



# **SIAVONGA TOWN COUNCIL**

## **INTERGRATED WASTE MANAGEMENT PLAN FOR 2023 - 2025**

## **1.0 INTRODUCTION TO THE PLAN**

### **1.1 BACKGROUND**

Management of various types of waste in Siavonga District has been a very difficult and challenging issue. The difficulty has manifested itself in the perennial out breaks of diseases such as dysentery and pollution of water sources, air, soil, or land contamination, proliferation of pests and vermin, and the loss of aesthetic beauty. Improvements are desired in waste management covering aspects of minimization of waste generation, collection, re-use, recycling treatment and disposal.

### **1.2 SIAVONGA TOWN COUNCIL (STC)**

The district is faced with a critical waste management problem, which is threatening the Health, socio-economic development as well as the environment.

#### **Major concerns include;**

- Littering and indiscriminate dumping of waste;
- Improper handling of hazardous waste.
- Health hazards due to indiscriminate disposal of waste
- Low standards of operational disposal sites.
- Potential for contamination of soils and underground / surface water from operations of disposal sites and the indiscriminate disposal of wastes.

### **1.3 OPERATIONAL LEGAL AND REGULATORY FRAMEWORK OF THE PLAN**

The Environmental Management Act No.12 of 2011 is the principal law on protecting the environment. It provides for the requirements for handling waste such as the licensing or permitting process for collection, transportation, treatment and disposal of waste. The Solid waste Regulation and Management Act No. 20 of 2018 provides for the sustainable regulation and management of solid waste services. Other supporting pieces of legislations with regards to waste management include the Local Government Act of 2019, Public Health Act Cap 295 of the Laws of Zambia.

#### **1.3.1 WASTE MANAGEMENT REGULATIONS**

The Solid Waste Regulation and Management Act No. 20 of 2018 provides for the sustainable regulation and management of solid waste, the incorporation of solid waste management companies and define their statutory functions; the licensing and functions of solid waste services solid waste providers and provide for their functions; the regulation, operation ,maintenance and construction of landfill sand other disposal facilities; the setting and approval of tariffs for management of solid waste and provision of solid waste services.

### **1.3.2 HAZARDOUS WASTE MANAGEMENT REGULATIONS**

The Hazardous Waste Management Regulations Statutory Instrument No. 125 of 2001 provides for the control of hazardous waste so that the waste is managed in an environmentally sound manner through waste prevention, reduction, recycling, incineration and land filling. The regulations further provide for control of generation, collection, storage, transportation, treatment, import, export, and final disposal of hazardous waste. The management of hazardous waste will be done in accordance with provisions of the Basel and Bamako conventions. However, the Town council does not deal with Hazardous Waste.

### **1.3.3 INTERNATIONAL CONVENTIONS RELATED TO WASTE MANAGEMENT**

The Basel convention was originally established to address the global problem of uncontrolled movement and dumping of hazardous waste, including incidents of illegal dumping in developing countries by companies from developed countries. This was of great concern as indiscriminately disposed, accidental spillage or improper management of hazardous waste can pose severe health problems even death and can poison water and land for decades. The Basel convention is therefore a global agreement, ratified by many member countries including Zambia, for addressing the problems and challenges posed by hazardous waste.

The Bamako convention is the convention on the ban of the import into Africa and control of Transboundary movements and Management of Hazardous wastes within Africa, which was adopted by the members of the African Union in 1991 and come into force in 1998.

## **2.0 AN OVERVIEW OF THE CURRENT STATUS OF WASTE MANAGEMENT IN SIAVONGA**

This section highlights the current situation and gives an analysis of the various streams of waste. Wastes generated from all the sectors of the district are currently not well managed.

### **2.1 DOMESTIC WASTE**

This category of waste comprises mainly of wastes that are

#### **DOMESTIC WASTE PERCENTAGES**

- Organic 71.25%
- Plastic 19.06%
- Card Box 4.27
- Hard Plastic 3.49%
- Glass Bottle 1.4%
- Soft Plastic 0.53%

100%, Respectively of the total solid waste of the District generated from households' activities. This normally includes such materials as waste paper, plastic and wood off cuts. Kitchen waste and yard waste. Currently there is no separation of the various types that constitute this category. The waste Components are usually mixed and dumped in places that are not designated for disposal. Much of this type of waste is generated from residential areas and at the moment residential areas are not serviced.

