



Kouga Local Municipality Integrated Waste Management Plan Situation Analysis Report

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Head Office

14 Eglin Road, Sunninghill 2191
Johannesburg, South Africa

Tel: +27 11 519 4600
Fax: +27 11 807 5670

www.gibb.co.za



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Kouga Municipality: Integrated Waste Management Plan

Situational Analysis

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List of Abbreviations

APPA	Atmospheric Pollution Prevention Act.
ASP	Africa Stockpiles Programme.
DEA	Department of Environmental Affairs.
DM	District Municipality.
DO	Department of Health.
DoE	Department of Education.
DWA	Department of Water Affairs
DWS	Department of Water and Sanitation (formerly Department of Water Affairs (DWA).
DPW	Department of Public Works.
ECA	Environment Conservation Act (73 of 1989).
ECDC	Eastern Cape Development Corporation.
ECIC	Eastern Cape Implementation Committee.
ECSECC	Eastern Cape Socio-Economic Consultative Council.
EIA	Environmental Impact Assessment.
EPWP	Expanded Public Works Programme
eWASA	e-Waste Association of South Africa.
FBRR	Free Basic Refuse Removal.
GDPR	Gross Domestic Product per Region.
HCRW	Health Care Risk Waste.
HCW	Health Care Waste.
HWMP	Hazardous Waste Management Plan.
IDP	Integrated Development Plan.
IDZ	Industrial Development Zone.
IEM	Integrated Environmental Management.
IPWM	Integrated Pollution and Waste Management.
IT	Information Technology.
IWM	Integrated Waste Management.
IWMP	Integrated Waste Management Plan.
IWMSA	Institute of Waste Management South Africa.
LA	Local Authorities (Local and District level authorities).
LM	Local Municipality.
MEC	Member of Executive Council.
MIIU	Municipal Infrastructure Investment Unit.
KLM	Kouga Local Municipality.
MRF	Material Recovery Facility.
NEMA	National Environmental Management Act.
NEMWA	National Environmental Management: Waste Act (59 of 2008).
NHA	National Health Act (61 of 2003).
NWMS	National Waste Management Strategy.
OHSA	Occupational Health and Safety Act (85 of 1993).
PCBs	Polychlorinated Biphenyls.
PE-HD	Polyethylene high density.
PE-LD	Polyethylene low density.
PET	Polyethylene Terephthalate.
PIWMP	Provincial Integrated Waste Management Plan.
POP(s)	Persistent Organic Pollutant(s).

PP	Polypropylene.
PS	Polystyrene.
PSC	Project Steering Committee.
PUDSS	Permissible Utilisation and Disposal of Sewage Sludge.
PVC	Polyvinyl Chloride.
RDP	Reconstruction and Development Programme.
ROSE	Recycling Oil Saves the Environment.
RSA	Republic of South Africa.
SABS	South African Bureau of Standards.
SANBI	South African National Biodiversity Institute.
SATRP	South African Tyre Recycling Process Company.
SAWIC	South African Waste Information Centre.
SBDM	Sarah Baartman District Municipality
SIDA	Swedish International Development Cooperation Agency.
UN	United Nations.
WHO	World Health Organisation.
WIS	Waste Information System.
WMO(s)	Waste Management Officer(s).
WRC	Water Resource Commission.
WWTW	Waste Water Treatment Works.

Definitions

Basic refuse removal	A baseline service level as established under Clause 9.1 of the National Policy of Basic Refuse Removal to indigent Households.
Best Practicable Environmental Option	The outcome of a systematic and consultative decision-making procedure. The option that provides the most benefit and the least damage to the environment (across air, water and land) as a whole, at acceptable cost, in the long term as well as in the short term. (NEMWA, 2008).
Best Practice	Process, technique, or innovative use of technology, equipment or resources that has a proven record of success in providing significant improvement in cost, schedule, quality, performance, safety, environment, or other measurable factors which impact on an organisation.
Bioremediation	Process whereby natural organisms (e.g., bacteria, fungi or plants) or enzymes are used to degrade contaminants.
Buy-back centre	A centre where people sell recyclable material they have collected. Recycling companies buy recyclable materials from the buy-back centres and pay only for the materials they can use. (Draft Municipal Waste Sector Plan, 2011).
By-law	Legislation passed by the council of a municipality binding in the municipality on the persons to whom it applies (Municipal Systems Act, 2000).
Carcinogen	A Chemical substance or mixture of chemical substances which induce cancer or increase its incidence when inhaled, ingested or absorbed through the skin (SANS 10234, 2007).
Clean Production	The continuous application of integrated preventative environmental strategies to process, products and services to increase overall efficiency and to reduce the impact of such processes, procedures and services on health and the environment (NEMWA, 2008).
Composting Facility	Facility for the aerobic decomposition of biodegradable organic matter to produce compost (Draft Municipal Waste Sector Plan, 2011).
Disposal	The burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto any land (NEMWA, 2008).
Domestic waste	Waste excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational health care, sports or recreation purposes (NEMWA, 2008).
Drop-off centre	A facility where the public is able to drop off <u>garden refuse, recyclables and bulky waste.</u>
Duty-of-care principle	Any person handling or managing hazardous substances or related equipment is ethically responsible for applying the utmost care.
Environment	The surroundings within which humans exist and that are made up of- (i) the land, water and atmosphere of the earth (ii) micro-organisms, plant and animal life (iii) any part of combination of (i) and (ii) and the interrelationships among and between them: and

	(iv) the physical, chemical, aesthetic and culture properties and conditions of the foregoing that influence human health and well-being: (NEMA, 1998)
General waste	Waste that does not pose an immediate hazard or threat to health or to the environment, and includes— (a) domestic waste; (b) building and demolition waste; (c) business waste: and (d) inert waste. (NEMWA, 2008)
Hazardous waste	Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.(NEMWA, 2008)
Incineration	Any method, technique or process to convert waste to flue gases and residues by means of oxidation (NEMWA, 2008).
Industry	Includes commercial activities, commercial agricultural activities, mining activities and the operation of power stations; (NEMWA, 2008)
Inert waste	Waste that (a) does not undergo any significant physical, chemical or biological transformation after disposed (b) does not burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which they may come into contact and (c) does not impact negatively on the environment, because of its pollutant content and because of the toxicity of its leachate is insignificant (NEMWA, 2008)
Kouga Local Municipality (KLM)	The local authority administrating the study area.
Landfill	Site for the controlled disposal of waste materials (Draft Municipal Waste Sector Plan, 2011)
Minimisation	When used in relation to waste, means the avoidance of the amount and toxicity of waste that is generated and, in the event where waste is generated the reduction of the amount and toxicity of waste that is disposed of (NEMWA, 2008)
Minimum Requirements	Refers to the Minimum Requirements series of documents relating to the handling, classification, treatment and disposal of general and hazardous waste, published by DWAF in 1998 and updated from time to time.
Materials Recovery Facility (MRF)	A facility where waste is temporarily stored and ideally sorted, before it is transported more economically to either recycling centres or landfills (Draft Municipal Waste Sector Plan, 2011)
Policy	Provides guidance for legislation and administration. Does not refer to the development of implementation plans; does not refer to operational issues; does not define roles and responsibilities.
Polluter Pays Principle	The Polluter Pays Principle is a principle in <u>international environmental law</u> where the <u>polluting party</u> pays for the damage done to the <u>natural environment</u> .
Precautionary Principle	The precautionary principle permits a lower level of proof of harm to be used in policy-making whenever the consequences of waiting for higher levels of proof may be very costly and/or irreversible: Where a risk is unknown; the assumption of the worst case situation and the making of a provision for such a situation; and Principle adopted by the United Nations Conference on the Environment and Development (1992) that, in order to protect the environment, a precautionary approach should be widely applied, meaning that where there are threats of serious or irreversible damage to the environment, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
Recovery	The controlled extraction of a material or the retrieval of energy from waste to produce a product (NEMWA, 2008).
Recycle	The process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material (NEMWA, 2008).
Recycling Point	A facility where the public can drop off recyclables, no money is paid for the recyclables. Recycling points are usually found at schools, libraries and vehicle service stations. These facilities are owned by the private sector.
Re-use	To utilise articles from the waste stream again for a similar or different purpose without

	changing the form or properties of the articles (NEMWA, 2008).
Sharps	Items such as needles, syringes, blades of clinical glass, that are capable of causing cuts, abrasions or puncture wounds (Draft National Norms and Standards for the Storage of Waste, 2011).
Sustainable Development	The integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations (NEMA, 1998).
Transfer stations	A facility where waste is temporarily stored, and ideally sorted before it is transported more economically to either recycling centres or landfills (Draft Municipal Waste Sector Plan, 2011).
Treatment	Any method, technique or process that is designed to (a) change the physical, biological or chemical character or composition of a waste; or (b) remove, separate, concentrate or recover a hazardous or toxic component of a waste; or (c) destroy or reduce the toxicity of a waste in order to minimise the impact of the waste on the environment prior to further use or disposal (NEMWA, 2008).
Waste	Any substance; whether or not that substance can be reduced, re-used, recycled and recovered; (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of; (b) which the generator has no further use of for the purposes of production; (c) that must be treated or disposed of; or (d) that is identified as a waste by the Minister by notice in the <i>Gazette</i> , and includes waste generated by the mining, medical or other sector, but (i) a by-product is not considered waste; and (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste (NEMWA, 2008).
Waste Avoidance	Preventing waste generation altogether (i.e. zero waste generation).
Waste Co-operative	An enterprise jointly owned and managed by its employees, which provides waste-related services (e.g. litter-picking, street sweeping) to the communities as per contract with an authority. They are envisioned to bring about an improved feeling of ownership and responsibility in communities and generate entrepreneurship in previously disadvantaged communities.
Waste disposal facility	Any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise (NEMWA, 2008).
Waste Exchange	The activity that takes place when waste is exchanged between companies, individuals or organisations, in order for it to be of mutual benefit to both parties. Waste from one could even be raw materials for the other.
Waste Generation	The weight or volume of materials and products that enter any given waste stream before recycling, composting, land filling or combustion takes place. Can also represent the amount of waste generated by a given source or category of sources.
Waste Management Hierarchy	The Waste Management Hierarchy reflects the different waste management options, from reduction (more preferred) through to re-use, recycling, recovery, treatment/destruction, and lastly disposal (least preferred), that should all form part of an integrated waste management system (NEMA, 2008).
Waste Information System	A computerised database containing information about waste management organisations and agencies, as directed to be established as part of the implementation of the National Waste Management Strategy of South Africa.
Waste Management Licence	A license issued in terms of section 49 of the National Environmental Management, Waste Act 2009 (NEMWA, 2008).
Waste Management Officer	A waste management control officer designated in terms of section 10 (NEMWA, 2008).
Waste Management Services	Waste collection, treatment, recycling and disposal services (NEMWA, 2008).
Waste Reuse / Recovery	The recovery or reapplication of a package or product for uses similar or identical to its originally intended application, without manufacturing or preparation processes that significantly alter the original package or product. Recovery can also refer to the recovery of energy from waste.
Waste Stream	The total flow of waste falling under a particular waste category from activity areas, businesses units, and operations that is recovered, recycled, reused, or disposed of in landfills e.g.

	domestic waste, hydrocarbon waste, etc.
Waste Transfer Facility	A facility that is used to accumulate and temporarily store waste before it is transported to a recycling, treatment or waste disposal facility (NEMWA, 2008).
Waste Transporter	A company or individual that provides a commercial service as a transporter of waste, must be registered on the Nelson Mandela Bay Municipality's Waste Transporter System.
Waste Treatment Facility	Any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of that waste (NEMWA, 2008).

