PUBLIC PARTICIPATION PROCESS FOR THE SECOND GENERATION OF THE BELA-BELA LOCAL MUNICIPALITY INTEGRATED WASTE MANAGEMENT PLAN (IWMP)

DESCRIPTION: Public Participation Meeting for the Second Generation of Bela-Bela Local Municipality Integrated Waste Management Plan.

BRIEFING SESSION VENUE: Bela-Bela Local Municipality Offices, Chris Hani Drive, Bela-Bela

DATE: 23rd July 2020

REGISTRATION OF PROSPECTIVE ATTENDEES FORM

This is to certify that I, ……..…….. will be attending the Public Participation meeting for the Second Generation of Bela-Bela Local Municipality Integrated Waste Management Plan

Tel/ mobile no: …… Email address: …….

_____ _____

I&APs'S NAME **DATE**

Note: Attendees consent that they:

- **Will select time slot of attending, if late EnviroXcellence Services reserves the right not to attend to them**
- **Will agree to screen testing**
- **Will wear the required COVID-19 PPE(e.g. masks)**
- **Will not be allowed into the premises if they screen test results indicates the symptoms of COVID-19 illness**

ENVIRONMENTAL ASSESSMENT PRACTITIONER	APPLICANT
ENVIROXCELLENCE	Bela Bela Municipality

BELA-BELA LOCAL MUNICIPALITY

BELABELA MUNICIPALITY

INTEGRATED WASTE MANAGEMENT PLAN

Second generation, 2021-2026

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ACRONMYS

BBLM	Bela-Bela Local Municipality
CBD	Central Business District
CBO	Community Based Organisation
CSD	Community Service Division
DEAT	Department of Environmental Affairs and Tourism ** now replaced by:
DEFF	Department of Environmental Forestry & Fisheries
DWS	Department of Water and Sanitation
DWAF	Department of Water Affairs and Forestry
EIA	Environmental Impact Assessment
EMIS	Environmental Management Information Systems
EMIs	Environmental Management Inspectors
EPWP	Expanded Works Public Programme
FBRR	Free Basic Refuse Removal
Ha	Hectares
HCRW	Health Care Risk Waste Regulations
IDP	Integrated Development Plan
IWMP	Integrated Waste Management Plan
LED	Local Economic Development
MEC	Member of the Executive Council
MIG	Municipal Infrastructure Grant
MIIU	Municipal Infrastructure Investment Unit
MRF	Materials Recovery Facility
MSP	Municipal Services Project
NEAF	National Environmental Advisory Framework
NGO	Non-Governmental Organisation
NEMA	National Environmental Management Act
NEMWA	National Environmental Management Waste Act No. 59 of 2008
NWMS	National Waste Management Strategy
PPP	Public-Private Partnership
REL	Rear End Loader
SAPS	South African Police Service
SAWIS	South African Waste Information System
SMME	Small, Medium and Micro Enterprises

EXECUTIVE SUMMMARY

This is the Integrated Waste Management Plan (IWMP) for Bela-Bela Local Municipality. Chapter 3, section 11 of the National Environmental Management Act: Waste Act, No: 59 of 2008 (hereafter referred to as the Waste Act), states that every Municipality must develop and implement an Integrated Waste Management Plan (IWMP). The IWMP outlines the management of waste generated within its area of jurisdiction. This IWMP includes and is based on a situational analysis and has been developed in line with international, national and provincial legislation and policies through a public consultative process. In terms of the South African Constitution, 1996 (Act No. 108 of 1996) and the Municipal Services Act 2000 (Act 32 of 2000), waste management is a basic service to be delivered as a local government function.

This IWMP reviews the current situational analysis of waste management and is implemented over a period of 5 years. The Waste Act provides for a clear legal basis for the development of IWMPs, wherein the Department of Environmental Affairs (DEA), the provincial departments, and municipalities are responsible for waste management and must prepare IWMPs. The Waste Act 2008 further requires a Municipality to:

- Submit its IWMP to the MEC for endorsement ; and
- Include the endorsed IWMP in its Integrated Development Plan (IDP) as contemplated in Chapter 5 of the Municipal Systems Act.

In this IWMP, the waste management hierarchy described consists of options for waste management during the lifecycle of waste, arranged in descending order of priority. All stakeholders must apply the waste management hierarchy in making decisions on how to manage waste. Waste avoidance and reduction is the first priority in using the waste management hierarchy approach followed by re-use and recycling of waste. Recovery involves reclaiming particular components or materials, or using the waste as a fuel. Treatment and disposal of waste is the least preferred option.

Currently the Municipality uses the licensed Warmbad landfill which was permitted as a G: M: B- facility (Permit No. B33/2/123/3/P184). The site is operating according Section 20 of the Environment Conservation Act, 1998 (Act 73 of 1989), however improvement is needed in general operations of these requirements. The site is operated and managed by a joint venture, Selema Plant Hire/ Mascon JV.

The IWMP will be integrated into the municipal Integrated Development Plan (IDP). Already the current IDP views waste management as a priority and it is built into the strategic objectives of the plan.

The IWMP comprises an optimum approach to waste management planning in terms of resource allocation, time scheduling, achievable targets and allocation of responsibilities. The purpose of this IWMP is to:

- Be legally compliant with the National Environmental Management Waste Act 59 0f 2008 (NEMWA) as amended.
- Align municipal's waste management services with GNR 636: National Norms and Standards for Disposal of Waste to Landfill (2013) and the Waste Act as a means of minimizing waste generation and disposal within the Local Municipality boundaries.
- Understand waste generation patterns, facility locations and capacity, asset structures and management.

- Introduce, facilitate and encourage effective waste minimization and waste management practices, as per the waste management hierarchy.
- Maintain cleanliness standards within the Municipality and to focus on education and awareness interventions.
- Build capacity and ensure enforcement of by-laws.
- A detailed resource plan and implementation plan are provided in this IWMP which is the action plan to ensure that integrated waste management and waste minimisation occurs in the Municipality.

1 INTRODUCTION

This report is the review of the second generation Integrated Waste Management Plan (IWMP) for Bela-Bela Local Municipality. The IWMP has been circulated and includes inputs from the Municipality and broader stakeholders. The report has been compiled based on information supplied by the Municipality, primary data collection, and from information sourced during the desktop review.

1.1 HISTORICAL OVERVIEW IN THE DEVELOPMENT OF IWMP'S

With the enactment of the (National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA, as amended) "the Waste Act", the development of Integrated Waste Management Plans (IWMPs) has become a statutory requirement. "Integrated waste management plan" means a plan prepared in terms of section 12 of NEMWA as amended. Chapter 3, Section 11 of the Waste Act, requires that all spheres of government including Local Municipalities to prepare IWMPs. IWMPs are expected to direct and assist government in planning for and delivery of waste management services in South Africa

Section 4(a) of the Waste Act states that each Municipality should prepare and submit an IWMP to the relevant MEC for approval. The approved IWMP should then be incorporated into the municipal Integrated Development Plan (IDP) which is contemplated in Chapter 5 of the Municipal Systems Act, 2000 (Act 32 of 2000). The IDP provides the basis for the managed development of the Municipality and is used by the political, business and community leadership to determine activities and operational plans and guides the allocation of resources. Service delivery and infrastructure including those pertaining to waste management are listed as municipal priorities. The objective of the IDP and IWMP is to ensure that every household has access to basic waste management services.

The **primary objective** of IWM planning is to integrate and optimise waste management services, thereby maximising efficiency and improving the quality of life of all citizens while the associated environmental impacts and financial costs are minimised (DEAT, 2000). The guideline document for the development of IWMPs further emphasises that the integration must be both horizontal and vertical within the government departments, as well as in other sectors and throughout the 'waste life-cycle' (DEAT, 2000).

The overall objective of this IWMP is to reduce the generation of waste and the environmental impact of all forms of waste, thereby ensuring sound socio-economic development, a healthy population and that the quality of environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management. The internationally accepted waste hierarchy approach for waste avoidance/reduction, reuse/recycle, recovery, treatment and disposal is adopted in the strategy. The waste hierarchy (shown in Figure 1 below) consists of options for waste management during the lifecycle of waste, arranged in descending order of priority.

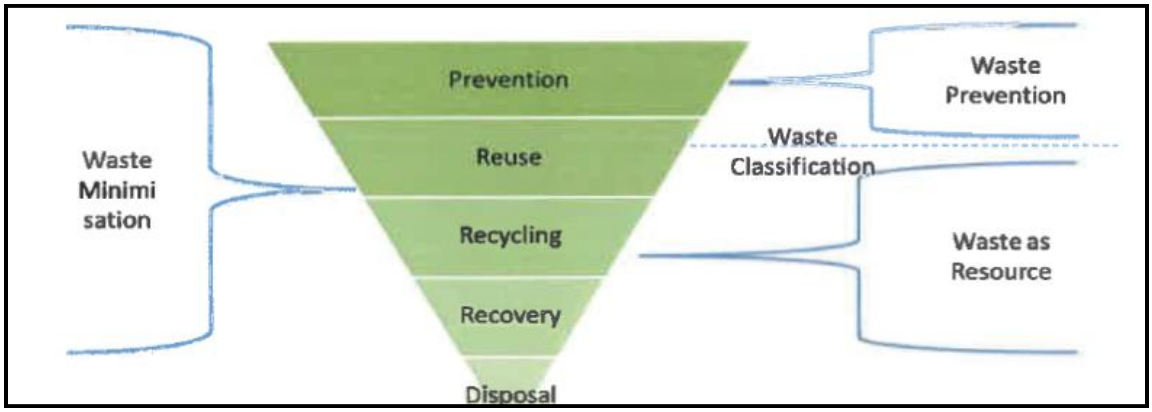

Figure 1: Waste Management Hierarchy

1.1.1 REDUCTION/AVOIDANCE

This concept focuses on the measures to be taken so as not to create any type of wastes in the first place. This is given the top priority in the waste management program. According to this principle, the manufacturing industries should make use of less hazardous materials in the design and manufacturing of the products. They should develop strategies to have a cleaner and environment friendly production.

1.1.2 RE-USE

Reuse is another effective solid waste management strategy, in which the waste is not allowed to enter into the disposal system. The wastes are collected in the middle of the production phase and are again fed along with the source to aid in the production process. This process helps in minimizing the amount of wastes produced as end-product, saves the natural resources and reduces the costs associated with the production and manufacturing.

1.1.3 RECYCLE

With recycling, the waste materials are implemented in the production of a new product. In this process, the waste materials of various forms are collected and then processed. Post processing, recyclables enter into production lines to give rise to new products. This process prevents pollution and saves energy.

1.1.4 ENERGY RECOVERY

The energy recovery process is also called waste to energy conversion. In this process; the wastes that cannot be recycled is converted into useable forms of energy such as heat, light and electricity etc. This helps in the saving of various natural resources. Various processes such as combustion, anaerobic digestion, landfill gas recovery, pyrolization and gasification are being implemented to carry out the conversion process.

1.1.5 TREATMENT AND DISPOSAL

The disposal process holds the least preferred waste management method in the waste hierarchy. Landfills are the common form of waste disposal.

All stakeholders must apply the waste hierarchy in making decisions on how to manage waste. Waste avoidance and reduction is the first priority in using the waste hierarchy approach followed by re-use and recycling of waste.

Recovery involves reclaiming particular components or materials, or using the waste as a fuel. Treatment and disposal of waste is the least preferred option. When the landfill site eventually reaches capacity it is proposed that a policy of remediation is adopted to ensure that the land is eventually rehabilitated.

The review and implementation of a current IWMP, and its integration into the Municipality's IDP will represent the first step for Bela-Bela to implement the National Waste Management Strategy (2011) (NWMS) as amended.

Goal of the NWMS is to reduce the generation of waste and the environmental impact of all forms of waste, thereby ensuring sound socio-economic development, a healthy population and that the quality of environmental resources are no longer adversely affected by uncontrolled and uncoordinated waste management

1.2 REVIEW OF THE BELA-BELA IWMP DATED 2013

The purpose of the review of the IWMP dated 2013 is to:

- Be legally compliant with the National Environmental Management Waste Act No. 59 of 2008 (NEMWA) as amended.
- Align municipal's waste management services with the NWMS and the NEMWA as amended as a means of minimizing waste generation and disposal within the Local Municipality boundaries.
- Understand waste generation patterns, facility locations and capacity, asset structures and management.
- Introduce, facilitate and encourage effective waste minimization and waste management practices, as per the waste management hierarchy.
- Maintain cleanliness standards within the Municipality and to focus on education and awareness interventions.
- Build capacity and ensure enforcement of By-laws.

1.3 KEY ENVIRONMENTAL ROLES FOR BELA-BELA LOCAL MUNICIPALITY

In addition to the obligations of the IWMP; Bela-Bela Local Municipality has to be responsible for the roles described in Box 1 in terms of environmental management.

Table 1: Key Environmental Management Roles for Bela-Bela Local Municipality

• Remaining informed on, and participating in the development of, all local environmental policies and legislation; • Communicating and negotiating with stakeholders; • Promoting environmental awareness; • Monitoring and reporting on the status of the local Municipality's natural resources; • Assessing the environmental impacts of policy and development initiatives; • Leading and supporting other authorities; and • Responsibility for the management of natural resources as designated by provincial and national legislation.

1.4 STRUCTURE OF THE IWMP VERSION 2

The IWMP is presented as follows: The first part explains the relevant Policy and legislation. Then the current Status quo information for Bela-Bela area including; biophysical information, demographics, and socio-economic profile is presented. Existing waste management systems and strategies, waste management analysis, and refuse

service delivery is also explained. Analysis of problems and needs are discussed, whereby strategic objectives, instruments for implementation, resources plan, and an implementation plan conclude the IWMP.

2 LEGISLATIVE FRAMEWORK

To ensure environmental protection of its country and people, the Republic of South Africa prides itself on its extensive legislation. Applicable national acts, regulations, guidelines and international conventions are summarized with their relevance to the second version of the BBLIWMP in the next section.

2.1 NATIONAL ACTS

Table 2: South Africa National Acts

National Act	Relevance
The Constitution of the Republic of South Africa (Act 108 of 1996)	The supreme law of the country and provides the legal foundation for every law developed. Everyone has a right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation, and secure ecologically sustainable development and use.
The National Environmental Management Act (Act 107 of 1998) as amended (NEMA)	The framework Act dealing with environmental management in South Africa. It imposes a duty of care on every person who causes environmental degradation to put measures in place to stop, reduce or rectify the pollution as it occurs. The Environmental Impact Assessments (EIAs) that are required for the establishment and management of waste facilities are conducted under this legislation. The National Environmental Management Principles in S2 of the Act provide for the sound management of the environment, which includes waste aspects such as the polluter pays-, duty of care-, proximity-, regionalization- and cradle-to-grave principles. S24 of the Act makes provision for the application and enforcement of waste management licenses. The duty of care and the remediation of environmental damage are addressed in S28 of the Act. The principles enunciated in the NEMA need to inform waste management decision making and practices.
The National Environmental Management Act: Waste Act (Act 59 of 2008) as amended (NEM:WA)	Regulates waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith. S11 of the NEW:WA, as amended, requires provincial departments, responsible for waste management to prepare IWMPs. S12 of the Act elaborates on the contents of IWMPs, while S13 provides the requirements for the implementation and reporting of IWMPs.
The National Environmental Management: Air Quality Act (Act 39 of 2004) as amended	Reforms the law regulating air quality in order to protect the environment by providing measures for the prevention of pollution and ecological degradation and for securing ecological sustainable development while promoting justifiable economic and social development; provides for national norms and standards regulating air quality monitoring, management and control of all spheres of government; for specific air quality measures; and for matters incidental thereto. This Act is furthermore relevant to the management of waste as it may impact on air quality and ultimately contribute to the mitigation of climate change. S15 of NEM: AQA requires the provincial department responsible for air quality management to prepare an Air Quality Management Plan. This plan is separate from the IWMP, but the MPIWMP does take mitigation and planning measures into account in the context of the impacts of waste on air quality. S22 – relates to the need for a license for some listed activities with waste facilities including thermal treatment of waste

	S35 – related to the control of offensive odours.
The National Water Act (Act 36 of 1998) (NWA)	Controls pollution as it impacts upon surface and ground water in the country. The Act imposes a duty of care on polluters to restrict the amount of pollution contaminating water resources. It also deals with Water Use Licenses. These are needed for users who discharge water containing waste into a water resource, amongst others. The MPIWMP shall take cognizance of the requirements of the NWA to the extent that it relates to waste management. S20 – prescribe the control of emergency incidents that may pollute or have detrimental impact on a waste source S21 – lists "water uses" activities that necessitates an application for a Water Use License amongst: Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; Disposing of waste in a manner which may detrimentally impact on a water resource; Disposing in any manner of water which contains waste from or which has been heated in any industrial or power generation process.
National Waste Management Strategy of the NEM: WA, 2008 (NWMS)	Item 6 (draft) Compulsory National Standards in terms of S9(1) and Measures to Conserve Water in terms of S 73(1)(j) A water services institution must take reasonable measures to prevent any substance other than uncontaminated storm water to enter – any storm water drain; or any watercourse, except in accordance with the provisions of the National Water Act, Act 36 of 1998. A water services institution must take reasonable measures to prevent storm water from entering its sewerage system. Item 12 (draft) Compulsory National Standards: A water services institution must ensure that any major or visible leak in its water services system is repaired within 48 hours after the water services institution became aware thereof. A water services institution must have a consumer service to which leaks can be reported.
The Environment Conservation Act (Act 73 of 1989)	Provides for the effective protection and controlled utilization of the environment. This Act has been largely re-pealed by the NEMA, but certain provisions remain, such as the Regulations for the prohibition of the use, manufacturing, import and export of asbestos and asbestos-containing materials (GN 341 of 2001), which is applicable to the management of asbestos- or asbestos-containing waste material.
The Mineral and Petroleum Resources Development Act (Act 28 of 2002)	Given effect to the objects of Integrated Environmental Management mining applications are required to include an Environmental Management Plan (EMP), which covers waste management issues. Provides for the regulation and management of mining waste in the form of residue deposits and residue stockpiles. The management of residue deposits and residue stockpiles has been excluded from the MPIWMP, since the management of these mining-related wastes is the mandate of the Department of Mineral Resources (DMR).
The Explosives Act (Act 15 of 2003)	Provides for the regulation of explosives including the destruction thereof. This Act is relevant to the waste economy only in so far as the destruction/disposal of explosives is concerned.

The Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947)	Regulates the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies. This Act has relevance to compost where it is intended for use as a fertilizer and digestant from anaerobic digestion plants intended as fertilizers. It also regulates the disposal of farm feeds and fertilizers.
National Health Act, 2003 (Act 63 of 1977)	Defines "municipal health services" to include water quality monitoring; food control; waste management; health surveillance of premises; surveillance and prevention of communicable diseases, excluding immunizations; vector control; environmental pollution control; disposal of the dead; and chemical safety, but excludes port health, malaria control and control of hazardous substances. S20 (1) (a) states that "every local authority shall take all lawful, necessary and reasonably practicable measures to maintain its district at all times in a hygienic and clean condition." S20(1)(b) states that "every local authority shall take all lawful, necessary and reasonably practicable measures to prevent the occurrence within its district of any nuisance, unhygienic condition, offensive condition or any other condition dangerous to the health of any person." S32 of the Act requires that the municipal health services [including waste management must be effectively and equitably provided. Furthermore, national and provincial government must enter into a service level agreement as contemplated in S156 (4) of the Constitution, assigning the administration of the listed matters to the Municipality. The service level agreement must according to S32(3) provide for: the services to be rendered by the Municipality; the resources that the relevant member of the Executive Council must make available performance standards which must be used to monitor services rendered by the Municipality; and conditions under which the agreement may be terminated. This Act also pertains to health care waste management, which is referred to as Health Care Risk Waste (HCRW) in the Waste Act. The Act in relation to waste activities designates the municipal services by including waste management in terms of formulating regulations regarding medical and health care waste by the Minister responsible. Note that careful consideration should be given in the MPIWMP with regards to HCRW because health care waste and hazardous waste are considered as a provincial responsibility.
The Animal Health Act, 2002 (Act No. 7 of 2002)	Regulates the disposal of animal carcasses.
The Development Facilitation Act (Act 67 of 1995)	S3 of the act includes a requirement that policy, administrative practice and laws should encourage environmentally sustainable land development practices and processes, specifically said to apply to the actions of the State and Local Government body. Furthermore, they serve to guide the administration of any physical, transport, guide, structure or zoning plan or scheme administered by any competent authority in terms of any law.
The Disaster Management Act, (Act 57 of 2002)	Directs on how to address waste management issues during disasters, whether natural or human engineered.
The Division of Revenue Act (Act 5 of 2002)	This act deals with the transfer of funds to municipalities to fund various capital investments in support of the delivery of basic services.

The National Health Act (Act 61 of 2003)	Controls nuisance (which can be caused by waste) and compels local government to take steps to prevent the occurrence of unhygienic conditions. The implementation of this Act is of particular importance for local government.
The National Road Traffic Act (Act 93 of 1996)	The regulations and standards controlled by the act relates to the transport of hazardous wastes, inter alia. The Act also controls matters such as vehicle fitness, axle loadings, driver training and operating standards. All of these requirements have an impact upon the waste manager in control of a fleet, especially in the context of the transportation of hazardous waste.
The Hazardous Substances Act (Act 15 of 1973)	Controls the disposal and dumping of scheduled hazardous substances. This schedule of products has relevance to any waste manager. Sections 2, 3, 19 and 29 deals with the hazard rating of hazardous substances and regulate the handling and transportation of such substances, which may include hazardous waste.
The Housing Act, No. 107 of 1997	S9(1) (a) (ii) states that "every Municipality must, as part of the Municipality's process of integrated development planning, take all reasonable and necessary steps to ensure that conditions not conducive to the health and safety of the inhabitants of its area are prevented or removed."
The Municipal Structures Act (Act 117 of 1998)	Establishes that district municipalities should lead the IDP process for municipalities within the district and ensure the operation of waste management facilities used by more than one Municipality.
The Municipal Systems Act (Act 32 of 2000) as amended	Establishes the need for environmentally sustainable service delivery and the need for local IDPs. The Act defines the different levels of service provider and distinguishes between the service authority and the service provider. The Act states that municipal services have to be financially sustainable. It establishes the process through which municipalities should go in order to outsource service delivery functions, through the so-called S78 process.
The Municipal Finance Management Act (Act 56 of 2003)	Should be complied with should a Municipality decide to outsource service delivery functions. The object of this Act is to secure a sound and sustainable management of the fiscal and financial affairs of municipalities and municipal entities by establishing norms and standards and other requirements for- Ensuring transparency, accountability and appropriate lines of responsibility in the fiscal and financial affairs of municipalities; The management of their revenues, expenditures, assets and liabilities and the handling of the financial dealings; Budgetary and financial planning process-es and the coordination of those within the processes of organs of state in other spheres of government; Borrowing; The handling of financial problems in municipalities; Supply chain management; and Other financial matters.
The National Nuclear Regulatory Act (Act 47 of 1999	To establish a National Nuclear Regulator to regulate nuclear activities including radio-active waste and spent nuclear fuel. Radio-active waste from power generation and other nuclear facilities including research institutions is regulated through this Act. The management of hazardous waste is the mandate of the National Department of Environmental Affairs.

