to manage and handle waste.

9.3 Strategic Priorities, Goals, Objectives and Targets

Within the framework of the core strategies, strategic priorities, goals, objectives and targets have been developed

9.3.1 Waste Minimisation and Recycling

9.3.1.1 Goal

To implement sustainable recycling in KDM giving due consideration to social, environmental and economic factors.

9.3. 1.2 Objectives

- ✚ To promote waste minimisation and recycling.
- ✚ To promote cleaner production.
- ✚ To reduce waste quantities disposed of at landfill sites.
- ✚ To evaluate and implement appropriate mechanisms to formalize informal salvaging at the working face of the landfill site.
- ✚ To ensure that waste minimisation and recycling procedures and practices are adopted by all sectors of society.
- ✚ To create sustainable employment through local entrepreneur development in waste recycling partnerships.
- ✚ To comply with government policies, strategies and legislation related to waste management and recycling.

9.3. 1.3 Target

A target of 30% reduction of the domestic and commercial waste streams disposed to landfill within the short term (2010 - 2012).

9.3.2 Waste Collection Services

9.3. 2.1 Goal

To provide an appropriate, affordable and sustainable waste collection service to all people in the Municipality and ensure that they live in a healthy and clean environment free of illegal dumping.

9.3. 2.2 Objections

- ✚ To extend access to quality and sustainable waste management services.
- ✚ Initiate and implement appropriate waste collection services to these areas, particularly informal settlements, and high-density low-income and informal trading areas.
- ✚ To create awareness about waste management issues within the community and thereby empower communities to take responsibility for the cleanliness of their surrounding environment.
- ✚ To minimise illegal dumping and littering through sustained clean-up programmes, education and by-law enforcement.
- ✚ To promote and support waste minimisation and recycling initiatives through user-friendly recycling facilities.

9.3. 2.3 Target

99% of all households receive a regular waste collection services and illegal dumping is phased out by year 2015.

9.3.3 Waste Disposal

9.3. 3.1 Goal

The goal of the disposal strategic priority is to ensure sufficient long-term waste disposal capacity that is environmentally and publicly acceptable, and also to ensure that the landfills are progressively rehabilitated in such a manner so as to minimize the impact on the environment

9.3. 3.2 Objectives

- ✚ Development of waste drop off facilities in the municipality.
- ✚ To ensure at least 25 years of permitted landfill airspace to serve the current and projected waste disposal needs of the KDM.
- ✚ To develop a plan for the progressive rehabilitation of the closed landfill site to the approval of the regulatory authorities, and that addresses long-term impacts such as water pollution and landfill gas emissions.
- ✚ Upgrade the operating landfill sites to meet DWAF Minimum Requirements for Waste Disposal by Landfilling.
- ✚ To address the potential impact and possible rehabilitation of all of the closed historical dump sites within the KDM municipal area.
- ✚ To consider the longer-term approach for waste disposal beyond 25 years. Identify options to meet future waste disposal needs and develop and optimum strategy for timeous implementation.

9.3. 3.3 Targets

- ✚ Develop and commission waste drop off facilities in strategic areas within the municipal area by 2012.

9.3.4 Assessment of all potential waste and historical sites.

9.3. 4.1 Goal

To ensure assessment of all historical waste sites

9.3. 4.2 Objectives

- ✚ To develop and submit rehabilitation plan for closed landfill site to the relevant authority by 2011.
- ✚ To design alternative use plan, close and rehabilitate 50% of illegal dumpsites by 2012.

9.3. 4.3 Target

To comply with the legislative requirements for waste disposal by landfilling.

9.3.5 Garden Waste and Composting

9.3. 5.1 Goal

To divert green and garden waste from the general waste stream to composting facilities.

9.3. 5.2 Objectives

- ✦ To develop an incentive based integrated garden waste and composting strategy to achieve the proposed goal of 25% diversion of garden waste from landfill sites.
- ✦ To develop partnerships with the private sector so as to optimise the management, quality and marketability of the garden waste sites and the final compost product.
- ✦ To investigate ways of collecting garden waste at domestic waste stream.
- ✦ To encourage the participation of the public in achieving the goal and the key objectives, through education and awareness and also by creating an incentive-based composting strategy.

9.3. 5.3 Target

To divert 25% green and garden waste per annum currently being landfilled to existing or new garden waste composting sites by 2012.

9.3.6 Waste Information System

9.3. 6.1 Goal

To develop an accurate and empirical waste information management systems for research and planning purposes.

9.3. 6.2 Objectives

- ✦ To develop information systems to capture relevant data for current operation and future planning for optimum waste management and budgeting.
- ✦ Establish appropriate mechanisms to collect the information required for the development of an integrated waste management plan.
- ✦ To establish a monitoring and information system to track waste generation, collection, re-use, recycling, reprocessing and disposal in terms of waste flow and facilitate waste exchange.
- ✦ To assist in the delivery of information on waste services.
- ✦ To enforce the retrieval of information from the private sector.
- ✦ To have an adequate and empirical WIS in place by 2013.

9.3. 6.3 Target

To develop a fully operational WIS by 2013.

9.3.7 Waste Management Education, Capacity Building and Awareness

9.3. 7.1 Goal

To create an enabling environment for capacity building, environmental education and awareness for the population of KwaDukuza Municipality.

9.3. 7.2 Objectives

- ✦ Develop and implement a communication and public awareness programme raise public awareness.
- ✦ To build capacity and raise the skill profiles of Municipality staff.
- ✦ Address the need for education of the populace on waste management issues.
- ✦ That the public and private sector, understand their specific roles and co-operate and participate in the plan, especially in informal settlements and non-rated areas.
- ✦ To have a relatively high level of commitment and understanding from the public and from industry to strive for a clean environment.
- ✦ To have a number of successful awareness raising and information campaigns established within the KDM.
- ✦ To change the historical mindset around illegal dumping and littering.

9.3. 7.3 Target

That 20% of the population of KwaDukuza Municipality will have been exposed to information and been made aware of waste management and waste management planning issues by the end of 2012.

9.3.8 *Organizational, Institutional and Regulatory*

9.3. 8.1 Goal

Successful implementation and review of the IWMP from an organizational and institutional perspective with all targets set up by the IWMP being realized.

9.3. 8.2 Objective

To implement appropriate mechanisms for monitoring and enforcement of waste management by-laws.

- ✦ To ensure that enforcement efforts are efficient, well coordinated, and effective.
- ✦ To ensure that the revised by-laws are relevant and operational.
- ✦ To ensure that activities of all relevant Municipality staff and departments are well coordinated and aligned.
- ✦ That there is sufficient capacity and capability in the Municipality for planning, contract management, and monitoring/enforcement.
- ✦ To have an organisational structure in line with all waste management planning requirements.
- ✦ To review and incorporate changes on integrated waste management by-laws required for the implementation of the plan.

9.3. 8.3 Target

To establish effective implementation, monitoring and enforcement waste by-laws by 2011

SECTION 10

10. IMPLEMENTATION

Each strategic priority needs a diverse set of resources and capabilities for effective implementation. Specific initiatives as well as activities have been identified for the different priorities, which form the basis for the WMP and its implementation. The activities have been divided into short, medium and long-term interventions. The short term covers the period from 2010 - 2012, medium term 2010-2015 and long term 2010 - 2017. The short term focuses on immediate improvements, basic service delivery to all, and optimising existing recycling, waste separation and composting activities.

A number of implementation instruments will have to be developed to ensure successful implementation. These include legislative reviews, communicative, economic and institutional instruments.

The implementation of the plan will be secured by the actions of the Municipality and its key service provider, both operationally and through the planning system. In the private sector the Municipality does not have direct control but can influence the way in which companies operate by setting appropriate licensing conditions. It has been suggested that implementation of the plan start in 2004.

10.1 MONITORING

Regular reporting to Municipality by Dolphin Coast Waste Management, waste generators and transporters are required. The objective of monitoring is to ensure that non-performances and misadministration are identified and addressed. The management systems of the Municipality should therefore be performance outcome based. This would require that key performance indicators are developed and performance targets set. It is suggested that a monitoring strategy for the implementation of the IWMP should also be developed. KDM Waste Management shall formulate key performance indicators in consultation with relevant departments, based on the projects implemented as well as on certain aspects of the IWMP.

