

**REPUBLIC OF ZAMBIA**

**MINISTRY OF LOCAL GOVERNMENT**

**SHIBUYUNJI TOWN COUNCIL**



***The Solid Waste Management Plan, Shibuyunji District***

***2022 to 2024***

---

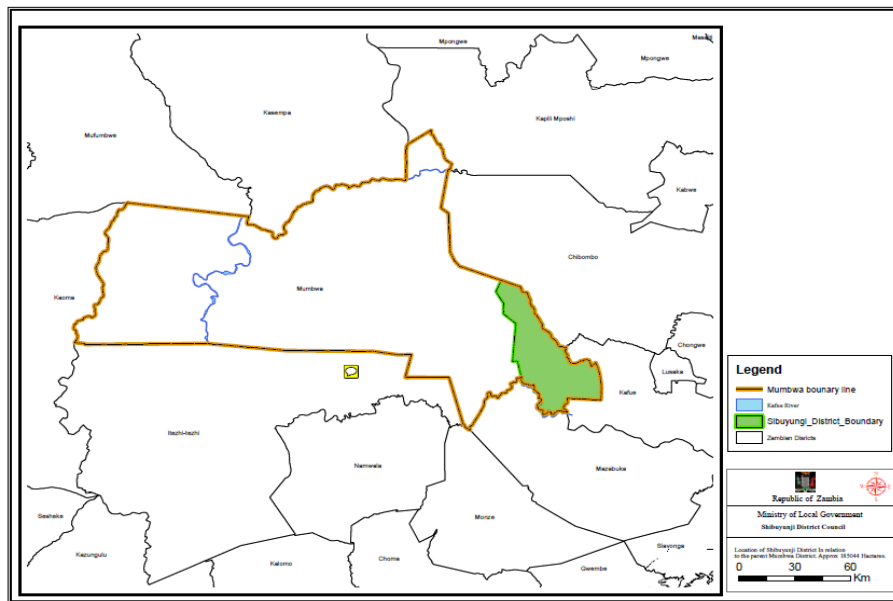
## **Contents**

## **ACRONYMS/ ABBREVIATIONS**

CBD	Central business district
CBE	Community based enterprise
CTLs	Community Led Total Sanitation
DSWMP	District Solid Waste Management Plan
EMA	Environmental Management Act
KCM	Konkola Copper Mine
STC	Shibuyunji Town Council
MLNREP Protection	Ministry of Lands, Natural Resources, and Environmental
MSW	Municipal solid waste
LA	Local Authority
PPP	Public-private partnership
STC	Shibuyunji Town Council
SWM	Solid Waste Management
SWMP	Solid Waste Management plan
Tpd	Tonnes per day
UMCIL	Universal Mining Chemicals and Industries Limited
ZEMA	Zambia Environmental Management Agency

## District Profile

Shibuyunji was declared a district in 2012 by the President His excellence Mr. Micheal Chilufya Sata SC (Late). It was detached from Mumbwa District and was first aligned to Lusaka Province until 2018 when it was moved back to Central Province.



## Demography

According to the 2010 Census of Population and Housing Report the district has a total population of 52,860 of which 26,333 are female and 26,527 are male. The district has one constituency namely Mwembezhi Constituency with twelve wards. Of the twelve (12) wards, Nampundwe ward has the highest population (16,723) and this is largely due to mining and agricultural activities by Konkola Copper Mine (KCM), Sable Kafue Sugar Company and Universal Mining Chemicals and Industries Limited (UMCIL), the major employing companies in the district.

Table 1- Total Population

District	Population Census2010		
	Total	Females	Males

SHIBUYUNJI	52,860	26,166	26,694
------------	--------	--------	--------

Source: CSO, 2010 Census

## **Introduction**

Solid Waste characteristics vary based on neighborhood income levels. Higher income levels purchase more goods and services. A by-product of such consumption is solid waste. A higher percent of recyclables and less biodegradable organics tend to be found in the discards from residences as income levels increase.