The Occupational Health and Safety Act (Act 85 of 1993)	Contains provisions that protect waste workers from harm during the waste management process. In particular there are regulations protecting workers and the public from exposure to asbestos, hazardous chemicals and lead. The act and its regulations are of particular importance to the management of the health and safety of workers responsible for the handling of waste. This Act could also be applicable to waste harvesters, if they are allowed by a Municipality to reclaim waste. All waste facilities and its employers are covered by this act defining safe working environment and conditions. This includes the responsible management of people salvaging from a waste facility.
The Public Finance Management Act (Act 29 of 1999) as amended	Regulates financial management in the national and provincial government to ensure that all revenue, expenditure, assets and liabilities of those government are managed efficiently and effectively, to provide for the responsibilities of persons entrusted with financial management in those government, and to provide for matters connected therewith. This Act is of importance to the financial aspects of waste management planning.
The Advertising on Roads and Ribbon Development Amended Act (Act 43 of 1985)	Regulates *inter alia* the depositing or leaving of disused vehicles, machinery or refuse within 200 m of the centre of a public road. This Act considers the operational requirements for waste management as it relates to waste on national roads.
The National Land Transport Act, 2009	To regulate public transport in the country in general and the activities of Provincial Regulatory Entities and municipalities in relation to their land transport functions.
The National Consumer Protection Act (Act 68 of 2008)	Regulates the recovery and safe disposal of designated products or components. It legislates the producer's liability to take back waste recreated i.e. if you buy a fridge and want to recycle it, the manufacturer has to take it back
The National Domestic Waste Collection Standards (Government Gazette No. 33935, 21 January 2011)	Purpose is to redress past imbalances in the provision of waste collection services. It is therefore imperative that acceptable, affordable and sustainable waste collection services be rendered to all South Africans. The provision of waste collection services improves the quality of life of the entire community and ensures a clean and more acceptable place to work and live in. NEM: WA stipulates that standards are required to "give effect to the right to an environment that is not harmful to health and well-being," and that these rights have to be applied "uniformly throughout the Republic". The standards note that equitable services must be provided to all people living in the jurisdiction of the Municipality and that by-laws must be developed to ensure that the standards are met. The policy defines the basic refuse removal service level "...as the most appropriate level of waste removal service provided based on-site specific circumstances. Such a basic level of service be it in an urban or rural set-up, is attained when a Municipality provides or facilitates waste removal through: The waste standards recognise that different levels of service may be delivered depending on cost efficiency and practicality and proposes the following: a. On-site appropriate and regularly supervised disposal (applicable mainly to remote rural areas with low density settlements and farms supervised by a waste management officer);

	b. Community transfer to central collection point (medium density settlements); c. Organised transfer to central collection points and/or kerbside collection (high density settlements); or d. Mixture of b and c above for the medium to high density settlements. The Standards also stipulate waste collection in terms of: Separation at source: All domestic waste must be sorted at source and the Municipality must provide clear guidelines and encourage community involvement with regards recycling. Collection of recyclable waste: The Municipality must provide an enabling environment for households to recycle domestic waste. Receptacles: Receptacles for the storage of non-reusable and non-recyclable waste must be easily distinguishable from those for the storage of recyclable waste. Bulk Containers: Bulk containers for the storage of non-reusable and non-recyclable waste must be easily distinguishable and in addition, they must be fitted with reflectors and where appropriate be placed next to a platform for ease of access. Communal collection points: These must be clearly demarcated areas with appropriate receptacles where household waste can be deposited for collection by the service provider/Municipality. Frequency of Collection: Non-recyclable waste must be removed at least once a week, while recyclable waste must be removed at least once every two weeks. The Standard also regulate that: Drop-off centers for recyclables must be provided and easily accessible to the public; Waste collection workers is subject to health and safety regulations; The Waste Management Officer will be designated and on regular intervals deal with; general communication and awareness, including dealing with complaints; creating awareness and guidelines to inform households with regards to collection services, recycling, illegal dumping, waste types and other waste services; and Kerbside collection customer service standards should be followed as indicated in the standard. The standards hold that separation at source must be encouraged and that community involvement in recycling must be encouraged. The Municipality must moreover, provide an enabling environment for households to recycle domestic waste and co-operate with the recycling sector to ensure the provision of facilities where recyclables can be dropped-off for collection by service providers. The policy outlines the appropriate levels of service for settlement densities as follows: More than 40 dwelling units per hectare (high density): Frequent and reliable formal collection and disposal of solid waste to a landfill is required 10-40 dwelling units per hectare (medium density): Communal collection and formal disposal of household refuse and litter is required

	Less than 10 dwelling units per hectare (low density): On-site disposal of general household waste in areas so designated by the Municipality and in accordance with the relevant guidelines for on-site disposal provided by the Municipality. The policy further specifies that in medium and high-density areas the most appropriate frequency of collection is: At least once a week for purely biodegradable domestic waste but on-site composting should be promoted. At least once a month for recyclable materials in rural areas. At least once fortnightly for recyclable materials in urban areas. The municipalities responsibilities related to receptacles in the policy include: Municipalities must provide appropriate free receptacles for refuse storage. The number of free receptacles provided per household should be calculated based on the number of individuals residing in the household. The Municipality should devise appropriate strategies to maintain a constant and consistent supply of such free receptacles. Most communities do not consider the provision of skips as a 'service'. Where this alternative is unavoidable, the Municipality should ensure that the refuse is collected for placement in the skip as part of the service. Skips must be serviced frequently enough to avoid littering or dumping. Receptacles for the storage of non-reusable and non-recyclable waste must be easily distinguishable from those for the storage of recyclable waste and must be fit for purpose. Bulk containers must also be clearly marked and where appropriate be placed next to a platform for ease of access. It is noted that skips are not designed for the collection of domestic waste unless appropriate measures can be put in place to prevent litter being blown from the skips. Communal collection points must be clearly demarcated areas with appropriate receptacles where household waste can be deposited for collection by the service provider/Municipality. The Municipality must ensure that communal collection points are kept tidy at all times. The collection points must be easily accessible for waste collection vehicles; and encourage waste separation at source. Receptacles must be covered so as to prevent windblown litter user friendly to allow even children and disabled persons to safely deposit waste. Waste deposited at communal collection points must be collected within 24 hours of receptacles being reported as full or at regular intervals so as not to attract vermin and increase health risks. Non-recyclable waste must be removed at least once a week and recyclable waste removed at least once every two weeks. Removal must be coordinated with industry (the users of the recyclables) to minimise costs and the clogging of space at transfer stations and depots. Bulk containers must be collected once filled up or within 24 hours of being reported as full, but not less than once a week. The standards specify conditions for drop off centres for recyclables and for types of collection vehicles. The standards also specify the general conditions for workers and make provision for a Waste Management officer who is to be designated to deal with general communications and awareness raising regarding waste. What and how to inform residents is also clearly spelt out. Provision is made for free receptacles to be distributed to indigent households who qualify for a rebated service.
The National Policy for the Provision of Basic Refuse Removal Services to Indigent	Provides for the provision of Free Basic Refuse Removal (FBRR) for Indigents. The aim of the policy is to ensure that all South Africans, including the poor, have access to at least basic (essential) refuse removal services. The policy has the following principles:

Households (GN 34385, 22 June 2011)	A Municipality must ensure that any relief provided in terms of the National Policy on FBRR services is constitutional, practical, fair, equitable and justifiable. There will be differentiation between households based on indigence but not service level in accordance with this policy, legislation and the resolutions of Municipal Councils. A Municipality should provide free basic refuse removal services within the bounds of their financial stability and sustainability. A Municipality should review and amend the qualification criteria for indigent support for FBRR services on a regular basis as provided by it as and when necessary. A Municipality should put in place FBRR services administrative support structures ensuring effective and efficient mechanisms of implementation. FBRR services' tariffs should be clear and easily understandable. Operating subsidies for FBRR services within the Municipality's jurisdiction should be well targeted in order to reach the identified indigent. Indigent households must formally apply using the municipal system as specified and will qualify for such support according to the specified criteria/principles laid down by the Municipality. Indigent households registered for FBRR services must be re-evaluated after a given period of time as specified by the concerned Municipality. Disciplinary measures specified by the Municipality should be imposed on households and/or individuals who abuse the FBRR services. The Municipality will put in place reasonable measures to publicise the FBRR services within its jurisdiction, including measures to put in place an effective communication programme. The roles of the social worker/municipal official/councilor/traditional leader or any other authority so designated in the evaluation of the indigent household for the FBRR services should be fully recognised and specified. The list of applicants for FBRR services should be made available for public scrutiny for at least one month at accessible public points within the Municipality (i.e. libraries and clinics). Mpumalanga municipalities at present provide free waste collection services to all indigent households where refuse removal services are provided. Under this policy, funding streams can be sought to extend the free service to indigent households who have no waste collection service.

2.2 NATIONAL REGULATIONS AND POLICIES

Table 3: Regulations and Policies in South Africa

The White Paper on Integrated Pollution and Waste Management for South Africa (1999)	Represents formal government policy regarding integrated pollution and waste management.
The National Policy on Thermal Treatment of General and Hazardous Waste GN 777 of 2009	The policy presents government's position on the thermal treatment of waste as an acceptable waste management option in SA. The incineration of general and hazardous waste in dedicated incinerators or other high-temperature thermal treatment technologies including but not limited to pyrolysis and the gasification and co-processing of selected general and hazardous waste as alternative fuel and/or raw materials (AFR) in cement production is provided for. Schedule 4 of the policy sets out minimum conditions that must be adhered to at these facilities.
Waste Tyre Regulation GNR 149 of 2009	Regulates the management of waste tyres by providing for the regulatory mechanisms. Previously Redisa was the implementation agent to address waste tyres in South Africa, however, the Department of Environmental Affairs is now handling tyre waste.
The Waste Sector Plan GNR 270 of 2011	Provides a summary of the current waste generation and waste service backlogs at district Municipality level. It further provides an overview of the waste sector, including the roles and responsibilities of all the different state and private sector players.
The National Domestic Waste Collection Standards GNR 21 of 2011	Redress past imbalances in the provision of waste collection services. It is imperative that acceptable, affordable, sustainable waste collection services be rendered to all South Africans. The provision of waste collection services improves the quality of life of the entire community and ensures that there is a clean and acceptable place to live and work in. It is recognized that South Africa is a developing country and the purpose of the setting of the standard is to ensure a service to all, while complying with health and safety regulation, without unnecessarily changing current creative collection processes, as long as they function well and deliver a service of acceptable standard to all households.
The National Waste Management Strategy GNR 344 of 2011 (NWMS)	Legislative requirement of the NEM: WA, as amended, the purpose of which is to achieve the objects of the Waste Act. The NWMS adopts the internationally accepted waste management hierarchy approach, and this is turn supports NEM: WA. The waste management Strategy describes how the generation of waste should first be reduced. If it is not reduced it is then to be re-used. If re-use is not possible, then it must be recycled. If recycling is not possible, waste-to-energy methods should be considered; and disposal is the last resort.

The National Waste Information Regulation GNR 625 of 2012	Regulates the collection of data and information to fulfill the objectives of the national waste information system as set out in S 61 of the Act. The Act furthermore provides for the establishment of a provincial waste information system in S 62.
The National Norms and Standards for the Remediation of Contaminated Land and Soil Quality in the Republic of South Africa GN 467 of 2013	The purpose of the norms and standards is to provide for a uniform, national approach relating to the remediation of contaminated land.
The List of Waste Management Activities that Have or Are Likely to Have a Detrimental Effect on the Environment GN 921 of 2013	The need for a license and for the EIA process to be followed as part of the license application for listed waste management activities needs to be assessed on a case by case basis. The implications of these listed activities are that one company engaged in more than one activity and operating on more than one site will require a license per activity per site
The Waste Classification and Management Regulation GNR 634 of 2013	Regulate the classification and management of waste in a manner which supports and implements the provisions of the Act, establishes a mechanism and procedure for the listing of waste management activities that do not require a waste management license, prescribes requirements for the disposal of waste to landfill, prescribes requirements and timeframes for the management of certain wastes, and prescribes the general duties of waste transporters and managers
The National Norms and Standards for the Assessment of Waste for Landfill Disposal GNR 635 of 2013	Prescribes the requirements for the assessment of waste prior to its disposal to landfill in terms of R8 (1) (a) of the regulations.
The National Norms and Standards for Disposal of Waste to landfill GNR 636 of 2013	Determines the requirements for the disposal of waste to landfill as contemplated in R 8(1) (b) of the Regulations.
The National Norms and Standards for the Extraction, Flaring and Recovery of Landfill GNR 924 of 2013	Aims at controlling the extraction, flaring or recovery of landfill gas at facilities which were initiated, constructed or up-graded after the coming into operation of these standards, in order to prevent or minimize potentially negative impacts on the bio-physical and socio-economic environments.
The National Norms and Standards for the Scrapping or Recovery of Motor Vehicles GNR 925 of 2013	Aims at controlling the scrapping or recovery of motor vehicles at a facility with an operational area in excess of 500 m^2 in order to pre-vent or minimize potentially negative impacts on the bio-physical and socio-economic environment.

The National Norms and Standards for the Storage of Waste GNR 926 of 2013	Provides a uniform national approach relating to the management of waste storage facilities, ensure best practice in the management of waste storage facilities, and provide a uniform standard for the design and operation of new and existing waste storage facilities.
The National Norms and Standards for Organic Waste Composting (draft) GN 68 of 2014	Aims at controlling the composting of organic waste at a facility that falls within the threshold of these norms and standards in order to prevent or minimize potentially negative impacts on the bio-physical and socio-economic environment.
National Treasury: Environmental Fiscal Reform Policy, 2006	The aim of the policy is to introduce instruments, such as taxes and charges that are environmentally based as an approach of supporting sustainable development.
Strategic Framework for Sustainable Development in South Africa, 2006	Addressing consumption patterns and meeting the United Nations Millennium Development Goals (MDGs) (now referred to as the UN Sustainable Development Goals)
Municipal Waste Sector Plan Policy 2012	All sector departments should account for all service backlogs and based on this information develop a sector service plan. The sector plan provides a summary of the current status of waste generation and waste service backlogs at district Municipality level. It further provides an overview of the waste sector including the roles and responsibilities of all the different players including the different spheres of government and the private sector.

3 SITUTIONAL ANALYSIS AND STATUS QUO

The current situational analysis and status quo of Bela-Bela Local Municipality is now presented. It discusses the geographic area and population demographics and analysis. Also analysed is the current situation of waste management in the Municipality and highlights all areas of waste management that the Municipality must manage. It defines the baseline information of waste management issues in order to see where there could be challenges in the management of waste. It is important to gather information from the Municipality about its population and projected growth, environmental baseline data and waste management information in order to plan for appropriate efficient and cost effective waste management services for the residents of Bela-Bela Municipality.

3.1 GEOGRAPHIC AREA

Location: The Bela-Bela Local Municipal area is situated on the southern side of the Waterberg District Municipality in the Limpopo Province. It borders the Gauteng Province on the south and south-east, the Northwest Province on the west and Modimolle Local Municipality on the northern side. The Municipality is located 105km north of Pretoria and 8km to the west of the N1 North. The town of Bela-Bela (formerly Warmbaths) is situated against the Waterberg Mountains in Bushveld country. Elevation 700 - 1000m above sea level.

The total area of the Bela-Bela Local Municipality is approximately 337 605.55 ha in extent. It is the smallest Local Municipality in the Waterberg District and represents ±6.8% of the total Waterberg District area. The Bela-Bela Municipal Area includes two formal towns, namely Bela-Bela Town and Pienaarsrivier as well as other smaller settlements such as Settlers, Radium/Masakhane, Rapotokwane, Vingerkraal and Tsakane.

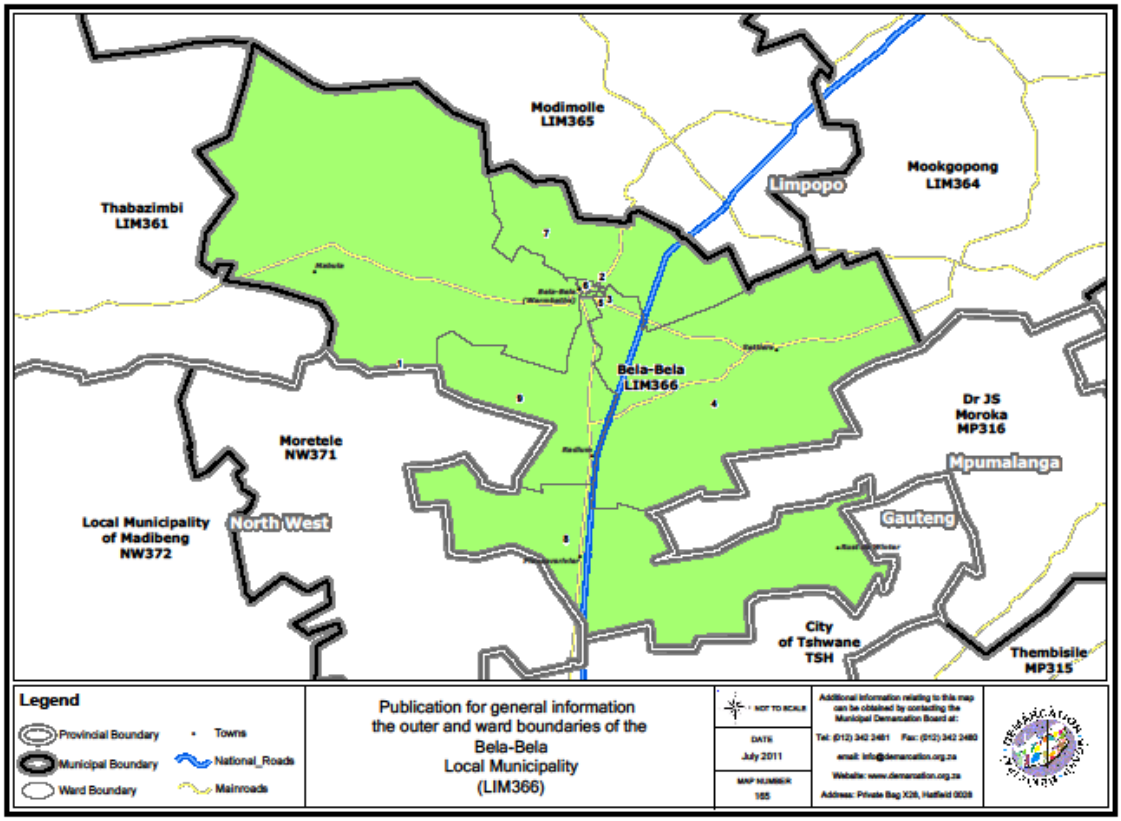

Figure 2: Waterberg District found in Limpopo Province. Bela-Bela Local Municipality is shown in green

3.2 THE STATE OF BBLM DEVELOPMENT AND LAND USE PATTERNS

Bela-Bela Local Municipality divided into rural and urban development zones. These are classified further into environmental zones (based on their biophysical characteristics). Various land use practices exist on a single zone though a number of these are 'incompatible' (compete with each other for available land). Thus a set of alternative uses can be formulated based on the physical characteristics of the zone and the land use compatibility.

3.2.1 RURAL ZONES

The Plato & Mountainous Zone covers the rural zone of this municipal area where existing land uses include mining and nature conservation. Nature conservation is the preferred land use activity in this environmental zone. Tourism and agriculture are alternative options.

3.2.2 URBAN ZONES

The urban zones are comprised of a variety of land classes enabling multi-purpose land use options. The area is made up of the Plato & Mountainous Zone, Undulating Middleveld Zone and the Mountain Slopes Zone. Existing land uses include residential areas, nature conservation, industrial development, mining and tourism.

Bela-Bela is dominated by cultivated land, conservation and vacant/unspecified land. Less than 5 percent of the land is used for settlement purposes.

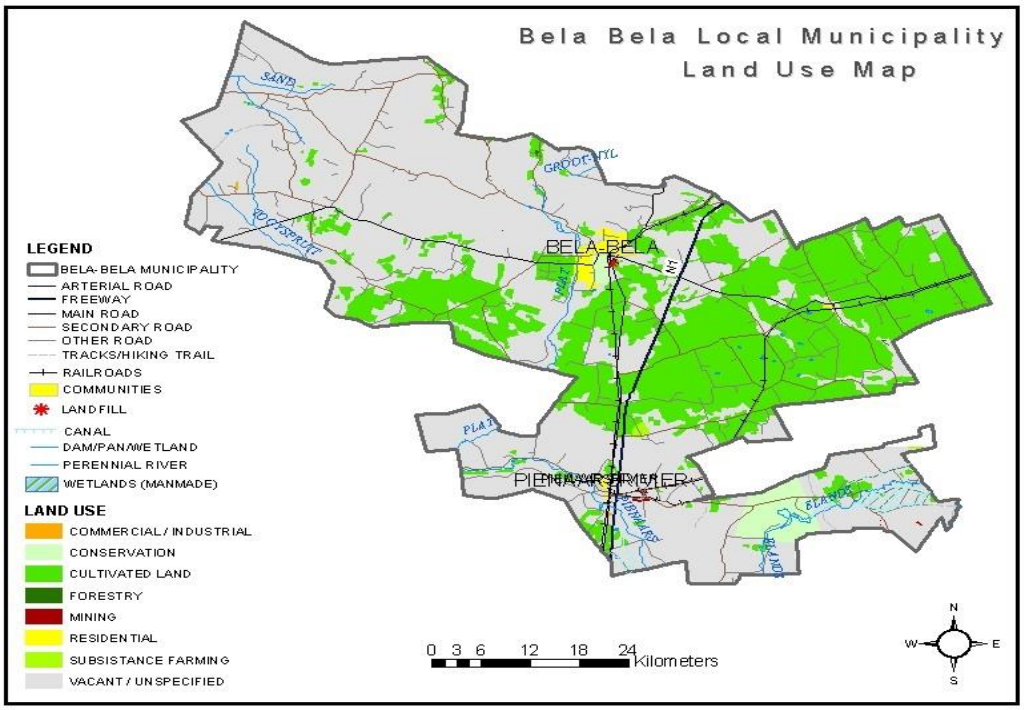

Figure 3: Bela-Bela Local Municipality Land use

3.2.3 CLIMATE AND TEMPERATURE

Bela-Bela generally experiences hot semi-arid climate. Summer days are hot with temperatures varying between 28 - 34°C in October to March. During summer, nights are hot to mild, with temperatures ranging between 16 - 21°C. In winter temperatures are mild during the day and may vary within a range of 19.6 - 25.2°C in April to September. Winter nights are cold with temperatures declining to 4.3 - 12.1°C.

3.2.3.1 RAINFALL

The area falls within the summer rainfall region of Limpopo, with the rainy season lasting from November to March. The average rainfall is 600-650 mm with the highest measurements occurring in January and December. Average annual rainfall 350mm - 750mm experienced mainly during the months of September to April. The average rainfall declines from east to west. Thunderstorms are recorded fairly often. Hail and fog are infrequent.

3.3 DEMOGRAPHICS

Data has been drawn from Statistics South Africa, the Census 2016/ the Community Survey of 2016 records. This was improved by inputs from the municipal IDP for 2019/2020.

3.3.1 POPULATION SIZE AND NUMBER OF HOUSEHOLDS

The total size of BBLM population is currently estimated at 76296 individuals which has increased by 14.73 % by 2016 compared to Census 2011. Total population inter-censal growth rate (2011-2016) of 0.031% has been recorded within Bela-Bela Municipal area.

This is based on Census 2016 Community Survey which also estimates that there are approximately 21354 households within Bela-Bela municipal area which is 18.9% increase from 2011. Table 1 below illustrate the estimated population trend's pattern (IDP, 2018_2019).

Table 4: Estimated Population Trends Pattern

DEMOGRAPHIC INDICATORS	COMMUNITY SURVEY 2007	CENSUS 2011	COMMUNITY SURVEY 2016
Person indicator	55 841	66 500	76 296
Households indicator	14290	18068	21354

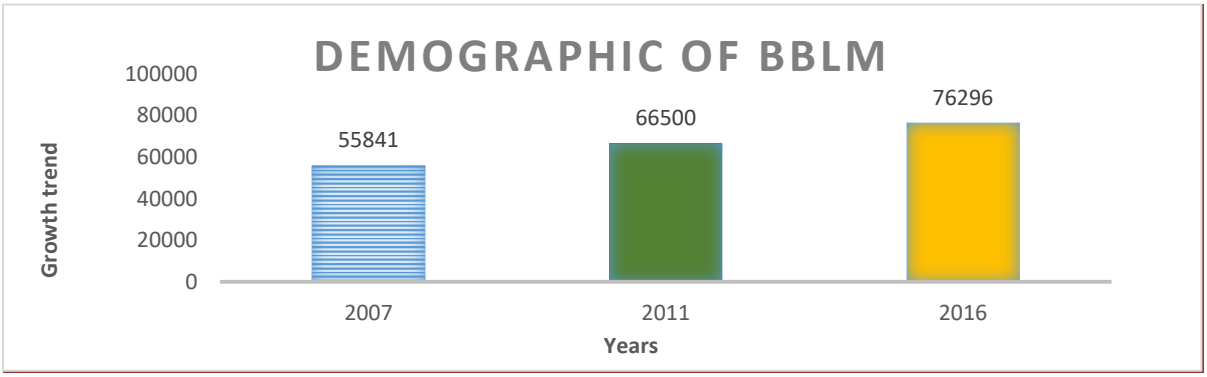

Table 5: Estimated Population Trends Pattern

3.3.2 AGE AND GENDER DISTRIBUTION

The population of Bela-Bela Local Municipality in terms of groupings categorised as per the Figure 2 below. It is evident that Black Africans (64 642) are in the Majority followed by Whites (10 535). It is therefore imperative to take caution that whilst the development priorities within the Municipality seeks to address the plight of Black

Africans who majority of which is still characteristics of the previous dispensation in the Country, such should not be at the detriment of the other minority groupings therein.

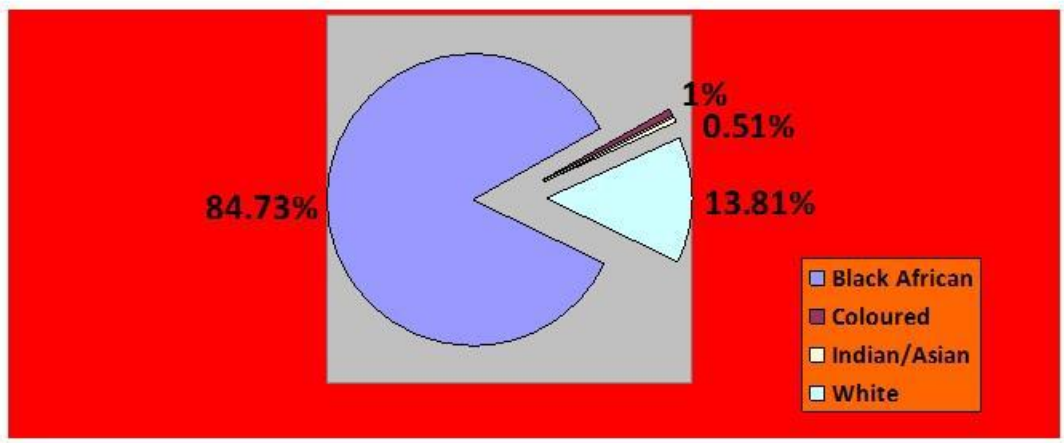

Figure 4: Population Groups (Source: StatsSA: Community Survey, 2016)

All the residents of Bela-Bela Local Municipality irrespective of their Colour of ethnicity should be encouraged to partake in the developmental Agenda of the Municipality from within their respective localities and interest groupings.

3.3.3 POPULATION BY AGE GROUP

The age composition or structure determines the kinds of economic activities which are currently existing and may need to be explored in the future within the locality.

Different age groups have different economic needs and different spending patterns. According to Community Survey, 2016, the composition of the Population of the

Municipality is Young (0–14) 33%, Working age (15-64) 62% and Elderly 65+ 5.3%.

Table 6: Population change 2016

Black African	Coloured	Indian or Asian	White	Grand Total	
0 – 4	9 003	72	-	396	9 471
5 – 9	7 638	63	-	566	8 267
10 – 14	6 670	93	29	612	7 403
15 – 19	5 551	50	22	281	5 904
20 – 24	5 863	77	24	638	6 602
25 – 29	6 086	30	90	800	7 007
30 – 34	5 233	28	58	604	5 922
35 – 39	4 178	139	19	444	4 780
40 – 44	3 490	18	16	573	4 097

45 – 49	3 324	71	34	539	3 967
50 – 54	2 639	45	25	910	3 619
55 – 59	2 076	35	23	886	3 020
60 – 64	1 276	-	12	915	2 203
65 – 69	760	-	-	711	1 471
70 – 74	471	11	12	649	1 143
75 – 79	193	-	-	565	757
80 – 84	84	-	22	336	442
85 +	109	-	-	111	220
Grand Total	64 642	733	386	10 535	76 296

This trend in age composition obliges the government departments and the Municipality to ensure that a large percentage of the budget is allocated to Social Development

Facilities in order to meet the needs of a youthful population and ensuring that people falling within this age acquire relevant Skills and grow up to become responsible adults. The creation of more job opportunities should also be one of the key aspects of the developmental agenda by the Municipality in partnership with the sector departments such as the Department of Education, Health, Public Works, Roads and Transport etc.

3.3.4 POPULATION GENDER PROFILE

With reference to Table 3 below, the gender composition within Bela-Bela indicates a slight imbalance between the males and females. The Census 2011 revealed that approximately 51% (28 304) of the population within Bela-Bela comprises of females while 49% (27 546) comprises of males. Nevertheless that confirmed with the national trends that a higher proportion of women are found in the rural areas than men. This in many instances, especially amongst the African communities is attributed by the fact that men are generally attracted to places such as the bigger cities (i.e. Johannesburg etc.) that presents the employment opportunities sometimes regardless of the nature of work involved. However, the 2016 Community Survey illustrate an opposite picture, and revealed that 49% (37 335) of the population within Bela-Bela comprises of female and 51% (38 961) of the population comprises of male.

Table 7: Gender Composition (Community Survey, 2016)

Total Population (2011)			**Total Population (2016)**		
Male	Female	Total	Male	Female	Total
33 754	32 746	66 500	38 961	37 335	76 296

In addition to the above, it can also be suggested that there is a need for a developmental agenda that should pro – actively target women empowerment within Bela-Bela Municipal Area.

3.3.5 POPULATION DEVELOPMENT AND FORECAST.

Tables 4 and 5 below summarises the historic, current and projected future incremental population and number of households for the Bela-Bela Municipality up to 2040. It distinguishes between the urban population which refers to Warmbaths Town and the Bela-Bela Township; and rural which includes all the rural towns like Pienaarsrivier, Settlers, Radium-Masakhane, Rapotokwane, Vingerkraal and farm residents. According to Table 2 the 2015

population of 73318 people will increase to about 93578 by 2025 and 131487 by 2040. This implies a total increment of 20261 people between 2015 and 2025 (about 2026 people per annum) and an additional increment of 37909 people from 2025 to 2040 (about 2527 people per annum).