10.2 EVALUATION AND REVIEW

As the IWMP provides the planning context for waste management development over a 5 year planning horizon, the IWMP shall be reviewed annually in line with the legislative requirements. Evaluation and Review is necessary to take account of changed circumstances, and to maintain a clear effective framework for waste management and decision making in the future.

SECTION 11

11. STRATEGIC GOALS AND ACTION PLANS

This section describes the strategies and action plans relating to all the strategic priorities identified above. The action plans outlines the strategic goals, activities, outcomes, time frames and implementation requirements. The activities proposed in this section are short (2010-2013), medium (2010-2015) and long (2010 -2020) term.

TABLE 11: STRATEGIC GOALS FOR IMPLEMENTATION OF AN INTEGRATED WASTE MANAGEMENT PLAN AND THE INTENDED TARGET DATES

Strategic Goals	Activities	Target Date	Responsible Authority	Financial Requirements
Legislative and Regulatory	Comply with the provisions of the Waste Act 59 of 2008	2010-2013	KDM	R1 050 00
	Appoint the Waste Management Officer	2010-2013	KDM	R650 000
	Develop and Implement Waste Information System Strategy	2010-2013	KDM	R450 000
	Develop and implement waste management standards	2010-2013	KDM	R150 000
	Review and implement the IWMP	Annually	KDM	R450 000
	Conduct and implement the S73 Study on Waste Management	2010-2015	KDM/National Treasury	R3 000 000
	Develop and implement contract management model in line with the requirement of the MFMA	2010-2013	KDM	R0
Integrated Waste Management Budgeting	Determine and implement capital expenditure and operation budget	2010-2013	KDM	R0
	Determine revenue base (updated and audited customer base)	2010-2013	KDM	R700000
	Develop and implement full cost accounting opportunity (economic, social and environmental and human health impact)	2010-2013	KDM	R250 000
Economic Instruments	Set tariffs that commensurate with the consumption of the services for cleaning, waste collection (general, business, industrial waste)	2010-2013	KDM	R150 000
	Facilitate the development of the waste recycling market in the municipal areas	2010-2013	KDM	R35 000
	Development of tariff rebate	2010-2013	KDM	R55 000

	system for waste minimization clubs			
Waste Collection	Develop an operational Integrated Waste Management Strategy	2010-2013	KDM	R250 000
	Implement the operational Integrated Waste Management Strategy	2010-2013	KDM	R150 000
	Optimise the collection rounds	2010-2013	KDM	R150 000
	Roll-out the services to the areas currently not being serviced	2010-2015	KDM	R3 600 000
	Develop and implement monitoring systems for waste collection	2010-2013	KDM	R150 000
Street Cleaning	Develop an operational integrated waste management strategy	2010-2013	KDM	R100 000
	Optimize the street cleaning rounds	2010-2013	KDM	R0
	Roll out the services to the areas currently not serviced	2010-2013	KDM	R0
	Develop and implement monitoring system for street cleaning	2010-2013	KDM	R0
Waste minimisation	Develop and implement waste minimization strategy	2010-2013	KDM	R0
	Develop waste drop-off facilities in strategic areas in the municipality	2010-2015	KDM	R500 000
	Provide waste separation infrastructure for waste separation in all drop-off facilities in storage and transport of the waste	2010-2013	KDM	R500 000
Waste Disposal	Implement the closure and rehabilitation plan of Shakaville Disposal Site	2010-2014	KDM	R2000 000
	Develop, implement a monitoring system for New Guilderland	2010-2013	KDM	R150 000
Integrated waste management education and awareness	Development of education and awareness programmes	2010-2013	KDM	R250 000
	Roll-out the education and awareness programme	2010-2013	KDM	R0
	Recruit and appoint personnel in key positions: contract management supervisory	2010-2013	KDM	R1.400 000
	Development of human resource development plan through work skills plan	2010-2013	KDM	R50 000
	Develop or procure leadership and management programmes	2010-2013	KDM	R50000
Hazardous and Special Waste Management	Identify sources of hazardous and special waste	2010-2013	KDM	R35 000
	Register new and existing	2010-2013	KDM	R0

	hazardous and special waste producers			
	Monitor disposal and contamination in landfill site receiving hazardous and special waste	2010-2013	KDM	R0

KDM will need approximately R16 million to roll out the plan. Some projects are assumed to be at zero cost to the municipality although it will be carried by municipal personnel. Some of the fees are already in the current budget for Waste Department.

11.1 Waste Collection

11.1.1 Action Plan

To improve the quality to waste collection and access the following action plan has been developed. The strategic initiatives and activities identified for this strategic priority represents activities aimed at addressing the key issues, needs and problems currently experienced with general waste collection in KDM.

11.1.2 Strategy for Waste Collection

To meet the objectives of the waste collection priority, waste collection systems based on partnerships with communities and private sector will have to be implemented. These include community based systems and public private partnership. Services will have to be established for non serviced residential areas, partly or poorly serviced residential areas, non serviced low-density residential areas and “hot spots” areas.

The historical problems of non-payment for services will be addressed through education and awareness programmes, and through community consultation and involvement, and joint decision-making. Awareness programmes will be used to promote an understanding of the need for waste management, including the importance of waste collection and how the service fees are used to fund this waste collection. The collection guidelines and standards published by DEA will have to be implemented and enforced.

11.2 WASTE INFORMATION MANAGEMENT SYSTEM (WIMS)

11.2.1 Waste Information Management Strategy

The main requirement is to address the problem that exists in the waste generation and management information sets. An analysis of existing information management practices highlighted a number of gaps in the current system, viz. limited consistent and accurate information, lack of integrated reporting systems, inadequate legislative and regulatory instruments requiring waste generators, transporters and disposers to report information on the waste and uncertainty as to who is responsible for waste information management.

An effective information management system needs to be established which will comprise the following elements:

- ✚ information reporting by the information suppliers;
- ✚ data collection;
- ✚ verification and quality assurance of the information; and
- ✚ data processing and information dissemination

11.3 WASTE MINIMISATION AND RECYCLING

11.3.1 Waste Minimisation and Recycling Strategy

The Municipality's strategy for waste minimisation is based on the waste hierarchy approach, which is as follows:

- ✚ Cleaner production (Waste Avoidance, Prevention, Waste Minimisation)
- ✚ Recycling (Re-use, Recovery, Composting)
- ✚ Treatment (Physical, thermal and chemical destruction)
- ✚ Safe Disposal (Landfilling on a permitted site in terms of the minimum requirements)

The waste management hierarchy is an important component for achieving sustainable waste management. By implementing the hierarchy:

- ✚ Industries will avoid or minimise waste production at source by reviewing their production processes and substituting environmentally hazardous with less hazardous raw materials.
- ✚ The service sector and consumers will reduce waste through the selection of products, the appropriate use of products and the conservation of energy.
- ✚ Certain waste products in the production process are recycled to recover raw material for further use in industrial processes.
- ✚ Post-consumption products are reused or recycled for resource recovery.

In addition, recycling has the potential for job creation, by promoting entrepreneurs to establish community collection systems and recycling centres. Recycling is also a viable alternative to informal salvaging at landfills, which is undesirable due to the associated problems of health and safety.

The overall aim of the strategy is to help reduce the amount of waste produced in KDM by encouraging responsible attitudes towards waste management and sustainable waste management practices.

11.3.2 Action Plan

In order to ensure the effective implementation of the Waste Minimisation and Recycling strategic priorities an action plan has been developed. The action plan identifies strategic objectives and key activities that need to be undertaken to achieve these goals. The action plan is discussed in detail below.

11.3.2.1 Waste Minimisation

The following are the Municipality's plans for the promotion of minimisation of waste in the Municipality until the year 2011.

11.3.2.2 Strategic Outcome

The following strategic outcomes will result from the implementation of the Capacity Building, Education, Awareness and Communication action plan

11.3.2.3 Implementation of Capacity Building Programme

Implementation of the Capacity building programme will result:

- ✚ Identification, development and sustained provision of appropriate capacity building programmes
- ✚ Capacitated organization and personnel developed on a sustainable basis

11. 3.2. 4 Education, Awareness and Communication

Implementation of the education, awareness and communication programmes will result:

- ✚ Increase in awareness on waste management issues
- ✚ Payment for services
- ✚ Reduction in illegal dumping incidents
- ✚ Less illegal dumping
- ✚ Responsible waste management

11.4 Implementation, monitoring and review

11.4.1 Implementation Instruments and Policies

11. 4.1. 1 Introduction

Each specific strategic priority needs a diverse set of resources and capabilities for effective implementation. The implementation instruments that are required to ensure successful implementation include:

- ✚ Economic instruments: instruments which affect the market conditions under which people and firms make their decisions, without directly reducing the decision space available to them.
- ✚ Legislative instruments: instruments that influence the range of alternatives by means of prohibition, restrictions or obligations.
- ✚ Communication instruments: instruments aimed at public information and education campaigns and the voluntary adaptations of individual and group behaviour in a more environmentally friendly (recycling enhancing) direction. This also includes capacity building of Municipality staff and politicians.