### **2.2 COMMERCIAL WASTE**

#### **COMMERCIAL WASTE PERCENTAGES**

- card box 4.27%
- Hard plastic 3.49%
- Glass bottle 0.83%

8.50% respectively of this is the waste stream that is generated from Commercial and Business houses and will normally compose of such materials as discarded office paper, cardboard, plastic and general packaging.

### **2.3 INDUSTRIAL WASTE**

This is the type of waste that is generated from the industrial production processes. Type in this category includes such wastes as industrial sludge from factories, manufacturing facilities and refineries. It also includes food processing (fish industry). Other types would include ash from industrial combustion processes at the moment the district does not have industries that generate this type of waste.

### **2.4 HAZARDOUS WASTE**

This is the type of waste with such characteristics as flammability, irritability, ignitability, corrosivity and toxicity. Examples include; industrial hazardous waste products such as waste containing heavy metals such lead and chromium, polychlorinated biphenyls (PCBs), asbestos and ink sludge. Other types include, lead acid batteries, clinical waste and waste oils. This category includes wastes from the hospitals and other healthcare facilities. It is characterized by such types as Sharps, Swabs and pathological and cytotoxic wastes. At the moment the district only has hospital and healthcare waste, which is produced at clinics and the hospital.

### **2.5 AGRICULTURAL WASTE**

This category of waste basically consists of discarded materials from agricultural activities. The major component of this type is the organic portion. Examples of this type include remains from vegetables and waste fish Industries and Fish feed manufacturing industry. Other wastes from agricultural activities are pesticide-containing wastes which are classified as hazardous.

### **3.0 THE DISTRICT SOLID WASTE MANAGEMENT PLAN**

#### **3.1 THE NEED FOR THE PLAN**

The plan is necessary to ensure that Siavonga develops and establishes a coordinated approach to sound solid waste management. A plan which will lead to improvements in the management of waste encompassing all streams is therefore desired. Domestic waste lies accumulated especially at market bays daily. Limited financial capacity of Siavonga Town Council has made it difficult to fulfil the obligations concerning solid waste management. Given the above, cost-effective plan to deal with the current problem of poor waste management need to be formulated.

#### **3.2 VISION OF THE PLAN**

The implementation of the plan must meet the needs of the residents of Siavonga by way of it being incorporated in the district socio – economic development plan. The district waste management plan has to meet the following:

- Legal and Regulatory framework to deal with producer responsibility among industry.
- Waste minimization and recycling
- Well-coordinated institutional arrangements,
- Establishment of waste database and classification system
- Waste treatment and disposal facilities in the district
- promotion of cost effectiveness in the waste management and
- Public awareness, education and communication.

The implementation of the plan will significantly improve the provision of waste management services, through increased investment in equipment, infrastructure and capacity building. It is envisaged that various instruments, including bans, restrictions and taxations will be employed to deal with specific waste management system.

The objectives of the district waste management plan are to:

- Minimize generation of waste
- Maximize the collection efficiency of waste,

- Reduce the volume of waste requiring disposal and maximize the economic value of waste and
- Develop and adopt environmentally sound treatment and disposal methods/practices.

## **4.0 COMPONENTS OF THE PLAN**

The plan is developed with the following components

- Minimization/reduction
- Re-use and recycling,
- Pre-treatment/treatment and disposal of waste

## **4.1 DEVELOPMENT OF A WASTE MANAGEMENT SYSTEMS**

A waste management system should ideally consist of environmentally acceptable waste management practices that are aimed at minimizing waste generation from other domestic and industrial/commercial activities. Further, the system must provide for the protection of human health and the environment. All stakeholders shall follow the waste management hierarchy system.

## **4.2 PRINCIPLES OF THE SOLID WASTE MANAGEMENT PLAN**

This plan aims to introduce and promote environmentally sound waste management practices. The following principles are cardinal in the implementation of the plan.