Table 8: Bela - Bela Population Projections, 2015-2040 (SDF, 2018)

Population Growth Scenario										
	Historic	Existing	Projections	Population Increment				Increment per annum		
	2011	2015	2025	2040	2011-2015	2015-2025	2025-2040	2011-2015	2015-2025	2025-2040
Urban	44999	51322	67377	94671	6323	16054	27294	1285	1605	1820
Rural	21499	21995	26202	36816	496	4207	10615	154	421	708
Total	66498	73318	93578	131487	6820	20261	37909	1439	2026	2527

In terms of households the current (2015) households which totals 19931 will increase by 5575 to 25 506 up to 2025 and an additional 10479 families from 2025 to 2040 when the total households will stand at an estimated 35985 (see Table 3). In broad, it means about 20261 more people and/ or 5575 more families in the municipal area by 2025. This equals about 558 new households per annum over this 10 year period. About 77% of these households will locate in the urban area and 23% in the rural parts of the Municipality. During the period 2025 to 2040 some 10479 more households are expected to settle in the municipal area at an annual increment of about 699

Table 9: Household and Poverty Indicators (StatsSA: Community Survey, 2016)

Household Growth Scenario										
	Historic	**Existing**	**Projections**	**Household Increment**				**Increment per annum**		
	2011	**2015**	**2025**	**2040**	**2011-2015**	**2015-2025**	**2025-2040**	2011-2015	2015-2025	2025-2040
Urban	**11675**	**13365**	**17638**	**24828**	**1690**	**4273**	**7191**	272	427	479
Rural	**6391**	**6566**	**7868**	**11157**	**175**	**1303**	**3288**	**121**	**130**	**219**
Total	**18066**	**19931**	**25506**	**35985**	**1865**	**5575**	**10479**	**393**	**558**	**699**

According to the Integrated Development Plan (IDP) 2019 – 2020, four different settlement types can be distinguished in the BBLM, namely formal urban settlements (town), tribal settlements, rural settlements (including farms) and informal settlements, as summarised in table 4 below.

3.4 SOCIO-ECONOMIC PROFILE

3.4.1 UNEMPLOYMENT AND POVERTY ANALYSIS

The employment status of people between the ages of 15 and 65 is depicted on Figure 2 below. Whilst the number of people discouraged from looking for employment any longer is very low, it should not be allowed to increase any further.

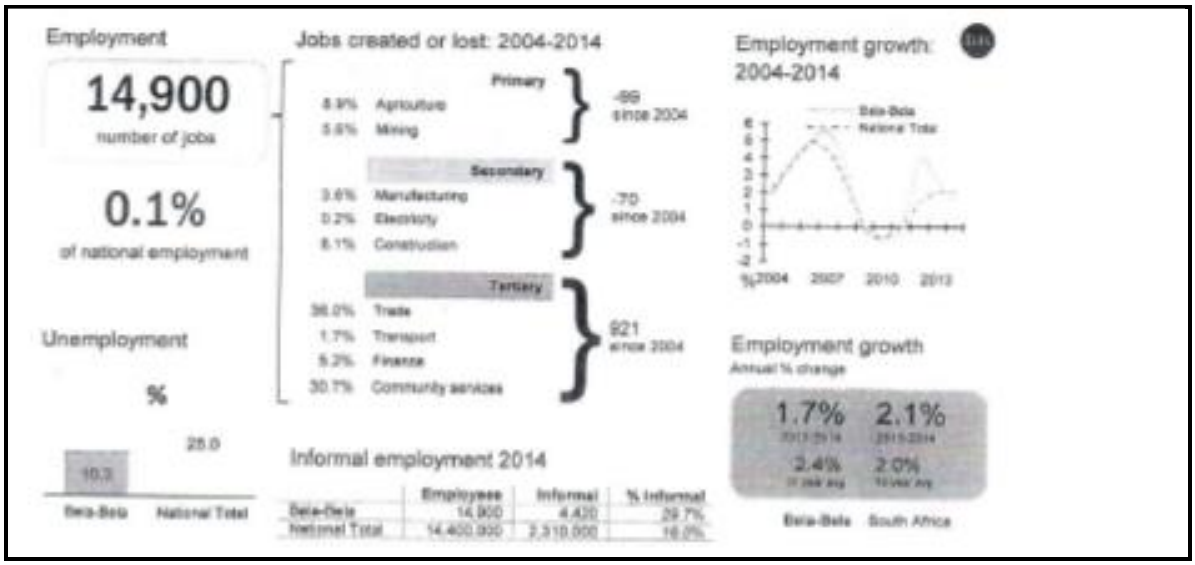

Figure 5: Employment and Poverty Analysis Source: Global Insight, 2016

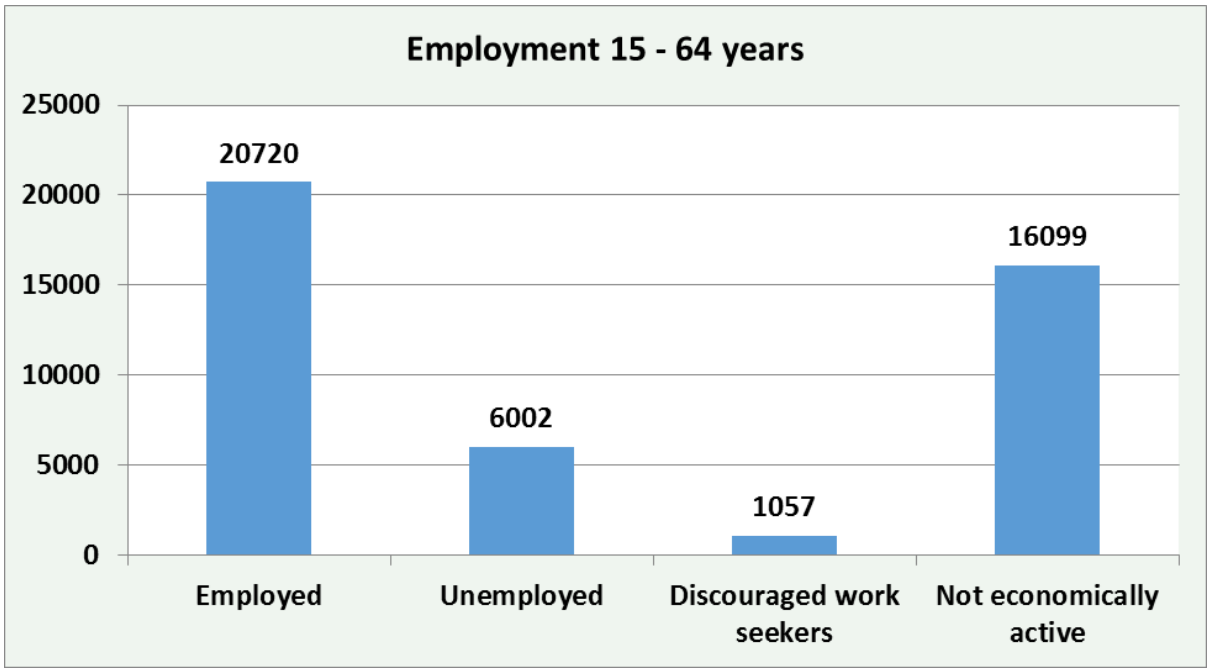

Figure 6: Employment of People between the Ages of 15 and 65 (IDP_2019/2020)

It was previously indicated that the age composition of population in Bela-Bela comprises of children who are under the age of 15 and who are not accounted as the labour force. The active labour force is estimates at 36 069 in 2013 individuals who are between the ages of 18 – 64. Approximately 23% of the active labour force in Bela-Bela is unemployed of which 30% is Youth. The unemployment rate in Bela-Bela Municipal Area is similar to unemployment in the Province, but the labour force participation rate in the Municipality is considerably higher than

that of the Province. This could be the result of labour migration out of Bela-Bela in search of work in Gauteng, particularly among younger adult members of the households.

The 30% unemployment rate of Youth which is unacceptably high is corroborated by the Education figures, where the picture painted is that majority of our Youth are not adequately skilled to be able to actively participate in the job market within the Municipality. Another challenge maybe that those youth in position of Post Matric

Qualifications may be having Qualifications not necessarily compatible to the Economic needs of Bela-Bela.

Table 6 below the trends of these statistics over a period of 5 years, where minor improvements can be witnessed.

Table 10: Employment and Unemployment Status Source (IDP 2019/2020)

Indicator	2009	2010	2011	2012
Population – Total (Number)	56 289	57 283	58 083	66 500
Population – Working age (Number)	34 710	35334	36 069	18 – 64
Age less than 15 years	-	-	-	-
Employed – Formal and informal – Total (Number)	16 387	16 314	15 985	20720
Labour force participation rate (Percentage)	64.1	61.6	58.2	-
Unemployed (Number)	5 866	5 462	5 001	6003
Unemployment rate (Percentage)	26.4	25.1	23.8	-
Discouraged work - seekers	-	-	-	1056
Other Economically active	-	-	-	15 801
Labour force participation rate (Percentage)	64.1	61.6	58.2	-

Although the labour force participation rate is currently at 58.2%, Bela-Bela Local Municipality still needs more efforts to develop a better economically viable environment that is capable of creating more job opportunities, which are able to absorb majority of those in need of employment therein.

This is critical since the dependency ratio is quite high based on the structure of the population (i.e. dominance of the population group that is dependent on the active labour force to provide for their needs). Further to the above discussed unemployment profile, approximately 11% (1 534HH) of the households is dependent on an income which is below R 12 000 per annum (i.e. less than R 1 100 per month). According to the Municipalities' indigent policy these households can be classified as very poor and they need to be subsidies in the provision of basic services. The sustainable community economic development projects/ programmes should be utilized to fast track the mandate by National Development Plan vision 2030.

The developmental agenda by the Municipality in targeting poverty does not only lie within the vigorous efforts to create employment opportunities. The most poverty stricken households must also be assisted within the short term through the welfare grants, indigent policy and the provision of other basic essential services such as housing.

3.4.2 EDUCATION PROFILE AND LITERACY LEVELS

Education plays a pivotal role on community development. It provides a set of basic skills for development, creativity and innovative abilities within individuals. The South African Constitution provides that everyone has a right to education, which includes Adult Basic Education. The education profile in Bela-Bela is one of the key areas of concern where people over the age of 20 with Higher education is a mere6.2 %(4724), people over the age of 20 with no schooling is 17.2%and people over the age of 20 with Matric is 19.8 %(15117). Figure 5below depicts a breakdown of education profile within the Municipality in detail.

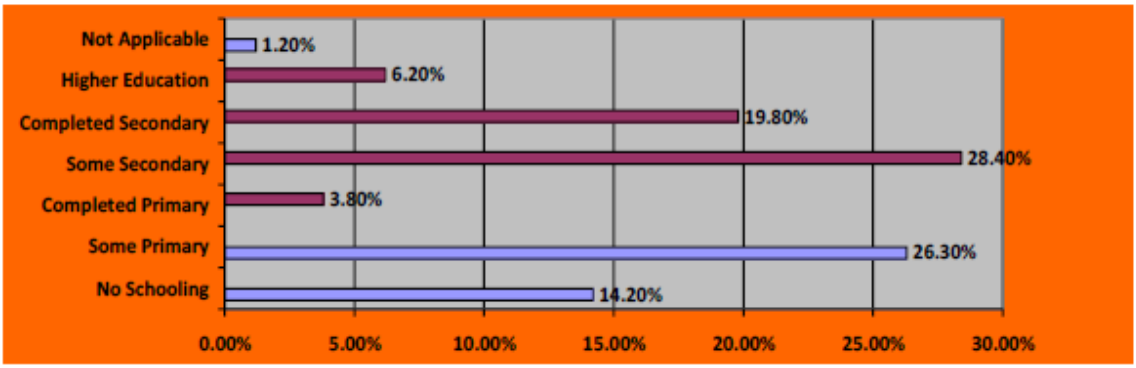

Figure 7: Level of education-Highest education level (All Ages) (StatsSA: Community Survey, 2016)

The level of literacy and manner of participation by the communities within the Municipality on various development engagements is in agreement with the statistics articulated herein. The fact that the population of the Municipality is still less than 100 000 is an ample opportunity that should not be missed by the Municipality and its Social Partners to turn around the current situation whilst it is still fairly manageable. Feasibility for Educational Facilities i.e. FET and ABET should be examined as an Instrument for uplifting the skills and level of Education for the labour market.

3.4.3 ECONOMIC DEVELOPMENT: SIZE AND STRUCTURE OF THE LOCAL ECONOMY

3.4.3.1 SIZE AND STRUCTURE OF THE LOCAL ECONOMY

Bela-Bela has a relatively small local economy with an economic value of production of only R1.8 billion in 2010 (at constant 2005 prices, as projected). There are several large property developments in this Municipality. Trade and tourism activities contribute significantly to local economic production. The agriculture sector in Bela-Bela Local Municipality makes larger relative contribution to the local economy than most other Municipalities in Limpopo. Figure 8 below is an indication of various contributions towards the economy of Bela-Bela.

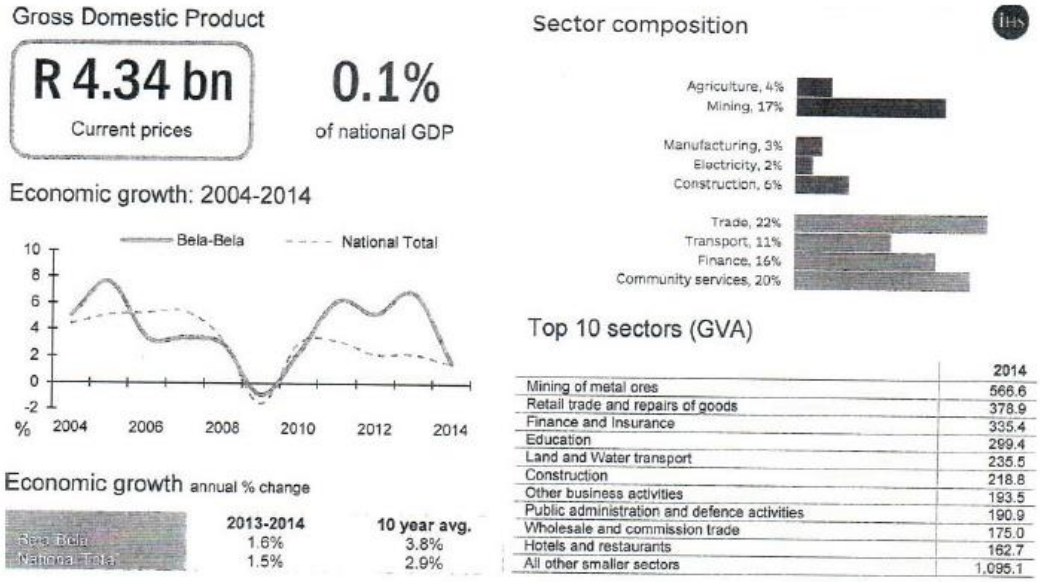

Figure 8: Impact Analysis per Economic Sector: Source: Global Insight, 2016

Table 11: The composition of Bela Bela's Gross Domestic Product (Source: Quantec & UE calculations, 2012 & Global Insight, 2016)

Sector	2012 - %	2014%
Agriculture, forestry and fishing	**5**	**4**
Mining and quarrying	**4.9**	**17**
Manufacturing	**2.1**	**3**
Electricity, gas and water	**3.9**	**2**
Construction	**6.2**	**6**
Wholesale and retail trade, catering and accommodation	**15.9**	**22**
Transport, storage and communication	**10.1**	**11**
Finance, insurance, real estate and business services	**33.2**	**16**
Community, social and personal services	18.6	20
Total	**100**	**100**

Above is an indication of the performance of Bela-Bela in the Waterberg Economy. It should also be noted that Table 41 above, illustrate use of the traditional model of economic indicators which does not specifically group the tourism activities as one sector. The indicators that are closely associated with tourism in the context of figure above includes Transport (11%) and Wholesale (22%) which accounts for a 33% contribution to the economy of Bela-Bela.

3.4.3.2 TOURISM

Tourism is one of the largest and fastest growing industries with the potential of becoming the focal point of the emerging economy in Bela-Bela Local Municipality. The principal attraction to Bela-Bela Local Municipality today is clearly its Natural Hot Springs. This spring water rises to the surface at a temperature of 53 degrees centigrade, is rich in limestone minerals.

These springs is attracting thousands of visitors who come to town to enjoy the healing qualities of the waters. Apart from being one of South Africa's prime tourism destinations, Bela-Bela Local Municipality is also an important farming and game management and business hub.

The region is a vibrant tourist centre located just over one hour from Pretoria and a wonderful weekend destination for all who seek to escape to the tranquillity of the African Bushveld. The area was once rich in wildlife, has been restocked within vast conservancies where all the game species can now be viewed from custom game vehicles.

These estates offer a wide range of activities from night drives, game walks and testing hiking trails. Golfing and adventure sports' centres have also been established for the adventure enthusiast.

Some of many tourist attraction include historical and modern sites: Boer trekker, led by Andries Pretorius, passed through the area in the 1800's. His wife Christina is buried in the town. A well restored Anglo-Boer War blockhouse has been preserved. A short distance from the town is Buyskop where Conrad Buys and his commando withstood a siege; the stone from this site was used to construct the Union Buildings in Pretoria. On the Springbok flats to the east of town is the hill called Modimolle, a place of special significance to the people. In the town visit the African Craft Market where traders offer the wood, mental and stone art from many areas of Southern Africa.

Today the region faces exciting new challenges as development brings fresh business and employment opportunities to cater for the ever increased numbers of tourist to the region, who come to enjoy the Warmbaths and many facilities offered. Here you will be welcomed by people who share in a passion to create, in this small corner of Africa, a place that you can call home.
The Bela-Bela municipal area also is very strategically positioned w.r.t. major cities in South Africa. The supply of accommodation is made up of game lodges, guest houses, hotels, hunting facilities, holiday resorts and camping sites.

The most significant tourism attractions of the area can be classified into three clusters:

- **Rust De Winter**

There is an initiative by Gauteng Provincial Government (i.e. The Dinokeng Integrated Tourism Initiative) which should stimulate flows of new visitors into the southern tip of Limpopo province with various secondary benefits for Bela-Bela Municipality. There are plans for huge new reserves which will offer a big five, as well as a circuit of cultural centres. The relevance of the Dinokeng project is that Rust De Winter Village, Rust De Winter Nature Reserve and the section of the Limpopo province situated to the east of Pienaarsrivier, were an integral part of the feasibility study and have been included as key development sites. The nature reserve will be incorporated into the Big Five Reserve and two up-market lodges will be located along the western shore of the Dam. The low environmental sensitivity of the reserve and the close proximity to the Gauteng market makes Rust de Winter an ideal destination. The vision for Rust De Winter, as conceptualized in the Master Plan, is exciting and innovative and could impact positively on tourism within Bela-Bela Municipality.

- **Aventura Resort and Lodges in the vicinity of Bela-Bela Town**

Bela-Bela is Northern Sotho for “Boiling – Boiling” and the name of the town is synonymous with the town’s word famous hot water springs, which were discovered in the 1800’s. The town was previously also known by the name Warmbaths. Bela-Bela Town is one of the most popular health and holiday resort towns in South Africa, which tourism activities are mainly clustered in the northern parts of the Municipality and comprise the following range of facilities:

Public and private Resorts – These developments mainly comprise facilities such as chalets, caravan parks, hotels and other recreational facilities. These facilities also play an important role in the tourism industry, mainly catering for the weekend visitors, the majority of which originate from Gauteng. The private resorts comprise sectional title or share block holding to the owners, whereas the public resorts typically comprise hotels, camping and chalets. There are more than 14 such facilities in the municipal area, the most prominent being the Forever Resort Mbizi and Klein Kariba in close proximity to Bela-Bela Town.
Wildlife Estates / Private Nature Reserves – This involves low-density residential developments in the deeper rural area (about 1 unit / 20 ha). The units are normally clustered to preserve the environment. Although these facilities initially catered for occasional visits, there seem to be a trend with some of the owners locating on a more permanent basis. Ownership varies from full to sectional title. Examples include Mabalingwe, and Het Bad.
Lifestyle Estates – These are very similar to the wildlife estates, but they tend to be located closer to the towns with more permanent residents. They provide recreational facilities such as golf courses (which would be absent at the wildlife estates). Examples include Lejwe La Meetse and Inthaba Indle.
Bonwapala, Kaya-Ingwe, Mabula, Zebula, Mabalingwe, Sondela and others:

The third cluster of tourism attractions in the Bela-Bela Municipality as identified in the Tourism Development Strategy is this cluster. These areas are well developed already and the identified potential markets are domestic and international.

3.4.3.3 AGRICULTURE

The mountainous northern extents of the municipal area and areas around Rust De Winter to the south are predominantly used for game farming while cattle farming are concentrated in the southern areas around Pienaarsrivier. Crop farming is dominant in the central parts – especially towards the eastern parts of the Springbok Flats.

High potential agricultural land irrespective if currently used for cash crop farming or not, should be protected against future sterilization of this land by settlement development or any alternative land-uses. Township development at existing nodes such as Bela-Bela Town, Pienaarsrivier town and others should be sensitive for high potential agricultural land even though it might be excluded from the Subdivision of Agricultural Land Act (Act No 70 of 1970). It can therefore be concluded that the importance of agricultural development within the municipal area as a contributor to local economic develop should not be ignored, but rather be developed to its optimal potential.

Even though agricultural related activities have decreased in the Bela-Bela Local Municipal area the following crops are still produced in large quantities for local consumption and exports:

- Maize (Radium)
- Cotton (Bela-Bela)
- Tobacco (Rust De Winter Area)
- Sunflower (Radium Area)
- Cattle, sheep, goat, horse and poultry farming (throughout the Municipality)
- Flowers and roses (various locations)
- Vegetables crops; and
- Various fruit types including grapes, citrus and peaches.

The agricultural sector in Bela-Bela should also be considered as economically important particularly because it provides rural residents work as farm labour. However, this sector in many cases is characterized by very poor working conditions and wages are notoriously low with the existence of underemployment. Nevertheless in economic terms the agricultural sector has extensive backward and forward linkages, thereby contributing tremendously towards the overall development and existence of other sectors. This relates mainly to the inputs received from various sources to the agricultural sector (backward linkages) as well as output from the agricultural sector to various other sectors and users (forward linkages).

In terms of the weather conditions, Bela-Bela comprises of temperatures between 20-29°C, with the average rainfall between 520 – 650 mm per annum. There are black and red clay soils of medium to high potential in the Springbok flats. Sandy, red soils and wetlands cover the rest of the area. Vegetable crops include the following: Squash butternut, Squash hubbarb, Onions, Watermelons, Cabbage assorted, Sweet Corn, Pumpkin Grey, Pumpkin White, Beetroot, Carrots, and Peppers. Fruit types include the following: Grapes, Citrus, and Peaches. Other crops include: Maize, Cotton, Millet, Tobacco, Lucerne, Cowpeas, Groundnuts, Wheat, Jugebeans, Chinabeans and Sunflower.

Due to the various crops produced, production systems vary widely. Although the trend is changing the whole industry is still characterized by a high unskilled labour input and a serious lack of middle management capacity. In the commercial estate farming the competitiveness of commercial production will be enhanced through appropriate skills development programmes at all levels and through infrastructure development. Access to water for irrigation is particularly important, but feeder roads to production areas and arterial roads to markets are just as important.

The agriculture sector is by its nature one of the most labour intensive industries, however, this ability to create jobs has decreased in recent times and there is evidence that the sector has even shed jobs. The main reasons can be attributed to the following:

Mechanization – As with most other sectors, there is a trend towards mechanization (e.g. precision farming) in order to increase production output (per hectare).
Availability of labour – There are claims that those people that have access to some form of social grant, may find the agriculture sector less attractive as they can probably get a similar, or very close to, a similar income through the social grant. As such, they may either withdraw their labour effort, or only offer it partially, which presents practical problems for the farmer.

Effects of ESTA - The Extension of Security of Tenure Act (No. 62 of 1997) (ESTA) stipulates that farm labours that has worked on the farm for longer than 10 years and is 60 years and older, has a right to stay on the farm. Some of the farmers are trying to avoid this by employing less people.

The main conclusion is that the agriculture sector will play an increasingly important role to secure food security to the South African population, therefore making it a key sector in the economy. It is therefore important that all land be used productively.

3.4.3.4 MINING

The contribution of the mining sector towards economic development of Bela-Bela is not highly significant. There is only one (1) mine (i.e. NAMCO which mine Industrial Diamonds) that exists within Bela-Bela. This mine is located on the southern parts of municipal area and approximately six (6) kilometers to the south east of Radium.

Although diamonds are found on the existing mining activity the previous research undertaken as part of the past IDP reviews revealed that the mineral occurrences that existed in Bela-Bela for mining resources and precious metals (i.e. gold and diamonds) is of a very low grade and potential to such an extent that it cannot be considered probable that these minerals can be mined within the next 20 – 50 years. Other metals that are found on a limited scale include manganese, copper, tin, cobalt and the supply of calcite, refractory clay and fluorspar is sufficient. The distribution of limestone industrial mineral is small, with a medium scale supply of sandstone and clay which is used to manufacture the bricks within the area.

3.4.3.5 TRADE AND COMMERCE

Table 12: The composition of Bela-Bela's Gross Domestic Product (IDP, 2019-2020)

Sector	2012 - %	2014%
Agriculture, forestry and fishing	5	4
Mining and quarrying	4.9	17
Manufacturing	2.1	3
Electricity, gas and water	3.9	2
Construction	6.2	6
Wholesale and retail trade, catering and accommodation	15.9	22
Transport, storage and communication	10.1	11
Finance, insurance, real estate and business services	33.2	16
Community, social and personal services	18.6	20
Total	**100**	**100**

3.4.3.6 BUSINESS

Bela-Bela Town has a well-defined CBD which is gradually expanding southwards to the Waterfront development and Bela-Bela Mall (Refer to Image 3 & 4 below). This is the only business node of significance in the municipal area although Pienaarsrivier also has a very small business area.

3.4.3.7 INDUSTRIAL

There are two small industrial areas in Bela-Bela Town (north and south of route R516 – refer Image 5 & 6 below). It mainly comprises service industries with very limited manufacturing taking place in the industrial areas.