Organizational/Institutional instruments: instruments implemented at organizational and institutional levels to ensure that Municipality has sufficient appropriate staffing and institutional capacity to the obligations of the waste generator, the private waste collectors and the waste disposers. Bylaws will also be introduced requiring separation at source. The Waste Management By-laws will provide a legal foundation for regulating the behaviour of individuals and legal entities, thus ensuring the legislative basis for implementing the waste management plan, maintaining waste collection and disposal systems, and providing the basis for enforcement and sanction

By laws for the following strategic priorities need to be developed:

✚ Information

By-laws need to be introduced to ensure the cooperation of the Private Sector in provision of waste related information. Because of strong emergence of competition within the waste management industry in the Municipality, regulations would need to be imposed to obtain the required information. The by-laws describe in detail the responsibility of the waste producers, the waste transporters, and the recycling and/or disposal facilities.

The Integrated Waste Management by-laws are in line with the national laws and policies that govern integrated waste management in the municipality and the country. The development and promulgation of National regulations is essential to act as a support to the implementation of By-laws relating to information gathering.

The introduction of waste collection and waste transportation permits by the Municipality is a new requirement in terms of the revised Integrated Waste Management By-laws. Standardized permitting is essential to remove unnecessary red tape. The relevant organisation would be required to maintain comprehensive records of waste collected and delivered from each waste producer. Apart from information dissemination, systematic recording of these interactions provides valuable information on the public attitude to the waste management services provided and may assist in identifying performance weaknesses. This would assist in addressing customer complaints about waste management services.

The enforcement of Waste Management By-laws presents a major challenge to KDM in terms of resources, management systems and Regional co-ordination. As part of the mitigating factors, the municipality will consider refusal to issue or reinstate waste collection and transportation permits for organizations that have outstanding waste information. In addition to the refusal of permits imposition of fines and penalties could serve as an important tool.

Recycling

Waste Act requires waste recycling to be part of the strategy for integrated waste management hierarchy, to ensure the effective implementation of the National Waste Management Strategy (NWMS) objectives. The Municipality shall regulate recovery of recyclable material through legislative frameworks and the use of economic instruments.

The licensing of businesses could be linked to the requirement to separate and recycle specified waste materials. Industrial estates should be encouraged to form waste minimisation and recycling groups within the estate. This would require the preparation of instructions for waste minimisation, separation at source, recycling and proper disposal.

11. 4.1. 2 Enforcement

Enforcement of the by-laws has always been an integral component of the success of the on implementation of the Integrated Waste Management Plan. However, insufficient capacity, uncertainty regarding enforcement jurisdiction, no fines and penalties, disinterest or low priority given to waste management offences, have all contributed to many offenders not complying with the by-laws of the previous different Local Municipality's making up the KDM. As part of the development of the IWMP the KDM is reviewing the current set of By-laws to embrace the changes that were brought by the new National Environmental Management: Waste Act 59 of 2008.

11. 4.1. 3 Economic Instruments

Economic instruments can be used to ensure that the costs of providing waste management services are recovered, as well as to influence the behaviour of waste generators and to ensure the preferred direction of the waste stream, i.e. disposal or recycling. Economic instruments may therefore promote optimal utilisation of services and provide incentives to reduce waste production. It is generally thought that economic instruments for environmental protection can generate the same level of waste reduction at a lower cost than via the more conventional regulatory approach. The economic instruments discussed below

relate specifically to the type of instruments that can be implemented by local Municipality's without the aid of national and/or provincial backing.

According to the National Waste Management Strategy, in the case of local government, funding will come from the introduction of appropriate cost recovery mechanisms for services delivered. The potential for utilising the Municipal Infrastructure Investment Fund to assist with the establishment of facilities will be investigated. The DEA will develop a national pricing strategy to assist local government with the introduction of appropriate user charges that will be legislated as part of the Law Reform Process.

Economic instruments will have to be part and parcel of the implementation of the plan, especially in terms of recycling and composting initiatives, as well as disposal.

Currently, the majority of recycling is dependent upon market forces, which dictate the level of recycling that is economically viable. It is unlikely however, that those initiatives that rely on market forces only, will be sustainable in the long-term in the absence of economic instruments to support and promote recycling. There is no economic incentive for waste generators to reduce the quantities of waste generated through waste prevention or minimisation, or through diversion of waste from landfill to recycling.

A limited number of economic instruments to promote recycling are available for implementation by the local authority. The three levels of government therefore need to co-ordinate and integrate their approach to the implementation of economic instruments and to consult widely with key stakeholders.

11. 4.1. 4 Communication instruments

Effective communication is vital to the ultimate success and sustainability of the plan. There are two types of communicative instruments:

- ✚ Information and education; research and demonstration, waste exchanges, eco-labelling, public awareness campaigns, public procurement (by which governments set an example by purchasing for example recycled products and thereby pave the way for advanced products and technologies).
- ✚ Capacity building of Municipality staff and politicians.

11. 4.1. 5 Information

Waste producers (companies and individuals), waste collectors etc. are increasing their role in the waste management system. They may have a responsibility to sort out recyclable and hazardous waste, to deliver it to the right containers or the right disposal facilities, to record the information and are duty bound to apply for licenses etc.

The presence of knowledge and understanding of the waste system is of vital importance in order to enable the parties involved in waste-management to co-operate and act as intended. The transfer of information has therefore become essential in modern waste management.

Information generally has two purposes:

- ✚ An instructive purpose; and
- ✚ A motivating purpose

The instructive purpose aims to inform people of what to do. It can be information about the correct sorting of waste or it can be information about where to deliver certain fractions of waste e.g. where to deliver used

batteries. This type of instructive information will often be a combination of national campaigns and local information.

The motivating information will often be national, provincial and local campaigns informing and motivating people to be waste wise. It could include campaigns that explain why the public should actively participate in integrated waste management

To ensure maximum involvement by generators as well as by the private waste companies, an education awareness programme will have to be set up by Municipality. This will have to highlight issues relating to legislative requirements, benefits to the private and commercial sector, waste management requirements and the different waste information systems.

11.5 CAPACITY BUILDING

Implementing, controlling and enforcing national legislation and governmental policies require a certain administrative capability at all administrative levels. This means that each administrative level should have a sufficient number of staff with the appropriate professional knowledge to administrate the regulation and to inform and supervise the public.

The current waste management planning process represents in various aspects a new concept for many officials of the public administration and thus new challenges. New elements include especially the political procedures, the integrated approach, utility/private sector participation, and the public participation.

The waste management planning process, which is strategic process-oriented and problem based, as well as the implementation process, may be more challenging for the officials than a more technical and goal-oriented concept. Therefore, capacity building in this field is necessary within the Municipal Services waste department.

The municipal short-term action programme should include measures to improve the capability of the officials engaged in waste management planning. Education and training activities may comprise the following:

- ✚ General environmental and waste management education;
- ✚ Training in planning issues in general and in waste management planning in particular;
- ✚ Waste information systems;
- ✚ Technological solutions for the waste sector, including collections systems, transfer and transport systems, recycling, recovery and treatment facilities (composting), and disposal facilities;
- ✚ Issues regarding utility/private sector participation, including tender documents and procedures, tender evaluation and selection of contractors. Contract negotiations. Contract monitoring and follow-up. Quality control and follow-up;
- ✚ Operations control and planning, including operations of disposal facilities;
- ✚ Management issues, including accounting systems, employment, team building, work planning and division of responsibilities; and
- ✚ Political processes, dissemination of information and public consultations, including understanding of the approval process of the waste plan, involvement of the public:

The future involvement and increased possibilities for more collaboration between the public and private sectors in implementing the waste management plan need to be examined. These initiatives call for a need to provide more open, effective and participative local government in mobilizing community, commercial and organizational resources to create a better environment for the population of KDM.

