EXAMINATION COUNCIL OF ZAMBA

**GEOGRAPHY**

**FIELD PROJECT REPORT**

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**TITLE:**

**AN INVESTIGATION INTO THE SOLID WASTE MANAGEMENT AND DISPOSAL METHODS USED IN LUSAKA URBAN AREA – A CASE STUDY OF KANYAMA COMPOUND.**

**NAME: ………………………..**

**EXAMINATION NUMBER…….**

**SUPERVISOR:…………………..**

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Secondly, I am indebted to thank my other family and parents for their support and financial assistance for me to carry out this project successfully. Their efforts, love and prayers have significantly contributed to this work.

May God bless them all!

# (i)

# DEDICATION

This work is dedicated to my father, mother, sister and my little brother for their tireless support and daily prayers which made me to accomplish this work successfully.

(ii)

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**TITLE OF THE REPORT**

**AN INVESTIGATION INTO THE SOLID WASTE MANAGEMENT AND DISPOSAL METHODS USED IN LUSAKA URBAN AREA – A CASE STUDY OF KANYAMA COMPOUND.**

**CHAPTER ONE**

1. **Introduction**

This chapter looks at the background on Solid Waste disposal situation in Lusaka Kanyama compound. Solid wastes can be defined as all wastes in solid form which are discarded as useless or unwanted and in general arise from human activities (Peavy et.al. 1985). Solid waste can be classified as municipal waste (e.g. paper, plastics, food wastes, ashes, and special wastes such as street sweepings, dead animals etc), industrial waste (e.g. timber, demolition and construction waste, treatment plant waste, hazardous waste, etc) and hazardous waste (e.g. radioactive substances, chemicals, biological waste, flammable waste, explosives etc.).

**1.1 Background to the study**

Lusaka district is a vast area covering the Lusaka Central Business District (CBD) and various townships around the city. As of 2010, the city's population was about 1.7 million, while the urban population is 2.4 million. Lusaka is the centre of both commerce and government in Zambia and connects to the country's four main highways heading [north](https://en.wikipedia.org/wiki/Great_North_Road,_Zambia), [south](https://en.wikipedia.org/wiki/Livingstone_Road), [east](https://en.wikipedia.org/wiki/Great_East_Road) and [west](https://en.wikipedia.org/wiki/Great_West_Road,_Zambia). Most compounds are overpopulated leading to limited space and this has led to accumulation of waste disposal within the compounds. Kanyama compound is one of the compounds that faces challenges of Solid Waste disposal.

Solid waste comprises all materials that are identified as valueless and thrown away. It includes litter such as valueless and thrown away. It includes litter such as those produced at households, commercial outlets, those produced at households , commercial outlets, waste residue etc. The Lusaka local council has been working hard in employing several Solid Waste disposal methods to remove wastes in Kanyama compound. Waste disposal is a serious dilemma for environment and health in Lusaka. Solid waste is left on the streets uncollected, randomly dumped, and sometimes burned. All these practices severely harm Lusaka’s environment and health in many ways. Waste left on the streets in compounds creates unpleasant odors and is breeding ground for vermin and insects causing illnesses; hazardous materials from randomly and incorrectly dumped waste can seep into and pollute water resources, including ground water-main drinking water source in Lusaka .Polluted earth and water reach the human body, via drinking water, vegetables and animal products while burning solid waste pollutes the air causing serious health risks including respiratory infections, cancer and other illness.

**1.2 LOCATION OF THE STUDY AREA**

This project was undertaken in Lusaka which is the [capital](https://en.wikipedia.org/wiki/Capital_city) and largest city of [Zambia](https://en.wikipedia.org/wiki/Zambia). One of the fastest developing cities in southern Africa, Lusaka lies on a plateau at an elevation of about 1,279 metres (4,196 ft). It lies between the Coordinates: [15°25′S 28°17′E](https://tools.wmflabs.org/geohack/geohack.php?pagename=Lusaka&params=15_25_S_28_17_E_region:ZM_type:city%281742979%29).

**SKETCH MAP OF LUSAKA DISTRICT SHOWING KANYAMA COMPOUND**



Kanyama

Source*: google Maps @ 2021*

**1.3 Statement of the Problem**

Solid Waste disposal in Lusaka has been poorly handled in the compound over the past years. Compounds are very dirty because of uncollected Solid Waste, the community has little knowledge on the environment effects of uncollected waste. Disposing of the waste product leaves much to be desired especially in industrial areas thus this report seeks to look at Solid Waste disposal methods used in Lusaka’s urban areas.

**1.4 Aim of the study**

The aim of this study is to find out the Solid Waste disposal methods used in Lusaka urban area specifically in Kanyama compound.

**1.5** **Hypothesis**

1. To identify the main sources of solid waste in Kanyama Compound.
2. To investigate the methods of solid waste disposal in Kanyama Compound.
3. To identify possible solution to the problem of solid waste disposal and management in Kanyama compound.

**CHAPTER TWO**

**2.0 RESEARCH METHODOLOGY**

The research employed both qualitative and quantitative research methods. The research instruments that were used in the collection of data were questionnaire and interview schedules alongside with observation.