The definitions used in this report are taken from a number of sources:

- South African National Standard (SANS) (2007) Globally Harmonized System of Classification and labelling of Chemicals (GHS)
- DEAT. (2009). National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) National Domestic Waste Collection Standards
- National Environmental Management Act No 62 of 2008
- Local Government: Municipal Systems Act, 2000
- DEA (2012) Municipal Waste Sector Plan GN 270 of 2012
- National Environmental Management: Waste Act 59 of 2008: National Norms and Standards for the Storage of Waste (GN 926 of 2013).

Executive Summary

The first generation integrated waste management plan (IWMP) for the Kouga Local Municipality (KLM) was written in 2008. The municipality is now undertaking a review and update of the 2008 IWMP according to the 5 year review cycle.

The formulation of the IWMP should include a review of the current status quo of waste management in the area and identification of gaps in the provision of waste services. This report is a situation analysis including, amongst other things, an analysis of waste types generated in the KLM, a description of current waste management services, and an indication of the number of households not receiving a waste collection service.

All towns and townships in the municipality are receiving a regular waste removal service, however there are shortages in the collection fleet and waste collection staff. Illegal dumping is a key issue in the municipality that needs to be addressed.

The municipality is partnering with Expanded Public Works Programme (EPWP) to employ local residents in the Youth in Waste programme as litter pickers to clean town centres and illegal dumping sites.

There are two permitted landfill sites in the KLM, namely Humansdorp landfill (G:M:B+) and Hankey landfill (G:S:B). The KLM's waste management budget has made provision for upgrading the Humansdorp and Hankey landfill sites to meet their permit requirements. The municipality has obtained permits to close and rehabilitate two unpermitted landfill sites namely Patensie (G:C:B-) landfill and St Francis Bay (G:C:B-) landfill.

None of the landfill sites in the KLM have weighbridges and therefore accurate records of waste disposal tonnages are not available. However, it is estimated that 14,618.56 tons of waste are produced annually in the KLM. The results of the waste characterisation show that the majority of domestic waste is organic waste (food waste and garden waste), which makes up approximately 32% of the total waste stream. Non-perishable recyclables make up a total of approximately 22% of the waste stream. This is an under-utilised resource as few waste recycling facilities and service providers are operating in KLM. The majority of recycling activities take place at the Humansdorp landfill where recyclables are picked from the waste body. The integrity of recyclables has by this stage been compromised due to contamination with organic waste.

The KLM has made provision in its waste management budget for the construction of two transfer and recycling facilities to decreasing illegal dumping and increase recovery of recyclables.

1 Introduction

1.1 Background

The Kouga Local Municipality (KLM) is one of nine local municipalities in Sarah Baartman District Municipality (formerly the Cacadu District Municipality). Kouga is comprised of nine towns namely: Jeffreys Bay, Humansdorp, St Francis Bay, Cape St Francis, Oyster Bay, Patensie, Hankey, Loerie and Thornhill. The KLM is responsible for the provision of a number of waste management services to the communities within its area of jurisdiction. These services include the collection and safe disposal of domestic and commercial waste.

The KLM is required to develop an integrated waste management plan (IWMP) as per the requirements of the National Environmental Management Waste Act (59 of 2008) (hereafter referred to as the Waste Act) to sustain and improve waste management in the KLM. The first generation IWMP for the KLM was written in 2008. The municipality is now undertaking a review and update of the existing IWMP.

1.2 Defining Waste and Integrated Waste Management Planning

1.2.1 A Definition of Waste

The Waste Act defines waste as any substance; whether or not that substance can be reduced, re-used, recycled and recovered;

- a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of;
- b) which the generator has no further use of for the purposes of production;
- c) that must be treated or disposed of; or
- d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but
 - i. a by-product is not considered waste; and
 - ii. any portion of waste, once re-used, recycled and recovered, ceases to be waste.

A “by-product” is defined as a substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material.

1.2.2 Integrated Waste Management Planning and IWMPs

The “integrated” aspect of Integrated Waste Management Planning, means that all aspects of waste management are considered, from waste generation to reduction, recycling, treatment and finally disposal. This approach is illustrated in Figure 1 which shows the “waste hierarchy” as defined in the National Waste Management Strategy (DEA, 2011) (NWMS). This diagram illustrates that the majority of waste should be addressed via the lower tier activities (waste avoidance and reduction, re-use, recycling and recovery), and how

disposal should be applied as a last resort. It gives a clear illustration of the best environmental practice concerning waste management and aims to reduce the production of waste and to divert resources away from landfill sites where possible.

The NWMS states that the primary objective of integrated waste management planning is to: *“integrate and optimize waste management so that the efficiency of the waste management system is maximised and the impacts and financial costs associated with waste management are minimised, thereby improving the quality of life of all South Africans.”*

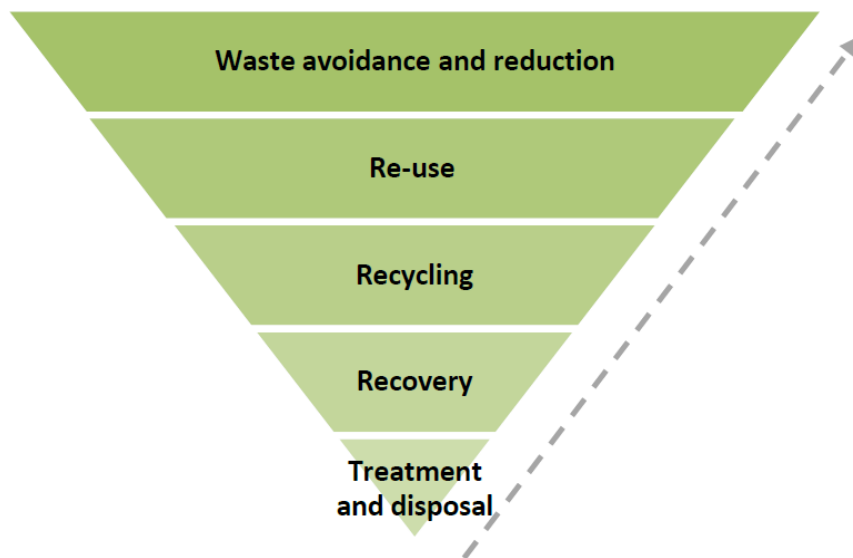


Figure 1: The waste hierarchy as per the National Waste Management Strategy (DEA, 2011)

An IWMP is a plan which defines the vision, objectives and targets for the provision of waste management services. They are compiled by provincial and local authorities. IWMPs are typically revised on a five yearly cycle aligned to the review of the Integrated Development Plan (IDP) to ensure the information remains up to date and to accommodate any new development in waste management or legislation. The formulation thereof should include identifying existing gaps in the provision of waste services, identifying objectives and targets, and defining actions and an implementation plan to realize these objectives.

1.2.3 Why Undertake an IWMP?

In terms of Section 11(4)(a) of the Waste Act, all provincial and local authorities are required to compile an IWMP, submit it to the MEC for approval, and include it in the local authority's IDP.

1.2.4 What Should an IWMP Contain?

Due to the varying nature and scale of waste services in different local authorities, IWMPs vary in content and to some degree, in structure. Two key pieces of legislation define how IWMPs are to be compiled and what they should contain:

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

-
- o A Situation Analysis including, amongst other things, an analysis of waste types, a description of services, and an indication of the number of persons not receiving waste collection services.
 - o An indication of how the local authority intends to give effect to, amongst others, the objectives of the NEMWA, to provide for implementation of waste minimization and recycling, and best environmental practice.
 - o Setting out of priorities and objectives for waste management.
 - o Establishing targets for collection, minimization, re-use and recycling.
 - o Setting the approach for the planning of new facilities.
 - o Indicating financial resources required for giving effect to the plan.
 - o Describing how the authority will give effect to the plan.
 - Municipal Systems Act 32 of 2000: Section 25 of the MSA describes how plans such as the IWMP must be incorporated into the broader IDP of the local authority, which considers a range of areas such as building safe communities, promoting active participation in local government, building the local economy, employment creation and improvement of public services. The MSA also calls for IWMPs to be participatory processes.

The Department of Environmental Affairs (DEA) Guidelines for the Development of Integrated Waste Management Plan (IWMPs). These guidelines have been used in the drafting of this IWMP.

This IWMP has fulfilled the requirements listed above as best possible with the information and data available at the time of its compilation. The Policy and Legislation Review section of this IWMP (Appendix A) presents other policy and guideline documents which inform the principles and objectives of IWMPs.

All areas of waste management should be addressed by the IWMP, from the generation of waste to minimisation, reuse, collection and transportation, treatment, recycling and finally the disposal of waste. The IWMP should ultimately guide the local authority towards achieving reduced waste to landfill as per the waste hierarchy presented in Figure 1. The IWMP should also address institutional and financial arrangements pertaining to waste management so as to ensure sustainable management thereof.

1.3 Context of this IWMP

1.3.1 Scope

This IWMP has been produced for KLM and is applicable geographically to all areas falling within the jurisdiction of KLM. As a municipal plan, it is applicable to all directorates of KLM.



Figure 2: The jurisdictional area of the Kouga Local Municipality and its main towns. The red dots indicate the position of landfills.

1.3.2 IWMP History in Kouga Local Municipality

As indicated in section 1 of this report, the first generation IWMP for the KLM was written in 2008. This IWMP constitutes the second generation IWMP for the KLM and covers a five year period from 2015 – 2020. IWMPs are typically reviewed on a 5 year cycle to coincide with the development of Integrated Development Plans (IDPs).

1.3.3 Timeframes and Approval

This IWMP is intended to inform the revision of the IDP however the 2015/16 KLM IDP has already been developed. The IDP addresses gaps in waste management and proposed solutions to address these gaps. It is the intention is for this IWMP to be finalised and adopted by council in the 2015/16 financial year. Thereafter the IWMP will be submitted to the MEC for approval.

1.3.4 Policy and Context

As mentioned, South Africa has made significant progress recently with drafting waste legislation and guidelines. A detailed description of these, as well as applicable international legislation, is presented in Appendix A. In order to understand the context of this plan, the key legislation and local policies applicable to this IWMP are introduced briefly below.

- (a) National Environmental Management: Waste Act 59 of 2008 (hereafter referred to as the Waste Act)

The Waste Act is South Africa's core waste legislation, and was promulgated 01 July 2009. The act covers a wide spectrum of issues including requirements for a National Waste Management Strategy, IWMPs, definition of priority wastes, waste minimisation, treatment and disposal of waste, Industry Waste Management Plans, licensing of activities, waste information management, as well as addressing contaminated land. A number of regulations have been promulgated under the Waste Act.