11. 5.1 Institutional Capacity

For the successful implementation of the plan appropriate institutional capacity for training and human resources development for waste management within the Municipality should be established at the central and regional level. All staff should have appropriate training in waste management, and if this is currently not the case, skills and training will have to be provided.

Private sector involvement in waste management implies a shift in the role of the Municipality institutions from service provision to contract management and regulation. KwaDukuza Municipality has the following roles regarding the legal administration of waste management:

- ✚ Regulation
- ✚ Planning
- ✚ Public service
- ✚ Monitoring and Control

It is important that one department dedicated to waste management within KDM undertakes all or most of the main functions mentioned above. The advantages of having a one stop department dealing with waste management for KwaDukuza Municipality include the following:

- ✚ It establishes a single point of responsibility for waste management, where the manager will have a level of authority which is commensurate with his/hers responsibility.
- ✚ It facilitates long term planning and monitoring/control of performance.
- ✚ It aids in the development of a common approach to waste management (e.g. progress from a reactive to a proactive approach).
- ✚ It facilitates planning and co-ordination of service provision.
- ✚ It reduces overlap in activities and potential conflict of responsibility between different sections.
- ✚ It encourages personnel management and co-ordination.
- ✚ It facilitates personnel training, development and budgeting.

11. 5.2 Tasks to be undertaken by the municipality

Implementation of new legislation and requirements regarding waste management requires a review of the management and organization of waste management in the KDM. The Waste Management Department at Municipality must meet the needs of waste management while also meeting the social and economic aspirations of the Municipality (reducing poverty and unemployment). This section includes a description and evaluation of:

Functions of local authorities in waste management administration producers, with particular reference to four key roles, which they are required to discharge: (1) As regulating authorities; (2) waste management planning; (3) provision of services; and (4) controlling the operation of service providers.

- ✚ Regulation, which covers the legal obligations of Municipality, waste producers and those engaged in collection and disposal of waste.
- ✚ Operational issues in connection with the functions of collection, recycling or disposal of waste including advantages and disadvantages of public, private and combinations of public/private involvement in the waste management system.

11. 5.3 Regulations

The enforcement of waste management regulations presents a major challenge to the Municipality in terms of resources and management systems. Implementation of local regulations (by-laws) requires ongoing review and compliance monitoring. Such review would cover:

- ✚ Waste collection schemes, market conditions and controls;
- ✚ Recycling centres, buy-back centres, composting plants, disposal sites, etc. would be subject to annual reviews, regular spot checks and compliance with operational plans;
- ✚ Collection of information about waste quantities and types reported and analysis of this data;
- ✚ Illegal dumping

The Municipality should assess compliance with regulations and by-laws on the basis of these inspections and assessments. Actions resulting from the supervisory role could include:

- ✚ Follow up inspections of waste generators, collectors, transporters and disposers where irregularities in waste type or quantity are indicated in spot tests, and fines can be imposed accordingly. Repeat offences, which result in environmentally irresponsible handling of waste can be dealt with by revoking their licences or through legal remedy.
- ✚ Fines and/or imprisonment of offenders who illegally dump their waste.

11.5.4 Waste Management Planning

Waste management planning includes the development and review of the IWM Plan, public participation, environmental impact assessment process, data collection, recording of collection, recycling, treatment and disposal methods, and feasibility studies on the technical, financial and administrative aspects of waste systems, monitoring and evaluation. The following illustrates in general the tasks/activities that will be required for integrated waste management planning:

- ✚ Establish by-laws to implement national and provincial regulations, and review of new legislation.
- ✚ Collection of information and data for planning and for Provincial / National requirements.
- ✚ Incorporate waste minimisation and recycling in Municipality waste management activities.
- ✚ Promote the development of waste minimisation and recycling partnerships with the private sector.
- ✚ Regulate waste management activities (collection, disposal, composting initiatives, etc.).
- ✚ Establish public-private partnerships.
- ✚ Co-ordinate collection contracts for high-density low-income areas (informal settlements)
- ✚ Review, evaluate and report on the performance of community waste collection services.
- ✚ Monitoring progress on implementing WM Plan initiatives.
- ✚ Developing communication strategy - Embark on the WIS education, awareness and communication programme for industry and the general public. Enhance education and awareness on recycling to promote extensive implementation of recycling and composting practices. Undertake waste minimisation, recycling and waste management education, awareness and communication programmes.
- ✚ Commenting on Environmental Impact Assessments within interacting areas, such as water, air, land-use, traffic.
- ✚ Revise and update general waste management plans. Establish and implement waste data collection systems. Payment of contracts.
- ✚ Implement the guidelines for health care waste and hazardous waste collection and transportation.
- ✚ Co-operation and exchange of experience - National, Provincial, other Municipality's, and service providers.

The primary responsibility for waste management planning lies with the Municipal Services' waste management department, with the co-operation and assistance of other departments.

11.5.5 Public Service

The concept of customer service is an essential part of the Municipality's role in relation to waste management. This requires the establishment and maintenance of an information database and reporting systems by means of which the public both directly and through the media can be informed. These systems would facilitate the recording of public complaints with the Municipality. The public relations role of the Municipality will also be to disseminate information through pamphlets, which could include information on:

- ✚ Waste management initiatives within the Municipality.
- ✚ Locations and availability generally of recycling centres.
- ✚ Location and contact details for the Municipality.
- ✚ Reporting and complaints hotline numbers, etc.

Apart from information dissemination, customers invariably seek answers to questions and make complaints about services. Systematic recording of these interactions provides valuable information on the public attitude to the service and may assist in identifying performance weaknesses. In promoting recycling and waste reduction, public information plays a critical role. Such information can usefully be provided through public meetings, schools, libraries and residents associations. In this way, concepts for improved collection and recycling can be developed. In relation to commercial waste, it is considered necessary to have a published booklet, which provides information to customers on collection schemes, regulations and by-laws, recycling or disposal facilities and suitable outlets for different kinds of waste. Personal contact via district Environmental Health Practitioners as well as the role of Waste Management Officer will play an important role in communicating this information to waste generators. An efficient and friendly service to the public embracing both dissemination of information and responding to complaints is essential to the successful implementation of the waste plan.

To ensure that the Municipality is seen to be active in waste management, a system aimed at facilitating the management of complaints, reports and questions posed by the people of the KDM, must be established within the Municipality. The system will facilitate, among other things:

- ✚ Systematic and user friendly recording of complaints by type, location, source and date and other attributes
- ✚ E-mail generated complaint processing
- ✚ Complaint handling.
- ✚ Complaint monitoring.
- ✚ Resources analysis and management (response time, manpower and costs required to rectify), and
- ✚ Public relations (automatic letter of acknowledgement and status reports to news media and public).

11.5.6 Monitoring and Control

Waste Management and other relevant Municipality departments will undertake the following activities:

- ✚ Prepare and conduct competitive tendering processes for involving the private sector in waste collection, waste recycling, and treatment, etc.
- ✚ Undertake contract negotiations, administration, control and monitoring of contracts, performance management.
- ✚ Inspect and monitor areas that are prone to illegal dumping. Compliance monitoring of license holders.
- ✚ Monitoring of the implementation of the IWM Plan.

- Monitoring and inspection of service providers to determine their efficiency of operation.