In Shibuyunji District, Nampundwe township produces the highest percentage of waste in the district due to the high population and economic activities within the ward. Generally, human settlements in the district are scattered and are concentrated in the surrounding villages. Therefore, Solid waste management in villages is implemented under Community Led Total Sanitation (CTLS) programs with the use of refuse pits for disposal of waste.

## **Vision of the Plan**

*To create an efficient and effective waste management, collection and disposal system that fosters a clean, green and healthy environment, where each person, business and organization takes responsibility as generators of wastes for waste minimization and actively works toward zero indiscriminate disposal of wastes in Shibuyunji District.*

The implementation of the plan will meet the needs of the community of Shibuyunji by way of it being incorporated in the District Strategic Plan.

The objectives of the plan are as follows:

- ✓ To comply with the legal and regulatory framework and deal with role of the generator of wastes in the public premises.
- ✓ Waste minimisation and recycling.
- ✓ Well-coordinated institutional arrangements.

- ✓ Establishment of waste database and classification system.
- ✓ Waste storage and disposal facilities across the District.
- ✓ Promotion of cost effectiveness in waste management.
- ✓ Public awareness, education and communication.

### **Scope**

The District Solid Waste Management Plan (DSWMP) document is envisaged to address all the sectors of the economy that lead to the generation of waste. Being a district document, it will provide guidance on waste management for all stakeholders in district, industry, business, private sector, nongovernmental organisations and the community. The plan outlines the principles to be adopted in the management of all streams of waste whether domestic, agricultural or commercial through waste minimisation, re-use, recycling, treatment and disposal.

### **Components of the Plan**

The DSWMP is developed with the following components:

- Waste minimisation/reduction,
- Re-use or recycling where feasible dependent upon the waste generated,
- Transportation and,
- Disposal of waste in well protected dumpsite.

### **Analysis of Issues and Needs /program recommendation**

Poor waste management practices, in particular uncollected refuse and waste disposal in uncontrolled dump sites contribute to public health and environmental risks in some parts of Shibuyunji district.

The financial (economic) considerations that have prevented a comprehensive collection program is the Districts' Rural and semi - peri urban profile, large proportion of the population at a low-income level and non collection of user fees on waste collection.

However, the Local Authority should deliberately set a policy on-going sensitization & awareness on the value the public health and environmental benefits of a cleaner neighbourhood. This is to enhance the community's Willingness to pay user fees.

The primary regulatory / institutional elements that should be implemented are:

- Increase the awareness of the general public on solid waste issues through on-going education.
- Provision of waste bins in markets and other public places
- Procurement of equipment specifically for waste management
- Introduction of user fees; proposed user fees
  - K 5.00 per household per month beginning with Nampundwe ward
  - K 42 per annum per business premises

In the short-term (three to five years), the LA should focus on implementing a comprehensive collection service for residential and public place. At the same time the existing disposal shall undergo land redemption with the establishment of the protected dump.

## **WASTE MANAGEMENT SYSTEM**

A waste management system should ideally consist of environmentally acceptable waste management practices that are aimed at minimising waste generation from both domestic and commercial activities. Therefore, the

plan aims at full protection of human health and the environment. All stakeholders shall follow the waste management hierarchy system. The system involves minimisation/reduction, re-use and recycling, pre-treatment/treatment and disposal of waste in an environmentally sound manner.

Shibuyunji district has no private companies which provide waste collection services. Shibuyunji Town Council (STC) solely executes its mandate of waste management in the district.

Currently, there are five (5) refuse bays designated as primary collection points, three (3) in community refuse bays in Ninety's, Zaire and site and service compounds. The other two (2) refuse bays are designated at markets namely Shibuyunji and Lutheran markets. Solid waste is transported (secondary collection) from the collection points to the dumpsite. The establishment of an environmentally sound disposal facility to replace the existing dumpsite is underway.

Due to limited availability of transport for waste collection, the Council at faces challenges to collect as per schedule therefore the need of having transport designated only for solid waste management. The current waste collection equipment is a five (5) tone tipper truck used at collection points to the dumpsite. Additionally, waste collection is also done on a private public partnership (PPP) bases with Konkola Copper Mine (KCM) and Sanje Ore Mine - UMCIL who provide equipment (Tipper truck, front end loader & backhoe) depending on their workload and schedule on request.