### **4.2.1 POLLUTERS PAYS PRINCIPLE**

The principle entails that cost of preventing, abating pollution i.e. potential polluter acts to prevent pollution, and pays for remedying the eliminating and /or compensating for damage to the environment must be borne by the party responsible.

### **4.2.2 INTEGRATED LIFE – CYCLE PRINCIPLE**

The substances and products should be designed and managed in such a way that environmental impacts are minimized during generation, use, recovery and disposal.

### **4.2.3 SOURCE REDUCTION PRINCIPLE**

This implies any practice that reduces the amount or toxicity of waste materials generated. The focus is on how to generate less waste rather than what to do with waste. Source reduction practices may include the following;

- Reduce material use in product manufacture
- increase production efficiency resulting in less production waste

- Decrease toxicity
- Materials reuse or more efficient consumer use of materials (e.g.
- reusable shopping bags)

This may be achieved by using appropriate plant and process designs

#### **4.2.3 PRECAUTIONARY PRINCIPLE**

This implies that where there is uncertainty over the consequences of an activity or project, no action should be taken. A risk assessment exercise is undertaken before proceeding with a project that is likely to have negative impacts.

#### **4.2.4 PRINCIPLE OF CO- OPERATION**

This principle emphasizes that co-operation among all social groups vital to solving environmental problems.

## **5.0 GENERAL ACTIONS AND MEASURES**

### **5.1 WASTE MINIMIZATION**

Ensuring that waste generation is minimized is very cardinal component in the attainment of a sound waste management plan. Waste minimization can be achieved through ensuring that Cleaner Production (CP) techniques are employed. This would include such activities as good housekeeping, process change, and use of environmentally safe raw materials and sound raw materials management. The poor management of these materials results in generation of large quantities of waste.

In widely accepted hierarchy of waste management, minimization of waste generation is the most important aspect. If waste generation is minimized in the first place, few resources will be allocated for its management. Waste minimization is an attitude of mind and requires commitment from all sectors of society, particularly decision makers.

Given the above, the following must be done to ensure reduction of waste at source:

- Supporting programmes to enhance cleaner production. This will involve building capacity through the cleaner production programme
- Production of source of separation at household level
- Development of anti-litter programmes
- Supporting and promoting investment in recycling activities as means for waste reduction or minimization

### **5.2 WASTE GENERATION**

Households, industry, trade and commercial enterprises and service institutions generate various types of waste. All commercial and public facilities and industries in the District should develop a policy to minimize the generation of waste. Generators should further put in place mechanisms treat all hazardous waste generated. Considering the fact that there is currently a lot of packaging waste (e.g. plastic bottles) as a result of the proliferation of the drink beverage industry, by laws to this effect will be very imperative in order to compel producers of products that ultimately end up in the environment as waste to take back such kind of waste or altogether change packaging regime.

## **The following actions and measures will be employed to deal with generation patterns**

### **5.2.1 STORAGE**

Since waste may not necessarily have to be disposed of as soon as it is generated, its storage becomes imperative. The storage of waste at an appropriate site provides for the planning of the frequency of collection. It also provides the opportunity to sort the waste and recover any useful materials for recycling.

Actions and measures to improve storage of waste will be to:

- Mobilize financial resources for procurement of storage equipment such as skips
- Encourage separate storage of waste of different nature and composition to enhance recovery of useful materials and prevent cross contamination
- Develop appropriate management systems for transfer station which will not contribute to the generation of nuisances
- Store waste according to the set conditions as provided for in the regulations governing the management of both hazardous and non-hazardous waste.

### **5.2.2 COLLECTION AND TRANSPORTATION**

Collection of waste from where it is generated or stored is one of the priority areas in the waste management plan. Waste collection should be done according to licence conditions, using the right mode of transport and proper methods of collection. However, investment in expanding the collection capacity must be accompanied by corresponding investment in safe disposal facilities, which include resource recovery and recycling plants to reduce the volume of waste to recover the value from discarded materials. It is envisaged that waste collection will improve through:

- Encouraging the local authorities to involve private sector –participation.
- Mobilizing and coordinating financial resources for infrastructure development;
- Developing favourable economic and legal regulations for private sector- local authority contracts;
- Developing by-laws that will obligate householders to pay for collection services;

- Mobilizing community –based enterprises and rural development communities to assist in waste collection;
- Programmes aimed at preventing illegal disposal of both hazardous and non-hazardous waste from commercial operations (including mining and industrial.)