11.5.7 Implementation Requirements

11.5.7.1 Human Resources

To implement the plan adequately it suggested that a thorough analysis be conducted to determine the need for implementation of the IWM Plan. An estimate of the human resources necessary for KwaDukuza Municipality for the implementation of the waste management plan has been outlined. It should be stressed that the estimate only gives an indication of the minimum requirements with respect to waste management resources. A substantial increase in human resources and other corporate resources within KwaDukuza Municipality will be required to effectively implement the waste management plan. In terms of additional staff resources, the new Waste Management Department shall be organised to fulfil its new functions to ensure compliance with relevant legislation. Implementation of the WM Plan will require considerable efforts to plan and initiate projects, provide overall guidance and supervision of various projects and activities, and to co-ordinate the efforts of the Municipality and other stakeholders. The IWM Plan cannot be effectively implemented if the planning process is not properly institutionalised, and if additional personnel resources are not mobilised. The following staff allocations are suggested:

Functions	Qualifications	Current position filled in municipal structure	Min. No. of staff needed	Max No. of staff needed
Regulation	Manager, Inspectors (illegal dumping, monitoring of service etc. field assistant, admin officer)	1	2	2
Planning	Specialist team (technical, environmental, developmental work, community contract specialists, data capturers, admin officers)	1	1	1
Public service	Compliance Officers, education officers/public information officers, waste minimization and recycling officers	0	2	2
Monitoring and control	Environmental officers, inspectors, manager	0	2	2
Total		2	7	7

11.5.7.2 Financial Implications

The IWM plan requires investment in new infrastructure as well as the provision of services for the following primary categories:

- ✚ Collection of information
- ✚ Collection (in low income areas)
- ✚ Composting facilities
- ✚ Transfer facilities
- ✚ Waste Drop facilities in Northern part of KDM

Because of the unknown regarding capital investment to be considered by the Municipality, to ensure the success and sustainability of the projects which will come out of the IWMP, each project will require detailed financial planning and budgeting, which can be conducted in the following manner and will have to be considered prior to implementation:

- ✚ Each component of the project, which would need financing, needs to be identified.
- ✚ Various components of the plan are defined in terms of scope and duration.
- ✚ Identify practical models for ownership and operation of the project or parts of it. This confirms the public and/or private parties, which will be seeking project financing. These models represent structural alternatives for implementation, from planning through construction, operation, maintenance, monitoring and decommissioning. All stakeholders are identified in these models, and the proposed roles of the public and private sector will have been determined.
- ✚ Conduct a financial risk analysis to identify the primary risks, which lenders and investors will face when considering involvement in the different components of the plan. The analysis should be conducted at a preliminary level, and should consider aspects for the outside investor such as construction risk, operational risk, market risk, regulatory risk, and political risk. The evaluation includes an assessment of practical measures for risk management and mitigation.
- ✚ Identify the domestic and international sources of financing, considering lending, insurance and equity involvement. Domestic and international financing sources could be approached and these could include international governments (Denmark (DANIDA), USA (USAID), Canada (CIDA), Sweden (SIDA), etc), banks, development banks, development agencies, financial corporations, equity funds, and private businesses.
- ✚ Investigate revenue generation from the project and the viability of financing the project. Parameters are investigated for each entity, such as for lenders, the term, the guarantee requirement, the debt-to-equity requirements, the lead-time, the closing costs, and the interest dates. In all cases the focus is on determining the applicability and likelihood of financing from each source.
- ✚ Evaluate the financing potential of the project as well as each component over a certain period. This provides the projected rate of return and the debt to equity ratio. Analyze the financial performance of the project and its components using pro- forma analyses.
- ✚ Analyze the financial impacts and economic cost to the ratepayer. The economic impact basically defines the incremental or cumulative effect of the undertaking on the various classes of users, presented in a per-person, per-user, and/or a per-tonne basis.

Various elements of the plan as well as components within each element will need to have financial backing to enable its implementation. This discussion cannot however, say which types of agreements or associations will be required for the different elements, whether they should be municipal undertakings, private undertakings, or public private partnerships. Each element should be dealt with individually and decisions made accordingly.

11.5.7.3 Types of financing resources

Financing sources for projects arising from the IWMP are discussed in the following paragraphs. The focus is on financing sources which could potentially be accessed by the private sector. Financing sources for the Municipality could come from a number of arenas. Provincial and National government, and international funding from Denmark (DANIDA), Germany (GTZ), Norway (NORAD), Japan (JICA), Sweden (SIDA), etc. It must however be noted that the South African government is familiar with financing opportunities for government-sponsored projects.

The sources listed below are not exhaustive. Further, it must be recognized that some sources could provide financing for project planning, while others may be suited to project implementation.

11.5.7.4 Local Resources

- ✚ The Municipal Infrastructure Grant (MIG), a source for support for municipalities which are committed to investigating Municipal Service Partnerships.
- ✚ The Development Bank of Southern Africa (DBSA), willing to finance a portion of solid waste facilities.
- ✚ Public Works through the Expanded Public Works Programme (EPWP)
- ✚ The Industrial Development Corporation (IDC) publicly committed to funding infrastructure projects.
- ✚ Capital Expenditure Programme (CAPEX), which finances capital projects such as the development of buy-back centres.
- ✚ The South Africa Infrastructure Funds, which is composed of numerous insurance and pension fund members, with an interest in funding infrastructure projects in South Africa.
- ✚ Black Empowerment Groups (investment groups).
- ✚ Companies with international affiliations, which may have access to greater and/or lower cost capital through their international partners.
- ✚ Department of Trade and Industry / Department of Transport, through the Spatial
- ✚ Development Initiative may provide support to initiatives which can encourage direct foreign investment.

11.6. INTERNATIONAL SOURCES

- ✚ International Finance Corporation (IFC), a member of the World Bank Group, a private sector division which finances private sector projects in developing countries and helps companies to access financing in international markets. It promotes sustainable private sector investment in developing countries as a way to reduce poverty and improve people's lives.
- ✚ The Southern Africa Enterprise Development Fund (SAEDF), which is a U.S. Government-funded, privately managed venture capital fund, which takes an equity position of up to 25% in its investments.
- ✚ New African Advisors, a U.S. based private venture capital fund with guarantees provided by the Overseas Private Investment Corporation (OPIC).
- ✚ The OPIC Global Environment Fund (GEF), a U.S. based investment fund which sponsors and manages investment entities with equity involvement in infrastructure projects.
- ✚ Various U.S. based private investment funds which have expressed interest in South
- ✚ African infrastructure projects.

The following agencies, which can assist in obtaining, structuring, and/or insuring investments:

- ✚ Various merchant banks in South Africa which have declared an interest in structuring financing for Municipal Service Partnerships.

- ✚ The Export-Import Bank of the United States (Ex-Im Bank), which helps to finance sales of U.S.A goods and services outside the U.S.A
- ✚ The Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group, which provides insurance to private investors against risks such as currency transfer, expropriation and civil disturbance, as well as technical assistance.
- ✚ The Overseas Private Investment Corporation (OPIC), a U.S. government agency which provides both financing and insurance to U.S. companies involved in
- ✚ international investments.

11.6.1 Monitoring and Review

11.6.1.1 Introduction

The monitoring and review of this WMP is not only essential but it is a legal requirement for KDM. Monitoring the plan's implementation is necessary to make sure it provides a relevant, cost effective, sustainable and flexible framework to guide waste development and that if required adjustments can be made to the plan as well reporting to the relevant authority. As the development of the plan in some cases has been based on certain assumptions, it would be best to verify these by monitoring so that the IWMP and its various projects can be reviewed and refined on quarterly basis.

11.6.1.2 Monitoring

An effective monitoring programme is essential to provide information against which the plan's performance is measured. For example monitoring waste information over time can indicate the extent of change in the community's behaviour and this in turn will provide an indication of waste generation in the future.

The objectives of monitoring are to:

- ✚ Ensure that the progress on the implementation of the WMP is on track according to the implementation programme and those adjustments and refinements can be made where required.
- ✚ Improve service provision
- ✚ Fulfil the monitoring requirements as may be imposed in terms of the provisions of the Local Government: Municipal Systems Act and other legislation.

To ensure that implementation of the WMP runs smoothly and that the system is sustainable, regular monitoring is required. Improvements and alterations to an IWMP will enhance the plan and ultimately improve waste management in the KDM. Those parties responsible for monitoring the WMP for KwaDukuza Municipality and the types of monitoring activities for the different elements in the plan have been detailed below.

11.6.2 Monitoring Activities

Monitoring should focus on the short-term objectives of the IWM planning process to assess current problems and hurdles and to re-evaluate the implementation programme for the short, medium and long terms. Monitoring of activities will therefore determine to what extent targets are being met. Overall monitoring activities would include:

- ✚ Volumes of waste generated, recycled and disposed.
- ✚ Success of various collection services.

- ✚ Recycling and composting initiatives
- ✚ Illegal dumping and littering.
- ✚ Effectiveness of legislation, regulations, ordinances and/or by-laws.
- ✚ Complaints received regarding poor waste management.
- ✚ Management and control of salvaging at landfill sites.
- ✚ Compliance of landfill sites to permit conditions, RODs, etc.
- ✚ Finances, such as expenditure and income, payment for services, and recovery of costs, unit costs, etc.