- (b) National Waste Management Strategy

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

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

- (c) Municipal Waste Sector Plan (GN 270 of 2012)

This plan, published in March 2012, seeks to address the poor waste management performance of municipalities and to "effectively" address the management of "backlogs" in municipal solid waste service delivery and infrastructure.

(d) Provincial IWMP, Eastern Cape

The Department of Economic Development and Environmental Affairs and Tourism (DEDEAT), the Eastern Cape Provincial authority responsible for waste management, drafted their IWMP in 2010. It consisted of separate general and hazardous waste management plans. While the key focus of the plans addressed provincial performance, they do have implications for local authorities in the Eastern Cape. The following objectives were highlighted:

- General waste: Six objectives including improved:
 - strategic waste planning.
 - waste services and facilities.
 - recovery and recycling.
 - institutional functioning.
 - financial management for waste services.
 - information management and monitoring.
- Hazardous waste: Six objectives including:
 - hazardous waste management capacity and awareness.
 - promoting awareness.
 - improved minimisation and recycling.
 - improved hazardous waste storage, collection and transportation.
 - improved treatment and disposal.
 - improved monitoring and information management.

While hazardous waste management is not a local authority responsibility the domestic waste stream does have a small hazardous waste component, and hence the above should be considered.

(e) Kouga Local Municipalities Integrated Development Plan

The KLM's present Integrated Development Plan (IDP) covers the period 2012 – 2017. The current IDP is a final for 2015/16 IDP of the KLM, which represents the second review of the 2012/17 IDP as adopted at the beginning of the current term of Council. It notes a commitment to providing quality and sustainable waste management services to the residents of KLM, and includes the following waste management targets/actions:

- Fencing of Humansdorp and Hankey landfill sites
- Erection of weighbridge at Humansdorp landfill
- Construction of cells (±2) at Humansdorp and Hankey landfill sites
- Construction of access roads
- Erection of MRF (material recovery facility)
- The need for irrigation trucks at Humansdorp and Hankey sites
- Address lack of staff for all sites
- The need to develop solid waste disposal by-laws
- Improve community health services by providing clean water, sanitation and waste removal services

-
- Drafting of IWMP.

(f) Sarah Baartman District Municipality Integrated Waste Management Plan

The current Sarah Baartman District Municipality IWMP covers the period 2012 – 2017. Four key aspects of waste management (waste disposal infrastructure, waste collection infrastructure, institutional capacity and human resources, and financial resources) were investigated for all local municipalities. The recommendations made for KLM are listed below:

Waste disposal infrastructure:

- Landfill sites should be upgraded to comply with minimum standards;
- Local municipalities to identify new transfer stations to be authorized by DEDEAT.

Waste collection infrastructure:

- Vehicle replacement plan required;
- Savings / budget plan should be drafted.

Institutional capacity and human resources:

- The following personnel are required at disposal facilities: Gate guard; Site supervisor / operator; Litter pickers; General workers; and Drivers.
- Training of municipal workers for specific tasks is required.

Financial resources:

As payment rates for waste services is low KLM should:

- Investigate a pre-paid system;
- Undertake a financial investigation to identify most cost effective & efficient service delivery mechanism.

Management of illegal activities:

- Introduce a neighbourhood watch system that will aim to prevent illegal dumping;
- Deploy skips at strategic locations across towns and settlements;
- Clear all illegal dumping areas and take waste to properly established sites;
- Place skips in 'illegal dumping hot spot areas' and place prohibitive notice boards;
- Develop a Medical Waste Stream Management Strategy to ensure the safe handling and disposal of medical waste.

Waste minimisation:

- The feasibility of establishing recycling centres at the main waste disposal sites should be investigated in conjunction with the distribution of recycling collection containers throughout towns and settlements.

General recommendations:

- A waste information system should be implemented by LMs.

- Service levels should be work-shopped with the communities to obtain their views and inputs on the proposed upgrading of their received services and the associated cost implications;
- Community awareness campaigns should be implemented to educate the communities on responsible waste management;
- All LMs should promote recycling and / or waste minimization. The informal salvaging (scavenging) operations at landfill sites should be formalized to conform to approved waste management practices.

(g) **Kouga Local Municipality Waste By-Laws**

In order for the KLM to comply with the provisions of the Waste Act waste management bylaws must be written and implemented. A schedule of fines should be included in the bylaws. KLM has environmental health by-laws relating to the management of solid waste under 'prevention and suppression of health nuisances' and handling and disposal of medical waste under 'medical waste'. While the medical waste bylaws are very detailed, the requirements for storage, handling, and disposal of general and hazardous wastes are not expounded in the bylaws which mostly address litter and illegal dumping of waste. A fine schedule is not included in the environmental health bylaws in the penalty section.

1.4 Context of Roles and Responsibilities

National waste legislation, policy and guidelines place specific responsibilities onto local authorities. The Waste Act requires local authorities to implement mechanisms for the provision of waste collection services including collection, storage and disposal. Local authorities are also required to facilitate recycling and manage waste information appropriately.

1.4.1 National Government

National government is tasked with establishing a national waste management strategy, including norms, standards and targets. National norms and standards may cover all aspects of the waste value chain, from planning to service delivery.

1.4.2 Provincial Government

Provincial governments are tasked with the implementation of the national waste management strategy and national norms and standards, and may set additional, complementary provincial norms and standards. The Waste Act notes that these norms and standards must amongst other things facilitate and advance regionalization of waste management services. The Constitution requires Provincial Government to monitor and provide support to municipalities in the province and to promote the development of local government capacity.

1.4.3 Local Government

Local governments are required to ensure the universal and sustainable delivery of services, subject to national and provincial regulation. In particular, they are required to maintain separate financial statements, including a balance sheet of the services provided. The Constitution of South Africa and other legislation mandate refuse removal by municipalities in their areas of jurisdiction. The function includes refuse removal, solid waste disposal, street cleaning and recycling. The National Domestic Waste Collection Standards require municipalities to provide a weekly collection service to households.

(a) Waste Management Officer

The Waste Act requires that all local municipalities appoint a waste management officer from its administration who is responsible for co-ordinating waste management in the municipality.

(b) IWMP

All municipalities must submit an IWMP to the MEC for approval. The municipality is also responsible for incorporating the IWMP into its IDP. Annual performance reports must be prepared in terms of section 46 of the Municipal Systems Act 32 of 2000 must contain information on the implement of the municipal IWMP.

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

- Give priority to the basic needs of the local community.
- Promote the development of the local community.
- Ensure that all members of the local community have access to at least the minimum level of available resources and the improvement of standards of quality over time.

1.5 Approach to this IWMP

(a) Situational Analysis

A waste management plan, and delivery of services can only be effective if informed by adequate information. This is particularly relevant in the case of waste quantities and types. Effective planning for waste minimisation and recycling initiatives are dependent on such data. However, little information on waste quantities and types was readily available at the time of the compilation of this report. Information on waste management in the KLM gathered through literature reviews is summarised and discussed in the sections below.

The *Situation Analysis* section of this report provides an overview of KLM and the present waste management activities undertaken by the municipality. It introduces the biophysical context, demographics of the KLM, discusses its local economy and describes the present waste management services.

(b) Data Collection

Data was collected from the following sources:

(i) Literature Review

An extensive literature review pertaining to waste management in the area was undertaken as part of the situation analysis. This included a review the following documents:

- Eastern Cape Provincial General and Hazardous IWMP (GIBB, 2010).
- Cacadu District Municipality Integrated Development Plan (2012-2017).
- KLM IDP (2012 – 2017)
- KLM IWMP (2008)
- KLM Waste Department Business Plan
- Various waste records including but not limited to: waste collection schedules, landfill site upgrade plans, and service level agreements with waste contractors.

(ii) Facility Inspections

GIBB visited all the landfill sites in the municipal area and met with the KLM staff on 09 – 11 June 2015. During the visit, GIBB visited the KLM's municipal offices and landfill sites in Humansdorp, Hankey and Patensie.

(iii) Staff Interviews

Interviews were conducted in face to face meetings with municipal staff on 09 - 11 June 2015 to gain an understanding of the issues they face regarding waste management and areas they feel require improvement. Interviews were held with the following:

- Manager of Waste Disposal and Coastal Management
- Manager of Waste Collection, Parks and Cemeteries.
- Waste collection foreman
- Waste collection staff
- Waste Picker.

The full details of those interviewed have not been provided as the interviewees requested to remain anonymous.

(iv) Business/ Industry / Social Services Interviews

Representatives from the companies Enviroman, Humansdorp Shoprite, Humansdorp Spar, Humansdorp Wimpy, and Life Hospital in Humansdorp were interviewed to understand their challenges and concerns with regards to waste services offered by the KLM.

(v) Project Steering Committee

A Project Steering Committee (PSC) was established to ensure that the process of developing this IWMP was well informed. The list below presents details of the project steering committee members. The steering committee formed the core group responsible for workshopping the objectives and targets for this IWMP.

Table 1: Details of project steering committee

NAME	ORGANISATION - DIRECTORATE
Mrs Gcobisa Dadamasi	Kouga Municipality: Manager, Waste Disposal and Coastal Management
Mr Frank Tamboer	Kouga Municipality: Manager, Waste collection, Parks and Cemeteries.
Mr Mervin Olivier	GIBB
Mr Walter Fyvie	GIBB
Ms Anna Collett	GIBB

1.5.2 Assumptions and Limitations

This situation analysis has drawn information from a number of sources including KLM records and information sourced from KLM staff interviews. It is assumed that the information is accurate

2 *Situation analysis of waste management*

2.1 Overview Description of Kouga Municipal Area

2.1.1 Demographics

(a) Population Profile

The population size of the KLM is 98,558 inhabitants according to the 2011 census (Stats SA, 2012). This number represents a notable increase in the population size of 27.5% from the population of 71,390 in 2001. In comparison the population of the Eastern Cape has increased from approximately 6.2 million persons to 6.5 million persons over the same period, an increase of 4.5% (Stats SA 2012).

(b) Ethnic Profile

The majority of the population of the Eastern Cape are black African at 86.3%, while in Kouga Local Municipality the majority ethnic group are coloured at 42,6%. Black Africans constitute the next largest ethnic group at 38.8%. Whites make up 4.7% of the population of the Eastern Cape and 17.6% of the population of the KLM. Asian/Indians are the smallest ethnic group, making up approximately 0.43% of the population of the Eastern Cape and 0.2% of the population of the KLM (Stats SA, 2012).

(c) Gender Profile

Approximately 51% of the South African population is female. The Eastern Cape has a slightly higher ratio of females to males (53:47). The female to male ratio of the KLM is slightly lower at 51:49 (Stats SA, 2012). According to the Census 2011 (Stats SA, 2012), and in keeping with the general national trends, women constitute the majority (50.7%) of the KLM population.