3.4.3.8 HEALTH SERVICES

Bela-Bela municipal area is currently serviced with two hospital, six clinics and two mobile clinics. Table below is an indication of accessibility to these two hospitals by the settlement areas within the municipal area and the location of other health facilities (i.e. clinics and mobile clinics) in relation to these settlement areas. As evident from the Map 27 below dipicts the majority of the health facilities are clustered within Bela-Bela Town and this can be considered to be logically acceptable given the fact that it has a largest concentration of population which implies a greater demand for the health service

Table 13: Availability of Health Facilities in Bela-Bela

Sub-District	Hospital	Clinics	Mobiles	Community Health Centers
Bela-Bela	1 Public Hospital and 1 Private Hospital	4	2	0

3.4.3.9 CONSERVATION AREAS

Bela-Bela has a number of Nature Conservation Areas, these are the Rust De Winter Nature Reserved situated on the southern border which is + 2 500 ha in extent, the

Enkeldoornspoort Nature Conservation Area in the south – eastern corner of the Municipal Area, Mabula Game Reserve, BonwaPhala Game Reserve, Kunkuru Game Reserve, Sondela Nature Reserved, Mabalingwe Game Reserve, the Bothasvley Nature Conservation Area adjacent to the N1 National Road between Bela-Bela and Pienaarsrivier and the Het Bad Nature Reserve in the central area of Bela-Bela Local Municipality. The whole of the western part of the Bela-Bela Local Municipality Area is classified as a Conservation Area as well as the area directly surrounding the Bothasvley Nature Conservation.

While Bela-Bela is at an advantageous position in terms of the environment since there are no heavy industries and soil degradation and erosion is minimal, it is very important that the Municipality ensures, with its available resources, and through Partnerships with its Social Partners, that the sensitive environments (wetland areas next to Bospoort and Klein Kariba River) are adequately protected in line with the requirements of the National Environment Management Act.

The potential risks that can be highlighted at this stage includes:

- Landfill sites
- Inadequate sanitation systems
- Mushrooming of Informal Settlement
- Veld fires
- Deforestation.
- Chemical spills and/ or other hazardous accidents
- Urban sprawl
- Land Degradation
- Spreading of Alien species into the Nature Vegetation –
- Poor management of wetlands

3.5 WASTE QUANTITIES AND TYPES

3.5.1 WASTE STREAM ANALYSIS

The general waste stream was studied and analysed from a mass perspective.

Waste was collected between during our site visits from the entire spectrum of income groups and business / commerce. No manufacturing process was neither observed nor confirmed by the Manager: Waste Management of the Bela-Bela LM and industrial waste was treated as business / commercial waste, whilst should be treated as hazardous waste.

Waste was collected at random from areas on municipal collection day. Waste collected by private initiative and compactors of the Municipality were also sampled. The volumes were estimated and weighed. Sorting of the waste for the waste stream analysis into the various components took place on the landfill. The weight of each recyclable type was measured. The waste streams extracted for the sample were: different plastic types, glass bottles, cans/tins, cardboard, paper, organics, and other (foil and Styrofoam).

The reasoning behind the study was not to see what individuals generate, but rather to establish as according to the scope, what is recyclable content in the waste stream and what the mass of recyclables reco**vered** from the sample.

3.5.2 DETERMINING CURRENT DOMESTIC WASTE GENERATION PER CAPITA

The baseline population was assumed to be 76296 in 2016 and population growth was assumed at 3.12% in the Bela-Bela Local Municipality as per the 2016 Community Survey (Statistics South Africa, 2016). Waste generation per person per year was calculated using the population income distribution as per the Bela-Bela Local Municipality Spatial Development.

Table 14: Population income distribution

Income group	Income per month	Percentage of population
Low	No income – R 3 200	88.5
Middle	R 3 201 – R 12 800	8.5

High	> R 12 801	3.0

The contribution of each income group was then calculated as follows:

$Waste\ generationi = p\ x\ r$

$where\ i = income\ group$

$p = percentage\ of\ population\ in\ income\ group$

$r = waste\ generation\ rates\ per\ person\ per\ year.$

The model assumed waste generation rates per person per year (r), according to the Guidelines for the development of Integrated Waste Management Plans (IWMPs), assumed to be for domestic waste only (Department of Environmental Affairs, 2006):

Low income = 149.65 kg/person/year = 0.14 tonnes/person/year

Middle income = 270.1 kg/person/year = 0.27 tonnes/person/year

High income = 470.85 kg/person/year = 0.47 tonnes/person/year

Based on the population forecast and an assessment of specific waste generation quantities, a comprehensive waste generation forecast for the next ten years has been prepared (BBLM landfill audit, 2018). The forecast covers household waste, garden waste, commercial and industrial waste. For the household and garden waste generation forecast different waste generation rates for the various settlement areas have been applied as shown below. The calculated contribution of each income group and the total waste generation per person per year in tonnes are shown in the table 13 below.

Table 15: Specific waste generation rates for household and garden waste in different settlement areas (kg/cap/d)

Income group	Percentage Of population	Waste generation rates/person/year	Waste generation/person/year (tonnes)
Low	88.5	0.14	0.12
Middle	8.5	0.27	0.02
High	3.0	0.47	0.01
Total			0.15

Future waste flows

For the calculation of commercial waste generation, it is assumed that the commercial waste amounts to about 10 % of the household waste. Industrial waste generation is forecast based on the assessment of waste delivery data at Townlands Landfill, which was done in 2014. It is assumed that the industrial waste generation is increasing by 0.5% per year. The waste generation forecast for household and garden waste as well as for commercial and industrial waste for the next 10 years is summarised in the Table 8 below:

Table 16: Waste generation forecast for the BBLM (2017-2026)

Year	Population	Waste generation (tonnes per year)
2016	76 296	11 096
2017	78 676	11 442
2018	81 131	11 799
2019	83 662	12 167
2020	86 273	12 547
2021	88 964	12 938
2022	91 740	13 342
2023	94 602	13 758
2024	97 554	14 188
2025	100 598	14 630
2026	103 736	15 087
2027	106 973	15 557
2028	110 310	16 043

3.6 STATUS OF SERVICE DELIVERY

The provision of equitable basic infrastructure especially water and sanitation is central to the developmental local government mandate. Municipalities must make sure that people in their areas have at least the basic services they need in terms of the Municipal Systems Act, No. 32 of 2000. There are a large number of services that they provide, the most important of which are: water supply, sewage collection and disposal, refuse removal, electricity and gas supply, municipal health services, municipal roads and storm water drainage, street lighting, and municipal parks and recreation areas.

These services have a direct and immediate effect on the quality of the lives of the people in that community. Poor services make it difficult to attract business or industry to an area and will limit job opportunities for residents. Basic services needed in rural areas may be different from those that urban communities need.

3.6.1 WATER PROVISION

Bela- Bela Local Municipality (BBLM) is both a Water Services Authority and a Water Services Provider as per the Water Services Act 108/ 1997. Bela- Bela Local Municipality (BBLM) is both a Water Services Authority and a

Water Services Provider as per the Water Services Act 108/ 1997. The number of households in BBLM is 21 354, whereas only about 17 614 households are supplied with water to an acceptable standard (Source: Stats SA, Community Survey 2016).

The Municipal area is predominantly dry with an average annual rainfall of 481mm which is below the average of 500mm for South Africa. The rainfall is seasonal and has been very variable over the past years resulting in unpredictable drought coupled by high evaporation. However, we have managed to keep the levels of our dams, i.e Warmbaths and Platrivier dams to an acceptable abstraction level and therefore have been able to supply water to our consumers in Bela-Bela Town and Township adequately. Due to the under capacitated Water Treatment Works (Bela-Bela WTW), the Municipality embarked on a plan to conserve, save and manage the supply of water by means of water shedding in the evenings. However, there is still a critical need to develop a Water Conservation and Demand Management Strategy (WCDM).

Currently the Bela-Bela Water Treatment Works (WTW) is producing water to its design capacity but its capacity will be increased to 10ML over the coming three (3) financial years (2019/20 to 2021/22) through the Water Services Infrastructure Grant (WSIG) funding (See Project Phase).

Other areas such Tsakane, Vingerkraal and Rapokwane receive their water from boreholes, while Pienaarsrivier receives water solely from Magalies Water as our Water Services Provider (WSP). These underground sources are not entirely reliable as there is a risk of drying up, and therefore there is a need to explore other sources.

3.6.1.1 FREE BASIC WATER

The Municipality has an indigent policy in place and the households that qualify to be registered as the indigents must have income of R3 500 per month. The policy is currently benefiting 4500 households. This figure is substantially higher than the demographic quantification and this indicates that the poverty levels on the ground are more than what has been projected. The FBW provided to indigent households 6kℓ per month.

3.6.1.2 SOURCES OF WATER AND WATER DEMAND

The Municipality has two main sources of water, namely; surface water and underground water. The volumes of water produced from the available sources are illustrated on the total water usage in Bela-Bela is estimated at 13 931kℓ/day, while our sources only produce 10 748 kℓ/day. Therefore there is a shortfall of 3 183kℓ/day which interprets to 25% shortage of water supply. Therefore; there is a critical need to develop and implement a Water Conservation and Demand Management Strategy (WCDM) while we also increase the capacity of our water supply.

3.6.1.3 WATER SERVICES ACCESS

Table 3 below illustrates the water services delivery access profile per household.

Table 17: Bela-Bela Residential Water Services Delivery Access Profile (Water)

Community Survey Category	Description	2013		2014		2015		2016	
WATER (ABOVE MIN LEVEL)		Nr	%	Nr	%	Nr	%	Nr	%

Piped (tap) water inside dwelling/institution)	House connections	14073	78%	14073	78%	14073	78%	16894	79%
Piped (tap) water inside yard	Yard connections	855	5%	855	5%	855	5%	721	3%
Piped (tap) water on community stand: distance less than 200 from dwelling institution	Stand pipe connection <200m	3136	17%	3136	17%	3136	17%	3740	17
Sub-Total: Minimum Services Level and Above		18064	100%	18064	100%	18064	100%	21354	100%

The table above indicates that the Municipality has a backlog of 17% with regard to basic water provision. This backlog is predominantly found in informal settlements and Rapotokwane.

3.6.2 SANITATION

The Municipality has three (3) Waste Water Treatment Works (WWTW) in the area, i.e Pienaarsrivier WWTW (Ponds), Radium WWTW (Ponds) and Warmbaths WWTW (Biological Activated Sludge Plant of 6ML/d). The Warmbaths Waste Water Treatment Works (WWTW) design capacity is exceeded but will be upgraded over two (2) financial years 2020/ 21 and 2021/22 through the Water Services Infrastructure Grant (WSIG) funding (see Project Phase).

The Pienaarsrivier ponds system as well as the Radium ponds system are currently being refurbished and upgraded respectively, through the Municipal Infrastructure Grant (MIG) funding and are due to be completed by the end of June 2019.

The households in BBLM predominantly have a waterborne sanitation system. The biggest challenge in this kind of technology is the continuous spillages of sewerage in the township due to limited understanding on what can and cannot be flushed down the toilet. Another challenge being that the household storm water is connected to the sewer drains causing high flows during rainy days.
Communities that are not connected in the sewer system, such as Rapotokwane and Vingerkraal have a dry sanitation system. Table 11 below illustrates the sanitation services delivery access profile per household.

Table 18: Residential Water Service Delivery Access Profile (sanitation)

Actual service levels	**2013**		**2014**		**2015**		**2016**	
	Actual Nr of HHs	% of total HHs	Actual Nr of HHs	% of total HHs	Actual Nr of HHs	% of total HHs	Actual Nr of HHs	% of total HHs
Full Flush - connected to a sewage system	14928	82.60%	14928	82.60%	14928	82.60%	15 213	71%

Low Flush - connected to a sewage system	855	4.73%	855	4.73%	855	4.73%	2 441	11.6%
Septic tanks - full flush with septic tank	20	0.01%	20	0.01%	20	0.01%	1 098	5.1%
VIP - Pit latrine with ventilation	862	5.47%	962	5.69%	987	5.69%	1 056	5%
Chemical toilet	0	0	0	0	0	0	1 199	5.6%
Pit Latrines without ventilation	1399	7.19%	1299	7.13%	1274	7.00%	4	0.1%
Bucket toilet	0	0	0	0	0	0	0	0
Other <RDP sanitation services	0	0	0	0	0	0	219	1%
No services	0	0	0	0	0	0	123	0.5%
Total	18064	100	18064	100	18064	100	21 354	100

The Municipal backlog on sanitation is 1 545 households (7.2%). In order to address this matter the Municipality is in a process of formalising informal settlements by either moving them to proclaimed townships and/ or alternatively realign their stands in anticipation of township establishment process.

3.6.3 REFUSE REMOVAL

Waste collection services are currently provided by Belabela Local Municipality (BBLM) employees. The Municipality collect waste from all formal settlements once per week per household which is at (Bela-Bela Town, Bela-Bela Township, Pienaarsrivier and Masakhane). The collection of waste is also done twice per week in business areas. Furthermore, it should be noted that apart from the collection of waste in the formalised areas, the Municipality could not ignore the informal settlements. The collection of waste is further extended to informal settlements by means of emptying of Mass Refuse. Containers (Communal) placed in different areas of the informal settlements. The Waste collection service in informal settlements covered Zuma, Koppewaai, Tsakane and Ext 9. Waste minimisation, reducing, reusing, and recycling is fundamental as we try to protect the environment and increase the diversion of waste from the landfill.

According to Census Community Survey 2016, as depicted on Figure 7 below, Bela-Bela Local Municipality percentage of households whose refuse is removed by local authority weekly increased consistently from 52, 1% in 2001 to 66% in 2011, 71.6% in 2016. The percentage of households (i.e. informal settlements) depending on a communal refuse dump slightly increased from 25.60% in 2001, to 26.2% in 2011 and to 26.8% in 2016. There was a decrease in the proportion of households without any refuse disposal from 5.3% in 2001, to 6.1% in 2011, and to 1% in 2016.

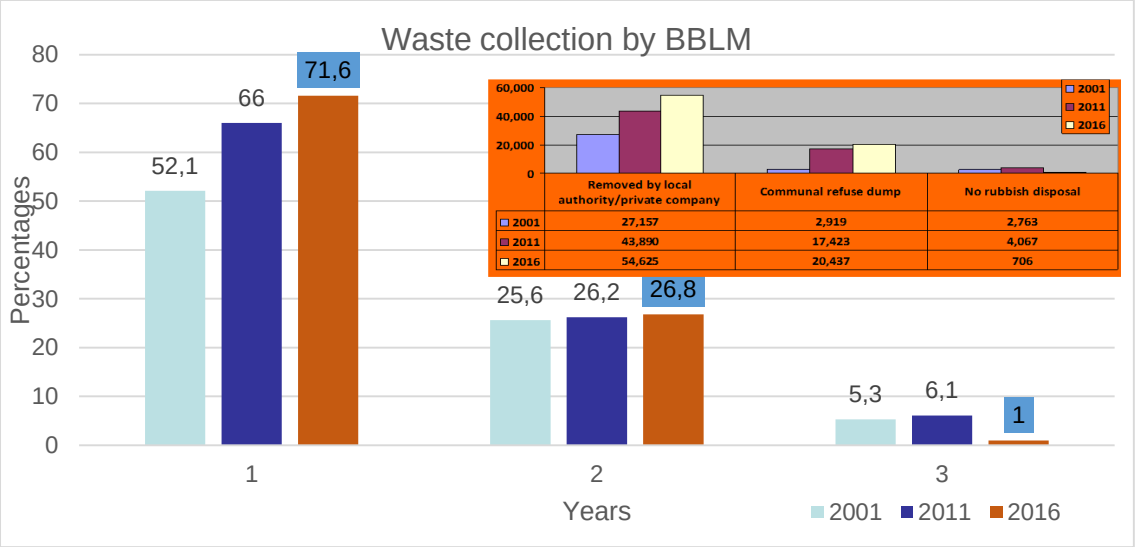

Figure 9: The percentage of households whose refuse is removed by the local authority weekly (IDP, 2019-2020)

Municipal Data (2012) on the number of households receiving waste collection services. It can be observed that the Municipality is now providing more people with waste services in 2012, 16 611 than it did 5 years ago, 10 882.

Table 19: Level of Waste Collection in BBLM as per Waste Collection Standards (Municipal Data, 2015)

Type of households	Number of households
Suburb	1 360
Township	7 539
Village	5 177
Indigent	2 535
Total	16 611
Informal Settlements	3 327 not receiving waste services (backlog)

3.6.3.1 HOUSEHOLDS RECEIVING FREE BASIC REFUSE REMOVAL SERVICES (INDIGENTS) (ANNUAL REPORT 2018).

Bela-Bela Local Municipality has approved Indigent support policy where consumers who earn R3 500 and below qualify to receive free / subsidised basic services. These services include 6kl of water, 50KWH of electricity, free weekly waste collection, free sanitation services and 100% subsidy on property rates. An indigent register has been developed and it is being used as a guide of the number of household provided with the above mentioned free basic services. According to the statistics in the register Bela-Bela local Municipality provide 4861 houses with free basic services during 2017/2018 financial year.

3.7 WASTE RECYCLING, TREATMENT AND DISPOSAL

3.7.1 WASTE COLLECTION

Waste collection services are currently provided by Bela-Bela Local Municipality (BBLM) employees.

The Municipality collect waste from all formal settlements once per week per household which is at (Bela-Bela Town, Bela-Bela Township, Pienaarsrivier and Masakhane). The collection of waste is also done twice per week in business areas. Furthermore, it should be noted that apart from the collection of waste in the formalised areas, the Municipality could not ignore the informal settlements. The collection of waste is further extended to informal settlements by means of emptying of Mass Refuse. Containers (Communal) placed in different areas of the informal settlements. The Waste collection service in informal settlements covered Zuma, Koppewaai, Tsakane and Ext 9. Waste minimisation, reducing, reusing, and recycling is fundamental as we try to protect the environment and increase the diversion of waste from the landfill.

According to Census Community Survey 2016, as depicted on Figure 4 below, Bela-Bela Local Municipality percentage of households whose refuse is removed by local authority weekly increased consistently from 52, 1% in 2001 to 66% in 2011, 71.6% in 2016. The percentage of households (i.e. informal settlements) depending on a communal refuse dump slightly increased from 25.60% in 2001, to 26.2% in 2011 and to 26.8% in 2016. There was a decrease in the proportion of households without any refuse disposal from 5.3% in 2001, to 6.1% in 2011, and to 1% in 2016.

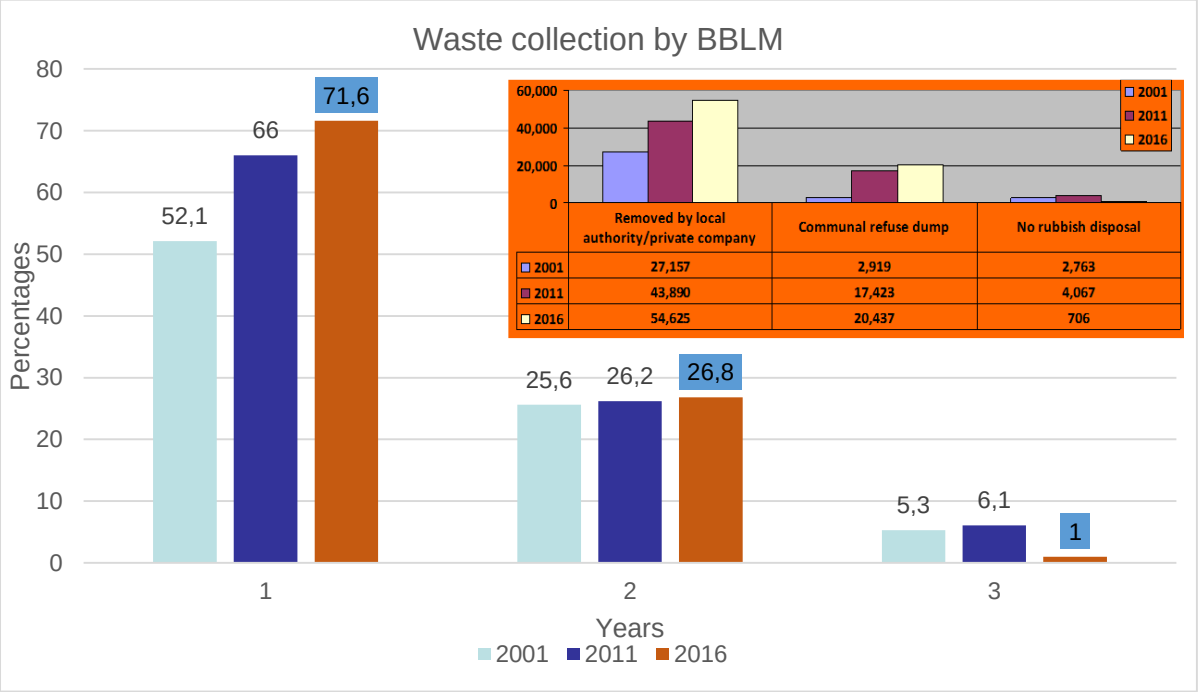

Figure 10: The percentage of households whose refuse is removed by local authority weekly (IDP, 2019-2020)

Private companies provide less than a percent of these services; whilst close to 19% provide their own refuse removal services. Based on the municipal information the households that encounter the backlog are estimated at approximately 4327 Households.

To date, the status of waste collection within Bela-Bela Municipality is as follows:

- All businesses receive refuse removal service twice a week.

- Vingerkraal, Tsakane and Rapotokwane do not receive refuse removal service.
- Mass refuse containers provided at informal settlements (Zuma, Ext 9 & Koppewaai).

3.7.2 TREATMENT AND DISPOSAL

3.7.2.1 WASTE GENERATION, WASTE COMPOSITION AND WASTE FORECAST

The baseline population was assumed to be 76296 in 2016 and population growth was assumed at 3.12% in the Bela-Bela Local Municipality as per the 2016 Community Survey (Statistics South Africa, 2016). Waste generation per person per year was calculated using the population income distribution as per the Bela-Bela Local Municipality Spatial Development

Income group	Income per month	Percentage of population
Low	No income – R 3 200	88.5
Middle	R 3 201 – R 12 800	8.5
High	> R 12 801	3.0

The contribution of each income group was then calculated as follows:

$Waste\ generationi = p\ x\ r$

$where\ i = income\ group$

$p = percentage\ of\ population\ in\ income\ group$

$r = waste\ generation\ rates\ per\ person\ per\ year.$

The model assumed waste generation rates per person per year (r), according to the Guidelines for the development of Integrated Waste Management Plans (IWMPs), assumed to be for domestic waste only (Department of Environmental Affairs, 2006):

Low income = 149.65 kg/person/year = 0.14 tonnes/person/year

Middle income = 270.1 kg/person/year = 0.27 tonnes/person/year

High income = 470.85 kg/person/year = 0.47 tonnes/person/year

Based on the population forecast and an assessment of specific waste generation quantities, a comprehensive waste generation forecast for the next ten years has been prepared (BBLM landfill audit, 2018). The forecast covers household waste, garden waste, commercial and industrial waste. For the household and garden waste generation forecast different waste generation rates for the various settlement areas have been applied as shown below. The calculated contribution of each income group and the total waste generation per person per year in tonnes are shown in the table 7 below.

Table 20: Specific waste generation rates for households and garden waste in different settlements areas (kg/cap/d)

Income group	Percentage of population	Waste generation rates/person/year	Waste generation/person/year (tonnes)
Low	88.5	0.14	0.12
Middle	8.5	0.27	0.02
High	3.0	0.47	0.01
Total			0.15

Future waste flows

For the calculation of commercial waste generation, it is assumed that the commercial waste amounts to about 10 % of the household waste. Industrial waste generation is forecast based on the assessment of waste delivery data at Townlands Landfill, which was done in 2014. It is assumed that the industrial waste generation is increasing by 0.5 % per year. The waste generation forecast for household and garden waste as well as for commercial and industrial waste for the next 10 years is summarised in the Table 8 below:

Table 21: Waste generation forecast for the BBLM (2017-2026)

Year	Population	Waste generation (tonnes per year)
2016	76 296	11 096
2017	78 676	11 442
2018	81 131	11 799
2019	83 662	12 167
2020	86 273	12 547
2021	88 964	12 938
2022	91 740	13 342
2023	94 602	13 758
2024	97 554	14 188
2025	100 598	14 630
2026	103 736	15 087
2027	106 973	15 557
2028	110 310	16 043

Municipal Data (2012) on the number of households receiving waste collection services. It can be observed that the Municipality is now providing more people with waste services in 2012, 16 611 than it did 5 years ago, 10 882.

Table 22: Level of Waste Collection in BBLM as per Waste Collection Standards (Municipal Data, 2015)

TYPE OF HOUSEHOLDS	NUMBER OF HOUSEHOLDS
Suburb	1 360
Township	7 539
Village	5 177
Indigent	2 535
TOTAL	16 611
Informal Settlements	3 327 not receiving waste services (backlog)

3.7.3 COMPOSTING

The Municipality do not have any composting facilities. All organic waste is being transported to the landfill site.

3.7.4 REVENUES

The Municipality do not collect tariff for waste which is being disposed at the landfill site. This may be due to the lack of the weighbridge. Tariffs paid by households and businesses are the main source for financing of waste management services

3.7.5 WASTE TRANSFER AND TRANSPORT

Currently the collected residual waste is transported directly to the landfill site, as there are no existing transfer stations within the BBLM

3.7.5.1 BUY BACK CENTRES

The BBLM does not have a municipal run buy back centre itself; however, there are private Buy Back centres (BBC's) found in the area. These centres recycle cardboard, paper, plastics, cans/tins, bottles, etc.

3.7.5.2 SCRAPYARDS IN BBLM

A privately owned scrapyard (preferred to remain anonymous) in the Municipality has been operating for 49 years. It deals with steel, aluminium, and copper. Materials are priced according to their grade quality. Materials are weighed, sheared, separated (grades), processed, compacted to big cubes, cut into small pieces ready to be transported to Foundry for recycling. They also fetch scrap from customers. Eskom buys glass, aluminium, copper and brass; whilst used oil from transformers is sold to Taxcor (Pretoria based company).

Other scrapyards in BBLM are FMP Scrapyard and Bela-Bela Trailers, however were requested to be interviewed but declined to comment.

3.7.5.3 PAPER RECYCLERS IN BBLM

A recycler (name confidential) recycles cardboard, paper, and bottles on weight basis. A platform scale was found at the landfill site.

3.7.5.4 MATERIALS RECOVERY FACILITIES

There are no formal material recovery facilities in the Municipality. However active collecting of recyclables was observed at the waste disposal site by individuals.

3.7.5.5 WASTE TRANSFER STATIONS

Except for recycling, no other waste treatment activities are taking place in the BBLM. In terms of the recycling activities taking place in the BBLM area, both the formal and informal sector are involved. The majority of the waste pickers belong to the informal sector, while most traders and dealers and the users are part of the formal sector. Of these, there are 176 waste pickers operating within the Warmbad landfill. There number of recycling companies/groups operating within Municipal jurisdiction and the amount of waste which is being recycled is currently unknown.

3.7.5.6 BELA-BELA LOCAL MUNICIPALITY'S HET BAD, WARMBAD LANDFILL SITE

Warmbad Landfill site is a G: M: B- (General waste- medium-water deficient area) class site, located on portion 25, of the farm Het Bad 465 KR, Bela-Bela, permit number **B33/2/123/3 P184**.The permit was issued in June 1995 and however it could not be confirmed when it started operating, however, it is assumed it has been operating at least since this permit was issued.