The guidelines on Integrated Waste Management Planning from the NWMS list what type of activities should be considered for monitoring. These are as follows:

11.6.3 General Issues

- ✚ Resource situation;
- ✚ Staff appointments, allocation of functions and training;
- ✚ Payment for services;
- ✚ Rates of generation of waste, verified by the waste information system;
- ✚ Reporting to the WIS;
- ✚ Illegal dumping and littering;
- ✚ Improvement in environmental and health conditions;
- ✚ Reporting to provincial environmental departments and DEAT;
- ✚ Legislation, regulations, ordinances and/or by-laws are in place;
- ✚ Complaints regarding poor waste management.

11.6.4 Waste Prevention and Minimisation

- ✚ Annual reports of waste minimisation programmes and projects;
- ✚ Annual environmental reports on emissions to air, water and land;
- ✚ Achievement of targets for prioritised waste streams and pollutants;
- ✚ Information exchange and the establishment of waste minimisation clubs.

11.6.5 Collection and transportation

- ✚ Annual reports on the implementation of collection and transportation services;
- ✚ Payment received for waste collection and transportation services as against the actual cost for provision of these services.

11.6.6 Recycling

- ✚ Annual reports on waste recycling programmes and projects;
- ✚ Information exchange between stakeholders;
- ✚ Stakeholder forums coordinating new recycling activities;
- ✚ Social and environmental impacts of the implementation of new recycling initiatives.
- ✚ Treatment
- ✚ Registration and licensing of waste treatment facilities;
- ✚ Auditing of waste incineration facilities by provincial authorities;

- ✚ Environmental performance and impact;
- ✚ Provision of adequate hazardous waste treatment facilities.
- ✚ Disposal
- ✚ Registration and licensing of waste disposal facilities;
- ✚ Auditing of general waste disposal facilities by provincial departments;
- ✚ Environmental performance and impact;
- ✚ Provision of adequate hazardous waste disposal facilities;
- ✚ Management and control of salvaging at landfill sites.

Performance indicators or monitoring indicators and feedback mechanisms are required so that the effectiveness of waste management projects can be assessed and corrective action may be taken if performance does not meet expectations. According to the White Paper on Local Government (1998), performance management is critical in ensuring that:

- ✚ Plans are implemented
- ✚ Resources are used efficiently and optimally, and
- ✚ The implementation has the desired effect

The following are just some examples of performance indicators, which could be considered when monitoring the performance of the implementation of the IWMP. In addition, the Waste Management Department should formulate their own performance indicators based on the projects implemented as well as certain aspects of the IWMP. Examples include:

- ✚ Amount of additional data obtained compared to baseline information (assumed percentage increase).
- ✚ Progress of WMP implementation in relation to programme schedule.
- ✚ Number of educational surveys undertaken to determine level of understanding of waste management issues by the public.
- ✚ Number of private sector waste companies registered with the Municipality.
- ✚ Number of approved proposals for the recovery of waste as percentage of total proposals received.
- ✚ Amount of the garden waste stream being sent to composting facilities.
- ✚ Proportion of total waste going to landfill compared with target reductions.

KwaDukuza Municipality shall produce an Annual Monitoring Report on implementation of the IWMP for the Municipality. This will be forwarded to KwaZulu Natal Department of Agriculture & Environment for evaluation as part of the legal requirements. All aspects of the plan, which have been implemented, should be monitored and evaluated according to its success rate.

11.6.7 Evaluation and Review

The IWMP has mainly focused on the short-to –long term period and is intended to cover the period 2010 to 2012. The medium (2010 - 2015) and the long (2010 - 2020) terms have been looked at in broader terms as the activities and strategies, which need to be developed in these periods, are dependent on the outcome of the short-term period.

A performance review should be undertaken to determine the level of success of the implementation of the plan. The reason for reviewing the plan and its implementation on a regular basis is to ensure its practicality, suitability and usability. Only by monitoring and reviewing the plan can the level of performance be determined. It is here where the principle of continual improvement should be adhered. It is proposed that the review of the plan be done annually.

CONCLUSION

12.1 SUMMARY OF STATUS QUO DATA

The Status Quo Analysis is a comprehensive process of data collection which forms the foundation for planning on future integrated waste management programme implementation and therefore forms an important phase in the IWMP.

Waste data capture was not practiced in KwaDukuza Local Municipality, and most waste generated by households is collected and dumped in the landfill (no waste minimisation initiatives), some never reach the disposal facility because it is burnt and buried in backyards. Therefore waste generation data may be underestimated; however, with the Waste Audit, training on Waste Information System and implementation of sorting waste at source, waste data can be accurately captured.

Although there are no recycling initiatives in the municipality, more than 60% of the recyclable waste goes to landfills. There are currently no incentives for recycling.

The availability and correctness of the data gathered and analysed is therefore important. In many cases, where information gaps would have to be identified, effort is made to fill the gaps in information, always aiming to achieve reliable data for decision-making and planning.

One of the objectives of the IWMP implementation should therefore be to improve the quality of the available information and fill information gaps.

The status quo is the benchmark against which future planning and it can be tested and monitored. With IWMP implementation, municipalities are able to compare themselves and measure progress on a yearly basis, also using other progressive municipalities as benchmarks. Networking amongst municipalities is therefore important and could be used for such purposes.

12.2 WASTE DATA ANALYSIS AND BASELINE ASSESSMENT

A number of priority initiatives, in which KwaDukuza Municipality will be required for further planning in the IWMP include the following:

- ✚ Implement general waste collection services in un-serviced or poorly serviced areas in line with the National Domestic Waste Collection Standards (2011);
- ✚ Promote separation at source, i.e., at the point of generation;
- ✚ Develop recycling centres following separation at source and diverting waste from the landfill site;
- ✚ Minimise the environmental impacts of waste disposal facilities and litter;
- ✚ Ensure that Shakaville waste disposal site is properly rehabilitated;
- ✚ Develop and implement a Waste Information System (WIS);
- ✚ Capacitate people in the waste management sector and create jobs.

Health care waste still remains a threat to the environment due to its inappropriate handling, inadequate incineration and inappropriate disposal practices at the landfill site. Furthermore, no such accurate data on health care risk waste exists, which makes it difficult for municipality to track waste disposed illegally.

Household hazardous waste, although smaller in volume, and agricultural chemical waste still remain a threat to the environment due to its inherent risk, inappropriate handling, and inappropriate disposal practices.

Waste generation in the KwaDukuza Municipality is not monitored to enable prioritization of waste management in accordance with the principles on waste hierarchy.

Therefore, waste avoidance and minimization by waste generators could not be determined. Furthermore, there was no evidence of sorting waste at source, and most waste generated was disposed of without any consideration of the waste hierarchy.

Waste was collected at various points without any prior treatment before disposal and then transported and disposed at the landfill site. There is no hazardous waste facility in KwaDukuza Municipality. Health care risk waste is often exported to other municipalities within the province for disposal. Amounts that are exported are unknown.

12.3 ORGANIZATIONAL AND INSTITUTIONAL ISSUES

The organogram indicates that the section managing waste services is not adequately resourced. Inadequate human resource is a barrier to efficient administration of waste services because human resources are the backbone of service delivery. Without adequate and appropriately trained human resources the service does not meet the stringent standards and requirements set in the National Domestic Waste Collection Standards.

Within the framework of existing skills development legislation every municipality should have a workplace skills development plan. To ensure efficient IWMP implementation, a skills development plan reflecting the training and development of all employees in the waste services should be developed. The plan must indicate the type of training planned, when the training would take place, and who would be trained through the Workplace Skills Plan (WSP). Provision should also be made for training officials for the implementation of the IWMP.

The implementation of an IWMP requires proper institutional arrangements with trained knowledgeable personnel. Therefore a functional organogram for the waste management section is an important tool to ensure proper execution of the IWMP. It is essential that KwaDukuza Municipality establishes a focused plan towards continuous capacity building and training of personnel within the waste management section.

12.4 WASTE REPORTING AND THE WASTE INFORMATION SYSTEM (WIS)

There was no waste data capture and management throughout the local municipality. KwaDukuza Municipality should establish a Waste Information System to capture data for planning, adequate allocation of human and financial resources and efficient management of waste. It is also a legal requirement to quantify and report (to WIS) waste generated, transported from source of generation, recycled, treated and disposed of in landfill sites. As a waste management tool, WIS will be used for decision-making in enforcement measures.