(d) Language

All of the eleven official languages of South Africa are represented in the Eastern Cape. IsiXhosa is the first language of the majority of the population of the Eastern Cape at 78.8%, however in the KLM Afrikaans is the first language of the majority of its population at 58.4%, while IsiXhosa is the second most spoken first language in the KLM at 29.9%, and English the third at 6.4%.

(e) Impact of HIV / AIDS

According to 2011 estimates, 5.38 million people in South Africa are living with HIV. An estimated 16% of the adult population aged 15-49 years are HIV-positive. The percentage of deaths caused by AIDS nationally is showing a slight year-on-year decrease. It fell from 49.2% in 2008 to 44.3% in 2010 (Stats SA, 2012).

According to 2009 Antenatal Care Statistics, the average HIV/AIDS prevalence of antenatal woman in the Eastern Cape is 28.1%. A significant number of people in the KLM are treated with Anti-retroviral Therapy each year, which results in a large volume of medical waste being produced (Department of Health, 2009).

(f) Housing

There are 29,447 households in the municipality, a significant increase of almost 14% from the number of households (33,209) in 2001 (Stats SA 2012). The average household size is 3.2 persons per household. Less than half of all households (35.4%) are headed by females (Stats SA, 2012).

(g) Access to Piped Drinking Water

According to census 2011, 60.4% of households in the KLM had access to piped drinking water inside a dwelling.

(h) Access to Electricity

According to census 2011, 86.9% of households have access to electricity.

(i) Waste Removal

Nationally the percentage of households receiving no waste removal service decreased from 8.7% in 2001 to 7.1% in 2011. The percentage of households in the KLM who receive waste removal services from the local authority/private company stood at 83.5%, while 10.2% of households utilise their own refuse dump. The percentage of households receiving waste removal services increased by 6.1% from 2001 to 2011 as per Stats SA 2012.

2.1.2 Local Economy

The majority (85.5%) of the population in the KLM area reside in urban areas while only 14.5% reside on farms across the KLM (Stats SA 2012). As per the KLM IDP 2014/15, the economy of KLM is dominated by the secondary and tertiary activities such as tourism, finance, insurance and real estate, manufacturing and general government. The contribution by the main primary sector, municipality, agriculture, forestry and fishing (AFF) decreased from 11.8% in 1995 to 3.5% in 2010, with the manufacturing industry contribution increased by 4.8% over the period 1995 to 2010.

(a) Tourism

The urban areas along the coastal region of the KLM such as Jeffreys Bay, St Francis Bay, Cape St Francis and Oyster Bay attract large numbers of tourists, as well as being world-renowned as a surfing destination.

(b) Agricultural

Poultry production is the largest agricultural activity in the Kouga Municipality, followed closely by livestock production (26.4% and 23.8% respectively of the total agricultural households in the KLM).

2.2 Waste Profile

2.2.1 Waste Generation Quantities

In order for municipalities to be able to plan for future waste management activities the types and volumes of waste generated in the area needs to be identified. The South Africa State of Environmental Report, 2006 (SOER) calculated waste generation volumes per income level as follows:

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

The SOER figures for waste generation are also used in the Department of Environmental Affairs Guideline for the Development of Integrated Waste Management Plans (IWMPs). The DEA IWMP guideline also presents the following income brackets:

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

The following table summarises the average household income of the KLM. It is assumed that that the numbers of people residing in high, middle and low income households are the same.

Table 2: Summary of household income in the KLM

INCOME GROUP	INCOME	PERCENTAGE	NUMBER OF PERSONS
Low	None income	28.07	26116.3
	R1 - R4,800	3.03	2818.4
	R4,801 - R9,600	3.54	3293.2
	R9,601 - R19,600	13.70	12743.6
	R19,601 - R38,200	6.71	6239.8
	R38,201 - R76,4000	39.03	36316.5
Middle	R76,401 - R153,800	3.03	2817.5
	R153,801 - R307,600	1.96	1822.5
	R307,601 - R614,400	0.61	564.6
	R614,001 - R1,228,800	0.16	153.2
High	R1,228,801 - R2,457,600	0.10	95.7
	R2,457,601+	0.06	59.1

Based on these assumptions the population of KLM per income bracket is as follows:

- Low income: 94.8 %
- Middle income: 5.76 %
- High income: 0.17 %

Based on the number of persons per income bracket it is estimated that 40.1 tonnes of waste per day is produced in KLM. Based on the calculation of 40.1 tonnes of household waste per day it is estimated that 14,618.56 tonnes of waste are generated annually in the KLM.

2.2.2 Estimated Future Generation Quantities

Predictions on future waste generation quantities are dependent on population growth, the extent of collections and any changes in economic landscape of the KLM. The population size of the KLM increased by 3.22% between the periods 2001 and 2011, from 71,390 in 2001 to 98,558 in 2011 likely due to migration to find work or educational opportunities (Stats SA, 2013). Considering these factors, as well as the fact that significant economic changes are unlikely in the short to medium term, it is likely that the amount of solid waste generated in the KLM will increase by roughly 2-5% over the next 5-10 years.

2.2.3 Waste Stream Composition

A waste characterisation exercise was undertaken for the KLM. The following sections describe how the characterisation was undertaken and the results.

(a) Methodology

Waste was surveyed from a high income area in Jeffrey's Bay (Wavecrest), a medium income area (Humansdorp town), and a low income area (Humansdorp indignant residential area, Valdam). Waste was collected from a randomised selection of 10 households per income area. All the waste put out for collection at each of these houses was collected to ensure the results were not skewed due to any type of separation of waste types into different black bags. Waste was collected on the weekly collection day, labelled, and transported to Humansdorp for characterisation. A total of 42 black bags were collected from Jeffery's Bay, 40 black bags from Humansdorp and 29 black bags from Valdam.



Figure 3: Waste being unloaded onto the sorting table for the characterisation exercise.

Waste was sorted by hand into 21 different categories of recyclable and non-recyclable waste, including six categories of plastics.

1. High quality paper e.g. office paper
2. Paper other e.g. magazines, newspapers and plasticized paper
3. Corrugated cardboard e.g. packing boxes
4. Non-corrugated cardboard e.g. cereal boxes
5. Metal e.g. cans, tins, foil
6. E-waste e.g. cell phones, PC components, electrical equipment
7. Organics – garden waste e.g. grass cutting, leaves
8. Organics – food waste e.g. kitchen waste, vegetable peelings
9. PET plastic e.g. soft drinks bottles
10. PE-HD plastics
11. PVC plastics
12. PE-LD plastics
13. PP plastics
14. Polystyrene plastics
15. Glass
16. Construction waste e.g. bricks
17. Hazardous waste e.g. batteries. Fluorescent bulbs, paints
18. Health care risk waste e.g. sharps, medication
19. Nappies
20. Other e.g. material, furniture, clothes
21. Fines, material too small to sort



Figure 4: Waste being weighed for the characterisation exercise.

Each of the categories of waste were weighed individually and recorded.

(b) Waste Characterisation Results

The results for the domestic waste stream characterisation are presented in the table and figure below.

Table 3: Domestic waste stream composition (Results as % of waste stream by weight).

WASTE CATEGORY	TOTAL QUANTITY (KG) LOW INCOME	TOTAL QUANTITY (KG) MEDIUM INCOME	TOTAL QUANTITY (KG) HIGH INCOME	SUM TOTAL QUANTITY (KG)	% OF WASTE STREAM
High quality paper	0.52	0.36	1.08	1.96	0.30
Paper other	8.26	14.62	23.04	45.92	6.99
Corrugated cardboard	4.98	4.72	6.4	16.1	2.45
Non-corrugated cardboard	7.96	10.3	8.52	26.78	4.08
Paper & cardboard subtotal	21.72	30	39.4	91.12	13.87
Organics - garden waste	0	67.46	9.16	76.62	11.66
Organics - food waste	36.44	45.8	52.64	134.88	20.53
Organics subtotal	36.44	113.26	61.8	211.5	32.18
PET Plastic	3.54	3.98	5.56	13.08	1.99
PE-HD Plastic	6.58	9.7	6.54	22.82	3.47
PVC Plastic	0.3	0.76	0	1.06	0.16
PE-LD Plastic	5.54	4.72	4.86	15.12	2.30

PP Plastic	3.02	1.3	5.62	9.94	1.51
Polystyrene Plastic	2.28	2.1	3.76	8.14	1.24
Plastics subtotal	21.26	22.56	26.34	70.16	10.68
Hazardous waste	0	0.54	0.78	1.32	0.20
Health care risk waste	0.02	0	0.48	0.5	0.08
Nappies	48.76	8.3	27.1	84.16	12.81
Hazardous and HCRW subtotal	48.78	8.84	28.36	85.98	13.08
Metal subtotal	10.97	5.32	7.12	23.41	3.56
E- waste subtotal	0.44	0.01	0.78	1.23	0.19
Glass subtotal	11.44	16.56	20.82	48.82	7.43
Construction waste subtotal	0.3	0	none	0.3	0.05
Other subtotal	86.3	5.6	10.82	102.72	15.63
Fines subtotal	11.74	5.74	4.42	21.9	3.33
TOTAL	249.39	207.89	199.86	657.14	100

Waste Characterization results

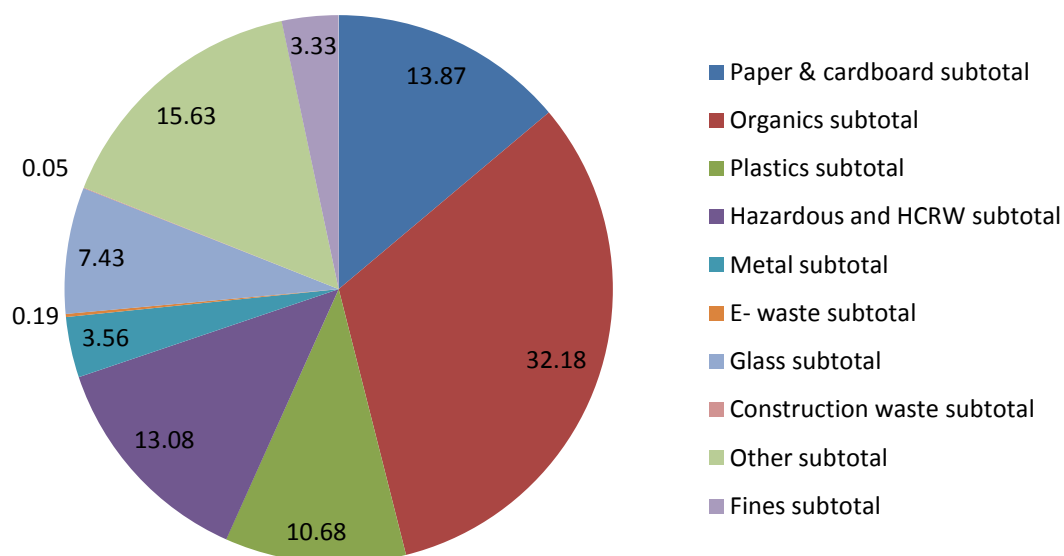


Figure 5: Waste characterisation results

On average the largest category of the domestic waste stream was organic waste comprising a total of 32.18% of the waste stream. Organic waste was composted of garden waste (11.66%) and food waste (20.53%). This finding highlights the requirements for regular removal of domestic waste, especially in summer. On average 35.53% of the domestic waste stream is composed of recyclable materials (paper, cardboard, metal, glass and plastics).