Based on the calculations from the dumping site and the site's infrastructure drawing from the Bela-Bela Municipality Civil Department, the area is 12.80 ha (August, 2011). The footprint of the area used (cell currently in use plus area adjacent to the access road and fence by Water Treatment Plant) is 6.62 ha. Approximately 2.62 ha are currently in use, whilst the remainder, i.e. 4.0 ha must be rehabilitated, yet there is no plan for rehabilitation.

This study found that the Het Bad Warmbad Landfill site would run out of airspace during 2025 if waste is compacted adequately and during 2021 if adequate compaction has not been done. The landfill site thus has between three and seven years' lifespan remaining, depending on the degree of compaction (Audit report 2018).

3.7.5.7 MANAGEMENT OF THE WASTE DISPOSAL FACILITY

The waste disposal site is currently operated, maintained and managed by the Selema Plant Hire/ Mascon JV.

3.8 EXISTING WASTE MANAGEMENT SERVICE

A site visit was conducted on the 14 June 2019 and the purpose was to conduct a waste stream analysis and to gather primary information about the waste management practices in Bela-Bela.

3.8.1 WASTE COLLECTION

3.8.1.1 WASTE MANAGEMENT FLEET

The Municipality has vehicles and equipment allocated to the Community Services Directorate that are distributed to the Cleansing and Solid Waste departments. The condition of the vehicles and equipment varies from poor to good as indicated in the table below. Hired vehicles and equipment are procured to temporarily substitute broken down equipment and vehicles or when the workload.

Table 23: Summary of Waste Management Fleet

No.	Description	Current fleet on site		
		Types	No.	Conditions
1	Skip loader			
2	Tipper Trucks	X	1	In good condition
3	Trailer			
4	Bakkie	X	1	not in good condition
5	Tractor			
6	compactor	X	3	X 2 not in good condition
7	water cart			
8	TLB			

9	Trailer	X	3	All are not in good condition
10	Tractors	X	2	All are not in good condition

Table 24: Condition of the Cleansing and Solid Waste Department Fleet

Car Registration	Type	Allocation	Model	Condition			Comment
				Poor	Fair	Good	
	Tipper Trucks	Refuse collection	-			Good	
BTX 611 L	Truck	Refuse collection	Hino 500			Good	Well looked after
BTX 614 L	Truck	Refuse collection	Hino 500			Good	Well looked after
CHM 658 L	Truck	Refuse collection	Hino 700			Good	Well looked after
-	Tractor	Refuse collection	Massey Fegurson	Poo			Needs to be repaired
-	Tractor	Refuse collection	Massey Fegurson	Poor			Needs to be repaired
BZX 706 L	Van/Bakkie	(Supervision) Refuse collection	-	Poor			Poor condition, need to be taken care off.
Trailers		Refuse collection		Poor			Needs to be serviced, as they have oil leaks. Hence to be cleaned of foreign materials.
Compactor	-		-	Poor			Poor condition, need to be taken care off.

The average useful life for equipment used by the Municipality is based on the Annual financial statements as at 30 June 2017 as is estimated as follows:

- Specialised vehicles – 5 to 10 years
- Motor vehicles – 4 years
- Farm machinery – 5 years
- Bins and containers – 10 years

3.8.1.2 WASTE COLLECTION SCHEDULE: RESIDENTIAL AND BUSINESS WASTE COLLECTION SCHEDULE

Table 25: Weekly General Waste Collection Program

Weekly Program: Waste Management Services		
Supervisor: N.H. Molebatsi		**FDK 952 N**
Day	**Activity**	**Destination**
Monday	Collection of branches/ garden waste	Bela-Bela Old Location to Sesolo and Ext. 1
Tuesday	Collection of branches/ garden waste	Leseding
Wednesday	Collection of branches/ garden waste	Ext. 6 and Ext. 7
Thursday	Collection of branches/ garden waste	Ext. 5 and Ext. 8
Friday	Collection of branches/ garden waste	Jinnah Park and Spa Park

Table 26: Weekly Schedule for Waste Collection Service BSG 471 L

BSG 741 L - Weekly Schedule - Collection of yellow bins					
Day	**Routes/Destination**				
Monday	Penddleberry	Hospital	Mini Market	Cashbuild	Pick'n'Pay
	Aventura				ABSA
Tuesday	Waterfront	Maplankeng	Townhall	Elephant Springs	Community Hall
	DROS	Tuintuiste	METRO		
Wednesday	ABSA	Aventura	SAFFAS	Taxi Rank	Caritas Village
		Hospital	Pick'n'Pay	Renaissance	
Thursday	Penddleberry	ESKOM	Elephant Springs	Mini Market	Maplankeng
	Autozone				
Friday	Hospital	METRO	Waterfront	Pick'n'Pay, ABSA	DROS
		Cashbuild		Taxi Rank	Aventura
Saturday	Illegal dumping bins	Illegal dumping bins	Illegal dumping bins	Illegal dumping bins	Illegal dumping bins

Table 27: Weekly Schedule for Waste Collection Service other vehicles

Weekly Program: Waste Management Services					
Supervisor: N.H. Molebatsi		**CDT 528 L**	**CHM 658 L**	**BTX 611 L**	**BTX 614 L**
Day	**Activity**	**Routes/Destination**			
Monday	Refuse collection	Ext. 5 Portion 1	Jinnah Park	Location: Moloto to Rabalo Str	Quagga Weg to Swanepoel Str
			Spa Park	Leseding: Street 1 to Thusanang School	Warmbad Hoerskool to EAU Moutagne
Tuesday	Refuse collection	Ext. 5 Portion 2	From Public Works Houses, Salus Oord Houses, Van Der Merwe Street	Leseding: Thusanang School to Tambo Dr	Ext. 8 Portion 1
			to Ludorf Str up to Mentz Laan Proper Townand Waterfront Area	Location: Khota to Maseko Str	Letlhabile Park
Wednesday	Refuse collection	Ext. 5 Portion 3	Moffat to Luna Str	Leseding: Tambo Dr to Hleketani School	Ext. 8 Portion 2
			Industrial Area and CBD	Ngobeni Str to Kutu Str	Leseding Sunvalley Area
Thursday	Refuse collection	Ext. 6b Portion 2	Reitz Str from Mentz Laan to	Location: Mathibe Str to Manyama Str	Ext. 7 Phomolong (Skierlik)
			Gholf baan Park and New Town	Ext. 6a Portion 1, Paleng School & Tambo Dr	
Friday	Refuse collection	Ext. 6a	Pienaarsrivier	Masakhane	Sesolo from Makwela Str to Ramushu Str
		Ext. 6b Portion 3	Mantsole Traffic Control	CBD	Ext. 1 Robertsons Str from Mentz Laan to Quagga Weg including St. Vincent Hospital and Warmbad Hoerskool

3.8.2 STREET CLEANING

Street Cleaning in Bela-Bela Town (mainly in the CBD) is provided by the Bela-Bela Local Municipality employee's.

3.8.3 STREET SWEEPING

The streets in the CBD were clean, hence municipal street sweepers were visible on site. Townships need more street sweepers. Municipality has 7 sweepers, whilst it needs 8 for effective street sweeping.

3.8.4 ILLEGAL DUMPING

Illegal dumping has been noticed from several places at BBLM, hence Municipality is clearing these illegal dumps on Saturdays. Illegal dumping is a threat to the environment. A fine of R 1 000 is charged for dumping illegally as prescribed by the municipal by-laws.

3.8.5 ILLEGAL DUMPING CLEARED

After illegal has been removed, estimates should be made on the quantity of the illegal dumping removed and these recorded. Whenever illegal dumps are removed, the quantity should be recorded and compared to previous quantities, to see whether illegal dumping is decreasing or increasing.

As a matter of fact, EPWP (Expanded Public Works Programme) projects are key. These use the same municipal budget, but are made to be labour intensive. The National and Provincial legislation provides guidance on how EPWP's work. Small SMME contractors may also play a major role.

Dumping waste that is not general waste into the landfill could be a contravention of several acts including but not limited to the Environment Conservation Act, 1989 (Act 73 of 1989), Occupational Health and Safety Act (Act 85 of 1993), Health Act (Act 63 of 1977, National Environmental Management: Waste Act, 2008 (Act 59 of 2008) and Air Quality Act (Act 39 of 2004).

3.9 SOLID WASTE DEPARTMENT

3.9.1 INSTITUTIONAL AND ORGANISATIONAL ARRANGEMENTS

The Waste Management Division at the Municipality deals primarily with waste collection in the urban areas of the Municipality. Their waste collection receptacles used include wheelie bins, kerbside collections and skip collections, and street cleaning. The Waste Management Division also manages the contract for a private contractor who manages the landfill site. The organisational structure of the Municipality is reflected in the diagram (refer to appendix A for waste management and cleaning services organogram)

Waste Services Division and cleaning services as shown in appendix A, the waste services division consists of 15 general assistant positions, with an extra three general assistants to be employed. There are 6 positions in total for the tractor and compactor drivers.

3.9.1.1 CURRENT TARIFF STRUCTURE: 2019 – 2020

The current tariff is attached in appendix D

3.9.1.2 OPERATIONAL BUDGET

Table 28: Current Tariff Structure: 2019-2020

Description	**2018/2019**	**2019/2020**
Rand		**Rand**
a) Residential		
Smaller than 800m²	74	78
Larger than 800m²	174	183
b) Commercial	347	365

c) Security Villages (per container)	3400	3577
d) Churches	174	183
e) Schools – State	347	365
f) Hospitals – State	347	365
g) Hospitals – Private	2807	2953

3.9.1.3 EXPENDITURE

Service providers (landfill operation and management) = R 200 000 per month

3.9.2 WASTE MANAGEMENT AND THE MEDIUM TERM REVENUE AND EXPENDITURE FRAMEWORK

From a review of the Medium Term Revenue and Expenditure Framework, it is evident that waste service provision is an expense/cost to the Municipality rather than an income generating service. A deficit of more than R1.5 Million per annum reflects on the need for the service to be offered effectively and efficiently and true-cost accounting be used when rendering waste/refuse removal service.

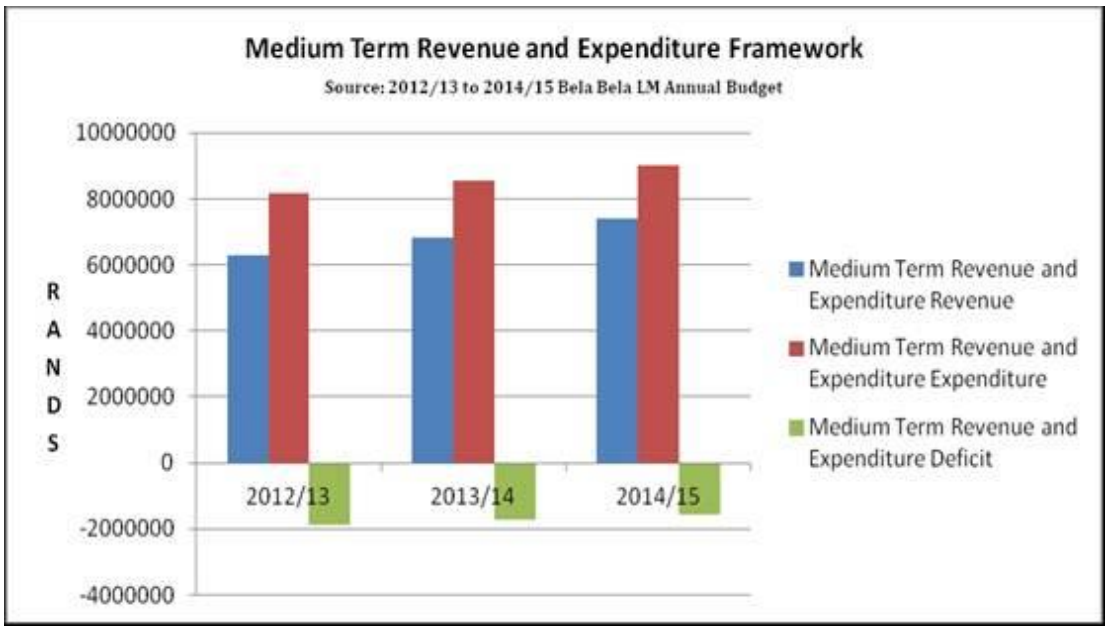

Figure 11: Medium Term Revenue and Expenditure Framework

3.10 LANDFILL STATUS

The audit report done in November 2018 (See Appendix) indicated that the landfill site is non-compliant with GNR 636: National Norms and Standards for Disposal of Waste to Landfill (2013). Non-compliance with these regulations results in the absence of appropriate liners, leachate collection and leachate management systems. The landfill must be upgraded to comply with GNR 636.

Table 29: Het bad, Warmbad Landfill Site current status quo summary table

Position of site	24º 53'48.78" 28º 18 '30.25" 24 º 53"45.81' 28º 18'35.95" 24 º 53'49.21" 28 º 18'26.73" 24 º 53'53.02" 28 º 18'26.92"
Permit	Permit number B33/2/123/3/P184
Year issued	09 June 1995
Classification of site	G:M:B (General waste- medium-water deficient area)
Type of operation (end-tipping, trenching, cell)	Not formalised
Estimated size	**Approximately 12.80**
Estimated remaining life span	5years (Superintendent for waste management)
Separation of clean and contaminated water	Not evident
Ground water monitoring	Tests done monthly
Quantities waste receive	Record book kept by boom gate officer
Is cover material available	Yes
Sufficient drainage system	N/A
Access control	Not consistent
Site fenced	Need to repair broken fence
Buffer zone	No
Equipment on site	Yes, needs servicing though
Reclamation taking place	Yes, it is illegal to have informal declaimers on the landfill and risky as these get on moving vehicles and might cause accidents.
Operating hours	0700 to 1700
Site facilities	Not up to standard, lack most facilities
Operating cost	**R200,000 per month**
Cost for closure	
Closure plan	

3.11 LANDFILL OBSERVATIONS MADE DURING SITE VISIT

The waste disposal facility was observed during the site visit on 14 June 2019. At the main entrance there was no boom gate controller and it was observed at times, loads are taken in and out without anyone's approval. Waste pickers were seen inside the landfill site. Illegal dumping outside the landfill boundary is common as was observed outside landfill. There is more than one point for entry, as the fences are broken.

3.11.1.1 MEDICAL WASTE (HCRW)

Health Care Risk Waste (HCRW) or medical waste (i.e. gloves, syringes, expired pills) from clinics and the hospital used to be dealt at by Tshumisano Hazardous Waste Handlers. Currently, Buhle-Buhle Hazardous Waste Handlers is providing services.

3.11.1.2 ANIMAL AND ABATTOIR WASTE

The Municipality do have chicken farms and abattoirs. However, they only dispose general waste at landfill site (this includes cardboard, egg crates, plastic and tins). Chicken droplets, dead chicken and other waste are also sold to Thabakwena for feeding crocodiles.

3.11.1.3 FOOD WASTE

Currently is dumped at landfill site and there is no known active measure to compost this waste. Food waste can be used as raw materials for composting.

3.11.1.4 E-WASTE

Currently is dumped at landfill site and there is no known recycling of E-waste by the Municipality.

3.11.1.5 HOUSEHOLD HAZARDOUS WASTE

Currently is dumped at landfill site. Medical gloves were seen at the landfill site and containers of hazardous chemicals were seen in and outside the landfill. Hazardous waste should not be disposed of at the landfill as it is not designed to handle this type of waste.

3.11.1.6 TYRES

Currently tyres are dumped at landfill site and scavengers burn them in the landfill to retrieve wires for reselling at scrapyards. Tyres should be recycled if possible and it is creating toxic air emissions to allow them to be burned at the landfill. It not only poses a health and safety risk but also could lead to fire spreading on the landfill which is combustible due to the decomposing waste onsite.

3.11.1.7 BUILDING RUBBLE

Rubble is also dumped at the landfill site. Additionally illegal dumping of rubble was commonly observed in BBLM. Rubble is used as cover and fills material at the landfill. Observations were made during site visits between on the 14 June 2019 about the physical condition and general cleanliness of Bela-Bela Municipality and all wards were visited.

3.11.2 THE TOWNSHIP / AND OR SURROUNDING VILLAGES

Bela-Bela Suburbs Area- the suburbs generally had clean streets. Hence it looked well maintained. The Bela-Bela Township is clean, however needs street sweeping and litter picking. The other part of the township, Zuma, does not receive refuse services though a skip bin was provided, however, it is not conveniently located to service all residents. On addition, skips should preferably be used for builders' rubble and garden waste and not domestic household waste. There was also illegal dumping and people were burning their refuse. Small scale recycling initiatives by individuals are commonly seen. Recycling initiatives by individuals are common.

Masakhane Township looked clean and municipal refuse bins were seen by the roadside. There is part of the township however that was not serviced; hence they burn their refuse there. A borrow pit found in the area is being used as an illegal dump and this should be cleaned up and regulated by the Municipality and the residents should be told not to dump illegally. Recycling initiatives by individuals were commonly seen.

Pienaarsrivier Township was clean, however by the new houses rubble dumping is taking place in an open veld. There is also an illegal dumping site by the wetland and water tank, posing a threat to the wetland. Recycling initiatives by individuals are common.

Settler's area needs attention. An illegal dumping site was found. Hence there is a need to clean the streets. By the gravel road to Rapotokwane another illegal dumpsite was seen, though on private land, Municipality should intervene. Rapotokwane Area was clean. Since there is no refuse removal services, people burn their waste. Recycling initiatives by individuals are common.

Tsakane Area needs attention. Several spaces are used as illegal dumping sites. Though not receiving services, it needs Municipality to intervene.

3.11.3 THE COMMERCIAL AREA

In the Bela-Bela central business district-The streets in town are clean. Refuse bins were found at convenient positions, however due to the volume of refuse generated, some are filled up by half-day. Thus need bigger bins or increase frequency of collection. Building rubble was found on some streets. The Metal Market by taxi rank was clean, hence they use recycled raw materials (metal) to make their wares. Rubble seen on the streets should be removed. The open field behind DROS restaurant need to be cleaned; hence no further dumping should take place.

Bela-Bela Industrial Area- the industrial areas streets were clean.

Pienaarsrivier Business area- the streets of the business area are clean, though there are signs of burnt tyres. The manager of Pienaarsrivier Supermarket said their waste consisted of cardboard, paper and plastic. A private recycler picks up these recyclables. The foreman of a workshop opposite Pienaarsrivier Supermarket says used motor oil was collected by individuals who make polish from it, scrap is given to people who usually sell to recyclers.

Radium Business area- the streets of the business area are clean. In a refuse dustbin from the local filling station, petroleum oil cans and plastic bottles were found.

Settlers Business Area was clean.

4 PROBLEM ANALYSIS

Numerous methods were used to identify the problems and challenges faced by the Municipality. In discussion with the Municipality and stakeholders, challenges were categorised into different groups as shown in the table below. From the identification of the problems and challenges faced by the Municipality, the overall problem statement was drawn as:

"Waste management in Bela-Bela Local Municipality does not meet minimum national legal, operational or financial requirements, thus resulting in an ineffective system and an environment and population at risk".

Situation remained the same since the approval of the first IWMP in 2014

Table 30: Summary of identified gaps and problems

Waste Minimisation	
IWMP	• IWMP do not form part of the day-to-day operations • Lack of prioritization by municipalities of the waste service delivery
Awareness and education	• Bylaw not enforced • Poor relations with municipalities and reclaimers/recyclers
No recycling and reuse strategy in place.	• No composting of organic waste. • In most instances, recycling is done informally; unless commercial/industrial then formal recycling, and the rest goes to the landfill. • No paper bank. • No separation at source initiatives. • No Waste Transfer Stations (WTS). • No formal waste Material Recovery Facility (MRF) in place.
Inappropriate and dangerous informal waste reclamation.	• Waste reclaimers do not have adequate protective clothing (safety shoes) • Municipalities rarely engage with reclaimers (waste reclaimers are important as they reduce waste, thus lengthening the landfill lifespan
Waste service delivery	
Landfill not 100% compliant	• Noncompliance with landfill permit. • Insufficient infrastructure • No weighbridge for accurate record keeping. • Poor coverage of waste and compaction at landfill.
Inadequate waste collection service	• Not all residents receive waste management services. • 3 327 from informal settlement do not receiving refuse services (backlog). • Illegal dumping a common trend. • No rubble refuse collection strategy.
Difficult access to rural areas.	• Access to rural areas difficult to areas with gravel roads. • Rural communities are spread far apart. • Informal settlements add to service delivery burden.
Integrated waste management planning	
National requirements and legislation not met.	• Waste minimisation programmes and national objectives are not met. • The opposite of the Waste Hierarchy is true • Minimum expectations in terms of Agenda 21 are not implemented.

Ineffective monitoring and evaluation.	• Inadequate waste information systems are in place. • Lack of effective monitoring and information systems for waste management. • Inadequate scientific research in place for waste management.
Domestic hazardous waste is not managed.	Inadequate controls to manage hazardous waste disposal. No strategy to dispose of hazardous waste.
Budget and Resources	
Inadequate and inappropriate equipment.	• Poor equipment maintenance, equipment not in good condition. • Insufficient equipment • No vehicle purchase plan. • Vehicle replacement policy is not applied at the Municipality
Inadequate infrastructure at landfill site.	• Does not adhere to permit conditions • No weighbridge – means inaccurate estimates of quantities of waste.
Poor municipal finances	• The Municipality has a precarious cash flow position and there is less budget for environment processes • Lack of support to waste reduction initiatives.
Human resources and Organisational Development	
Shortage of staff	Limited capacity within the Municipality to drive waste minimisation and recycling initiatives. Current staff profile inadequate to plan or manage programme to extend waste services.
Awareness	
Inability to develop and enforce By-laws.	• Outdated and no enforcement. • Illegal dumping and littering. • By-laws treated as tariffs.
Inadequate awareness raising and education.	• Inadequate education and capacity building. • Lack of publications for information dissemination to the public.

The review of this IWMP and its subsequent integration into the local Municipality's IDP represents a critical step in addressing these challenges.

4.1 SUMMARY OF GAPS AND CHALLENGES

The main challenges identified while reviewing the BBLM_IWMP includes:

- Some national requirements and legislation not being met;
- No accurate records for the waste which is being landfill and no plan to that effect;
- A lack of accurate waste data;
- Equipment's are available but not in good condition to service the section accordingly
- Lack of skills development programmes and inadequate and limited capacity within the Municipality to manage waste effectively
- A lack of capacity in the Municipality regarding integrated waste management;
- Inappropriate and dangerous informal waste reclamation occurs at the landfill;
- No composting facility for the Municipality
- Ineffective monitoring and evaluation
- Lack of appropriate or adequate plans and policies;
- A lack of integrated Waste Management By-laws;
- A lack of capital funds and increased cost of waste e.g. containment barriers;

- A lack of information on waste input material in order to develop alternative waste technologies; and
- Limited access to recyclables and lack of markets for secondary goods.

4.2 SWOT ANALYSIS

The additional Strength, Weakness, Opportunities and Threats (SWOT) can be summarized as follows:

Table 31: Strengths, weaknesses, opportunities, threats

STRENGTH	WEAKNESSES
1. Bela-Bela Municipality is not an industrial area and the possibility of industrial effluent is minimal. 2. Financial resources to sustain refuse removal contracts. 3. More land available for development. 4. Safe and sustainable environment. 5. No soil degradation and erosion.	1. Lack of contingency plans for environmental protection for future developments. 2. Inability to implement by-laws that regulate waste disposals.
OPPORTUNITIES	**THREATS**
Collaboration with local informal waste pickers 2. Involvement of schools in waste and environmental awareness. 3. Collaboration with business to make available resources to deal with environmental control. 4. Formation of waste site committee(s) to regulate the safety of waste dumping site(s). 5. Establishment of waste sorting and recycling plant at a proposed site in Pienaarsrivier	1. Lack of control at the dumping site which attracts human scavengers. 2. Risk of infection for people interacting with refuse at the dumping site. 3. Inappropriate waste disposal methods (which includes burning of waste and the disposal of medical waste in an irresponsible manner).

5 NEEDS ANALYSIS

In terms of the National Environmental Management: Waste Act, as amended 2008 and the National Domestic Waste Collection Standards (21 June 2011), in order to achieve a universal and cost effective waste collection service and to provide efficient waste management, certain needs were identified which would ensure that the goals of the IWMP could be met. Other needs identified would be “nice to have” and would ensure a more effective and efficient system as a whole. The needs identified from interviews and observations are listed below.

5.1 AWARENESS, EDUCATION AND INFORMATION DISSEMINATION

The objective is to change people’s attitudes and behaviour to ensure a cleaner environment. Awareness encourages sustainable practices that reduce littering and illegal dumping in the long run. More emphasis should be on awareness creation relating to the implementation of the waste management hierarchy. Thus, waste minimisation and waste separation at source needs to be encouraged to enhance reuse and recycling activities. Willingness to pay for waste services will also improve with increased awareness as a result of increased insight into the benefits of waste services, as well as the actual cost thereof.

Due to differences in population densities among communities and geographical distribution, the Municipality should follow the National Domestic Waste Collection Standards and make the residents aware of the variant service levels.

- Kerbside collection;
- Organised transport to central collection points;
- Community transfer to central collection point (medium density settlements);and
- On-site appropriate and regularly supervised disposal (applicable mainly to remote rural areas with low density settlements and farms).

Communal collection points should be clearly demarcated, with appropriate receptacles where household waste can be deposited for collection. Waste deposited at communal collection points must be collected within twenty four hours of receptacles being reported as full or at regularly intervals so as not attract vermin and cause health impacts.

A public website or use of public broadcast or print media are nice to have for waste management and should contain information regarding collection days; contact people, landfill information, and garden refuse sites. Campaigns can be run on a ward basis including competitions to see which wards are the cleanest and who is able to generate the least amount of waste in a time period.

Industry and commerce have to be engaged and persuaded to participate in a programme of waste minimisation. Communication with local industries needs to ensure that tariff structures and strategies are updated and understood. The health industry in particular must keep records of waste generated and the Municipality must facilitate relationships between the medical concerns to enable joint medical waste treatment. If hospitals are able to send waste away for treatment then the clinics should be able to coordinate with them.

5.2 BY-LAWS AND ENFORCEMENT

By-laws are not tariffs but are a legal enforcement for transgressions. The implementation of by-laws, addressing all solid waste management issues such as waste minimisation, industrial, hazardous, and medical waste is important. By-laws are inadequate without enforcement and the Municipality needs to coordinate with other law enforcers such as Environmental Management Inspectors (EMIs) and the South African Police Service (SAPS) to assist. Implementation of by-laws should ensure that liability is addressed and that the generation, storage and disposal of industrial and domestic refuse is properly implemented. The Municipality must support recycling initiatives by implementing By-laws that facilitate the location, operation and use of such facilities.

5.3 COMMUNITY PARTICIPATION

Hands-on experience has been significant for community participation. Ward committees would be key participants to ensure that a community based system operates effectively by monitoring communal collection areas. A reporting and monitoring system, through the councillors would ensure that waste collectors are doing the job properly. Capacity building programmes and public awareness initiatives must be based on this chain of communication and focussed on targeted groups. The Municipality has to drive this process and must support any community participation or initiatives.