Clinical waste shall continue being handled and disposed by Shibuyunji District Health Office through placenta pits, incinerators and bio-hazard bins according to the recommended treatment of the respective type of waste.

Industries and mines such as KCM, UMCIL, Kafue Sugar, Alliance ginnery, AGDC ginnery and BVI holding shall continue managing waste generated in



accordance to the legal requirements and under the technical supervision of STC.

### **Waste Management Hierarchy**

1. Prevention
2. Waste Reduction
3. Reuse/ Recycling
4. Treatment of hazardous wastes
5. Safe Landfill Disposal



**Figure 1:** Solid Waste Management Hierarchy

In an ideal situation, waste management hierarchy is to be followed. As STC, the plan aims at ensuring that the prevention of the wastes from being generated is encouraged, where it is inevitable, the wastes generated is reduced to its minimum through reuse such as reuse plastic bags. This therefore goes for concerted efforts among the key stakeholders in order for the plan to be effective.

### **Waste generation**

Households, industry, trade and commercial enterprises and service institutions generate various types of waste. All commercial and public facilities should develop a policy to minimise the generation of waste. Generators should further put in place mechanisms to treat all hazardous waste generated.

As a district, currently the Council manages municipal waste. This is waste generated from households, Business & other public places. Nampundwe being the highly densely populated catchment area in the district is the highest generator of municipal waste in the district. Therefore, the type of waste generated range from plastic to vegetable matter which mostly are putrescible in nature.

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

### **Storage**

Currently the types of waste storage facilities are through the five (5) refuse bays located in market places and within residences. These are the primary collection points where traders and residents discard waste for storage awaiting collection for final disposal at the dumpsite.

STC plans provide refuse bins in strategic areas especially to reduce indiscriminate disposal of waste.

The provision of refuse bays is key as wastes may not necessarily have to be disposed of as soon as it is generated, its storage therefore 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. Currently, Shibuyunji Town Council does not sort out the wastes being generated as most of the wastes consist of putrescible matter. Actions and measures to improve storage of waste will be to:

- ✓ Mobilise financial resources for procurement of storage equipment such as refuse bins.

- ✓ Encourage separate storage of wastes of a different nature and composition to enhance recovery of useful materials and prevent cross contamination.
- ✓ Have refuse bays as part of the storage system especially for the peri-urban areas and communal places like markets especially for Nampundwe, Shibuyunji and Lutheran markets.
- ✓ Develop appropriate management systems for refuse bays 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.

### **Collection and Transportation**

Shibuyunji Town Council currently collects wastes through the light truck owned by the Local Authority. This is due to the wastes not being too much as it is manageable. During period under review, Shibuyunji Town Council will handle the collection of wastes up to a time when the generation becomes too much for the Council to contain.

As waste is being collected and transported to the dump site in Nampundwe, a tarpaulin is planned to be used to put covering the wastes to avoid waste spillage and wastes being blown off as the light truck moves going to the disposal site.

A schedule of collection has been put in place which can be referred to within the plan.

### **Waste Recycling/Re-use**

The project plan is to build a solid waste management system that is anchored on a sustainable society. A **sustainable society** is one in which all human activities take place and is maintained over time within the limits set by the environment – the capacity of the environment to assimilate waste, provide food, and supply other resources. It is a society that meets its needs without compromising the needs of other species and future generations. A

sustainable society is based on two sets of principles: (a) **ethical** and (b) **operational**. To achieve the above two objectives, a sustainable society shall be built on two pillars of (1) conservation (efficiency) (2) recycling

**Conservation (efficiency):** Conservation means cutting back on **unnecessary consumption**. It means becoming a more **conscientious society**. Re-use products whenever possible. Conservation also means using resources more efficiently. Currently we waste about **50%** of the energy we use. Every day huge amounts of water and other resources are wasted. Although this wastefulness is often viewed as one of society's faults, it is also one of our greatest opportunities for improvement. By becoming more efficient we can cut waste, reduce environmental damage, and ensure a steady supply of resources for future.