Hazardous waste constituted 13.08% of the waste stream. The majority of hazardous waste (97.94% of all hazardous waste) consisted of used nappies and sanitary towels.

The following observations are made for the different waste types:

(i) Paper and cardboard

Paper waste was the largest recyclable waste stream, making up 39.04% of the recyclable waste stream and 13.87% of the total waste stream. The main component of the paper and cardboard category was “other paper”. The “other paper” component of the waste stream is comprised of newspaper, magazines, toilet and tissue paper.

(ii) Metal

Only 3.56% of the waste stream was composed of metal. Most of the metal found in the domestic waste stream was empty food tins and drinks cans.

(iii) E-waste

The majority of e-waste found in the characterisation was the wiring from electronic equipment.

(iv) Organics

Organics was the largest category of waste in the characterisations. Organic waste was made up of food waste (20.53%) garden waste (11.66%).

(v) Glass

Glass accounted for 7.43% of the waste stream. The majority of glass was bottles and jars.

(vi) Plastics

Plastics made up 10.68% of the waste stream. A detailed analysis of plastic is presented in the following section.

(vii) Construction waste

Very little construction waste was found in the domestic waste stream. The construction waste stream only made up 0.05 % of the total waste stream.

(viii) Hazardous waste

Hazardous waste accounted for 13.08% of the domestic waste stream. By far the largest component of the hazardous waste stream was nappies and sanitary towels, making up 12.81% of the total domestic waste stream. A small component of hazardous waste consisted of sharps and pharmaceuticals, which made up only 0.08% of the hazardous waste stream. The remainder of the hazardous waste stream other than health care risk waste consisted mainly of paint tins and solvent containers. .

(ix) Others

This category included textiles including clothing and shoes and old furniture. The result for 'others' may be skewed as a large quantity of clothing was found in the low income sample. It is likely that clothing is donated by high income households and reaches its end of life in low income areas where it is disposed of with general waste.

(x) Fines

This category included all waste material too small to be sorted and included mostly small fragments of organic material and sand or grit. Fines made up 3.33% of the waste stream.

(c) Plastics Waste Stream Characterisation

The plastics fraction of the sample was further separated to better understand the recycling potential for plastics. These were separated into six fractions as shown in the table below.

Table 4: Description of different categories of plastics*.

SPI CODE	TYPE	ACRONYM	EXAMPLES
1	Polyethylene Terephthalate	PET	Fizzy drink and still water bottles.
2	High density Polyethylene	PE-HD	Milk bottles, juice bottles and some detergent bottles, plastic bags.
3	Polyvinyl Chloride	PVC	Plastic pipes
4	Low density Polyethylene	PE-LD	Bread bags, soft plastic bags, cling wrap
5	Polypropylene	PP	Butter and yoghurt containers, crinkly food wrappers
6	Polystyrene	PS	Take away containers and utensils

* Plastic containers are often labelled with a Society of Plastic Industry code (SPI). These codes were devised in 1988 to aid identification of plastics for recycling purposes. Use of the codes on plastic packaging is voluntary.

The following table presents the plastic characterisation results and these results are presented below.

Table 5: Plastic characterisation results

PLASTIC CATEGORY	% OF PLASTIC
1 - PET	18.64
2 - PE-HD	32.53
3 - PVC	1.51
4 - PE-LD	21.55
5 - PP	14.17
6 - Polystyrene	11.60
Sub-total	100.00

Plastic characterisation results

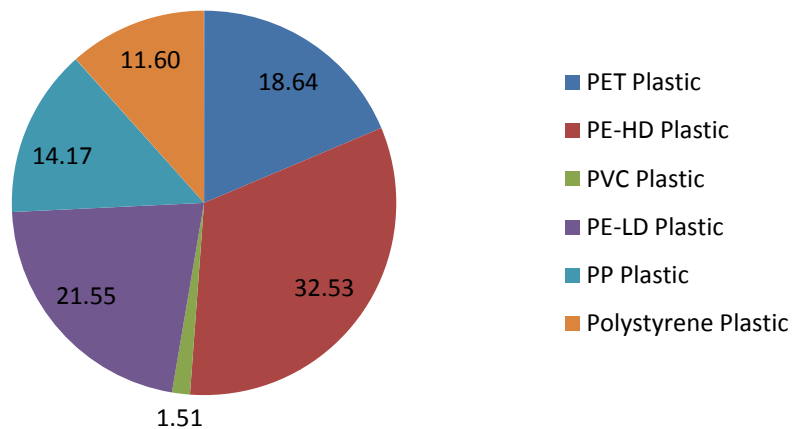


Figure 6: Plastic characterisation results

From the above results, one can see that PE-HD and PET, which have the highest potential for recycling, constitute 32.53% and 18.64% of plastic waste stream respectively. This translates to PE-HD as 3.47% of the total waste stream and PET as 1.99% of the total domestic waste stream..

2.2.4 Projected Trends

Predictions on future waste generation quantities are dependent on population growth, the extent of collections and any changes in economic landscape of the KLM. The population size of the KLM increased by 3.22% between the periods 2001 and 2011, from 71,390 in 2001 to 98,558 in 2011 likely due to migration to find work or educational opportunities (Stats SA, 2013). Municipal collections are likely to be expanded over time to include more areas within the KLM. The municipality has made some provision for increasing population by budgeting for a total of 3,121 RDP houses to be built between June 2015 – August 2016. Changes in packaging of food and other products can also affect waste generation rates. New industries or changes in business practices will also effect the types and quantity of waste generated. Considering these factors it is likely that the amount of solid waste generated in the KLM will increase by roughly 2-5% over the next 5-10 years.

2.3 Waste Recycling

Several recycling companies are currently operating in KLM. The main recycling company in KML is Enviroman which is based in Jeffrey's Bay and also services Humansdorp.

Enviroman is a recycling company that collects glass, plastic, metals, paper and cardboard that is stored at a facility near Jeffrey's Bay. Enviroman held a service level agreement with KLM from 2008-2015 for the collection of recyclables gathered by waste pickers at two landfill sites (Humansdorp and Hankey), as well as selected businesses. Enviroman also collects recyclables directly from some houses where waste separation is practiced as well as from waste collected by

the J-Bay Rotary Project. Enviroman started as a metal scrap dealer before difersifying into recycling all waste types. They then sell onto several Contractors (Consol glass, Paperman, Reclam, and Boundary) based in Port Elizabeth.

The service level agreement with Enviroman ended in July 2015 and the Municipality is preparing terms of reference and intends to enter a contract with a new recycling service provider.



Figure 7: Waste collection and storage yard near Jeffrey's Bay



Figure 8: Waste collection and storage yard near Jeffrey's Bay



Figure 9: Waste collection and storage yard near Jeffrey's Bay.

The **Nzima Recycle Centre** in Humansdorp collects scrap metal for re-use if possible or sells it to Reclam in Port Elizabeth for recycling.

Oilkol in Uitenhage collects used oil from business such as Shoprite Humansdorp.

Private Biodiesel producer in Humansdorp collects used oil from businesses including Wimpy Humansdorp and Spar Humansdorp.

2.3.1 Waste Reduction initiatives

Apart from contracting a waste recycling company to collect recyclable materials from landfills, no other formal waste minimization initiatives have been driven by the KLM. Some private initiatives for waste recycling exist such as the Gamtoos Homeowners Association's drive to increase waste separation at source using a multi bag system. Organic waste from businesses such as Wimpy Humansdorp is collected by a local pig farmer thereby reducing their waste to landfill.

2.3.2 Drop-off centres

There are no dedicated recycling drop-off centres in the KLM.

2.3.3 Recycling cooperatives

There are a no recycling co-operatives operating in the KLM. Enviroman is in the process of setting up recycling co-operatives throughout the KLM area, starting in Jeffrey's Bay. The co-op requires a minimum of 5 workers to establish and are managed through Companies and Intellectual Properties Commission (CIPC). Enviroman plans to establish co-operatives in Humansdorp Hankey, Patensie, Loerie, St Francis and Oyster Bay.

2.4 Waste Collection and Transportation

2.4.1 Domestic Refuse Removal

The following areas are serviced regularly, either twice a week or weekly, by the KLM:

- Jeffrey's Bay
- Aston Bay
- Pellsrus
- St Francis Bay
- Cape St Francis
- Oyster Bay
- Umzamawethu
- Humansdorp
- Kwanomzamo
- Valdam
- Arcadia
- Gamtoos Valley
- Hankey
- Patensie
- Loerie
- Thornhill.

Residential areas, both formal and informal in the larger towns (Jeffrey's Bay and Humansdorp) are serviced twice weekly and the smaller towns (Hankey, Patensie, St Francis, Cape St Francis) are serviced weekly. According to STATS SA (2011) only 83.5% of households in the KLM receive a municipal waste collection service. The details are presented in the table below:

Table 6: Percentage Type of Refuse Disposal per Household.

TYPE OF REFUSE DISPOSAL	HOUSEHOLD PERCENTAGE (%)		
	KOUGA LM	EASTERN CAPE	SOUTH AFRICA
Removed by local authority / private company at least once a week	83.5	41.0	62.1
Removed by local authority / private company less often	1.2	2.4	1.5
Communal refuse dump	2.5	1.7	1.9
Own refuse dump	10.2	41.7	28.2
No rubbish disposal	1.9	11.3	5.4
Other	0.6	1.9	0.9

Source: Statistics South Africa's Census (2011)

The percentage of houses receiving weekly waste removal has improved from 77.4% in 2001 to 83.5% in 2011. Challenges to increasing the provision of a weekly waste collection further include illegal dumping, insufficient waste collection fleet and staff.

The KLM officials have however indicated that all residential areas in the KLM do receive a weekly collection service. The discrepancy between this and the StatsSA figures has not been explained.

2.4.2 Business and Industry and Other Waste Collection

Waste is collected from businesses weekly in the majority of towns in KLM. Some of the main commercial centres in Humansdorp are serviced twice a week. This is because many of the businesses in these areas have limited space for waste storage.

Waste is removed from schools once weekly and from the Hospital in Humansdorp three times per week.

2.4.3 Waste Management Fleet

Details of the waste management fleet are presented in the table below.

Table 7: Waste management fleet: Jeffrey's Bay

TYPE OF VEHICLE	MODEL	CONDITION	AVERAGE NUMBER OF AREAS SERVICING PER DAY.
Compactor Truck	Nissan 2007	Fair	1
Compactor Truck	Nissan 2007	Fair	4
Compactor Truck	Mercedes 1993	Poor	2
Skip Truck	Nissan 2010	Good	3
Skip Truck	Isuzu 1995	Poor	3
Skip Truck	Isuzu 2000	Fair	3

The condition of one of the compactor trucks and one of skip trucks is poor. These trucks are an essential part of waste removal fleet servicing an average of two areas and three skips per day respectively.