In general there is need to improve the socioeconomic conditions in general and unemployment and poverty in particular which contribute significantly to environmental degradation. In order to maintain a healthy and qualitatively acceptable environment, integrated waste management efforts should always harness opportunities to address poverty, hunger and unemployment.

5.4 COOPERATION, COORDINATION AND PARTNERSHIPS

The Municipality must increase its cooperation with the private sector at all relevant levels to improve the overall management of waste. Public-private partnerships must be pursued to support waste management services. Other municipalities have been shown to successfully cooperate with the private sector to source funding/sponsorship for waste management projects; collect the private sector's view; involve them in recycling and minimisation programmes; solicit opinions on waste management; create awareness amongst companies on waste issues; as well as efficiently outsourcing parts of the municipal service provision.

In areas that are not receiving any service at present, the Municipality can enter into agreements or partnerships with small entrepreneurs who collect on behalf of the Municipality and deposit refuse in clearly marked skips, sited within reasonable distances from the collection points. The Municipality can also have communal collection points where they can collect waste only when the receptacles are full. Awareness should also be carried out in areas where households are educated on how they can have onsite appropriate and regularly supervised disposal pit.

Recyclables could be collected by newly organised (previously informal) reclaimers. The Municipality could facilitate and support an initiative that provides a more suitable livelihood for them and at the same time a community service. The recyclables collected can be taken for sale to buy-back centres.

The collection service could be contracted out completely, which would require a Municipal Service Project (MSP) study which would explore alternatives to the privatization and commercialization of service provision. If, once the MSP study has been completed and it is decided to outsource the collection operation, tender documentation must be drawn up to ensure that a proper waste collection service is delivered by a competent contractor. It is important to have a proper contract in place with incentives and penalties. Outsourcing of collection activities could be considered as an economically feasible solution and is therefore recommended.

5.5 HUMAN RESOURCES

Municipal staff at all levels (street sweepers to managerial positions) require capacity building in a number of areas such as environmental management, sustainable development, gender awareness, managerial skills, computer skills and project management. Improved training should reduce down time due to incidents and accidents. Staff should be continually trained to ensure that informed decisions are made, that the knowledge base is strong that, health and safety procedures are followed and legal requirements are implemented. Private contractors should be compelled to train their staff in order to improve levels of production and safety.

Succession planning and restructuring should be done to accommodate those who can no longer do the work that they were employed to do. More streamlined processes for filling vacancies must be adopted. Services (existing and/or new) that the Municipality cannot render should be contracted out. During peak seasons waste management resources should be able to handle double the capacity of waste that is generated throughout the rest of the year. Staff planning must take into consideration improved efficiency a well as a planned extended service delivery.

5.5.1 WASTE MANAGEMENT OFFICER

In terms of the NEMWA, every Municipality must have a Waste Management Officer (WMO). A WMO's role is to coordinate waste management at each level of government. At the municipal level the WMO is designated in writing by the Mayor. The Department of Environmental Affairs has guidelines on the roles and responsibilities of WMOs. A WMO is not a dedicated job position but it is a role that has to be allocated to an appropriate manager in the Municipality who deals with waste management.

The responsibilities of a municipal WMO is to:

- Manage stakeholders in NEMWA implementation;
- Liaise with Environmental Management Inspectorate compliance monitoring activities in the Municipality;
- Ensure municipal IWMP planning and reporting cycles;
- Build capacity in relation to the Waste Act implementation; and
- Monitor adherence to norms and standards in the delivery of waste services.

The WMO may be supported by a dedicated public liaison and education officer who is capacitated in terms of the NEMWA and the Municipality's IWMP. The WMO was designated by the Mayor of the Bela-Bela Local Municipality (refer to appendix C for the evidence). New capacity required to implement the Waste Act as stated in the National Waste Management Strategy is summarised in the table below:

Table 32: New Capacity Required to Implement the Waste Act

Sphere of Government	Functional Area	Requirements
All	Integrated waste management plans	Staff who can draw up concrete plans for waste service provision
All	Monitoring and enforcement	Additional EMIs, two thirds of them at local government level. Specialised training in the Waste Act for these EMIs
Municipal	Planning	Staff who can plan for the appropriate levels of service, extension of services, and landfills.
Municipal	Delivering waste services	Staff that can implement internal waste service delivery or manage contracts with private service providers.
Municipal	Waste separation and recycling	Staff who can plan and establish such facilities.
Municipal	Financial management	Staff, who can undertake full cost accounting, ring fence waste service budgets, establish and implement cost reflective and volumetric tariffs, and implement the free basic services policy through subsidies for the indigent.
Municipal	Financial planning	Staff who can plan capital expenditure based on infrastructure modelling
Municipal	Communications	Staff who can effectively communicate with communities about proper waste management practices.

It is important for municipalities to put personnel in place who have sufficient capacity and knowledge to undertake the support and planning of waste minimisation and recycling schemes.

5.5.2 LANDFILL OPERATIONS

There is a need for the Municipality to enhance the management of the operating contract; the *contract has to be carefully managed* by a dedicated person at the Municipality and any breaches of the contract or the landfill permit

must be managed according to the conditions of the contract. The contract must be clear and unambiguous and comply with all legislative requirements for landfill operations. The landfill and operations of the contractor has to be monitored regularly. Successful examples of community monitoring committees (drawn from residents living in close proximity to the landfill) in other areas provide an opportunity for replication in Bela-Bela. There is also a need for a weighbridge to ensure accurate records of waste deposited at the landfill and recyclables generated at the landfill.

5.6 INFRASTRUCTURE

The infrastructure required in the development of the new landfill site includes the following:

- Landfill cell - site to be divided up into multiple cells and developed in phases,
- Recycling yard – building to be provided for safe working environment for recyclers/salvagers,
- Compost yard – hardstand area for placing compost materials in windrows,
- Road works – access road to site and onsite roads for access to facilities and perimeter fencing,
- Perimeter fencing and access control (gates and boom),
- Office building and ablutions,
- Weighbridge and computer facilities, and
- Electricity supply.

Note that the new landfill site must be developed and constructed in accordance with the National Norms and Standards for Disposal of Waste to Landfill, 2013 in order to comply with Section 20 of the Environment Conservation Act, 1989 (Act 73 of 1989) as amended.

The approximate area of land required for the development including recycling and composting yards is 40 to 45 hectares.

5.6.1 LANDFILL OPERATIONAL EQUIPMENT

In order to comply with the licence conditions of the new landfill site, the following equipment should be considered as a minimum:

- Tractor Loader Backhoe - TLB (4x4)
- Landfill compactor (26 ton)
- Tractor/Water cart (to be used for dust suppression)

With an anticipation of more than 300 tons per day of waste to be landfilled, it would be necessary to use a small (26 ton) landfill compactor to spread and compact waste. The TLB can be used to excavate and load cover material and attend to deep burial of putrescible waste.

5.6.2 LANDFILL TYPE

The methodology that should be employed to dispose of the wastes could either involve the area spreading (level area) or ramp method (approximately 1 vertical to 7 horizontal), contained within an operating cell. The operating cell is formed by surrounding the rectangular cell on three sides with a 2 – 3 metre high berm constructed using the incoming builder's rubble (or construction wastes). The size of the cell is determined by the number of incoming vehicles and the need to keep the working face as small as possible. The waste is tipped onto the floor or ramp

by the delivery vehicles. The waste is then spread by a landfill compactor to a thickness of approximately 300 – 500mm. The compactor then carries out another 3 – 4 passes in order to compact the waste. This process is repeated until the top of the surrounding berms has been reached or until the end of the working day. Thereafter the surface of the compacted wastes is covered with a nominal 150mm soil. This prevents wind scatter and the breeding of flies, etc. This process is known as "sanitary landfilling".

The operation that is currently being carried out on site involves "end tipping" of the wastes, random tipping by delivery vehicles and no control of an organised working face. This leads to widespread operations, poor compaction of the wastes and intermittent fires instigated by the informal salvaging operators. A visit to the site also confirmed the significant presence of flies indicating that wastes are not being properly covered at the end of each day's operations. This is considered to be a significant health risk to all personnel on the site. Significant wind scatter is also evident adjacent to the landfill indicating very poor control of disposal operations and the lack of cover material being applied.

5.7 WASTE COLLECTION AND TRANSPORTATION SYSTEMS

With the ever-existing financial constraints, the Municipality faces a serious challenge to provide universal service by the target date cost-effectively and sustainably. An urgent restructuring of the system is required so that the service that is delivered at present is *improved and extended*.

Service levels should vary between:

- Kerbside collection.
- Organised transport to central collection points;
- Community transfer to central collection point (medium density settlements);
- On-site appropriate and regularly supervised disposal (applicable mainly to remote rural areas with low density settlements and farms).

At household level the type of service will determine the type of receptacles, infrastructure and equipment required to render the service. A sufficient number of skips have to be provided. They must be properly monitored and some infrastructure has to be provided to allow wheelbarrows or individuals (including children, the disabled or the aged) to access them. They have to be emptied regularly by the Municipality. It was recommended by workshop participants that the skips should be fenced to avoid illegal dumping at night. Properly marked and monitored skips could support recycling programmes in that some skips can be identified for recyclables only and others specifically for garden waste, building rubble or domestic waste.

Waste from sources other than households will require systems as determined by the type and volume of waste and the collection frequency required.

The choice of transport vehicle may also dictate the most appropriate receptacles to be used. Regular and planned vehicle maintenance is required to ensure the reliability of the transport fleet. A contingency plan, detailing the course of action in cases of vehicle breakdowns, is required in order to maintain the required level of service. Transport routes and distances to travel between collection points and disposal/transfer facilities will influence the type and size of vehicles used. The Municipality should make use of wheelbarrow, hand drawn carts, push carts, bicycles, donkey's carts, tractor trailer combinations, bakkie, bush trucks, cage trucks and compactor vehicles. Different vehicle types may be appropriate for different stages along the waste collection and transport route, for example, from household to central collection point, to transfer station and lastly to landfill. Collection vehicles that are the most appropriate for the specific task should be used. Consideration must be given to the following:

- Type of waste to be removed – recyclable or non-recyclable;
- The geographical area of collection;
- Accessibility – for example road conditions and narrow roads or roads without thoroughfare;
- The method of collection – for example, whether the receptacles in use need specialised equipment to be lifted or not;
- Distance and route to cover;
- Number of staff in collection team.

Waste collection systems must provide for the collection of separated waste as required by the Waste Act 2008 (Act No. 59 of 2008). Current collection systems are often not conducive to waste separation at source and hence must be revised and adapted accordingly. Dual collection systems for recyclable and non-recyclable waste can entail multi-compartmentalised vehicles or separate collection rounds on the same or different days.

New developments must be taken into account in route planning and capacity development within the Municipality and must be included into the current route strategy. Current resources must be assessed for capacity to carry out the revised route. The shortest possible route with the least amount of repeat must be established. The revised collection strategy must be flexible enough to incorporate future changes. The Waste Management Officer needs to optimise the service delivery route unless collection is outsourced.

5.7.1 PHYSICAL RESOURCES

Policies must be put in place and be implemented to ensure that the equipment and fleet vehicles are properly maintained and replaced when necessary. The Municipality should have an asset register of its waste management equipment which monitors information on these assets. The provision of a regular waste disposal service to all residents of the Municipality requires vehicle upgrade and regular replacement. This can be implemented over a period of five (5) years. Old, broken and inappropriate equipment only serves to slow down the processes and to render the system cost inefficient.

A detailed analysis must be done on the vehicles and equipment required and obsolete machinery sold off and new equipment purchased. A maintenance programme must be put in place to ensure that the vehicles and equipment last and are able to do the job that they were purchased to do. Machinery and equipment has to be properly stored to ensure a longer life.

In a full cost accounting system depreciation costs are applied to the equipment and when they reach the end of their life span, they must be upgraded accordingly. A fleet management strategy must be developed to optimise the usage of the equipment as well as the costs involved. The strategy should include careful route and maintenance planning as well as a vehicle replacement mechanism.

If a system of collection of recyclables by former informal reclaimers can be implemented the Municipality needs to determine what kind of collection vehicles are required – these could be as simple as caged carts and they could be taken to a central point for collection by the Municipality who then take it to a MRF for sorting.

5.7.2 WASTE COLLECTION SYSTEM REQUIREMENTS

In terms of the collection system requirements, the following collection vehicles and equipment were considered to be appropriate:

- Skip containers (6m^3) and skip loaders

- Rear end loader compactors – RELs (12m^3)
- Rear end loader compactors – RELs (21m^3)
- Tipper trucks (6m^3)
- Tipper Trucks (10m^3)
- Tractor/Trailer combinations (10m^3)

Various combinations were assessed. The final mix of vehicles selected to service Bela-Bela Municipality area are as follows:

- 30 Skips (6m3)
- 5 Skip loaders
- 2 Tipper Trucks (10m^3)
- 2 Trailers
- 1 Bakkie
- 5 Tractors

5.7.3 SOURCE SEPARATION VERSUS MIXED-WASTE COLLECTION

Using a "true cost" accounting system, mixed waste collection is an expensive option. Waste minimisation and recycling reduces the waste stream going to landfill sites, thus saving landfill airspace, it can create jobs, help to reduce pollution and conserve natural resources, conserve energy, reduce manufacturing costs, reduce litter and reduce informal reclaiming, all of which have inherent and long term associated costs. The motivation for recycling therefore is not solely to make money out of the resale of the recyclable items, but rather to save money by conserving landfill airspace and by reducing collection and disposal site operation costs due to handling reduced volumes.

Informal recyclers and formal recycling companies understand the value of recyclable waste and there is potential for growth in this industry as the public become more aware. Residents must be encouraged to separate recyclable waste from general waste before it reaches the landfill. Ideally, residents would sort their waste into fractions of plastic, glass, tins, paper and organic material with a minimum amount going to general waste for the landfill. Another possibly more feasible option, and one that would require less resources specifically with regard to differentiating receptacles, is to separate all recyclables from general waste and organic waste. Recyclables can be placed in a green bag, for example and general waste in a black bag. General waste can be collected by the Municipality and green bags by recycling cooperatives or entrepreneurs.

While it is noted that it is important to educate the public, information on its own is not sufficient; residents and commercial and industrial establishments must also be ***enabled to participate*** in recycling programmes by the Municipality. The Municipality must cooperate with the recycling industry; informal recyclers and the public in order to initiate enable and support recycling projects and programmes throughout the Municipality. The national target of eliminating informal recycling at landfill sites increases the need to provide additional formal job opportunities within the recycling industry. Recycling containers should be provided throughout the municipal area and in areas where skips are to be used, they should be clearly marked and information provided; skips must be properly monitored and regularly emptied. Recycling containers should be strategically placed at easy accessible locations such as illegal dumping areas and transfer stations. Alternative funding sources should be investigated in order to assure financial sustainability of waste recycling strategies and promote LED projects and job creation.

5.7.4 ORGANIC WASTE

An effective and economically viable sustainable composting strategy must be developed. A feasibility study needs to be conducted and primary users of compost identified to assist in the study. Composting can alternatively be encouraged among residents and strategies taught to them to make and use compost. The viability of a composting plant will depend ultimately on the volumes of garden waste that are available and the market for the compost (although the compost could be used by the Municipality itself for its parks and gardens). Another alternative that can be considered is that the Municipality receives the garden waste from the public, processes it into compost and then when residents deliver garden waste; they receive in exchange compost free of charge. Although this will cost the Municipality (covered by the waste tariff), there will be a savings in landfill airspace.

5.7.5 RECORDS AND REPORTING

The landfill should have a weighbridge and a monitoring system which records the amount of waste being offloaded to the landfill. This data should be fed into a municipal and provincial waste Information System and then into the National Waste Information System (SAWIS). SAWIS will have a web-based mechanism where the following institutions will submit their data online:

- Generators of hazardous waste
- Recycling and recovery facilities
- Waste treatment facilities,
- Waste disposal facilities
- Exporters of hazardous waste

The National Waste Information Regulations will provide the volumetric thresholds at which SAWIS registration and reporting is required and stipulate sanctions for non-compliance. The volumetric thresholds avoid the need for reporting by small scale recyclers; these statistics will be assembled higher up in the value chain.

It is important that accurate records are kept of the quantities and types of waste collected and disposed of at the landfill site. A weighbridge needs to be installed as a minimum requirement for accurate record keeping. If however, no weighbridge is installed waste quantities collected and disposed of at the local landfill site must be calculated at all times, using established general units per type of load. A dedicated responsible person for record keeping and access control at the entrance of the landfill site must be appointed. Log sheets can also be kept by either drivers or supervisors at the landfill site.

Collection records must also be kept as well as records of waste reclaimed and recycled. Partnerships developed with recycling entrepreneurs and buy-back centres must include a provision that records are of a certain standard and can be made available at any time.

5.7.6 LEGISLATIVE COMPLIANCE

The Municipality must ensure that its plans, policies and activities, and those of its contractors, comply with legislation and meet national and international targets and take cognisance of international and national treatise. The current by-laws must be *revised and updated* to include such issues as waste minimisation, recycling and waste information systems.

Bela-Bela does not have waste By-laws but, since so many changes have occurred and are still occurring, By-laws have to be put in place to suit the current situation and to address issues such as garden and bulky refuse, special industrial waste, hazardous, medical and infectious refuse, solid waste disposal, littering, dumping, and other ancillary matters. Harsh penalties must be imposed for illegal activities and the Municipality must ensure that the penalties can be enforced.

5.7.7 MONITORING AND REVIEW

The implementation plan must be based on a logical framework developed in this IWMP, which should address all the issues and challenges identified, set clear objectives, key performance indicators and targets. The activities must be carried out according to the implementation plan which should include methods of data collections and means of verification. Performance management systems can be developed in line with the implementation plan to ensure that the staff compliment complies with the required service delivery.

5.7.8 FINANCIAL MANAGEMENT

A clear need exists to improve on the systems and generate monthly reports on the cost and income of the waste collection service. Training in operating these systems will improve decision making significantly. The collection of fairly imposed rates and tariffs must be more efficient to ensure sustainability. Rates must be collected from those who can afford to pay them and the outstanding rates for those who cannot, obtained from Equitable Share Grant. Income from waste tariffs must go to waste projects and infrastructure. Proper, effective financial management must be carried out so that maximum benefit can be gained from limited resources.

Full cost accounting or *True cost accounting* (which takes into account the full spectrum of costs including environmental costs) must be adopted to ensure that all benefits and costs are taken into account. This includes any potential savings that the Municipality would benefit by implementing a waste minimisation or recycling programme because less waste would be disposed of in the landfill sites and hence their lifespan would be extended. Clear budgets must be prepared for all activities planned and where shortfalls are found, additional funds must be sought from other sources (donor funds, government grants, etc.). All funding avenues must be explored and those that have already been accessed, such as the Municipal Infrastructure Grant (MIG), must be used in accordance with a clear, appropriate and relevant plan. Service delivery can be structured in such a way as to obtain funding from various sources e.g. job creation initiatives, SMME development, MIG, EPWP and LED projects.

5.7.9 INCENTIVES AND PENALTIES

A large portion of waste generation comes from unnecessary packaging of goods in non-recyclable materials and containers. If the Municipality wants to tackle this problem at source then either incentive has to be put in place to reduce waste or by-laws developed to enforce participation. System can be put in place to monitor quantities of waste generated by commercial and industrial enterprises and tariffs increased for excessive waste produced and tariffs reduced for successful minimisation.

Tariffs and tax incentives including tax exemption for recyclers who purchase new recycling equipment; low interest loans for purchase of recycling capital equipment; landfill charges or taxes; raw material charges; the facilitation and subsidisation for collection and transport of materials for recycling; and enhancing market conditions for recycling by ensuring the supply; would all promote a culture of sustainable recycling. The Municipality could lead the way by adopting a green procurement policy that requires a certain proportion of the products they purchase to contain recycled material e.g. recycled and or biodegradable paper products, lubricating oil, traffic cones, envelopes, plastic desktop accessories, refillable ink cartridges, etc.

Tariff structures could be implemented to provide an incentive for the commercial sector to take part in the recycling strategy and increased for industries and commercial enterprises that cannot reduce waste. The Municipality should implement a requirement for business and industry to produce recycling plans as part of their broader environmental strategy.

In some community centres, successful recycling programmes have proved to be an income generator and have raised considerable amounts of funds. Getting members involved in recycling programmes has the two fold outcome of raising funds and educating the community about the environment. Schools should be assisted in negotiating with the buyback centres to purchase and collect recyclable materials collected by the learners.

5.7.10 SERVICE CHARGES

Suitable and appropriate tariffs must be charged and collected by means of the rates bill in those areas that receive municipal kerbside collection. The Municipality must ensure collection by first of all ensuring that it delivers the service for which it is charging and secondly by keeping accurate records and enforcing collection. In those areas where alternative methods of waste collection are considered, innovative ways of collecting tariffs can be explored, but the draft policy on free basic refuse removal must be taken into consideration when planning the budget

6 STRATEGIC OBJECTIVES

In terms of the draft National Framework Guidelines for the development of an Integrated Waste Management Plan, the overall aim of an IWMP is:

"To integrate and optimise waste management, in order to maximise efficiency and minimise the associated environmental impacts and financial costs, thereby improving the quality of life of all South Africans"

In order to contribute to the achievement of this aim, 6 strategic goals have been identified informed by the situational analysis, the problem analysis and needs analysis and in line with legislative requirements, international and national targets as well as the National Waste Management Strategy. The six goals forming the framework of the Bela-Bela Integrated Waste Management Plan are listed as follows:

- Goal 1: Waste Prevention, Minimisation and Recycling.
- Goal 2: Effective and efficient delivery of waste services provided throughout Bela-Bela
- Goal 3 Plans and policies enable effective waste management services and are integrated into all municipal plans
- Goal 4: Adequate and appropriate physical resources in place to ensure cost-effective waste management
- Goal 5: Sufficient and appropriately skilled staff utilised optimally to ensure that waste management is effectively carried out in Bela-Bela
- Goal 6: The people of Bela-Bela are aware of the impact of waste on their health, wellbeing and the environment, and are informed of the waste management programmes planned by the Municipality.

Several key objectives were identified which would contribute to the achievement of these goals. To ensure that the plan can be properly monitored and the performance of implementers assessed, indicators were developed against each of the identified goals and objectives, a means of verification was identified and targets set for a five year review.

6.1 GOAL 1: WASTE PREVENTION MINIMISATION AND RECYCLING.

The long term objective is to ensure that waste prevention, minimisation and recycling procedures and practices are adopted by all sectors of society and that salvaging at landfills is phased out completely. In order to achieve this long term goal, two strategic objectives were identified:

1) An effective reduce, re-use and recycle strategy is implemented;
2) An appropriate and safe waste reclamation programme is in place

The achievement of these objectives would require certain key interventions these being:

- Introduction and enforcement of appropriate regulatory instruments
- Development and implementation of appropriate economic instruments and other financial incentives
- Adoption of measures aimed at facilitating and coordinating the implementation of existing successful waste minimisation and recycling initiatives

- Development and implementation of a programme for the dissemination of information by DEA concerning the techniques, opportunities and benefits associated with cleaner production, waste minimisation and recycling.

6.2 GOAL 2: EFFICIENT AND EFFECTIVE DELIVERY OF WASTE SERVICES

The long term objective for the delivery of general waste management services is:

- to provide an appropriate, affordable and sustainable waste collection service to all the people of the Municipality, and
- to ensure that all unavoidable waste is safely collected, transported and disposed of at the landfill site operated in accordance with DWAF Minimum Requirements.

In order to achieve this goal, two strategic objectives were identified:

1) Skips are appropriately placed, properly managed, labelled and controlled
2) Bela-Bela provides effective waste collection throughout the Municipality

The key interventions required to meet these objectives were identified as:

- Disposal infrastructure to meet required standards.
- Ensure that the landfill site meets minimum requirements and license conditions at all times
- Using the indigent register to estimate the number of households who require subsidised refuse removal
- Defining appropriate service levels of as per the National Waste Collection Standards for different settlement types

6.3 GOAL 3: PLANS AND POLICIES

The long term objective is that waste management is integrated into all the plans and programmes of Bela-Bela Local Municipality and comply with legislation and regulations to ensure that services are optimised and are cost effective and that waste management forms part of all other plans. Three strategic objectives to be achieved in order to realise this long term objective are:

1) Plans and policies are integrated and comply with Legislation, regulations and national and international treaties
2) A fully integrated waste information system is in place
3) Hazardous and Medical waste is properly managed

6.4 GOAL 4: PHYSICAL RESOURCES

In order for waste management to take place optimally and effectively sufficient resources have to be allocated. The correct equipment must be available, properly maintained and operating properly at all times. Infrastructure has to be appropriate and must not only meet the minimum requirements, but must enable the community to actively participate in minimisation, reuse and recycling programmes. Sufficient funds need to be in place to ensure that waste management is carried out effectively and that services are delivered to all residents of Bela-Bela. Four strategic objectives identified to achieve this overall long term goal include:

1) Adequate funds are in place and systems are cost effective
2) Appropriate and sufficient equipment is in place to ensure effective policy and strategy

3) Landfill infrastructure is adequate and appropriate and suited to future development.
4) Vehicle maintenance and replacement policy in place.

6.5 GOAL 5: HUMAN RESOURCES

The staff compliment must be fully productive and properly capacitated to carry out their designated functions. There needs to be enough staff and they need to know and understand waste management issues. Management must be able to manage staff and must have good relationships with the workforce. The strategic objective identified to realise this goal is:

1) Bela-Bela Municipality is adequately capacitated to ensure effective service delivery

6.6 GOAL 6: AWARENESS RAISING AND INFORMATION DISSEMINATION

Waste management programmes are useless without the buy in of the people who generate the waste. The community needs to understand why they should reduce and recycle waste and how they can do this. They also need to be aware of the Municipality's efforts at providing a good waste management service and maintaining a healthy environment. Where voluntary waste reduction initiatives are not effective then effective by-laws need to be put in place to enforce compliance. Two strategic objectives for this goal are:

1) Effective awareness raising strategies are in place
2) By-laws are enforced

Indicators (how success can be measured), targets (the incremental measure of the indicators) and the means of verification (what will be used to verify the outcomes of an assessment) were identified against each of the goals and this forms the logical framework of the IWMP. The log frame is represented in the table below:

6.7 BELA-BELA IWMP LOG FRAME

Overall Goal: Waste management in Bela-Bela is effectively integrated into the operational, financial, legal and institutional functions of the Municipality to maximise efficiency and minimise associated environmental impacts and financial costs, to ensure that the residents of Bela-Bela enjoy a healthy and clean environment.