**2.1**.**SAMPLING TECHNIQUES**

A random sampling technique was used to choose the people to be interviewed in this project report. The study site was observed and Interviews guides and questionnaires were used to collect data from the 10 random selected local people of Lusaka’s Kanyama compound and Lusaka council Officials.

**2.2 DATA COLLECTION**

Secondary sources from books and primary data sources were used in the collection of data. The researcher also visited the areas under study to collect data using questionnaires and interview guides as well as through observations on the areas under study.

**2.3 INSTRUMENTATION**

The study utilized a number of instruments which include the smart phones, interview question guide, observation sheets, pens and note books. The pen, pencils and notes books were used in jotting downs data and sketching of the townships. Smart phones were used in taking photos, showing campus directions and used for time checking. Observation sheets and questionnaires were used to indicate comments on sub-themes.

**2.4 DATA ANALYSIS**

Much of the collected data was qualitative and quantitative and thus it was first summarized and sorted then analysed using pie charts, tables and bar graphs.

**CHAPTER THREE**

**DATA COLLECTION**

**3.1 Sources of Solid Waste in Kanyama compound**

**Table 3.1.1 shows respondents by the residents of Kanyama on the sources of Solid Waste**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Plastic bags** | **Empty bottles** | **Wood/tree branches** | **Food substances** | **Mineral particles** |
| 60% | 20% | 10% | 1% | 10% |

**Fig 3.1.2 Pie chart showing Sources of wastes**

**3.2 table showing responses from the council officials on the Solid Waste collection**

|  |  |  |  |
| --- | --- | --- | --- |
| **QUESTION** | **YES** | **NO** | **UNDECIDED** |
| Do we have solid wastes in Kanyama? | ~~IIII~~ IIII | I | NIL |
| Are solid wastes collected regularly in this area? | ~~IIII~~ | IIII | I |
| Are there masures put in place by the local authorities to curb gabbage disporsal in this area? | II | ~~IIII~~ I | II |
|  |  |  |  |

**3.2.1 GRAPH REPRESENTATION OF RESPONDENTS IN THE TABLE 3.2**

**3.3 RESPONDENTS FROM OFFICIALS FROM COUNCIL ON METHODS OF SOLID WASTE DISPOSAL**

|  |  |  |
| --- | --- | --- |
| **QUESTIONS** | **RESPONSES** | |
| 1. What are the modes of solid waste disposal in Lusaka District | BURNING  BURRYING  RECYCLING AS MANURE |  |
| 1. Are there challenges faced by the local authorities | FUNDING  LACK OF MANPOWER TRANSPORT (TRUCKS)  PEOPLES ATTITUDES  NO LAND FOR DISPORSAL |  |

* + 1. **Chart showing the methods of Solid Waste disposal by the local authorities & Challenges they face**

BURRYING

BURNING

RECYCLING

GARBAGE TRUCKS

LACK OF LAND

POOR AGRICULTURE

PEOPLES ATTITUDES

LACK OF FUNDS

**CHAPTER FOUR**

**4.0 DATA INTERPRETATION AND ANALYSIS**

**4.1 SOURCES OF SOLID WASTE**

The findings reviewed that the main sources of wastes are wastes generated from households such as garden waste generally consisted of tree branches, leaves and grass. On the other hand residents within the middle but particularly in the low cost neighbourhoods tended to have more soil in their garden waste resulting from sweeping around their yards.

* + 1. **Main Waste Generated**

The survey showed that sweepings, paper, food and cardboard were the main wastes generated in the commercial area. On average though the mean weight of waste generated per day for the 12 was 4.75 kg. However, the main types of wastes respondents included clothes, vegetables and fruits, fish, dry food such as beans, jewellery, flowers, groceries, cosmetics, wood products, electrical hardware, and audio tapes.

* 1. **Methods of Waste Disposal in Residential Areas**

Some of the measures put in place by the Lusaka city councils to control wastes can be put in four categories, throwing in a pit is the most common form of waste disposal followed by dumping on communal heap in the outskirts of the town, Throwing in deeps Pits, Burning the wastes and Burying wastes.



1. **Collection of Solid Waste in bins and plastics/sacks to ferry to damp sites**

The councils regularly encourage people in the community to thrown wastes in bins or refuse bags or in Communal heaps then they collect wastes to dump sites where they daily visit to collect or burning/ bury waste and in instances recycling some.



1. **Burning**

Burning is a type disposal method in which municipal solid wastes are burned at high temperatures so as to convert them into residue and gaseous products. The biggest advantage of this type of method is that it can reduce the volume of solid waste to 20 to 30 percent of the original volume, decreases the space they take up and reduce the stress on [landfills](https://www.conserve-energy-future.com/causes-effects-solutions-of-land-pollution.php).

1. **Involving Private companies and community members in Solid Waste collection**

Lusaka city Council has been making efforts to improve the situation of solid waste management and it does this with the help of participatory framework from various private companies. They also teach and sensitise community members and various stakeholders on concepts of solid waste management (e.g. re-use, recycling), safety and health of informal waste pickers sometime referred to as scavengers etc.