Table 8: Waste management fleet: Humansdorp

TYPE OF VEHICLE	MODEL	CONDITION	AVERAGE NUMBER OF AREAS / SKIPS SERVICING PER DAY.
Code 14 Truck	Nissan UD 85 330 2010	Fair	4
Code 10 Truck	Mercedes 1995	Poor (not operational)	-
Skip Truck	Nissan UD 85 2010	Fair	4
TLB	CAT 2010	Poor (not operational)	Operates at Humansdorp landfill
Tractor	unknown	Poor (not operational)	-

The condition of the fleet in Humansdorp is not meeting the operational requirements. Only two vehicles in the fleet are operational. This means that the remaining vehicles must service a high number of areas each day. The fleet has little capacity to deal with emergency breakdowns of

vehicles as there are no backup vehicles. Waste collection will not meet requirements in the event of a breakdown or theft of one of the trucks.

General comments given by Humansdorp residents and businesses indicate that refuse collection is at times inconsistent especially in the Donkerhoek area, especially in Arcadia township. It was suggested that inadequate collection may be the cause of high levels of illegal dumping in that area.

Table 9: Waste management fleet: St Francis Bay

TYPE OF VEHICLE	MODEL	CONDITION	AVERAGE NUMBER OF AREAS / SKIPS SERVICING PER DAY.
Compactor Truck	Nissan UD 2010	Fair	3
Tractor	unknown	Fair	-
TLB	unknown	unknown	Operates at St Francis Bay Garden refuse dumpsite.

Table 10: Waste management fleet: Gamtoos Valley

TYPE OF VEHICLE	MODEL	CONDITION	AVERAGE NUMBER OF AREAS / SKIPS SERVICING PER DAY.
<i>Patensie</i>			
Compactor Truck	Nissan UD 60 2010	Fair	2
Mesch Truck	Nissan UD 80 2010	Fair	2
Compactor Truck	Toyota Hino 2007	Fair	no driver
<i>Hankey</i>			
Tip truck	unknown	unknown	2

The waste management fleet is largely in a poor condition and plan for the replacement of the fleet is required. At present there are no backup vehicles available for when vehicles are out of operation. A lack of backup vehicles places increased pressure on the remaining fleet and refuse collection teams.

2.4.4 Transfers Stations

There are two operational transfer stations in KLM at present, one in Oyster Bay and one in Paradise Beach. The municipality plans to upgrade these two recycling / sorting facilities in 2015 / 2016.

Table 11: Oyster Bay Transfer Station

LOCATION	Approximately 500 meters from the nearest residential area in Oyster Bay.
CO-ORDINATES	S 34° 10' 04.4" E 24° 39' 20.4"
SITE CLASSIFICATION	Transfer Station: Accepting garden refuse and builders rubble
PERMIT STATUS	Not permitted
STATUS	Operational
BUFFER	There is a sufficient buffer of 500 meters from the nearest residential area.
ACCESS	The site is fenced but there is no supervisor or security to implement access control.
FACILITIES	One skip in a fenced area.
PLANT	A skip loader is used to transfer waste once a week.

DESCRIPTION OF WASTE MANAGEMENT	Accepting garden refuse and builder's rubble.
WASTE ON SITE	Garden refuse, builders rubble as well as illegally dumped waste.
STORMWATER MANAGEMENT	No formal stormwater management system exists.
RECYCLING	No formal recycling activities are conducted on site.
CHALLENGES	The lack of security means that there is no access control. Waste is dumped in and around the site.
SUGGESTIONS	Additional skips should be provided at the site. A security guard and guard house should be provided.

Table 12: Paradise Beach Transfer Station

LOCATION	Paradise Beach
CO-ORDINATES	S 34° 10' 04.4" E 24° 39' 20.4"
SITE CLASSIFICATION	Transfer Station: Accepting garden refuse and builders rubble
PERMIT STATUS	Not permitted
STATUS	Operational
BUFFER	There is a sufficient buffer of 500 meters from the nearest residential area.
ACCESS	The site is fenced with a guard house. There is no supervisor or security to implement access control.
FACILITIES	Three skips in a fenced area.
PLANT	A skip loader is used to transfer waste once a week.
DESCRIPTION OF WASTE MANAGEMENT	Accepting garden refuse and builder's rubble.
WASTE ON SITE	Garden refuse, builders rubble as well as illegally dumped waste.
STORMWATER MANAGEMENT	No formal stormwater system exists.
RECYCLING	No formal recycling activities are conducted on site.
CHALLENGES	The lack of security means that there is no access control.
SUGGESTIONS	A security guard and guard house should be provided.

2.5 Waste Treatment and Disposal

2.5.1 Treatment

The KLM does not operate any waste treatment facilities. The closest waste treatment facilities are Aloes, which accepts solid and liquid hazardous wastes, and Koedoeskloof which accepts liquid hazardous wastes in Port Elizabeth. Oilkol is a hazardous waste treatment facility in Uitenhage which accept solid and oil contaminated liquid hazardous waste.

2.5.2 Waste Disposal Tonnage

None of the landfill sites in the KLM have weighbridges and therefore accurate records of waste disposal tonnages are not available.

2.5.3 Landfill Sites

There are three operational landfill sites in the KLM area, namely Humansdorp landfill site and Hankey landfill site and St Francis Bay landfill.

(a) Humansdorp Landfill.

Table 13: Summary of the Humansdorp Landfill.

LOCATION	Industrial area 1 km outside of Humansdorp.
CO-ORDINATES	S 34°00'54.8" E 24°00'24.9"
SITE CLASSIFICATION	G:M:B+
PERMIT STATUS	Yes. Permitted in 2008 under the Environmental Conservation Act.
STATUS	Operational
BUFFER	Woodlands Dairy is located approximately 150 meters from the landfill. The nearest residences are located approximately 700 meters from the landfill. The permit requires that an 800 meter buffer is maintained between the landfill and the nearest residential / industrial area.
ACCESS	There is very limited access control at the site. The site is fenced however there is no access gate. There is a guard house but it is unmanned and no sign-in register is kept.
SURROUNDING LAND USE	Woodlands Dairy. Residential areas, Farmland, Industrial area.
FACILITIES	Guard house. The landfill has a sign but the hours of operation and contact details of the landfill operator are not detailed as required by the current landfill permit conditions.
PLANT	Landfill Compactor and TLB
DESCRIPTION OF WASTE MANAGEMENT	Waste is disposed to land (land-building), compacted and covered daily at present. The municipality has planned to develop two waste cells within the year.
WASTE ON SITE	Mixed general waste from households, businesses, and industry. Some hazardous materials such as engine oil and chemical containers as well as electronic waste was observed on site.
STORMWATER MANAGEMENT	No stormwater or leachate containment system exists on site.
RECYCLING	Informal pickers separate out non-perishable recyclables including plastic, glass and tin and scrap metal which is collected by Environman. Scrap metal is also collected by Nzima. The landfill permit allows for waste reclamation under a roofed area away from the working face of the site. There is no roofed structure under which reclaimers can operate and reclamation is occurring at the work face.
CHALLENGES	There is no weigh bridge at the entrance to the site. This means that waste tonnages entering the landfill are not recorded. The lack of a sorting facility means that the working environment and health and safety for informal waste reclaimers is poor. Some reclaimers have built dwellings at the landfill. There is a lack of stormwater and leachate management. There is no control of animals entering site. There is a lack of control over waste types disposed of at the site and hazardous waste was observed on site.
SUGGESTIONS	A weighbridge and security cameras for Humansdorp landfill has been put in the waste management business plan. The weighbridge will enable recording of waste quantities entering site. - A trained operator should be stationed at the weighbridge. Waste records should be kept electronically and transferred onto the municipalities waste information system and the South African Waste Information Centre (SAWIC). Mesh fencing and both a vehicular and pedestrian gate have been budgeted for as part of the business plan. - A security guard should be stationed at the entrance to the site to prevent unauthorised persons, animals and waste types from entering the site. - The guard should be trained on identifying hazardous waste types that should not enter site. - Improve signage to include operating hours and a contact number for the landfill supervisor.

	A mobile office has been obtained for the landfill and has been placed at the site. • Informal reclaimers should be formally employed by waste contractors or not allowed on site. • A roofed structure built away from the working face should be constructed for reclaimers. • All people working at the landfill should be provided with gloves, masks and safety shoes. • Firefighting equipment should be provided on site. • Two waste cells with associated evaporation ponds have been designed and will be constructed at the Humansdorp landfill. This will provide suitable stormwater and leachate control. • Gas and water monitoring must be carried out in accordance with the permitting requirements.
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Figure 10: Water pooling at the landfill after rain.



Figure 11: Informal reclaimer separating out non-perishable recyclable materials.



Figure 12: Dwelling built on the landfill by an informal reclaimer.

(b) Hankey landfill.

Table 14: Summary of the Hankey landfill site.

LOCATION	The landfill is located approximately 5 km north from the centre of Hankey town.
CO-ORDINATES	S 33° 48' 25.65" E 24° 52' 31.79"
SITE CLASSIFICATION	G:S:B-
PERMIT STATUS	Yes. Permitted in 1993 under the Environmental Conservation Act.
STATUS	Operational
BUFFER	There are no residential areas within 5 km of the site. The permit requires a buffer of 500 meters.
ACCESS	There is no access control at the site. The site is not fenced and there is no access gate. There is no guard house or landfill supervisor.
FACILITIES	There is no permanent landfill equipment on site. A front-end loader comes twice a month to cover the waste with fill taken from the slopes of the surrounding valley. It is not known if KLM has a permit to mine this material.
PLANT	There is no permanent plant on site. A front-end loader is on site twice a month.
DESCRIPTION OF WASTE MANAGEMENT	Waste is disposed onto land. Because of the sloped nature of the site, the majority of waste is pushed and contoured on the lower end of slope, and covered twice a month. According to the permit, the working face should be compacted and cover applied every week.
WASTE ON SITE	Mixed general waste from households and industry was observed on site. Some hazardous materials such as engine oil and chemical containers as well as electronic waste was observed on site.
STORMWATER MANAGEMENT	No liner and no formal stormwater or leachate containment system is present.
RECYCLING	Informal reclaimers are active on site. The main materials being recovered are wire (used for chicken coops) and PET plastic bottles. The permit allows reclamation of materials (provided they do not interfere with daily landfill operations). However the permit holder must keep a record of the volume and nature of waste materials reclaimed and report this on an annual basis to the Regional Director of DEA and DWS.
CHALLENGES	The lack of access control means that unpermitted waste types, persons and animals enter site and illegal dumping of waste is occurring on the access road to site. Hazardous waste and hydrocarbons are disposed of at the site which causes fires, releasing hazardous gases into the atmosphere, destroying plastics that could have been recovered and making the site dangerous.