### **5.2.3 RECYCLING /RE-USE**

Recycling of waste is a very important component in the sound management of waste. Recycling involving the utilization of discarded material to produce another product of the same grade or lower. In order to enhance and promote recycling. The following measures will have to be done.

- Enhancing waste characterization and separation at source;
- Introduce incentives
- Improving environmental reporting;
- Development of legislation to obligate producers on their responsibility for their products;
- Need to generate a database of recyclable products

### **5.2.4 WASTE PRE-TREATMENT AND TREATMENT**

Plan to improve waste pre-treatment will include:

- Encourage separation of waste at source to reduce amount of waste to be handled.
- Improve status of currently running incinerators – upgrade the existing incinerators in particular at medical institutions;
- Open up existing central incinerators to allow smaller clinics and health centres to use facilities for incineration;
- Develop technical guidelines for management of different hazardous waste streams for commercial facilities
- Develop technical guidelines for treatment methods.

### **5.2.5 WASTE DISPOSAL**

Engineered landfill site as well as properly sited and constructed dumpsites are a pivotal component in a sound waste management system. It is important to note that despite active

waste prevention and recycling, a residue will always remain which requires final disposal. Waste should therefore be disposed of in such a way as not to cause harm to the environment and mankind. Therefore, the following needs to be done to address the area of final disposal waste.

- Adopt a mechanism of improving and upgrading public and private dumpsite;
- Decommission dumpsites that are not run in manner that is not environmentally sound;
- Disposal systems shall include material recovery facilities, transfer station;
- Waste picking at disposal sites will be regulated
- Develop private/public partnerships plan

#### **5.2.6 COST RECOVERY AWARENESS/FINANCIAL SUSTAINABILITY**

The recovery of costs incurred in the management of waste is key to the sustainability of waste management service provision. The provision of waste management services is a costly undertaking, which need specialized equipment and facilitates and could account for 20 - 20% of the operating budget of Siavonga Town Council.

Economical collection and disposal fees or taxes should be introduced for a sustainable waste management system. Cross subsidies should be introducing to cater for low-income groups. Servicing low income should be complemented by cross-subsidies from levies obtained from commercial, industrial of higher income households. The principle of cost recovery will be employed.

#### **5.2.7 PUBLIC AWARENESS**

Without public education and general awareness on the dangers of improper disposal of waste there is too often insufficient public demand for action. Public awareness plays a vital role in changing people's attitude and ensuring the success of waste management programs. The success of waste management programmes will depend to a greater extent on awareness programmes. The awareness programmes will provide for sensitization of communities on the existing environmental laws and by-laws.

### **5.2.8 INFRASTRUCTURAL DEVELOPMENT**

In order to ensure that the management of waste is enhanced, development of waste management facilities such as disposal sites will be key. The Council should do the following:

- Promote investment in waste management infrastructural development;
- Encourage private public sector and community partnerships;
- Develop an enabling environment for investment in waste management

### **5.2.9 INSTITUTIONAL FRAMEWORK**

The institutional framework will include Government institution and agencies business and industry, Non-Governmental Organization and the public. Siavonga Town Council will have to continue executing the responsibility conferred on them by law of ensuring planning and provision of collection and disposal services for Municipal Solid Waste (MSW) and commercial waste. Private industry will need to be encouraged to actively participate in the management of waste. There has to be built both financial and technical capacity for all key players in waste management. Updating and reviewing Municipal laws.

## **6.0 TARGETS FOR THE PLAN**

### **6.1 GENERAL TARGETS OF THE PLAN**

This section discusses the targets of the plan. In order to achieve the targets a number of concepts on the plan need to be implored. These will include among others:

- Minimization of waste generated,
- Waste generation and storage;
- Improved coordination among stakeholder in waste management;
- Introduction of a system of levies and incentives;
- Re-use and recycling of waste as resource materials;
- Development of a database and waste information management system and
- Establishment of classification system for all waste types

#### **6.1.1 MINIMISE GENERATION OF WASTE**

The plan addresses following priority targets as in the area of waste minimization.

