UNIVERSITY OF LUSAKA

SCHOOL OF MEDICINE AND HEALTH SCIENCES

KNOWLEDGE, ATTITUDE, PRACTICES OF MARKETEERS TOWARDS SOLID WASTE MANAGEMENT IN KALINGALINGA COMPOUND OF LUSAKA DISRICT

BY

LISA NANDI MUFUKULI

BSPH18110866

SUPERVISOR:

MRS EVA KANGWA

A dissertation submitted to the University of Lusaka in partial fulfilment of the requirements of a Degree in Bachelor of Science in Public Health

2022

PROOF OF APPROVAL BY SUPERVISOR

I Eva Kangwa (supervisor name) approve the submission of research proposal/ dissertation for LISA NANDI MUFUKULI (student name), for final review and marking.

Supervisor Sign: 

Date: 18/01/2022

TABLE OF CONTENT

Table of Contents

DEDICATION

This research is dedicated to the almighty God for being faithful through it all, to my dearest mum Ray, my family and friends, all those that have supported me during and to the completion of the almost impossible academic journey.

ACKNOWLEDGEMENT

To begin with, I would like to thank God for making this journey possible. For the strength to carry on during this study.

To my supervisor Mrs Eva Kangwa, I appreciate the guidance and constant advice throughout the research on how best it can be a success.

My greatest appreciation goes to my family for the continuous support and best wishes throughout the project to ensure it was a success, my dad (Mr Mahombe) my sisters Tafadzwa Mufukuli, Sonja Masese, Wangu Mahombe, my brothers Benjamin, Joshua, Chaamwe thank you so much for the support may God continue blessing you.

To my friends and study partners for the endless encouragements we gave to each other, Chilobe, Beauty, Enala, Ireen, Ngosa, Asher, James, Maybin and Jiku, I want to say thank you and all the best in all other life endeavors.

LIST OF ACRONYMS

KAP- Knowledge, Attitudes and Practices

NHRA- National health research authority

SWM- Solid Waste Management

LIST OF TABLES

ABSTRACT

Solid waste management is a problem that has called for attention all over the world. Its existence has further brought about health issues in relation to sanity and poor waste management. This has called for governments action accompanied by community participation to achieve the goal of reduced solid waste unhandled in the environment or better management strategies. This is only possible when communities involved have in place knowledge about solid waste, its impact on health and the entire societies social wellbeing. The attitude of communities that determines actions and willingness to work on the issue of solid waste management. Furthermore, practices often derived from beliefs, cultural practices and attitudes. What the residents have been doing and reasons behind the actions all determine the level of solid waste management in a community.

General Objective: To assess the knowledge, attitude and practices of marketers on solid waste management.

Methods: Quantitative methods were used in this study including counts and categorizing of data to come up with meaningful information. The study population picked was marketeers at kalingalinga market in Lusaka district. From the population of 140 marketeers, sample size was determined as 59 using the Taro Yamane formula, with 90% confidence interval and 10% margin of error. Participants were selected by convenient sampling and had questionnaires administered to them for data collection, which they were required to answer at their own free time. To analyse obtained data, a data analysis tool was used, SPSS, and brought out results in form of tables in the output.

Results: From questions about knowledge it was found that 88.7% of the participants admitted to knowing what solid waste is and risks associated with it, while 11.3% said they didn't know solid waste nor the risks associated with it. Concerning waste polluting the environment, 88.7% admitted to it, 1.9% said no, 1.9% said they were not sure and 7.5% didn't know. Results on attitude included, solid waste needs immediate attention, 83.0% I agree. 13.2% I disagree, 1.9% not sure, I don't know 1.9%. Results on how they felt about how waste is handled, comfortable 56.6%, uncomfortable 39.6%, not sure 1.9%, I don't know 1.9%. and finally practices, 79.2% used waste bins, 20.8% did not use waste bins. 64.2% of the participants obey laws, 35.8% do not.

Conclusion: Marketeers at Kalingalinga Market have relatively high levels of knowledge about solid waste and attitude above average. This did not seem good enough to influence good

practices among the sample group as they expressed all types of waste disposal methods regardless of them being knowledgeable about the risks involved and consequences. For this solid waste management in community still remains to be of major concern and needs immediate attention. Getting to involve the community in what really matters.