	Informal reclaimers do not have the correct PPE or fire-fighting equipment and are therefore at risk according to Health and Safety requirements.
SUGGESTIONS	• The fence should be fenced and an access gate and guard house should be erected. • Trained security guards should control access to site. The surety guard should be trained in identifying hazardous waste types. Firefighting equipment should be provided on site. A weighbridge and security cameras for Hankey landfill have been put in the waste management business plan. The weighbridge will enable recording of waste quantities entering site. • A weighbridge should be installed at the site. A trained operator should be stationed at the weighbridge. Waste records should be kept electronically and transferred onto the municipalities waste information system and SAWIC. • Informal reclaimers should be formally employed by waste contractors or not allowed on site. • All people working at the landfill should be provided with gloves, masks and safety shoes. • A sign including operating hours and a contact number for the landfill should be erected at the entrance to the access road. • Gas and water monitoring must be carried out in accordance with the permitting requirements.



Figure 13: Illegally dumped waste also the access road to Hankey Landfill site.



Figure 14: Informal reclaimers at the Hankey landfill. Slopes have been excavated to provide cover material for the site.



Figure 15: Chemical containers are being disposed at the Hankey landfill.



Figure 16: A cleared site at the entrance to the Hankey landfill where waste is being illegally dumped.

(c) Patensie landfill.

LOCATION	The landfill is located approximately 1 km north west of the centre of Patensie town.
CO-ORDINATES	S 33° 44' 10.03" E 24° 47' 29.93"
SITE CLASSIFICATION	G:C:B-
PERMIT STATUS	A permit for closure and rehabilitation has been obtained.
STATUS	Closed. A closure permit has been secured but the site has not been rehabilitated.
BUFFER	The nearest house is approximately 300 meters from the landfill.
ACCESS	There is no gate, signage or security at the entrance to the site.
FACILITIES	No formal facilities exist at the site.
PLANT	There is no plant at the landfill site.
DESCRIPTION OF WASTE MANAGEMENT	Dispersed waste has not been collected from the site and has not been covered. No waste management activities were evident on site.
WASTE ON SITE	Some illegal dumping has occurred on site.
STORMWATER MANAGEMENT	No stormwater management system exists at the site.
RECYCLING	No recycling activities are taking place at the landfill.
CHALLENGES	The closure permit requires the licence holder to prevent waste entering the site and to erect legible notices in three official languages prohibiting unauthorised entrance to the site and stating an alternative place for disposal.
SUGGESTIONS	• Signs that meet the requirements of 1.3.3 of the closure permit must be erected at the entrance to site. • A concrete berm or similar security barrier must be erected at the entrance to site to prevent access to site and prevent the area being used as an illegal dumping site. • The waste body must be compacted, shaped, lined and covered as per section 4.1 of the closure permit. The waste engineer employed to manage the rehabilitation of the site must ensure that the stormwater management conforms to the requirements of 4.5 of the closure permit. • All requirements of the closure permit must be adhered to.



Figure 17: Waste dumped alongside the road through the Patensie landfill.



Figure 18: Waste remains in amongst the vegetation and on the slopes at the Patensie landfill.



Figure 19: No access control or signage at the entrance to the Patensie landfill.

(d) St Francis Bay landfill.

Table 15: Summary of the St Francis Bay landfill.

LOCATION	The site is located approximately 2.5 km north of Cape St Francis.
CO-ORDINATES	S 34 11 20.44 E 24 47 20.44
SITE CLASSIFICATION	G:C:B -
PERMIT STATUS	A permit for closure has been obtained.
STATUS	Closed. A closure permit has been secured but the site has not been rehabilitated.
BUFFER	There is an adequate buffer of approximately 1.5 km to the nearest residential area.
ACCESS	There is no gate, signage or security at the entrance to the site. The site is not fenced.
FACILITIES	No formal facilities exist at the site.
PLANT	There is no plant at the landfill site.
DESCRIPTION OF WASTE MANAGEMENT	Waste is disposed to land. No compaction, covering or other waste management activities were evident on site.

WASTE ON SITE	The public are using the site to dump waste, mainly builder's rubble and garden refuse. Other general household waste including chemical solvents and cleaning agents were also observed on site.
STORMWATER MANAGEMENT	No stormwater management system exists at the site.
RECYCLING	No recycling activities are taking place at the landfill.
CHALLENGES	The closure permit requires that the licence holder must prevent waste entering the site and must erect legible notices in three official languages prohibiting unauthorised entrance to the site and stating an alternative place for disposal.
SUGGESTIONS	• The public should also be notified via the radio or other public notice that the site has been closed and where waste should be taken for disposal / recycling / treatment. • The signs that meet the requirements of 1.3.3 of the closure permit must be erected at the entrance to site. • The waste body must be compacted, shaped, lined and covered as per section 3.4 of the closure permit. The waste engineer employed to manage the rehabilitation of the site must ensure that the stormwater management conforms to the requirements of 3.7 of the closure permit. • All requirements of the closure permit must be adhered to.

2.5.4 Hazardous and Health Care Risk Waste Disposal

Portions of the domestic waste stream can be considered as hazardous or Health Care Risk Waste (HCRW). Hazardous waste is defined by National Environmental Management Waste Act (NEMWA) as *'Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment'*. Hazardous waste commonly found in the domestic waste stream includes fluorescent light bulbs, batteries, chemicals and paints.

Health care risk waste is waste that contains infectious agents, sharps, hazardous chemicals or pharmaceuticals, is genotoxic or radioactive. Used nappies, needles and medication are all classified as HCRW and are generally found as part of the domestic waste stream.

Hazardous and health care risk should be treated and then disposed of at a hazardous landfill site or a general site if delisted. There are no hazardous landfill sites within the KLM. The closest hazardous landfill site is Aloes located in the Nelson Mandela Bay Municipality. There are no HCRW treatment facilities in the KLM; the closest facility is the autoclave in Berlin, East London. Provincial health care facilities in KLM are serviced by Compass Waste who collect HCRW and treats it at their autoclave facility in Berlin, near East London. Sharps are collected by a private service provider based in George.

The main producers of HCRW in the KLM are:

- Hospitals: There is only one hospital in the KLM. The P.Z. Meyer hospital is situated approximately 2km from Humansdorp in an area called Graslaagte. This hospital has 54 beds and 3 cots.
- Provincial clinics and clinics at the provincial correctional facilities.
- Private surgeries and clinics.

Health care risk waste generated at clinics in KLM is transported to the P.Z Meyer hospital for disposal. The quantities listed in the table below include waste generated at clinics.

Table 16: Average monthly and annual volumes of HCRW produced by the P.Z Meyer hospital for the period 2014-2015.

TYPE OF WASTE	MONTHLY QUANTITY (Kg)	ANNUAL QUANTITY (Kg)
Pharmaceutical	10	120
Sharps	200	2,400
Anatomical	120	1,440
Total	330	3,960

The amount of HCRW is expected to increase as the Kouga IDP identifies the need for building six new clinics within KLM.

2.6 By-law Enforcement and Illegal Dumping and Littering

2.6.1 Illegal dumping

Illegal dumping is a major problem in KLM. Waste management staff mentioned the following sites as particular places where illegal dumping frequently occurs: Arcadia and Valdam area, Humansdorp, indigent communities of Jeffrey's Bay, St Francis Bay Garden refuse landfill, and access roads to landfills. The foreman in Humansdorp conveyed that 300 black bags of dumped waste are collected from around the Valdam area every day.

The KLM has not written a formal report on illegal dumping in the KLM area.

2.6.2 Littering

Litter pickers (otherwise called street sweepers) are employed the municipality to clean town centres and furrows. The frequency of litter removal by street sweepers varies between towns. In the major town of Humansdorp and Jeffrey's Bay streets are cleaned twice a week and in smaller towns, the streets are swept once a week.

2.6.3 By-law enforcement

KLM has bylaws pertaining to the following waste related aspects:

- Medical waste handling, transportation and disposal
- Street cleanliness
- Prevention of dumping of waste into streets, stormwater systems, sewers and public spaces by public, including commercial institutions and street traders.
- Prevention of waste storage by any persons such that causes health hazard.

The handling, transportation, and disposal of medical waste from the healthcare facilities is largely compliant with the by-laws. However nappies, sanitary pads and medication generated by households was encountered during the waste characterisation suggesting that domestic HCRW is disposed of with general waste and ends up in the landfills.

Police are called upon in instances of illegal dumping of waste. Even so, the household waste dumping is prevalent and the issue is not under the control of the police force.

2.7 Waste Management Institutional Functioning

2.7.1 Waste Management Staff

The structure of the waste management sub-directorate of the KLM is shown in the following organogram.

The table below indicates the individuals in the various management positions at the time of this IWMP.

Table 17: Key individuals in waste management positions in the KLM at the time of this IWMP.

POSITION	NAME
Manager: Waste and Environment	G. Dadamasi
Manager: Waste Collection, Parks and Cemeteries.	F. Tamboer
Superintendent	M. Ngcayisa
Foreman Jeffrey's Bay	J. Augustus
Foreman Humansdorp	T. G. Swartbooi
Foreman St Francis Bay	M. Titus
Foreman Patensie	O. Nelson