- Siavonga Town Council should put in place waste minimization programme for industry and other institutions that will involve cleaner production programmes and other self-regulatory tools.
- Siavonga Town Council and other relevant stakeholders should develop and implement training/awareness programmes for industry and other institutions on the need for waste minimization beginning.

#### **6.1.2 WASTE GENERATION AND STORAGE**

- Siavonga Town Council in collaboration with other stakeholders should strengthen public awareness on generation and storage of waste by generators of waste shall be put in place measures to treat and pre-treat wastes generated before disposal;
- Industry shall put in place suitable infrastructure for the storage of the hazardous wastes before removal the Council.
- The public to participate in reducing waste being generated through anti littering and sorting of waste at source.

### **6.1.3 ESTABLISHMENT AND IMPROVED COORDINATION AMONG STAKEHOLDERS IN WASTE MANAGEMENT**

Siavonga Town Council will promote coordination stakeholders in a multi-sectional and integrated manner.

### **6.1.4 RE-USE AND RECYCLING WASTE MATERIALS AS A RESOURCES**

Siavonga Town Council will vigorously promote and encourage investment in the establishment of infrastructure and technology for the reuse and recycling of waste. Siavonga Town Council will support industries that are reusing waste through reducing the external costs of reuse and recycling.

### **6.1.5 INTRODUCE A SYSTEM OF LEVIES AND INCENTIVES**

In order to minimize the use of non-biodegradable or non-recyclable materials and promote recycling and reuse of waste, Siavonga Town Council should introduce a system of levies and incentives. Siavonga Town Council should introduce a mechanism to incorporate levies, penalties and tax rebates in order to encourage industry to adopt environmentally friendly technologies.

### **6.1.6 DEVELOPMENT OF DATABASE AND WASTE INFORMATION MANAGEMENT**

#### **6.1.7 SYSTEM FOR ALL TYPES OF WASTE**

Siavonga Town Council should launch a structured communication programme that will inform, educate and generate support for and feedback on the plan from stakeholders. Siavonga Town Council should collect data on waste, location of dumpsites. Industries in the District shall submit data on quantities and composition of waste. Siavonga Town Council should support and promote the waste management principles of Waste prevention, reduction, recycling and treatment before disposal. There are a lot of benefits to be gained from such a plan.

### **6.2 SHORT TERM TARGETS (24 MONTHS)**

In the short term, Siavonga Town Council will implement the following:

- Source fund for remedial solid waste management workd;

- Disseminate and actively promote information on this plan;
- Inform the public and other stakeholders on current and new developments on legislation and regulations;
- Enforce the legislation and regulations;
- Establish an efficient coordinated framework;
- Establish an information network: maintain data on quantities of waste generated, recycled and disposed of.
- Monitor discharges of waste to environment and
- Formulation of environmental education.

### **6.2.1 MEDIUM TERM TARGETS (UPTO 5 YEARS)**

In the medium term, Siavonga Town Council will implement the following:

- Review legislation to provide for incentives such as rebates
- Promote user charge system for waste collection service and disposal
- Promote private sector involvement in the commercialization of waste management
- Construct sanitary landfill/ disposal sites

### **6.2.2 LONG TERM TARGETS (UPTO 10 YEARS)**

In the long term, Siavonga Town Council will implement the following:

- Strengthen public education and citizen participation
- Construct sanitary landfill/ disposal
- Promote waste volume reduction

## **7.0 MONITORING AND EVALUATION**

### **7.1 MONITORING**

Regular monitoring should be instituted to check on the progress in the implementation of the plan.

### **7.2 EVALUATION**

The evaluation of the plan will focus on assessing the progress of implementing the required improvements, and how far the objectives are being achieved through Government and Public sector as well as community involvement.

### **7.3 IMPLEMENTATION OF THE PLAN**

Siavonga Town Council will spearhead and coordinate the implementation of the in collaboration with other relevant stakeholders such as institutions of learning and NGOs. Siavonga Town Council will launch the plan and ensure that plan is implemented. The implementation will include development of specific work plans from the broader targets provided within this plan and also taking into consideration the time frames.

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