WIS will also be used for the following:

- ✚ Identifying areas where waste is generated and hotspots,
- ✚ Gather data on waste and monitor waste trends,
- ✚ Register and monitor serviced and under-serviced areas,
- ✚ Location of transfer stations, landfill sites and illegal dumpsites;
- ✚ Important data can be used for full cost accounting; and
- ✚ Consolidation of all information collected for reporting.

WIS involves the participation of all spheres of government, therefore strengthening cooperative governance.

12.5 FINANCIAL ISSUES AND COST RECOVERY

Through annual budget planning processes each municipality allocates funds for waste collection and other environmental health issues. In the past, the provision of waste services was not a priority; however, in recent times it is recognized that improved waste management prevents air, land and water pollution, reduces the risk

of exposure to pollution, improves the health status of communities and increases the aesthetic value of towns making them attractive as business and holiday destinations.

Therefore for any IWMP to be implemented successfully, funds have to be allocated annually within the IDP for priority activities identified within the IWMP within short-, medium- and long-term implementation.

The bulk of waste service resources are spent on waste transportation; procurement of the fleet, fuel, insurance and maintenance. A waste collection plan is able to identify collection routes and road networks necessary for efficient and cost-effective waste collection services. Therefore collection schedules and routes have to be properly planned in order to use this resource efficiently. Where nearest access roads are not navigable, alternatives have to be sought and new road infrastructure may be required and funded by other sectors, for example, Public Works and Roads.

Funds for developing infrastructure to support implementation of waste management goals can be sourced from the Municipal Infrastructure Grant, (MIG), and the Development Bank of South Africa (DBSA), and the Treasury through the Jobs Fund, amongst others.

The Development Bank of South Africa (DBSA) has a specific unit with personnel that are dedicated to deal with the developmental affairs of each province. Municipalities are assisted on a needs basis, based on the type of project and whether it meets the requirement and funding criteria.

Department of Environmental Affairs (DEA) allocates significant funding to Buyisa e-Bag organization for recycling and buy-back centres. Other organizations that provide assistance include Plastic Federation and PETCO, Glass Recycling Company, Collect-a-Can, etc. under the banner of the Recycling Action Group. They also provide transportation and other resources for recycling and buy-back centres.

In addition to the above, KwaDukuza also need to optimize waste management costs by ensuring that the use of the existing waste management systems, infrastructure, labour and equipment is efficient.

12.6 BY-LAWS AND LEGISLATION

Appropriate waste management policies, regulations and by-laws that support environmentally sound waste management principles should be established. For example, by-laws on waste collection that takes into consideration National Domestic Waste Collection Standards should be in place. This will assist in performance assessment of waste collection services and also in enforcement of standard for service delivery.

KwaDukuza should also be able to review the waste by-laws to give effect to the NEM: Waste Act, 2008 and strengthen their capacity to implement the waste hierarchy, collect waste data, and register waste generators, transporters and disposal facilities, reporting to WIS, amongst others. An attempt should be made to make these by-laws simple and user-friendly, and easy to measure performance and compliance.

12.7 TRAINING, EDUCATION AND AWARENESS

Education and awareness-raising are an integral part to a successful waste management process. The National Domestic Waste Collection Standards (2010) requires that municipalities and waste contractors educate the public on sorting waste at source, encourage waste avoidance and minimization, including on illegal dumping.

Communication on the implementation of the IWMP and its implication to behavioural change, especially behaviour relating to burning and burying of waste as a waste minimization strategy, has to be strengthened. The IWMP is part of the IDP as sector plan, therefore it is envisaged that the same communication strategy for IDP will be used for IWMP. This would not be seen as an added burden to include issues relating to IWMP in IDP processes but an opportunity for integrating programs. The public will also be given an opportunity to participate in the planning and their subsequent involvement in activities relating to waste services.

12.8 IWMP IMPLEMENTATION AND REVIEW

The IWMP is regarded as a waste sector plan that will form part of the IDP. Therefore within the IDP, programs identified for execution will be allocated financial, human and technical resources, in phases with set target dates for delivery and specific outcomes. An annual review of the programs undertaken will be taken to measure performance and progress achieved against set targets. An IWMP annual review will follow the IDP process, using the same format and resources for IDP review process.

12.9 FUTURE NEEDS

The development of the Integrated Pollution and Waste Management Policy (DEAT, 2000) represents a paradigm shift in South Africa's approach to waste management. Historical and current practices are such that approach to pollution and waste focus on end-of-pipe control, characterized by managing waste after it has been generated and, in some cases, it has already impacted negatively on the environment, therefore calling for remediation initiatives.

The IP&WM calls for an integrated and proactive planning by all spheres of government responsible for pollution and waste management. The National Waste Management Strategy (NWMS) process was undertaken to ensure that the IP&WM policy is translated into practice. Central to the development of the strategy for integrated waste management is management of waste with a hierarchical approach (**Figure 5**).

KwaDukuza Municipality will use the IWMP as a tool to implement specific goals identified to achieve the waste hierarchy objectives, namely:

- ✚ To implement waste avoidance and prevention strategies;
- ✚ Recover waste of which generation cannot be avoided; and
- ✚ Practice safe disposal of waste that cannot be recovered.

Several activities have been identified for action in the short-, medium-, and long-term in order to achieve the set goals and objectives of the IWMP. These will be included and funded in the IDP as waste sector programs.

While in the past working in silos was seen as a self-determination concept, it has been proven that interdepartmental and intergovernmental coordination is essential for implementing IWMP successfully. Therefore the municipality should endeavour to draw in the expertise and cooperation of all stakeholders to achieve its goals.

Data collection is an important component of the waste management process. The information is used to provide baseline information for planning towards improvement of the waste management service, for allocation of resources and performance measurement.

IWMP is a sector plan within the IDP; therefore its approval, implementation, review, and all public participation processes could be integrated with the IDP process for ease of implementation. This plan has to be funded; therefore KwaDukuza Municipality has to find innovative ways to generate income and attract investment in order to sustain waste management services articulated in the IWMP.

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ANNEXURE A

FLEET AND EQUIPMENT FOR KDM 2009



1991 Nissan CM 12 Compactor



2007 Isuzu FVR Skip Loader



Nissan Hardbody and Nissan UD80



Agrico Dumper



1997 Mercedes-Benz Compactor



6m³ Skip container

KDM WASTE MANAGEMENT IN PICTURES

Illegal Dumping



Illegal Dumping signs in Maurice Dumminy industrial area

Illegal Dumping after Road-work



Illegal dumping in private property



ANNEXURE B

LIST OF FUNCTIONS FOR KDM

LIST OF FUNCTIONS: ROLES AND RESPONSIBILITIES

Legend:

- ☹ Current responsibility before negotiations
- 😊 Assumed responsibility before negotiations
- ✓ Agreement reached after negotiations
- (E) Extent of the task needs to be quantified
- (SS) Service standard needs to be developed
- (P) Procedure needs to be develop
- (SC) A service charge needs to be set

The legend is applied on the document.

Note: This is a document in development. The content is a very important element of the Waste Management service demarcation which flow over to the resource requirement and costing of the service/task. This document is not complete and needs to be discussed with management. It is evident that certain services/tasks are outside the domain of Waste Management. It is also noted that certain services/tasks are Waste Management services, but they are not undertaken and obviously not costed. There are also services/tasks that can be viewed as “grey” services/tasks that need a “home” and should be negotiated with the likely relevant department that is to perform the service/task.

The responsible unit/department is marked with an X, where necessary comments were given for clarity, subsequent to the meeting that was held on the 12 December 2009 with the representatives of KDM.