1. **Solid Waste Recycling**

The study has identified that much of the Solid Waste can be recovered, reused or recycled from the waste. For instance, some wastes identified can be classified as: 40% recyclable 29% compostable 12% potentially compostable 19% other. Using this information the council plans categorise wastes and put recyclable or potentially recyclable range of wastes from paper and cardboard, aluminum/tin cans, glass, plastics, yard/garden waste, organic food fraction and other miscellaneous items and recycle them

**CHAPTER FIVE**

1. **CONCLUSION AND EVALUATION**
   1. **CONCLUSION**

**This study has established that waste disposal**, the collection, processing, and [recycling](https://www.britannica.com/science/recycling) or [deposition](https://www.merriam-webster.com/dictionary/deposition) of the waste materials of human society. Waste is classified by source and [composition](https://www.merriam-webster.com/dictionary/composition). Broadly speaking, waste materials are either liquid or solid in form, and their components may be either hazardous or inert in their effects on [health](https://www.britannica.com/topic/health) and the [environment](https://www.britannica.com/science/environment)..

In Lusaka many compounds have a lot of wastes. The Lusaka city collects and transport some Solid Waste to a processing or disposal sites regularly however the compounds like Kanyama have accumulated a lot of wastes due to the negative attitudes of the community. A lot of Solid Waste remains uncollected in the coumpond which includes Solid Waste mostly from decomposable food waste, and rubbish is mostly dry material such as [glass](https://www.britannica.com/technology/glass), [paper](https://www.britannica.com/technology/paper), cloth, or [wood](https://www.britannica.com/science/wood-plant-tissue). large [tree](https://www.britannica.com/plant/tree) stumps, or [construction](https://www.britannica.com/technology/construction) and demolition waste (e.g., wood, [drywall](https://www.britannica.com/technology/drywall-construction), [bricks](https://www.britannica.com/technology/brick-building-material), concrete, and rebar [a [steel](https://www.britannica.com/technology/steel) rod with ridges for use in reinforced [concrete](https://www.britannica.com/technology/concrete-building-material)), all of which often require special collection and handling. Some forms of solid and liquid waste are classified as hazardous because they are harmful to human health and the environment. Hazardous wastes include materials that are [toxic](https://www.britannica.com/science/toxic-waste), reactive, ignitable, [corrosive](https://www.britannica.com/science/corrosion), [infectious](https://www.britannica.com/science/infectious-disease), or [radioactive](https://www.britannica.com/science/radioactive-isotope). Toxic waste is essentially chemical waste from industrial, chemical, or biological processes that can cause injury or death when it is either ingested or absorbed by the [skin](https://www.britannica.com/science/human-skin).

**5.2 RECOMMENDATIONS**

1. The residents should be encouraged to composite their waste. Some of which cane been be sold as garden manure.
2. There is great potential for recycling and composting of waste because a considerable amount of waste is generated within a small geographical area which is centrally located.

1. Environmental Education is need to target various community members on the implementation of the various Solid Waste disposal methods.

**CHAPTER SIX**

1. **EVALUATION**

This study has drawn some clear conclusions about the various methods of Solid Waste disposal in Lusaka. A number of evaluative points can be made. Firstly, given time and personnel restrictions it was difficult to survey the whole of Kanyama compound accurately. It is worth concluding that although this was a fairly broad piece of fieldwork, there was so much more which could be investigated. Different groups of people have very strong views on gentrification and it is hoped that this piece of work provides an impartial outsider’s view on its nature and extent of Solid Waste collection in lusaka.

**6.1. LIMITATION OF THE STUDY**

* The report likely had biased as the data was undertaken in Kanyama compound only, hence its findings are limited and cannot be generalised across other towns in Zambia. To overcome this, there is need to carry out similar studies across other towns in Zambia.
* Some respondents who were selected were illiterate to the extent that they could neither read nor write on the questionnaires, thus researcher had to read and write on their behalf .
* Time was also inadequate and this encounter did not allow the researcher to build a strong rapport with the research community. There in need for more time allocation.

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**Appendix I**

**QUESTIONNAIRE**

**(FOR OFFICIALS FROM LUSAKA CITY COUNCIL)**

|  |  |
| --- | --- |
| **Q No.** | **BACKGROUND INFORMATION** |
| 1 | Gender of the respondent  Male Female |
| 2. | How long have you worked in this ministy  less than 5 years  between 5 and 10 years  over 10 year |
| 3. | What is the major occupation of most people in Kanyama?  Tour Guides  Teachers  Nurse or Doctors  Farmers  Self- employment  Others specify…………………………………………………. |
| 4. | How regularly do you collect Solid Waste from the compounds?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 5.  6. | What are the challenges faced during Solid Waste ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Kindly explain how the council overcomes such challenges?  …………………………………………………………………………………………...………………………………………………………………………………..………...  What are the main methods of Solid Waste collections do you employ?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**THANK FOR YOUR TIME**