Table 33: Bela-Bela IWMP Log Frame dated 2013

Goal / objective	Indicator	Targets	Means of Verification
Goal 1: Waste Prevention minimisation and recycling.	**% reduction in volumes dumped in landfill site**	**20% reduction in first year, a further 20% in the second year and 10% per year in the following 3 years**	**Weigh bridge records**
Objective 1.1: An effective reduce, re-use and recycle strategy is implemented	% increase in buy-back volumes recorded	20% reduction in first year, a further 20% in the second year and 10% per year in the following 3 years	Collated buy-back centre reports
Objective 1.2: An appropriate and safe waste reclamation programme is in place	% provision of protective clothing for reclaimers.	Reclaimers are provided with protective clothing and better shelter for storage Clear, observable improvement of conditions within the first year	Spot surveys; Independent observation reports. Shelter in place.
Goal 2: Effective and efficient delivery of waste services provided throughout Bela-Bela	**% reduction in illegal and informal dumps within the first 2 years**	**40% in the first year and 20% per year for the following 3 years**	**Survey results**
Objective 2.1: Skips are appropriately placed, properly managed, labelled and controlled	% visible improvement in state of skips and surrounding areas	50% improvement in the first year and 50% by year 2	Observation reports; Survey Checklist
Objective 2.2: Appropriate and sufficient equipment exists to ensure that the landfill is well-managed and properly run	Installation of weighbridge	100% by the end of the first year	Weighbridge in place.
Objective 2.3: Bela-Bela provides effective and sustainable basic refuse removal throughout the Municipality	Basic refuse removal services extended to all communities including rural areas in terms of the national standards requirements	50% within the first year and 100% by the end of the 2nd year	Service schedule; Survey report
Goal 3: Plans and policies enable effective waste management services	**The** Bela-Bela **IWMP informs the IDP and the District IWMP;**	**All line items accounted for and appear in the IDP and District IWMP**	**Evidence of integration in reports and plans;**

Goal / objective	Indicator	Targets	Means of Verification
and are integrated into all municipal plans			**Annual reports**
Objective 3.1: Plans and policies are integrated and comply with legislation, regulations and national and international treaties	All regulatory and legislative activities carry a line item budget. All sector plans are implemented according to the action items.	50% of "nice to have activities" in the third year, an additional 25% in the fourth year and 25% in year five	Annual reports
Objective 3.2: A fully integrated waste information system in place	All necessary statistics are readily available and are kept on an updated database and are used to inform all plans and strategies; the IWMS meets the requirements of the NWMS and the WIS	Complete database available by the end of the first year and updated bi-annually	Updated database; Annual reports
Objective 3.3 Hazardous waste is properly managed	No hazardous waste deposited at the landfill	80% reduction in the first year and 100% by the end of the second year	Site reports and records

Goal 4: Adequate and appropriate resources in place to ensure cost-effective waste management	**% decrease in the real cost of waste management (after capital expenditure)**	**50% decrease within the first year and 10% decrease per year thereafter**	**Annual reports**
Objective 4.1: Adequate funds are in place and systems are cost effective	100% of the allocated budget spent within each financial year	100% of allocated budget spent each financial year	Annual reports
Objective 4.2: Appropriate and sufficient equipment is in place to ensure effective service in line with future developments	Make provision for future developments	Start to budget for future needs from 2014.	Reports

Objective 4.3: landfill infrastructure is adequate and appropriate and suited to future development	Purchase of a weighbridge	Weighbridge installed by end of first year	Survey results; reports
Goal 5: Sufficient and appropriately skilled staff utilised optimally to ensure that waste management is effectively carried out in Bela-Bela	**All staff are utilised to their optimum capacity**	**100% roles and responsibilities defined and implemented.**	**Performance evaluations**
Objective 5.1: Bela-Bela Municipality is adequately capacitated to ensure effective service delivery	100% of jobs are filled; no unnecessary posts are held; performance management targets are met	Within 1 year all vacancies should be filled.	Annual reports
Goal 6: the community of Bela-Bela are aware of the impact of waste on their health, wellbeing and the environment, and are informed of the waste management programmes planned by the Municipality.	**% improvement in the appearance of Bela-Bela**	**80% clean in the 1st year.**	**Survey results**
Objective 6.1: Effective awareness raising strategies are in place	All communities reached regarding waste reduction, recycling and reuse and appropriate use of skips and services	20% reached in the first year and a 10% incremental increase thereafter	Workshop and engagement reports
Objective 6.2: By-laws are enforced	% reduction in illegal dumps and visible littering.	50% improvement in year 1 and 100% in year 2	Observational reports

Table 34: Review all the goals which were set in 2014 and compare to the current situation in 2019 within the Municipality

Goal / objective of year 2013	Overall Targets to be achieved	Key Issues of Current WMS BBLM 2019	Indicators	Time frame to achieve goals/objectives					Responsibility & timeframe (short,medium&long term goals)
				1	2	3	4	5	
Goal 1: Waste Prevention minimisation and recycling	**20% reduction in first year, a further 20% in the second year and 10% per year in the following 3 years**		**Waste prevention, minimisation & recycling**						
Objective 1.1: An effective reduce, re-use and recycle strategy is implemented.	20% reduction in first year, a further 20% in the second year and 10% per year in the following 3 years	There is no record for the volume of the buyback centre.	An effective reduce, re-use and recycle strategy	**X**					**Municipality** Start Jan 2021 – July. 21 **Short -term goal**
Objective 1.2: An appropriate and safe waste reclamation programme is in place	Reclaimers are provided with protective clothing and better shelter for storage Clear, observable improvement of conditions within the first year	Reclaimers do not have PPE, but are allowed on site	An appropriate and safe waste reclamation	**X**					**Recycling companies** Starting 2021 and beyond **Long-term goal**
Goal 2: Effective and efficient delivery of waste services provided throughout Bela-Bela	**40% in the first year and 20% per year for the following 3 years**								

Objective 2.1: Skips are appropriately placed, properly managed, labelled and controlled	50% improvement in the first year and 50% by year 2	Skips are provided within the surrounding area	-						
Objective 2.2: Appropriate and sufficient equipment exists to ensure that the landfill is well-managed and properly run	100% by the end of the first year	No weighbridge installed on site Waste volume recorded looking at the type of vehicle	Appropriate and sufficient equipment to ensure that the landfill is well-managed and properly run	**X**					**Municipality,** Starting 2021 and beyond **Long-term goal**
Objective 2.3: Bela-Bela provides effective and sustainable basic refuse removal throughout the Municipality	50% within the first year and 100% by the end of the 2nd year	Refuse removal are done, but not religiously due to lack of resources, hence in some part of the Municipality, illegal dumps were observed.	Effective and sustainable basic refuse removal throughout the Municipality				**X**		**Municipality** Starting 2020 and beyond **Long-term goal**
Goal 3: Plans and policies enable effective waste management services and are integrated into all municipal plans	**All line items accounted for and appear in the IDP and District IWMP**								
Objective 3.1: Plans and policies are integrated and comply with legislation, regulations and national and international treaties	50% of "nice to have activities" in the third year, an additional 25% in the fourth year and 25% in year five	Activities are integrated with plans and policies, but not enough budget is allocated at the department	integrated plans and policies with legislation, regulations and national and international treaties		**X**				**Municipality** Starting 2020 and beyond **Short to medium- term goal**
Objective 3.2: A fully integrated waste information system in place	Complete database available by the end of the first year and updated bi-annually	No weigh bridge, no accurate statistic, hence no records.	A fully integrated waste information system in place	**X**					**Municipality** Starting 2021 and beyond

									Long-term goal
Objective 3.3 Hazardous waste is properly managed	80% reduction in the first year and 100% by the end of the second year	No hazardous waste being disposed on site	Management of hazardous waste	On going					
Goal 4: Adequate and appropriate resources in place to ensure cost-effective waste management	**50% decrease within the first year and 10% decrease per year thereafter**	**Key Issues of Current WMS BBLM**							
Objective 4.1: Adequate funds are in place and systems are cost effective	100% of allocated budget spent each financial year	Not enough funds for the waste section	Adequate funds to spend each financial year	Should be on going					**Starting 2021 and beyond** **Short to medium- term goal**
Objective 4.2: Appropriate and sufficient equipment is in place to ensure effective service in line with future developments	Start to budget for future needs from 2021.	The site have equipment but not all in are in good condition to ensure effective service delivery		**X**					**Starting 2021 and beyond** **Medium to long-term goal**
Goal 5: Sufficient and appropriately skilled staff utilised optimally to ensure that waste management is effectively carried out in Bela-Bela	100% roles and responsibilities defined and implemented.		Sufficient and appropriately skilled staff to ensure that waste management is effectively	**X**					**Short to medium- term goal**
Objective 5.1: Bela-Bela Municipality is adequately capacitated to ensure effective service delivery	Within 1 year all vacancies should be filled.	There is a need for employee in the section, however, not enough funds and positions are not created	Capacity of the Municipality is adequately to ensure effective service delivery	**X**					**Municipality** Starting 2021 and beyond **Short to medium- term goal**

Goal 6: The community of Bela-Bela are aware of the impact of waste on their health, well-being and the environment, and are informed of the waste management programmes planned by the Municipality.	80% clean in the 1st year.			On-going					**Municipality**
Objective 6.1: Effective awareness raising strategies are in place	20% reached in the first year and a 10% incremental increase thereafter	Objective 6.1: Effective awareness raising strategies are in place	Effective awareness raising strategies in place	**X**					**Municipality** **Short to medium- term goal**
Objective 6.2: By-laws are enforced	50% improvement in year 1 and 100% in year 2	Objective 6.2: By-laws are enforced	By-laws are enforced	**X**					**Municipality** **Short to medium- term goal**

7 INSTRUMENTS FOR IMPLEMENTING THE IWMP

7.1 POLICY INSTRUMENTS

The policy environment relevant to this IWMP is assessed in terms of its support for the strategic objectives identified. The key principles specified in the relevant legislative and policy documents such as the Environmental Management Policy for South Africa, the National Environmental Management Waste Act, the White Paper for Integrated Pollution and Waste Management, National Waste Management Strategy (NWMS), and the National Domestic Waste Collection Standards (January 2011), relate to accountability, a cradle to grave approach, equity, full cost accounting, good governance, integration, open information, participation and the polluter pays principle.

All of these principles support the objectives of this IWMP. Moreover, the strategic goals of this plan are perfectly aligned with the goals of the NWMS. There is a specific focus on disadvantaged communities in that the plan allows for the development of SMMEs and cooperatives specifically drawn from informal salvagers who are among the poorest of the Bela-Bela population. The waste management hierarchy goes to the heart of this plan and is the principle around which the entire plan hinges.

7.2 PARTNERSHIPS

7.2.1 PUBLIC-PUBLIC PARTNERSHIPS

Public-public partnerships have the potential to reduce the cost of equipment and salaries. National Treasury has a handbook for Waste Management Partnerships and it is recommended that they are engaged.

7.2.2 PRIVATE-PUBLIC PARTNERSHIPS

Private-public partnerships involve the community in the rendering of services and help to ensure that the services are kept on track. These partnerships are therefore pivotal in community and government cooperation and coordination.

7.2.3 BASIC REFUSE REMOVAL

Partnerships with small community based SMMEs are planned to collect general waste in those areas that are at present not receiving any service, and to deposit this waste in designated skips for collection by the Municipality, means that the Municipality will be able to offer a waste collection service more extensively. These SMMEs can be provided with basic collection equipment such as hand carts or trolleys to collect from areas where trucks cannot easily reach.

7.2.4 RECYCLING

The Municipality can support and facilitate informal salvagers to form cooperatives for more effective and safer recycling. Informal salvagers are already living off recycling from the Bela-Bela landfill site and other informal dumps in and around Bela-Bela and can be assisted by the Municipality to do this job more effectively and much more safely; at the same time they are providing a valuable service to the Municipality and to the community. Recyclable waste can be collected by organised groups of salvagers, provided with basic collection equipment and deposited at an accessible Material Recovery Facilities (MRFs), established by the Municipality. These MRFs can be basic structures with a solid concrete slab, a roof and some water and sanitation facilities attached. Other

members of the cooperative then sort the waste into fractions of glass, paper, cans, cardboard, soft and hard plastic to be sold to buy-back centres that collects the material.

The Municipality needs to cooperate with the recyclers already operating in Bela-Bela and enable them to function optimally by encouraging a culture of recycling and working with formally informal salvagers. The Municipality is presently in the process of devising a recycling strategy.

7.2.5 COMPOSTING

The potential exists for a partnership in a composting enterprise. Garden and kitchen waste deposited in designated skips (which are also accessible and maintained), can be collected by the Municipality and deposited at a composting site. All municipal garden refuse should be deposited at this site too. The site can be managed by the community partner (maybe a cooperative formed by the current informal recyclers). The garden waste is fed into a chipper and compost made using basic low technological methods. Compost can be bought back by the Municipality for municipal use or sold commercially.

7.2.6 DISPOSAL

A partnership with a suitable, qualified contractor to manage the operations at the landfill site must be clearly set out in a contract that specifies the requirements for continued operation. Once the contract is drawn up and signed, the Municipality must ensure that the contract is managed and that the operations of the site are carefully monitored. This contract is normally termed an “Operating and Maintenance Contract”. The Municipality provides the licensed landfill facility and infrastructure (i.e. all non-movable assets). The operating contractor provides all the required equipment and personnel to operate and maintain the site in accordance with the license conditions.

7.3 LEGISLATIVE INSTRUMENTS

7.3.1 NATIONAL AND PROVINCIAL LEGISLATION

The key pieces of legislation guiding this plan are the National Environmental Management: Waste Act (Act No. 59 of 2008), as amended, National Waste Collection Standards, the National Waste Management Strategy and Action Plans, (Government Gazette No. 33277 June 2010), and the DWAF Minimum Requirements for Landfill, 2013

7.3.2 LOCAL GOVERNMENT

The establishment of by-laws, in line with the National and Provincial regulatory requirements are a tool for the Municipality to drive an effective and sustainable waste management service throughout the area. By-laws must deal with littering and illegal dumping, incorrect use of skips, a failure to reduce and recycle any unhealthy or unsafe practices (such as the burning of waste) and pollution of the air or water courses.

Uniform and updated by-laws that conform to the IWMP and that are developed through a participatory process that fulfils legal requirements, must be developed and implemented. The Municipality needs a set of by-laws that deals exclusively with waste management and that encourages residents to practice sustainable waste management. The new by-laws must make enforcement more feasible.

7.4 FINANCIAL MECHANISM

Funding is required for building capacity within the Municipality, the implementation of the IWMP, operation and maintenance costs of facilities and machinery and equipment and the design and commissioning of new waste management facilities including the MRFs.

7.4.1 FUNDING MECHANISMS FOR WASTE PREVENTION, MINIMISATION AND RECYCLING

The primary sources of initial funding for the waste prevention, minimisation and recycling activities should be from the national, provincial or local government budgets, with supplementary funding from donors and funding agencies. If the quantities of waste are reduced by implementing recycling at source, substantial costs can be recovered on a true cost accounting basis taking into consideration the reduction in removal and transport costs and the saving in costs by extending the life of the landfill.

7.4.2 FUNDING MECHANISMS FOR WASTE COLLECTION AND TRANSPORTATION

Billing to both residential and business consumers is done on a monthly basis at present with penalties being charged for late payment. Enforcing the withholding of services due to non-payment is currently a lengthy administrative process and is therefore rarely enforced. This is likely to worsen with the widening areas covered by the Municipality. An option to explore is the use of prepaid accounts; this would need to be planned carefully. Alternative funding strategies must be investigated for the funding of new projects aimed at waste minimisation and composting.

Refuse collection and disposal is partially a `public good', where it is appropriate to cover the costs of the services from general fiscal resources; but it is also partially a `private good', and at least part of the cost of the service should be recovered from the direct beneficiaries of the service. A long term financing plan for the new services will therefore need to consider three possible long term revenue sources:

- Property taxes
- Equitable share grants
- Service charge payments by beneficiaries

Even starting from a position of strength, it would require considerable political determination to bring about the re-prioritisation necessary to fund the new services.

7.4.3 FUNDING MECHANISMS FOR WASTE TREATMENT AND DISPOSAL

The cost associated with general waste disposal will mainly be funded by user fees or as part of waste charges for local authority general waste disposal sites. A more controlled landfill environment with appropriate waste disposal tariffs imposed will reflect the real cost of waste disposal. The disposal of hazardous and industrial waste is not done at the Bela-Bela site and the costs of disposal and treatment of this type of waste will be borne by the industry involved.

7.4.4 COMPARATIVE ECONOMIC ANALYSIS

The key interventions and changes to the current system relate primarily to:

- More efficient and streamlined systems;
- Better and more effective planning;
- More effective contract management;
- Development and enforcement of by-laws;
- Implementation of recycling initiatives

7.5 IMPLEMENTATION, MONITORING AND REVIEW

The implementation plan is based on an action plan developed from the logical framework. The plan allocated resources required, responsibilities and time frames for implementation. The time frames focus on a 5 year implementation schedule with allowance made for longer term goals. The objectives developed have clear indicators and identified means of verification for those indicators to allow for constructive and accurate monitoring and review.

Comprehensive records of waste disposal and collection, on which informed decision-making can be based, must be kept. Information sharing amongst all other stakeholders and interested parties such as residents, retailers and manufacturers, accommodation facilities, and industries located in the municipal area must be improved. A Waste Information System (WIS) that provides reliable information on amounts, types, generators and transporters of waste, as well as the private waste collection service provision, must be put in place. Both the planning and monitoring of waste management rely on an access to comprehensive, up-to-date and detailed waste-related information. Without it, planning is based on educated guesses and monitoring is non-existent.

7.5.1 IMPLEMENTATION PLAN

The IWM implementation plan has been developed on the basis of the background information collected, the strategic objectives set, the instruments identified for implementation, and a public participation process.

7.5.2 INSTITUTIONAL AND ORGANISATIONAL PLAN

To ensure continued service and effective skills transfer, the staff complement must be restructured. Continued training and succession planning is crucial to maintain a competent and capable pool of employees. Staff structures within the waste management service of the Municipality need to be restructured to ensure that positions are filled with productive personnel. This may require that some staff are recruited or deployed elsewhere. A needs analysis is to be conducted and a skills development programme put in place. Training programmes for staff on waste management principles and methods is to be implemented. Dedicated personnel are to be appointed to:

- Manage operating contracts;
- Manage awareness campaigns and liaise with the community;
- Manage records and maintain the database;
- Oversee collection; and
- Manage and maintain skips, transfer stations and MRFs

A performance management system will be implemented to monitor the performance of key staff members.

Partnerships are to be established for waste collection, recycling and composting as discussed. Clear contracts are to be drawn up and both the partner and the Municipality held to account. The contract with the landfill operator must be managed correctly and the operations at the site monitored regularly. Any breach of contract will be dealt with in accordance with the terms and conditions of the contract.

The existing massive need for job creation in the Municipality can be addressed by waste management. Many of the tasks covered by waste management require limited skills. Possibilities for co-operatives exist within the implementation plan and can lighten the financial burden on the Municipality substantially. Over time and with the support of the Municipality, the co-operatives will develop and perform more skills-demanding tasks. Eventually, the co-operatives will generate local entrepreneurs with substantial experience that can contribute to the economic development of the Municipality and to Black Economic Empowerment.

7.5.3 COMMUNICATION AND PUBLIC PARTICIPATION PLAN

The communications and liaison officer / manager will ensure that all communities and groups are reached through physical contact. Public forums will be held for communities to feed back on the implementation of the plan and all inputs will be taken into consideration and acted on.

The Community must be made aware of initiatives, waste recycling activities and the advantages of waste minimisation and recycling by the Municipality. This can be achieved through advertisements and notices in the local newspapers and in public venues or by providing information regarding initiatives on the municipal bills distributed each month. The Municipality can also conduct a road show in the town and in villages to demonstrate and inform people of waste related issues.

It is necessary that a forum be established where discussions on problems, issues and best practice can be pursued in order to uplift the entire Municipality and improve service delivery.

In order to improve Bela-Bela residents' management of their waste, they are to be made aware of the services and rights to which they are entitled and continually informed and engaged regarding waste management projects. It is also necessary to continually reach the different key groups of the community through public awareness activities. This can also be done in co-operation with other municipal departments and other organisations. Key groups must be identified and appropriate methods for reaching them developed.

7.5.4 FINANCIAL PLAN

In order to achieve the objectives identified above, key activities need to be undertaken and for this, resources are required; old, and inappropriate equipment must be sold off, and a proper maintenance plan put in place for new equipment.

It is acknowledged by the Municipality, that although resources need to be used optimally to ensure maximum benefit from a limited base, the activities would need to be prioritised. Certain criteria were identified to enable prioritisation and these included: Does the objective…

- Discourage unsustainable waste management practices?
- Lead to development of staff?
- Attend to urgent issues?
- Affect many Bela-Bela Municipality residents?
- Create jobs?
- Improve service delivery?
- Lead to improving cost effectiveness?
- Improve public awareness of sustainable waste management?
- Improve public participation in waste management?
- Fulfil the Bela-Bela Municipality legal requirements?

The identified priorities were further analysed in terms of “must have” (regulatory and legislative priorities) and “nice to have” (priorities in terms of national and international treaties and targets) and the resources required to give effect to the plan noted and the shortfall identified. The table below summarises.

Funds can be sourced from various avenues and these must be explored and harnessed. Domestic sources could include:

- Development Bank of South Africa;
- MIG;
- IDC;
- Black Empowerment Groups;
- Department of Trade and Industry; and
- Merchant Banks

International sources could include:

- Southern Africa Enterprise Development Fund;
- New African Advisors;
- The OPIC Global Environment Fund;
- International Finance Corporation;
- Private investment funds with an interest in South African infrastructure projects

7.5.5 WASTE MANAGEMENT IMPLEMENTATION PROGRAMME

The table outlines the implementation programme and details the activities to be undertaken, delivery targets and delivery milestones as well as time frames and responsibilities. Project details, management, responsibilities of senior staff and schedules for project implementation have been included as a result of municipal engagement with the IWMP.

8 RESOURCES PLAN

In the "must have" column, the symbol ✓ indicates that the activity is essential and necessary to ensure compliance with legislation and regulations and ☺ indicates that this activity is a preferred option if sufficient funding or resources can be sought. Approximate budget values have been estimated for purposes of this implementation plan. Individual activities presented should be reviewed to determine the actual cost of implementing the activity.

Table 35: Resources Plan

Goal 1: Effective waste minimisation, re-use, recycling and recovery of waste

Objective 1.1: an effective reduce, re-use and recycle strategy is in place

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Develop and implement an interim strategy to separate waste at source - Examine existing best practices elsewhere in the country	✓	Researcher and strategy developer.	Collection vehicles	Staff capacity	200 000
Identify and assess existing recycling entrepreneurs and enter into agreements with them - Work with the groups / companies to supply accurate records for monitoring purposes	✓	Community liaison and contract development specialist	Recyclers	Staff capacity Training	30 000
Establish a pilot project to test the strategy - Identify pilot households - Sub-contract SMMEs - Create public-private partnerships	✓	Supply of recycling bins Suitable trucks Sorting station	Collection vehicle's Households Willing groups	Staff capacity. MRF not in place	100 000
Conduct a needs analysis on the equipment and vehicles that will be required to roll out the strategy	✓	Researcher	Compactor trucks. Skip trucks Skipbins Wheelybins	Training and capacity	3 000

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Based on the outcome of the pilot, develop, cost and implement a roll-out strategy	✓	Researcher and strategy developer		Staff capacity	300 000
Develop and implement a composting strategy - Identify garden refuse dumping centers - Identify SMMEs or cooperatives to process organic matter	✓	Composting stations Chippers	Composting material. SMMEs	SMME skills limited	50 000

Objective 1.2: An appropriate and safe waste reclamation programme is in place

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required
Conduct a logistics and planning exercise to determine the best possible physical layout and organisational arrangement for informal reclaimers	✓	Design specialist	None Operational Site	100%	20 000
Build a reclamation point adjacent to the landfill site - Build down scaled reclamation points at transfer stations	✓	Approved plans Appropriate built structure	None	100%	250 000
Establish a buy-back Centre at the reclamation point - Establish smaller buy back facilities at the strategic stations	✓	Appropriate plans	Site Design plans	Staff capacity	
Liaise with and assist existing reclaimers to organise into cooperative groups - Conduct a baseline study on their levels of income and health issues prior to the implementation of the project	✓	Strategy developer	Reclaimers database	Staff capacity Willingness of reclaimers.	20 000

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required
- Conduct follow up studies for monitoring purposes					
Train and equip reclaimers - Provide safety gear - Provide suitable materials recovery facility - Provide adequate and suitable recovery equipment	✓	Suitable safety gear, rakes, bins	Awareness officers		100 000
Provide suitable facilities (toilets, wash rooms with running water, storeroom, kitchen)		Approved plans Appropriate built facilities	This will be at the buyback Centre		

Goal 2: ***Effective and efficient delivery of waste services provided throughout Bela-Bela LM***

Objective 2.1: Skips are appropriately placed, properly managed and controlled

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Define service levels for different settlement types in Bela-Bela		GIS specialist/Staff	Collection schedule	Collated data	15 000
Conduct an analysis on the need for existing skips - Distribution of skips in rural areas - Mark skips - Relocate skips to appropriate points - Remove unnecessary skips - Take photographic records of skips and surrounding areas for baseline records - Take follow up photographs for monitoring	✓ ✓ ✓	Waste manager/officer	Skips	Staff Capacity Positioning of skip	

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
purposes					
Develop a strategy to maintain and monitor skips - Repair skips - Remove irreparable skips	✓ ✓ ✓	Waste officer	Vehicle	Staff capacity	
Provide easy access to skips - Built ramps for some skips and considered location for others	✓ ✓	Infrastructure Relocation	Skips		
Ensure that skips are clearly marked for type of waste	✓	Paint	Painters	None	3 000
Assist communities to set up ward committees to help with the monitoring of the skips - Outsource the management of the skips to community groups	✓	Community Liaison officer	Community Liaison officer	None	
Develop an appropriate schedule for collection	✓	Waste officer	Collection schedule	Staff capacity	

Objective 2.2: Appropriate and sufficient capacity exits to ensure that the landfill is well-managed and properly run

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Develop and implement an operational plan for the landfill - Ensure that the plan meets minimum legal requirements and permit conditions - Maintain the buffer zone	✓ ✓ ✓	Landfill Operational plan	Landfill records. Experienced contractor	Staff capacity	3 000

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Manage the contractor according to strict criteria - Monitor the contractors performance on a regular basis according to identified criteria - Apply penalties if contractor breaches conditions of contract - Ensure that accurate and suitable records are kept	✓ ✓ ✓	Contracting expertise and waste management officer	Staff capacity	Insufficient monitoring	

Objective 2.3: Bela-Bela provides effective and sustainable basic refuse removal throughout the Municipality

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Develop and implement a waste collection strategy - Extend the existing waste collection service - Explore options for extending the service to outlying areas in terms of the waste collection standards	✓ ✓	Budget to sustain programme. Strategy to sustain programme.	Municipality budget	Sustainability of Municipality budget. Illegal settlements Far away distances	3 000 000
Undertake a schedule and route analysis - Reschedule and reroute to make collection more effective - Inform residents of new route and schedule	✓ ✓ ✓	Vehicle	Vehicle in place Staff available Waste collection strategy	None	3 000
Provide sufficient refuse bags to residents on a weekly basis	✓	Collection bags	None	Municipality budget	100 000