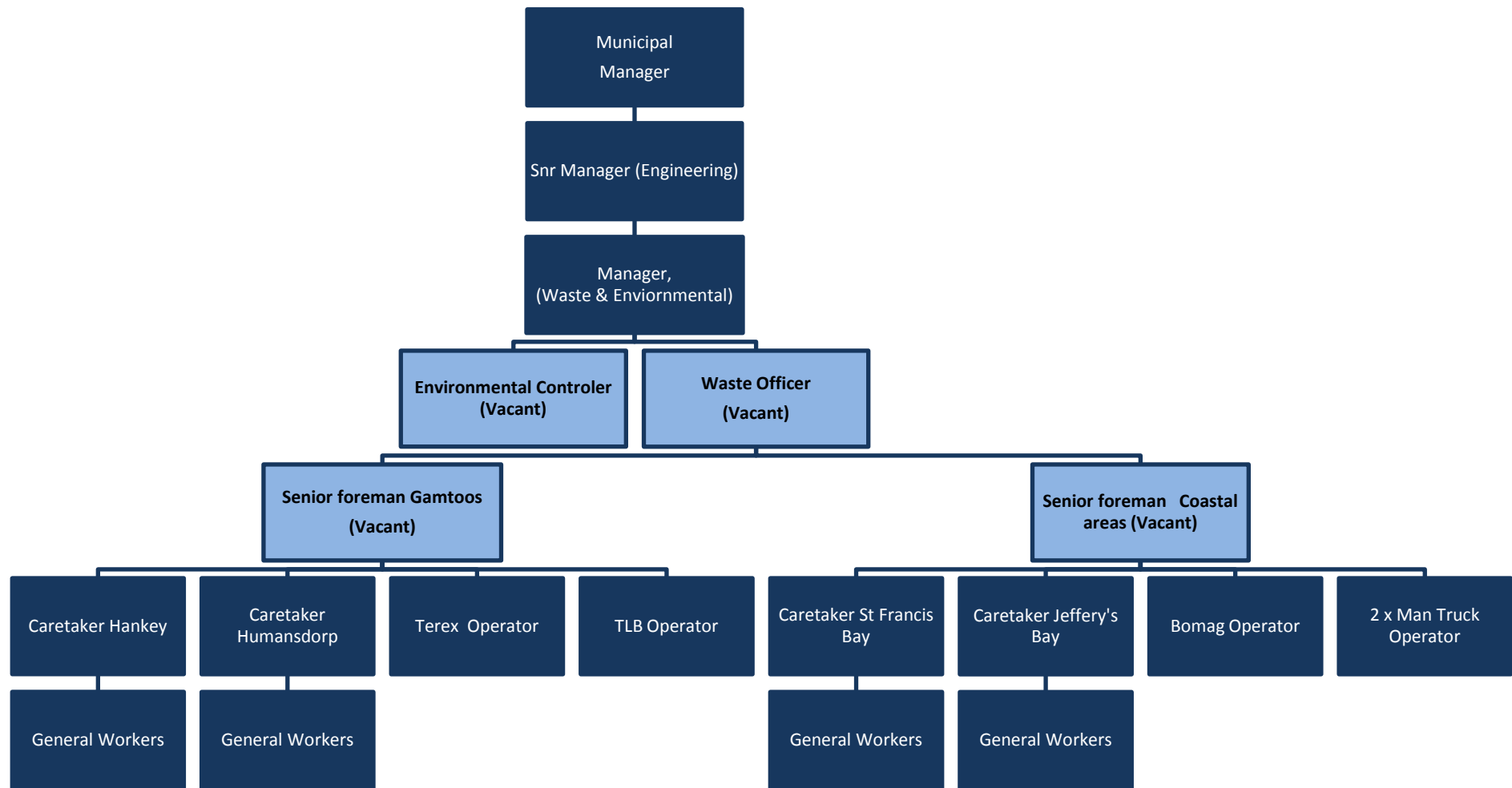


Figure 20: Official organogram for the Water and Environmental section of the KLM Local Municipality. Vacant positions have been indicated as such in brackets with a lighter background.

2.7.2 Economic and Finances

The KLM is required to budget and provide finances for waste management resources. Traditionally and in general, the provision of waste collection and disposal services provided by municipalities has been under-funded. This situation has been aggravated in recent years due to changes in legislation which place increasingly demanding requirements on municipalities (provision of recycling facilities, weekly refuse collection services etc.), as well as higher costs of provision of plant and equipment and development of disposal facilities. These increases often outstrip the rate at which tariffs or rates can be increased. A further factor is that much of the funding available has been diverted to other social areas (e.g. housing). It is thus extremely difficult for smaller municipalities to fund the provision of waste services and equally challenging to introduce or increase tariffs to the necessary levels.

The following table contains budget for waste management in KLM.

Table 18: Operational waste management budget for KLM for 2014/2015

TO BE PROVIDED BY KLM

ITEM	DESCRIPTION	TOTAL
(a)		
I		
D		
P		
B		
u		
d		
g		
e		
t		

The SBDM IDP (2012-2017) does not include any budget specifically for waste management projects. The IDP does include budget (R600,000.00) for IWMP reviews in Sarah Baartman District Municipality in 2015 / 2016.

2.8 Waste Information Management

The KLM has yet to define a system for management of its waste information. The most obvious challenge is that there are currently no weighbridges installed at any of the landfill sites and hence incoming waste cannot be quantified accurately. Humansdorp landfill is the only waste receiving facility with a caretaker. The number of vehicles utilising the site at Humansdorp landfill is recorded on a register. This information is however not being interpreted to determine likely quantities of waste entering the sites and is not being captured electronically.

2.8.1 Waste Disposal Tonnages

There are no records of waste disposal tonnages available for the KLM.

2.8.2 Hazardous Waste Information Management

The South African Waste Information Centre (SAWIC) provides a facility for Local Municipalities and private organisations alike to record and report on hazardous waste generated. The system is not well utilized at present. While hazardous waste contractors record the volumes of wastes handled and disposed, this information is not being collated, and details regarding the source of the hazardous waste e.g. from which LA it originates, is not available. The profile of the SAWIC needs to be significantly increased amongst industry.

2.9 Community Waste Awareness Campaigns

Community awareness of waste management is a key concern that needs to be addressed. Illegal dumping of waste and littering is typically a result of a lack of disposal facilities, lack of awareness of municipal bylaws, and a lack of enforcement. Illegal dumping prevention is a high priority so efforts should be focused on raising awareness of correct waste disposal practices, advertising waste collection schedules and educating the public on the harms of dumping to the social and physical environment. Recycling programs such as the J-Bay Recycling project should be advertised and encouraged. The KLM have not finalised their waste management campaigns planned for 2015 /2016 at the time of the writing of this report. The recent budget for the application for DEA funding includes two specifically named waste awareness initiatives: waste management fun run, and world environmental day celebrations. Provision has also been made for signage (unspecified) which is an important part of creating awareness.

Awareness campaigns need to continue on a regular basis to encourage citizens to make use of available bins and waste removal services; to stop littering and illegal dumping. They should include waste minimisation and recycling. Waste removal services and tariffs need to be widely advertised.

2.10 Planned Waste Projects

The KLM is currently undertaking or is planning to undertake various waste projects or initiatives. The table below lists these. These are to be considered when developing the implementation plan for this IWMP.

Table 19: Waste management projects that are being undertaken or planned in the KLM at the time of this IWMP.

PROJECT NAME	BUDGET	PARTNER	PROJECT DETAIL
Review of Waste Management Plan	R 550,00.00	PFT and GIBB	Review of the existing IWMP for KLM and approval.
Buildings	R 1,309,184.00	Afri-coast Engineers	Office buildings for both Hankey and Humansdorp:
Recycling Sorting	R 5,999,737.00	Service	Construction of two recycling / sorting facilities

PROJECT NAME	BUDGET	PARTNER	PROJECT DETAIL
Facility		provider	with panels and covering structure complete. The structure will have concrete floor and steel canopy with cages for different waste streams. There will be five sorting cages per site with a total of ten for both.
Youth in Waste Employment Programme.	R 8,886,805.00	EPWP	The project is aimed at enhancing the capacity of the municipality in rendering the waste management services to the community; with main focus on landfill sites and awareness campaigns. The KLM has employed of total of 30 staff who are enrolled in the Youth in Waste programme, 9 of whom are in roles as waste officials, including 2 admin staff, 4 awareness educators, 2 landfill supervisors and 1 main supervisor. The remainder are general workers including street sweepers and waste pickers.
Electrical works	R 906,618.87	Service provider	Distribution boards, light and power fitting for various facilities.
Weigh Bridge	R 1,249,857.10	Service provider	Installation of a weigh bridge at Humansdorp landfill.
Waste cells	R 10,851,962.40	Africoast Engineers	Waste cells for Humansdorp and Hankey landfill and associated evaporation ponds.
Water	R 212,500.00	Service provider	Construct tank stand and install Jojo tanks / similar
Drop off collection Points	R 820,140.00	Service provider	Procurement and installation of 18m3 skip bins and associated infrastructure.
Fencing	R 2,250,000.63	Service provider	Supply and installment of wire mesh fencing at Humansdorp and Hankey landfills.
Sanitation	R 850,000.00	Service provider	Construction of ENVIRO LOO for Hankey and Humansdorp landfills.

3 *Conclusion and way forward*

3.1 Findings

It is estimated that 14,618.56 tons of waste are produced annually in the KML. The total quantity of waste generated in KLM is estimated to increase considering the trends in population increases, as well the improvement of housing and health care services planned.

Since the development of the first IWMP for KLM in 2008, the municipality has focused on compliance with legal requirements pertaining to the conditions of the landfill. The municipality has obtained permits to close and rehabilitate the landfills at Patensie and St Francis Bay. Significantly, funding has been sourced from DEA for upgrading the Humansdorp and Hankey landfills to meet the NEMWA landfill permit requirements which include installation of weighbridges. This will enable the municipality to keep accurate records of waste disposal tonnages.

The municipality has identified several strategic waste programmes to be implemented in 2016. An important one of these programmes is the partnering with EPWP to employ staff enrolled in the Youth in Waste programme as litter pickers to clean town centres and illegal dumping sites. This programme was run in 2015 with some success. However Illegal dumping remains a key issue in the municipality that needs to be addressed. It is a concern that waste awareness / education campaigns plans have not been formalised for 2016 as this is an important part of addressing harmful waste practices and raising awareness of by-laws, waste disposal services offered, as well as the negative impacts of irresponsible waste management.

Although there is waste collection service to the large majority of areas within KLM, there are shortages in the collection fleet and waste collection staff. This means that waste collections can become infrequent when staff are sick or vehicles breakdown. At present the municipality has not developed a vehicle replacement plan. Several key positions within the waste management department of KLM are not filled.

The results of the waste characterisation show that the majority of domestic waste is organic food and garden waste, which makes up approximately 32% of the total waste stream. Non-perishables recyclables make up a total of approximately 22% of the waste stream. This is an under-utilised resource as few waste recycling facilities and service providers are operating in KML. The majority of recycling activities takes place at the Humansdorp landfill. The integrity of recyclables has by this stage been compromised.

3.2 Way forward

Once the draft Situational Analysis has been reviewed and accepted by KLM's waste department, it will be finalised and issued as a final version of the this report.

See the below process flow diagram for the outstanding tasks required until the final IWMP is issued.

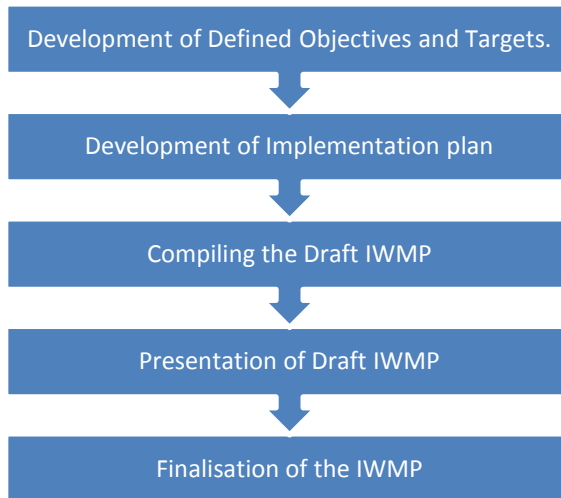


Figure 21: Outstanding tasks required until the finalisation of KLM IWMP is issued.

4 *References*

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Appendix A

DOCUMENT CONTROL

FORM IP180_B



CLIENT : PFT Consulting
PROJECT NAME : Kouga Local Municipality IWMP review **PROJECT No.** : J35062
TITLE OF DOCUMENT : Kouga Local Municipality IWMP: Situational Analysis Report
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	Approved By	Reviewed By	Prepared By
ORIGINAL	NAME Mervin Olivier	NAME Kate Parkinson and Walter Fyvie	NAME Anna Collett
DATE September 2015	SIGNATURE 	SIGNATURE 	SIGNATURE 

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GIBB (Pty) Ltd

Postal Address : P.O. Box 63703,
Port Elizabeth; 6057

Contact Person : Walter Fyvie
Telephone No. : 041 392 7500

Website : www.gibb.co.za

Physical Address : 2nd Floor, Greyville House,
Cnr Greyville & Cape Rd,
Greenacres, Port Elizabeth, 6057

Email Address : wfyvie@gibb.co.za
Fax No. : 041 363 9300