**Recycling:** To recycle means to use our materials **again** and **again**. Recycling saves energy and reduces all forms of pollution. It conserves resources, helps ensure supplies for future generations, protects wild life habitats, and creates employment and business opportunities

Shibuyunji Town Council will vigorously promote and encourage investment in the establishment of infrastructure and technology for the re-use and recycling of waste. Recycling of waste is a very important component in the sound management of waste. Recycling involving the utilisation of discarded material to produce another product of the same grade or lower. In order to enhance and promote recycling, the following measures/strategies will have to be done.

- Enhancing waste characterisation and separation at source.
- Introducing incentives.
- Improving environmental reporting.
- Development of legislation to obligate producers on their responsibility for their products.
- Need to generate a database of recyclable products.
- Supporting industries that are reusing and recycling waste through reducing the external costs of reuse and recycling.

- Developing packaging waste regulations to encourage recycling of problematic waste materials.
- Introduction of a system of levies and incentives
- Promoting minimisation on use of non-biodegradable or non-recyclable materials, and promote recycling and reuse of waste,
- Introduction of a mechanism to incorporate levies, penalties and tax rebates in order to encourage industry to adopt environmentally friendly technologies.

**Waste pre-treatment and treatment Strategies to improve waste pre-treatment and 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 that we have within the District in all the Ten Health Facilities in Shibuyunji.
- ✓ Open up existing central incinerators to allow smaller clinics and health centres to use facilities for incineration. District Health Office to be encouraged to have macro-burn incinerators to handle medical wastes at a large scale especially at Nampundwe Rural Health Centre.
- ✓ Request research institutions to develop appropriate incinerators.
- ✓ Develop relevant regulations for healthcare waste in line with the health care waste management plan.
- ✓ Development of treatment techniques.
- ✓ Develop technical guidelines for management of different hazardous waste streams for commercial facilities.
- ✓ Develop technical guidelines for treatment methods for both rural and peri-urban setups as Shibuyunji District is predominantly a rural district.
- ✓ Reduction of pollution from incinerators through use of wet scrubbers.

**Solid Waste disposal**

Engineered Landfill sites as well as properly sited and constructed dumpsites are a pivotal component in a sound waste management system. Looking at the rate of waste generation that we have in the District, well sited and operated dumpsites will be used for the disposal of wastes in the District. 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 or danger to the environment and mankind. Therefore, the following needs to be done to address the area of final disposal of waste:

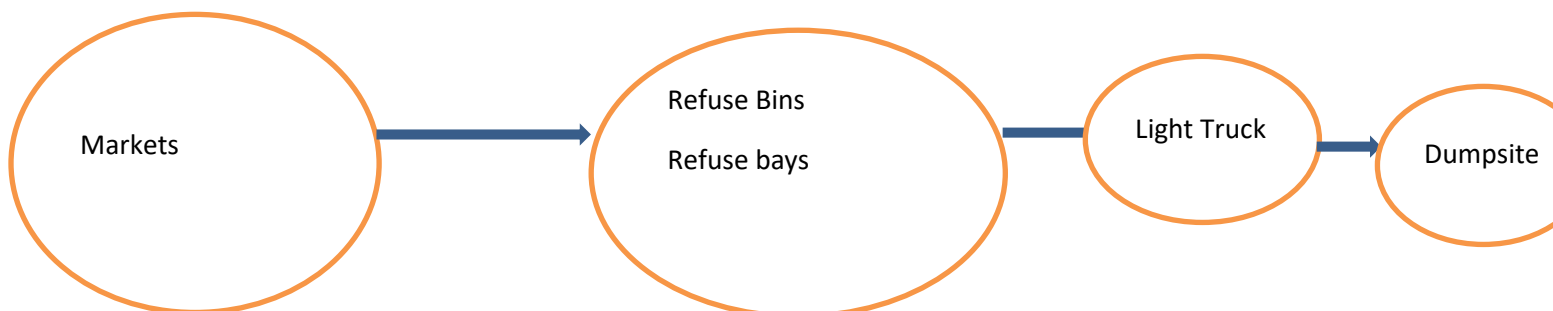
- ✓ Waste picking at disposal sites will be regulated.
- ✓ Develop private/public partnerships strategy.
- ✓ Scavengers will not be allowed at the dumpsite through fencing of the premises.
- ✓ Hazardous signs and restriction of entry at the dumpsite.