CHAPTER ONE
INTRODUCTION
BACKGROUND

In our everyday lives we purchase things and utilise them, but what we do to the leftover food and packages after we have used them has been an issue. Solid waste management is a problem that we are facing as a nation and has gone down all the way to individuals, it has contributed to many other issues such as climate change, spread of infectious diseases and ground water contamination. "Around the world, waste generation rates have been rising. In 2016, the worlds' cities generated 2.01 billion tonnes of solid waste, amounting to a footprint of 0.74 kilograms per person per day. With rapid population growth and urbanization, annual waste generation is expected to increase by 70% from 2016 levels to 3.40 billion tonnes in 2050" (World Bank, 2019). Even with these contributions, the people in developing countries especially urban poor countries are more affected by pollution compared to people in developed countries. And this does not exclude Zambia. Areas that are highly affected by poor management of waste include urban areas and marketing areas being the major sources of waste.

Zambia as a country has tried to manage solid waste, but there has been an issue with disposing sites. Its either the disposal sites are not there completely or they are poorly managed, Lusaka being used as an example, which has less than 14% of the waste produced in urban to successfully find its way to be disposed (Environmental council of Zambia, 2004). These are contributions from the communities and other sectors in the country. Other towns in Zambia have managed to handle waste even put as the cleanest cities like Chipata stated by the Mayor Sinoya Mwale in 2018. Programs have been put in place in order to ensure reduction in waste that is unattended to in communities. Including keep Zambia clean campaigns, and routine garbage collection by city councils, and other private companies around the country.

Lusaka district is one of the cities in Zambia still facing this problem. The Lusaka city council is in charge of the management of waste in this district. It ensures costs are met to collect and manage waste produced within the city. "The Waste Management Unit (WMU) is the regulatory Unit of Waste Management in the city is mandated to plan, organize, execute (directly or indirectly) and supervise waste management services in other selected areas in the City and the management of disposal site. The Waste Management Unit (WMU) operate in a cost neutral manner meaning that the Waste Management Unit (WMU) shall generate sufficient funds to pay for all the expenditure required to provide an efficient and affordable waste

collection and disposal service in the entire city" (Lusaka city council, 2020). Even with the above measures set by Lusaka city council to collect waste, Lusaka still faces problems arising from poor waste management because of attitudes, bad disposal practices of citizens and poor disposal sites.

STATEMENT OF THE PROBLEM

Waste management is the process of handling waste. A law was passed in 1991 by the government of Zambia which prohibits the unauthorised disposal of waste, dumping of waste in drainages, public streets and living areas.

Despite having the law that gives guidelines on waste management, it has been noticed that careless disposal of solid waste has been a trend in kalingalinga market. The marketers who are responsible of handling the waste they produce, have not put in proper measures of waste management, measures being mentioned include provision of a bin at each shop or stand. And even if measures are put in, the waste is dumped within the market carelessly including in places like the drains and roads. The improper ways in which solid waste has been handled has led to the accumulation of waste in open lands and in turn resulted in the production of stinking pools, environmental pollution (through leatches of piles), air pollution because of burning the waste, blockages in drains, and possible spread of diseases like cholera and diarrhoea. Piles of waste left unattended to at the market have become breeding grounds for rats, insects and a production site of offensive smells. Another impact is the social unrest that will be caused by the offensive smells, affecting the school going children at a school just behind the market, and local traders.

It is against this information that a study has been carried out to analyse the knowledge, attitude, and practices of marketers on solid waste management at Kalingalinga market.

JUSTIFICATION OF THE STUDY

Solid waste management is one of the routes through which the spread of infectious diseases occurs such as measles, cholera, diarrhoea through contamination of underground water. This study will enable us to know how much knowledge marketers have, their attitudes and practices with regards to the management of solid waste not only at the market but also in their homes, as charity begins at home. Information obtained from this study will further provide a basis of health promotion in relation to solid waste management and a reduction in diseases that come due to poor management of solid waste. Furthermore, bringing out a clear justification of regulations that could be put in place and in turn promote the health of the public.

MAIN OBJECTIVE

To assess the knowledge, attitudes and practices of marketers on solid waste management

SPECIFIC OBJECTIVES

1.To assess the knowledge on solid waste management among marketers in kalingalinga.

2.To analyse the attitudes of marketers towards proper waste disposal methods.

3.To evaluate the practices of waste disposal among the marketers.

RESEARCH QUESTIONS

1.What are the knowledge levels of marketers on solid waste management in kalingalinga?