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewer	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
1.0	Traffic and Transportation											
1.1	Picking litter out of natural water-courses in parks, beaches and conservation (wetlands) areas		X								☹	
1.2	Picking litter out of natural water-courses not in parks and conservation areas				X						☹	
1.3	Clearing long grass & weeds out of natural water-courses in parks and conservation areas		X								☹	
1.4	Clearing long grass & weeds out of natural water-courses not in parks and conservation areas		X								☹	
1.5	Poison spraying and clearing weeds in constructed storm water gutters, catch pits and culverts		X								☹	
1.6	Cleaning silt out of kerbs and channels	X									☹	
1.7	Removal of illegal Dumping in natural water- courses		X								☹	
1.8	Removal of illegal dumping in concrete lined and other river channels				X						☹	

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewe r	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
1.13	Building of litter traps in water-courses and culverts	X									☹️	
1.14	Cleaning of litter traps in watercourses and culverts	X									☹️	
1.15	Cleaning of litter out of kerb inlets	X									☹️	
1.16	Removing silt out of kerb inlets										☹️	
2.0	Traffic and transportation											
2.1	Cleaning up accident Debris off Roads (to make safe)	X						X			☹️	
2.2	Maintain accident records							X			☹️	
2.3	Cutting back of vegetation blocking signs, footways etc.	X	X								☹️	
3.0	Beautification, leaves and grass-cutting											
3.1	Sweeping leaves out of street gutters				X						☹️	
3.2	Sweeping leaves on verges				X						☹️	
3.3	Grass cutting on verges and kerbs				X						☹️	
3.4	Poison Spraying of paving areas and footways (verges fully paved)		X								☹️	
3.6	Grass cutting on road islands										☹️	
3.7	Beautification of islands and verges		X								☹️	
											☹️	

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewer	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
3.8	Grass cutting at intersections		X								☹️	
3.9	Cutting grass on motorways		X								☹️	SANRAL is responsible for the main arterials
3.10	Cutting grass in servitudes		X								☹️	
3.11	Cutting grass in sub-stations, reservoirs etc.										☹️	Each unit/departm ent is responsible for their area
3.12	Street tree maintenance		X								☹️	
3.13	Tree maintenance along electrical power lines			X							☹️	
3.14	Beautification of motorways		X								☹️	
3.15	Cutting grass in cemeteries		X								☹️	
3.16	Removal of autumn leaves		X								☹️	
3.17	Removal of leaves		X								☹️	
3.18	Pruning trees for waste vehicles		X								☹️	
3.19	Grass cutting at inside leased sport fields		X								☹️	
3.20	Grass cutting at inside leased sport fields		X								☹️	
3.21	Grass cutting of surrounding areas of sports fields		X								☹️	
3.22	Grass cutting at golf course										☹️	N/A
3.23	Grass cutting at resorts/dams										☹️	N/A

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewe r	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
3.24	Grass cutting at airport										☹️	N/A
3.25	Grass cutting on undeveloped municipal land (open spaces)		X								☹️	
3.26	Grass cutting at municipal buildings		X								☹️	
3.27	Grass cutting on undeveloped private land		X								☹️	
4.0	Cleaning and Environmental											
4.1	Litter picking				X						☹️	
4.2	Rem of illegal dumping				X						☹️	
4.3	Poison spraying, cleaning of constructed lanes		X								☹️	
4.4	Poison spraying, cleaning of unconstructed lanes		X								☹️	
4.5	Picking up cut grass and litter off verges and islands		X		X						☹️	
4.6	Issuing notices to remove building material off verges										☹️	Ilembe District Municipality is responsible for the functions by virtue of the devolution of powers.
4.7	Litter picking out of servitudes				X						☹️	
4.8	Picking litter off motorways	X			X						☹️	SANRAL is responsible for main arterials

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewe r	Hea lth & Env iro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
4.9	Removal of illegal Dumping in road reserve	X	X		X						☺	
4.10	Removal of illegal Dumping in electrical servitudes			X							☺	
4.11	Removal of illegal dumping in parks and conservation areas		X								☺	
4.12	Cleaning graffiti off road infrastructure	X									☺	
4.13	Cleaning graffiti off road signs	X									☺	
4.14	Removal of Illegal Dumping on vacant land (private, municipal, provincial and government)				X						☺	At a fee after the failure by owner to respond to notices to clean up.
4.15	Removal of carcasses From veterinarians				X						☺	
4.16	Removal of carcasses off motorways				X						☺	
4.17	Cleaning up after special events in parks		X		X						☺	
4.18	Cleaning up after special events not in parks				X						☺	
4.18	Maintenance and control of public conveniences in Parks		X								☺	

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewer	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
4.19	Maintenance and control of public conveniences not in Parks	X	X								☹	
4.20	Picking of litter and emptying of street litter bins at parking areas leased or privately owned				X						☹	
4.21	Picking of litter and emptying of street litter bins at parking areas				X						☹	
4.22	Picking of litter and emptying of street litter bins at taxi ranks				X						☹	
4.23	Picking of and emptying of street litter bins at walkways				X						☹	
4.24	Refuse removal domestic high income				X						☹	South is contracted While North is done in-house
4.25	Refuse removal domestic normal income				X						☹	South is contracted while North is done in-house
4.26	Refuse removal domestic low income				X						☹	South is contracted While North is done in-house
4.27	Refuse Removal for light industries				X						☹	South is contracted While done in-house North is Done in house

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewer	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
4.28	Refuse Removal for hospitality including correctional services, hostels, hotels, schools, guest houses and restaurants (wet waste – daily)				X						☹️	South is contracted While North is done in-house
4.29	Refuse Removal for businesses (wet waste – daily)				X						☹️	South is contracted While North is done in-house
	Refuse Removal for businesses (general waste)				X						☹️	South is contracted While North is done in-house
4.30	Refuse Removal for hospitals (HCGW only) - daily				X						☹️	South is contracted While North is done in-house
4.31	Removal of building rubble				X						☹️	South While North is done in-house
4.31	Removal of refuse at holiday resorts				X						☹️	South While North is done in-house
4.32	Provision, maintenance and cleaning of street litter bins				X						☹️	South While North is done in-house
4.33	Provision of											

	household litter bins – 240 litre & 85 litre											☹️	N/A, Currently refuse bags are used
4.34	Provision of business litter bins – privately owned or lease				X							☹️	South While North is done in-house
	Provision of sidewalks, parking areas, taxi ranks and municipal property litter bins				X							☹️	South While North is done in-house
4.35	Replacing of street litter bins				X							☹️	South While North is done in-house
4.36	Replacing of household litter bins				X							☹️	South While North is done in-house
4.37	Replacing of business litter bins (bags)				X							☹️	South While North is done in-house
4.38	Provision of plastic bags for households				X							☹️	South While North is done inhouse
4.39	Provision of plastic bags for business				X							☹️	South While North is done in-house
4.40	Provision of plastic bags for litter picking				X							☹️	South While North is done in-house
4.41	Awareness campaigns and education				X							☹️	Not clear as to who should lead.

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewe r	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
4.42	Landfill contract management				X							N/A Privately owned and operated
4.43	Garden site management and transport (mini dumping site/garden refuse)											N/A Privately owned and operated
4.44	Management of recycling contract											N/A
4.45	Composting management and sales											N/A
4.46	Garden waste service		X								☹️	
4.47	Bulk waste service				X						☹️	
4.48	Wet waste service (dailies)				X						☹️	
4.49	Solid Waste law enforcement							X			☹️	It is not clear for all involved
4.50	CBD street sweeping and litter picking				X						☹️	
4.51	Removal of sand from road surface	X									☹️	
4.52	Condemnations				X						☹️	Ilembe condemns
4.53	Household hazardous waste (e.g. florescent tubes, paint containers, pesticide containers etc.)				X						☹️	

Ref No.	Details	Civils /roads	Park s	Eletr icity	Waste Mngt	Water & Sewer	Hea lth & Enviro	Publi c Safet y	Plan ning	Beac hes	Lege nd	Comments
4.54	Business hazardous waste (e.g. florescent tubes, paint containers, pesticide containers etc.)				X						☹	
4.55	Household E-waste (electronic waste)				X						☹	
4.56	Business E-waste (electronic waste)				X						☹	
4.57	Household medical waste (e.g. diabetics, cronical illnesses etc.)				X						☹	
4.58	Tyres				X						☹	
4.59	Beach Cleaning									X	☹	
5.0	Administration											
5.1	Comments on development applications, subdivisions, extensions etc. (waste related)										☹	
5.2	Co-ordination of work in the road reserve	X									☹	
5.3	Clearance certificates										☹	
5.4	Solid Waste Tariff calculation										☹	FINANCE deals with calculations
6.0	Advertising											
6.1	Control of advertising in road reserve								X		☹	
6.2	Control of								X			

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	advertising on private land which targets a road										☹️	
6.3	Control of advertising on litter bins				X				X		☺️	Not so clear
6.4	Control of advertising on bus shelters (if any)and taxi ranks								X		☹️	
6.5	Approval and removal of posters								X		☹️	