### **LANDFILL**

From 2020 to 2024, Shibuyunji Town Council will use a dump site as a final site for the disposal of waste. Thereafter, looking at the generation rate of wastes in the district, an engineered landfill will be considered for development after mobilisation of the much needed resources is done as running a landfill is costly.

### **SUMMARY OF WASTE MANAGEMENT STRUCTURE**

1. Waste generation points
2. Waste Storage points/receptacles
3. Waste Transportation
4. Waste Disposal



## WASTE COLLECTION SCHEDULE

Collection Point	Activity	Days	Frequency	Outcome	Responsible Person
Nampundwe Market	Waste collection (Garbage)	Thursday	Once a week	Traders have a clean work environment and improved aesthetic beauty.	Senior Health Inspector
Shibuyunji market	Waste Collection (Garbage)	Thursday	Once a week	Traders have a clean work environment and improved aesthetic beauty.	Senior Health Inspector
Lutheran Market	Waste collection (Garbage)	Wednesday	Once weekly	Traders have a clean work environment and improved aesthetic beauty.	Senior Health Inspector
Chimbotela Market	Waste collection (Garbage)	Wednesday	Once weekly	Traders have a clean work environment and improved aesthetic beauty.	Senior Health Inspector

NOTE: Currently, Shibuyunji Town Council is only collecting garbage from Nampundwe Market but plans to scale it up to Shibuyunji, Chimbotela and Lutheran markets as these are areas with a high population in the district with a high generation rate of waste.

### **BEHAVIOUR CHANGE PLANS**

## **Public Awareness**

Without public education and general awareness through community sensitizations 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 every program highly depends on community involvement. The success of waste management plan will depend to a greater extent on awareness programmes. The awareness programmes will provide for sensitisation of communities on the existing environmental laws.

## **LEGISLATIVE FRAMEWORK**

### **The Operational Legal and Regulatory framework of the plan.**

Zambia has recognised the need for a strengthened legal framework to the management of waste. In this regard ZEMA, formulated Environmental Management Act of 2011, which encompasses all environmental aspects, hence forms the basis of the framework.

Within this framework, all the stakeholders will have a role to play, with local authorities playing a key role in the formulation of by-laws and regulations in their areas of jurisdiction. The 'polluter-pays-principle' and similar such principles shall guide this process.

The Solid Waste Regulation and Management Act, 2018 provides legal framework on the management of solid waste.

The participation of Local communities and the private sector in natural resources management and Obligatory Environmental Impact Assessment (EIA) of major development projects in all sectors as enshrined in Environmental Management Act of 2011 is vital in this plan. The Environmental Protection and Pollution Control Act no. 12 of 1990 amended in 1999 became the principal law on environment and came into effect in 1992. This provided for the requirements for handling waste such as the licensing or permitting process for collection, transportation, treatment and disposal of waste. Other supporting pieces of legislation with regard to waste



management include the Local Government Act number 22 of 1991, Public Health Act of CAP 295, Mines and Minerals Act of 1995, National Health Services Act of 1996. All persons transporting waste or operating waste disposal sites including Local Authorities are required to obtain licenses and have to adhere to conditions and standards set by ZEMA.

The Hazardous Waste Management Regulations Statutory Instrument No. 125 of 2001 provided 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 provided for control of generation, collection, storage, transportation, treatment, import, export and final disposal of hazardous waste.

### **MONITORING**

Regular monitoring will be instituted to check on the progress in the implementation of the strategy. Luano Town Council through the Public Health Section will monitor activities of the implementation of this plan.

### **EVALUATION**

The evaluation of the DSWMP (District Solid Waste Management 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. These improvements will be in the areas of producer responsibility, investments, service provision, public awareness and cost recovery. Furthermore community satisfaction to services provided in the DSWMP 2020 to 2022.

### ***Monitoring and Evaluation Indicators***

Each project and/or activity will be monitored and evaluated against the set out indicators tabular form. The figure below summarized the