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Review the schedule of deploying litter pickers and the composition of staff	✓	Waste Manager Litter pickers	Waste manager Litter pickers	Need more litter pickers	1 000
Deploy litter pickers regularly and ensure that they are productive and have transport	✓	Supervisor Schedule	Supervisor Schedule	None	

Goal 3: ***Plans and policies enable effective waste management services and are integrated into all municipal plans***

Objective 3.1: Plans and policies are integrated and comply with legislation, regulations and national and international treaties

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Test existing plans and policies against national and provincial legislation for compliance - Check linkages with other provincial and national policies	✓	policy and planning expertise	Legal service department &Waste Manager	Staff capacity	25 000
Review and implement plans in line with national and provincial legislation and amend accordingly	✓	Policies and plans in place	Legal service department &Waste Manager		15 000
Develop and implement a monitoring system to ensure compliance with regulations and authorisation conditions	✓	Monitoring and Evaluation log frame in place	Waste Manager	Staff capacity to implement.	20 000
Ensure that any new plans developed comply with legal and regulatory conditions	✓	Legal expertise	Legal expertise		
Participate in IDP processes to ensure that the IWMP informs the IDP and has relevant line item budgets	✓	IDP Process plan	IDP Process plan	none	

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Ensure that the local IWMP is integrated into and informs the District IWMP	✓	Waste Manager and Superintendent	IWMP Waste Manager and Superintendent		

Objective 3.2: A fully integrated waste information system in place

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Develop and implement a record keeping system - Establish an effective, regular reporting system	✓ ✓	Systems expertise	Waste Manager and Waste department administrator	Waste information system	20 000
Establish a database - Regularly update database	☺		Waste Manager/officer and Superintendent		
Carry out regular waste stream analysis and research on waste management	✓	Waste stream expertise	None	Expertise	20 000
Develop and implement a monitoring and evaluation system	✓	Strategy in place	Inspection schedule	Transport	
Ensure that the waste information system feeds into the government WIS (waste information system) and meets the requirements of the National waste management strategy - Establish types of waste and quantities	✓	Waste officer WIS	None	Lack of expertise. Training	15 000
Establish a website to ensure that information is shared with residents	☺	web page development expertise	IT specialist	none	5 000

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
- Cascade information to rural areas					

Objective 3.3: Hazardous waste is properly managed

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Conduct research on the status and quantity of medical and hazardous commercial and domestic waste produced - Develop a database of all producers of medical and hazardous waste	✓	Researcher	None	Staff capacity	15 000
Develop and implement a strategy on the management of hazardous and medical waste within the Municipality - Monitor waste disposal at the landfill site specifically in terms of hazardous waste - Penalise offenders	✓	Hazardous and medical waste strategy	None	Staff capacity	30 000
Explore partnership arrangements with hospitals that are already sending hazardous waste to incinerators	✓	Waste officer Service level agreement	Waste manager/ Superintendent	Staff capacity	5 000
Enforce controls at the landfill site to ensure that hazardous waste is not dumped in the landfill	✓	By laws and enforcers	None	No by-laws Staff capacity	5 000

Goal 4: Adequate and appropriate resources in place to ensure cost-effective waste management

Objective 4.1: Adequate funds are in place and systems are cost effective

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Develop a budget that properly addresses the needs and requirements as identified in the strategies and plans - Allocate a dedicated budget for the maintenance and repair of equipment and vehicles	✓ ✓	Maintenance plan and budget	Financial Officer	Funds	Budget can only be established when needs analysis has been conducted
Conduct an analysis of the allocation of resources and address how resources can be used more effectively - Conduct a cost-benefit exercise - Ensure budgeting according to the PFMA	✓	Resource allocation strategy	Financial officer		
Review and revise the rates collection strategy - Identify the amount of waste generated per community	✓	Strategy in place	Tariff structure Debt collection policy	Implementation capacity	10 000
Implement the rates collection strategy	✓	Implementation plan	None	Incapacity to implement	
Ensure that the “free basic service” for qualifying indigents is implemented	✓	Indigents policy	Indigents register in place	Updating the register constantly	
Explore alternative funding streams for infrastructure development and other requirements - Access the Municipal Infrastructure Grant - Explore donor funding	✓ ✓ ✓ ✓	Access to grants	Champion to spearhead the activity	Champion to spearhead the activity	

Objective 4.2: Appropriate and sufficient equipment is in place to ensure effective service

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Conduct a needs analysis and develop a related budget	✓	Need assessment report	Resource inventory Waste manager/officers	Staff Capacity	20 000
Sell off or scrap obsolete and broken equipment - Form partnerships with recycling companies	✓	Strategy and policy in place	None	Policy	
Source and allocate funding for sufficient and appropriate machinery and equipment in line with the needs analysis	✓	Proposals	None	Capacity within staff	
Purchase the correct machinery and equipment to meet the targets of the IWMP	✓	Needs analysis report	None	Budget	Can specify after a needs analysis has been conducted.
Put a vehicle and equipment maintenance and replacement policy and strategy in place	✓	Vehicle, equipment maintenance and replacement policy and strategy in place	vehicle and equipment maintenance and replacement policy and strategy in place	Adherence to the maintenance plan	
Develop and implement a fleet maintenance plan	✓	Plan in place	Maintenance plan	Inability to stick to the plan.	

Objective 4.3: landfill infrastructure is adequate and appropriate and suited to future development

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required
Conduct an in-depth analysis of the requirements for the landfill providing for: - Weigh bridge	✓	Operational and maintenance plan	Operational and maintenance plan	Budget Staff capacity	20 000

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required
- Reclamation point (adjacent to landfill) - Facilities - Clearly marked and controlled skips and hoppers for recyclable waste	✓ ✓ ✓ ✓				
Allocate an appropriate budget	✓	Operational and maintenance plan	None		
Source funds	✓	Proposal	None		
Plan infrastructure	✓	Planning expects	Municipality Planning expects		

Goal 5: Sufficient and appropriately skilled staff utilised optimally to ensure that waste management is effectively carried out in Bela-Bela

Objective 5.1: *Bela-Bela* Municipality is adequately capacitated to ensure effective service delivery

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Conduct a needs analysis on skills requirements. - Ensure staff complement complies with current and future service delivery - Conduct analysis for skilled personnel - Encourage training for unskilled people	✓	Needs analysis specialist	Records of staff capacity available	Staff capacity	30 000
Review and revise the organisational organogram in line with the needs analysis - Recruit, retrench, retire or redeploy staff where necessary in line with labour policy o Ensure transparency and involve all stakeholders	✓ ✓ ✓	Human Resource development policy	Policy in place	Constraints to implement the policy	

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
- Ensure dedicated waste management personnel - Hire appropriate necessary expertise where indicated - Implement a performance management system linked to the objectives of the IWMP - Enforce staff disciplinary measures	✓				
Integrate waste management in skills development programmes	✓	Municipality staff development plan	Staff development plan in place	Budget	100 000
Allocate learnerships to waste management	✓	Human Resource Development Policy	Human Resource Development Policy	Budget	100 000

Goal 6: The people of Bela-Bela LM are aware of the impact of waste on their health, wellbeing and the environment, and are informed of the waste management programmes planned by the Municipality.

Objective 6.1: Effective awareness raising strategies are in place

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
Develop an awareness raising strategy - Focus on community based, small group interactions - Make use of the media - Engage traditional leaders - Partner with interested parties in the communities	✓ ✓ ✓ ✓ ☺	Awareness Strategy	Awareness strategy. Awareness staff. Awareness resources	Staff capacity	30 000

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
- Involve ward committees - Support ward based waste management monitoring committees - Encourage schools to get involved with community clean up campaigns and to support recycling initiatives - Involve Faith Based Organisations and churches - Engage other sector departments	☺ ☺				
Use media to inform residents of recycling and waste collection and disposal programmes	✓	Proposal to the media	None		10 000

Objective 6.2: By-laws are enforced

Main steps / Activities	Must Have	Resources Required	Resources in place	Shortfall	Approximate Budget Required (R).
introduce by-laws to ensure that suitable penalties are imposed for non-compliance - Ensure that by-laws are comprehensive - Review laws in line with community consultation processes - Ensure by-laws are in line with the NWMA	✓ ✓	Solid waste by laws	staff	No by-laws	20 000
Ensure that sufficient, dedicated staff are in place to enforce the by-laws	✓	staff	Community safety law enforcers	Budget to employ new staff. Capacity to implement penalties.	100 000

9 IMPLEMENTATION PLAN

The tables below set out the targets, milestones and responsibilities for carrying out the identified activities as well as the expected time frame within which they should be carried out.

Table 36: Implementation Plan

9.1 GOAL 1 WASTE PREVENTION, MINIMISATION AND RECYCLING

Objective 1.1: an effective reduce, re-use and recycle strategy is in place

NONE WAS IMPLEMENTED FROM THE APPROVAL OF THE IWMP DATED 2015 TO DATE. HENCE THE ACTIVITIES WILL REMAIN THE SAME AND WILL BE MONITOR FOR A PERIOD OF FIVE YEARS FROM 2020 TO 2025

Activity	Targets	Milestone	Responsibility	Time Frame
Develop and implement an interim strategy to separate waste at source - Examine existing best practices elsewhere in the country	Implementation starts September 2020 for 5 months	By February 2020 drawing lessons from the interim strategy a program should be running	Waste Management Officer (WMO)	Start July 2020 – Feb. 2021
Identify and assess existing recycling entrepreneurs and enter into agreements with them - Work with the groups / companies to supply accurate records for monitoring purposes	By August 2020 list of identified local recyclers in place and agreements settled by November 2020	50% reduction in waste disposal by December 2020	WMO	August 2020 – December 2020
Establish a pilot project to test the strategy - Identify pilot households - Sub-contract SMMEs - Create public-private partnerships	-Identify pilot households by November 2020 -Contract SMME by February 2020	Create public-private partnership by September 2020	Director Community Services & WMO	Starting 2020 and beyond

Activity	Targets	Milestone	Responsibility	Time Frame
Conduct a needs analysis on the equipment and vehicles that will be required to roll out the strategy	Needs analysis report by the end of April 2020	Acquire sufficient equipment by January 2020	WMO and Senior Superintendent	Start 2020 and beyond
Based on the outcome of the pilot, develop, cost and implement a roll-out strategy	Implementation plan by June 2020	Implementation by October 2020	Director Community Services & WMO	Start 2020 and beyond
Develop and implement a composting strategy - Identify garden refuse dumping centers - Identify SMMEs or cooperatives to process organic matter	Garden refuse dumping centre's identified by end of October 2020 Co-operative identified and operation by February 2020	Composting at a commercial level by the Municipality by December 2020	Director Community Services & WMO	Start 2020 and beyond

Objective 1.2: An appropriate and safe waste reclamation programme is in place

Activity	Targets	Milestone	Responsibility	Time Frame
Conduct a logistics and planning exercise to determine the best possible physical layout and organisational arrangement for informal reclaimers	Study done by October 2020	A structure in place.	Director Community Services & WMO	3 months
Build a reclamation point adjacent to the landfill site - Build down scaled reclamation points at transfer stations	Reclamation adjacent to the landfill point built by the end of February 2020	Scaled reclamation points to transfer stations by February 2020	Director Community Services & WMO	Starting 2020 and beyond
Establish a buy-back centre at the reclamation point - Establish smaller buy back facilities at the transfer stations	Buy back centre at the landfill construction completed August 2020	smaller buy back centre's at transfer stations by August 2020	Director Community Services & WMO	Starting 2020 and beyond

Activity	Targets	Milestone	Responsibility	Time Frame
Liaise with and assist existing reclaimers to organise into cooperative groups - Conduct a baseline study on their levels of income and health issues prior to the implementation of the project - Conduct follow up studies for monitoring purposes	3 cooperatives running by the end of May 2020	1 cooperative in each ward by November 2020	Director Community Services & WMO	Starting 2020 and beyond
Train and equip reclaimers - Provide safety gear - Provide suitable materials recovery facility - Provide adequate and suitable recovery equipment	Reclaimers 100% trained, well equipped and adequate protective clothing by end of August 2020	Provide accredited training for the recyclers by October 2020	WMO &Superintendent	Starting 2021 and beyond
Provide suitable facilities (toilets, wash rooms with running water, storeroom, kitchen)	Structure built by year ending August 2020		Director Community Services & Waste manager	1 year

9.2 GOAL 2: EFFECTIVE AND EFFICIENT DELIVERY OF WASTE SERVICES PROVIDED THROUGHOUT BELA-BELA

Objective 2.1: Skips are appropriately placed, properly managed and controlled

Activity	Targets	Milestone	Responsibility	Time Frame
Define service levels for different settlement types in Bela-Bela	Service levels 100%clearly defined by the end of November 14 2020	Ongoing process	Director Community Services & WMO	Ongoing after every 6months
Conduct an analysis on the need for existing skips - Consider distribution of skips in rural areas - Skips should be marked	100% analysis done by the end of year December 13 2020	Clearly positioned and marked skips	Director Community Services & WMO &Superintendent	8 months

Activity	Targets	Milestone	Responsibility	Time Frame
- Relocate skips to appropriate points - Remove unnecessary skips - Take photographic records of skips and surrounding areas for baseline records - Take follow up photographs for monitoring purposes				
Develop a strategy to maintain and monitor skips - Repair skips - Remove irreparable skips	Strategy in place by February 2020 and implementation start beginning of April 2020	Keep up to the strategy standard	Director Community Services & WMO	Ongoing
Provide easy access to skips - Build ramps for some skips and considered location for others	Plans and budget by year July 2020	Construct ramps by Feb 15	Director Community Services & WMO	2021 and beyond
Assist communities to set up ward committees to help with the monitoring of the skips - Outsource the management of the skips to community groups	100%management of skips by communities by June 15 2020		WMO &Superintendent	
Develop an appropriate schedule for collection	Schedule in place by year ending December 13 2020	Review schedule every six months	WMO	

Objective 2.2: Appropriate and sufficient capacity exits to ensure that the landfill is well-managed and properly run

Activity	Targets	Milestone	Responsibility	Time Frame
Develop and implement an operational plan for the management of the landfill - Ensure that the plan meets minimum legal requirements and permit conditions	100% implementation of the operational plan by June 14 2020	Plans for new landfill by January 13 2021	Director Community Services & WMO	ongoing

Activity	Targets	Milestone	Responsibility	Time Frame
- Maintain the buffer zone				
Manage the contract according to strict criteria - Monitor the contractors performance on a regular basis according to identified criteria - Apply penalties if contractor breaches conditions of contract - Ensure that accurate and suitable records are kept	Ensure by November 14 2020 all management conditions are met	Appoint a service provider to conduct adherence report every 6months	Contact Administrator; Director Community Services & WMO	

Objective 2.3: Bela-Bela provides effective waste collection throughout the Municipality

Activity	Targets	Milestone	Responsibility	Time Frame
Develop and implement a waste collection strategy - Extend the existing waste collection service - Explore options for extending the service to outlying areas	Strategy in place by February 2020 100% budget by December 2020	Application for grants 100% service delivery	Director Community Services & WMO; Chief financial officer	2020 and beyond
Undertake a schedule and route analysis - Reschedule and reroute to make collection more effective - Inform residents of new route and schedule	Completion of the schedule by the end of March 2020	Review of schedule every six months	WMO & Superintendent	ongoing and after every six months
Provide sufficient refuse bags to residents on a weekly basis	implement by the beginning of January 2020	Provide recycling bags	WMO and Refuse removal Superintendent	

Activity	Targets	Milestone	Responsibility	Time Frame
Review the schedule of deploying litter pickers and the composition of staff	Schedule reviewed by the end of September 2020		WMO and Refuse removal Superintendent	
Deploy litter pickers regularly and ensure that they are productive and have transport	100% deployment by the end of year November 2020		WMO and Refuse removal Superintendent and Refuse removal Supervisors	

9.3 GOAL 3: *PLANS AND POLICIES ENABLE EFFECTIVE WASTE MANAGEMENT SERVICES AND ARE INTEGRATED INTO ALL MUNICIPAL PLANS*

Objective 3.1: Plans and policies are integrated and comply with legislation, regulations and national and international treaties

Activity	Targets	Milestone	Responsibility	Time Frame
Formulate policies Test existing plans and policies against national and provincial legislation for compliance - Check linkages with other provincial and national policies	Report completed by the end of June 2020	Ensure plans and objectives set for waste management services comply with provincial legislation and policies.	Director Community Services & WMO; Chief financial officer	2020 and beyond
Review plans in line with national and provincial legislation and amend accordingly	100% completion	Ensure that waste collection plans are in line with national and provincial legislation	Director Community Services & WMO; Chief financial officer	2020 and beyond
Develop and implement a monitoring system to ensure compliance with regulations and authorisation conditions	50% compliance by August 2020	Ensure that monitoring system comply with regulations and met authorizations conditions.	Director Community Services & WMO; Chief financial officer	2021 and beyond
Ensure that any new plans developed comply with legal and regulatory conditions	100% compliance by November 2020	Ensure that plans comply with regulatory requirements and standards.	Director Community Services & WMO; Chief financial officer	2020 and beyond

Participate in IDP processes to ensure that the IWMP informs the IDP and has relevant line item budgets	IWMP adopted 100% in the IDP by the end of year December 2020	Review IWMP and IDP to ensure the appropriate and effective correspondence annually from 2021/2025	Director Community Services & WMO; Chief financial officer	2020 and beyond
Ensure that the local IWMP is integrated into and informs the District IWMP	IWMP informs the District IWMP 100%	Ensure that local IWMP works hand in hand with the District IWMP by 2022/2023	Director Community Services & WMO; Chief financial officer	2020 and beyond
Review IWMP annually	100% consistence in reviewing.	Adjust IWMP accordingly every year	Director Community Services & WMO; Chief financial officer	2020 and beyond

Objective 3.2: A fully integrated waste information system in place

Activity	Targets	Milestone	Responsibility	Time Frame
Develop and implement a record keeping system - Establish an effective, regular reporting system	By the end July 2020 all records in place		WMO and refuse removal superintendent	2020 and beyond
Establish a database - Regularly update database	100% updated database by July 2020	Computerized system that will be updated constantly	WMO and refuse removal superintendent	By the end of July 2020
Carry out regular waste stream analysis and research on waste management	A complete waste stream done by the end of November 2020	Waste stream done twice a year	WMO and refuse removal superintendent	Twice a year
Develop and implement a monitoring and evaluation system	An Evaluation report done yearly by an independent service provider	100% compliance by the end of December 2020	Director Community Services & WMO; Chief financial officer	Annually
Ensure that the waste information system feeds into the government WIS (waste information system) and meets the	100% compliance by the end of year_ December 2020	100% compliance with the national WIS standard	Director Community Services & WMO	2020 and beyond

requirements of the National waste management strategy - Establish types of waste and quantities				
Establish a website to ensure that information is shared with residents	Done by the end of year December 2020	Ensure website is updated bi monthly and residents do have access to the website.	IT specialist & WMO and refuse removal superintendent	2020 and beyond

Objective 3.3: Hazardous waste is properly managed

Activity	Targets	Milestone	Responsibility	Time Frame
Conduct research on the status and quantity of medical and hazardous commercial and domestic waste produced - Develop a database of all producers of medical and hazardous waste	Research done by June 2020	Implement a monitoring plan	Director Community Services & WMO	2020 and beyond
Develop and implement a strategy on the management of hazardous and medical waste within the Municipality - Monitor waste disposed at the landfill specifically in terms of hazardous waste and penalize offenders	100% adherence to the strategy by December 2020	Practice a good culture of hazardous and medical waste management	Director Community Services & WMO	2020 and beyond
Explore partnership arrangements with hospitals that are already sending hazardous waste to incinerators	Study by the end of June 2020	Explore partnership arrangement with hospitals that are already sending hazardous waste to incinerators	Director Community Services & WMO	2020 and beyond

Activity	Targets	Milestone	Responsibility	Time Frame
Enforce controls at the landfill site to ensure that hazardous waste is not dumped in the landfill	100% compliance by end of year December 2020	Ensure that 0% hazardous waste not dumped at the landfill by July 2020	Director Community Services & WMO	2020 and beyond

9.4 *GOAL 4: ADEQUATE AND APPROPRIATE RESOURCES IN PLACE TO ENSURE COST-EFFECTIVE WASTE MANAGEMENT*

Objective 4.1: Adequate funds are in place and systems are cost effective

Activity	Targets	Milestone	Responsibility	Time Frame
Develop a budget that properly addresses the needs and requirements as identified in the strategies and plans - Allocate a dedicated budget for the maintenance and repair of equipment and vehicles	To have a budget that address all the equipment required by 2021/2022	To have budgeted for maintenance and repair equipment's and construction by 2021/2022	Director Community Services & Chief Financial Officer.	2020 and beyond
Conduct an analysis of the allocation of resources and address how resources can be used more effectively - Conduct a cost-benefit exercise - Ensure budget in accordance with the PFMA	Conduct a cost –benefit analysis of the allocation of resources and address how resources can be used more efficiently by June 2020	Achieve 100% effective resource allocation and usage.	Director Community Services & Chief Financial Officer.	2020 and beyond
Review and revise the rates collection strategy - Identify the amount of waste generated per community	Annual review of tariff structure and debt collection strategy by June 2021	100% reasonable tariffs and debt collection to residents	Director Community Services & Chief Financial Officer.	2020 and beyond
Implement the rates collection strategy	Develop and implement rates collection strategy by Sept 14	100% reasonable and proper debt collection rates.	Director Community Services & Chief Financial Officer.	2020 and beyond

Ensure that the "free basic service" for qualifying indigents is implemented	Implement indigent free basic service for qualifying indigents by June 2020	Provide 100% free basic service for qualifying indigents by 2021/2022	Director Community Services & Chief Financial Officer.	2020 and beyond
Explore alternative funding streams for infrastructure development and other requirements - Access the Municipal Infrastructure Grant - Explore donor funding - Access EPWP grants for labour intensive programmes (recycling and collection)	-develop concept document and funding proposals by February 2020 -register an EPWP project with Department of labour by September 2020	Achieve 100% alternative streams for infrastructure development and other requirements.	Director Community Services & Chief Financial Officer.	2020 and beyond

Objective 4.2: Appropriate and sufficient equipment is in place to ensure effective service

Activity	Targets	Milestone	Responsibility	Time Frame
Conduct a needs analysis and develop a related budget	By end of March 2020	Attain 100% budget for all need by _____	Director Community Services & Chief Financial Officer.	6 months
Sell off or scrap obsolete and broken equipment - Form partnerships with recycling companies	By July 2020	Purchase new equipment from funds generated	Director Community Services	2020 and beyond
Source and allocate funding for sufficient and appropriate machinery and equipment in line with the needs analysis.	Proposal submitted by June 2020	Source funding across all boarders.	Director Community Services.	2020 and beyond
Purchase the correct machinery and equipment to meet the targets of the IWMP.	By Dec 14 50% of machinery required purchased	100% service provision by December 2020	Director Community Services.	2020 and beyond

Put a vehicle and equipment maintenance and replacement policy and strategy in place.	Strategy in place by the end of December 2020	Constant vehicle maintenance	Director Community Services	2020 and beyond
Develop and implement a fleet maintenance plan.	100% compliance by the end of year December 2020	Implementation plan	Director Community Services &Waste manager	2020 and beyond

Objective 4.3: landfill infrastructure is adequate and appropriate and suited to future development

Activity	Targets	Milestone	Responsibility	Time Frame
Conduct an in-depth analysis of the requirements for the landfill providing for: - Weigh bridge - Reclamation point (adjacent to landfill) - Facilities - Clearly marked and controlled skips and hoppers for recyclable waste.	Weigh bridge installed by year December 2020	Clearly marked and controlled skips and hoppers for recyclable waste.	Director Community Services	1 year
Allocate an appropriate budget.	Budget by end of February 2020		Director Community Services	6 months
Source funds.	Proposal submitted by April 2020	Proposal submitted for international grants	Director Community Services	6months
Plan infrastructure.	Designs in place by July 2020		Director Community Services	
Build and erect infrastructure.	100% Construction by the end of July 2020		Director Community Services	

9.5 GOAL 5: SUFFICIENT AND APPROPRIATELY SKILLED STAFF UTILISED OPTIMALLY TO ENSURE THAT WASTE MANAGEMENT IS EFFECTIVELY CARRIED OUT IN BELA-BELA

Objective 5.1: Bela-Bela Municipality is adequately capacitated to ensure effective service delivery

Activity	Targets	Milestone	Responsibility	Time Frame
Conduct a needs analysis on skills requirements - Conduct an analysis for skilled personnel - Encourage training for unskilled people	Needs analysis report by December 2020	Skilled personnel by 2021/2022	Director Community Services	3 months
Review and revise the organisational organogram in line with the needs analysis - Retrench, retire or redeploy staff where necessary in line with labour policy o Ensure system is transparent and involves all stakeholders - Ensure dedicated waste management personnel - Hire appropriate necessary expertise where indicated - Enforce staff disciplinary measures	Implementation start 2020 and beyond	Competent personnel	Director Community Services	2020 and beyond
Integrate waste management in skills development programmes	By December 2020		Director Community Services	2020 and beyond
Allocate learner ships to waste management	All staff by December 2020		Director Community Services	2020 and beyond

9.6 GOAL 6: THE PEOPLE OF BELA-BELA ARE AWARE OF THE IMPACT OF WASTE ON THEIR HEALTH, WELL BEING AND THE ENVIRONMENT, AND ARE INFORMED OF THE WASTE MANAGEMENT PROGRAMMES PLANNED BY THE MUNICIPALITY.

Objective 6.1: Effective awareness raising strategies are in place

Activity	Targets	Milestone	Responsibility	Time Frame
Develop an awareness raising strategy - Focus on community based, small group interactions - Engage traditional leaders - Partner with interested parties in the communities - Involve ward committees - Support ward based waste management monitoring committees - Encourage schools to get involved with community clean up campaigns and to support recycling initiatives - Involve Faith Based Organisations and churches - Engage other sector departments	- 14 Focusing on community based, small group interactions by July 2020 - Proof of Partnership with interested parties in the communities by September 2020 - 14 ward committee meetings by July 2020 - Support ward based waste management monitoring committees - 14 School awareness campaigns held by July 2020 - 10 Faith Based Organisations and churches involved and participating by July 2020 - Proof of Engagement with other sector departments by July 2020	By July 2020 all Municipality household should be engaged with.	Waste manager Refuse removal Superintendent	2020 and beyond
Use media to inform residents of recycling and waste collection and disposal programmes	At least 3 broadcast by July 2020 and monthly in 2021/2022	A permanent slot with the radio station December 2022	WMO, Refuse removal Superintendent	2020 and beyond

Objective 6.2: By-laws are enforced

Activity	Targets	Milestone	Responsibility	Time Frame
Introduce by-laws to ensure that suitable penalties are imposed for non-compliance - Ensure that by-laws are comprehensive - Ensure by-laws are in line with the NWMA	100% introduction of by laws by July 2020	100% enforcement by December 2020	Director Community Services	2020 and beyond
Ensure that sufficient, dedicated staff are in place to enforce the by-laws	50% staff employed by December 2020	100% staff complement by December 2020	WMO Refuse removal Superintendent	2020 and beyond