2.What are the attitudes of marketers in kalingalinga towards solid waste management?

3.What are the common practices of waste disposal among marketers at kalingalinga market?

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

Several studies have been done worldwide concerning knowledge, attitude and practices of solid waste management among different population groups and these have brought about different conclusions as to what leads the population to be exposed to the amount of waste they are exposed to. Search engines used include; Pub med, google scholar and Gray matter, with information collected from various sources, this chapter will bring about understanding of comparisons, differences and gaps in various surveys that are documented and published. Therefore, this literature review will describe what solid waste management is, knowledge, attitude and practices of people, contributing factors leading to poor solid waste management and how change can occur, with regards to the work of other researchers.

WASTE

Waste is any useless product arising from human activities that earlier existed and contained same physical components as useful products. It is the produces from the goods and services marketeers offer to their customers, these may include card boxes, sacks from which products were packed in, plastics, cans and bottles. The produces do not only come from the customers but also from the marketeers themselves.

There are five common types of waste. These include; Organic waste, solid waste hazardous waste, liquid and recyclable waste.

‘‘Liquid waste refers to all grease, oil, sludge, wash water, waste detergents and dirty water that has been thrown away. These are hazardous to our environment’’ (dtmslips, 2019).

‘‘Solid waste is any garbage, sludge, and refuse that is found in industrial and commercial locations, and may be in form of glass, plastic waste, paper rubbish, metals and tins’’ (dtmskips, 2019).

‘‘Organic waste is the type of waste commonly found in homes. It consists of rotten meat, garden waste like leaves, food waste’’ (dtmskips, 2019). This type of waste is bio degradable and can be used as manure. Careful disposal of this type of waste is advised as it produces methane which can in turn pollute the environment and ground water.

‘‘Hazardous waste includes flammable, corrosive, toxic and reactive materials’’ (dtmskips, 2019). These are waste that pose a significant threat to the environment and must be handled with care.

Waste management is the handling of useless products from human activities that includes incineration, burying and recycling. Waste management is the process of handling waste. A law was passed in 1991 by the government of Zambia which prohibits the unauthorized disposal of waste, dumping of waste in drainages, public streets and living areas.

KNOWLEDGE LEVELS OF SOLID WASTE MANAGEMENT

A study was done by Barloa, E.P at el (2016) on the KAP’s of undergraduate students at a Philippine state university towards solid waste management. The study found out that majority of the students had satisfactory knowledge and attitude, and less than half of the students had satisfactory practices towards recycling several items and also participation environmental activities concerning solid waste management. Which suggested that majority of the undergraduate students had knowledge about proper management of solid waste and recycling at the time of the study, and had relatively good practices towards these issues, on other hand few students had bad practices. A similar research done in India on knowledge attitudes and practices of houses on solid waste management, defined solid waste as ‘‘useless and unwanted solid material generated from homes, industries and other activities in an area’’ (Kiran, 2015). In their study they focused on households of kuttar and Manjanadi by Kiran K G at el. The research showed that among the respondents 42.5% were unskilled workers, and 65% had obtained education to primary class and 21.7% of the respondents were illiterate. The study further indicated that the subjects to the study had good knowledge about what solid waste is, and in addition to the knowledge they had 29.2% knew about recycling of waste. The study also looked a major sources of information about solid waste management and they included, neighbors to the respondents 20(16.7%), newspapers 15(12.5%) and friends 15(12.5%) to the respondents. In Somalia,with reference to a study done by Aldikadir A O, at el (2018) on knowledge, attitude and practices towards the solid waste management in KARAN district, Moganishu, findings of their study showed that,the level of knowledge on solid waste management for residents was measured categorizing them into four namely, excellent knowledge, good knowledge, satisfactory knowledge, poor knowledge. And the results showed that 58 percent was good knowledge, 17 percent were satisfactory, 13 percent were excellent and 12 percent had poor knowledge towards solid waste management, and was concluded that most of the participants had good knowledge. In Berekem municipality, Ghana a study was

done by Daudan S, at el (2015) on knowledge attitudes and practices of residents on urban solid waste management. This study had 150 participants 74 percent being female and this was drawn by an idea of having more females because by tradition they are the ones responsible to handle waste. The study had other background factors of interest that included age, level of education and income levels. Results from level of education showed that 85 percent of the respondents had acquired formal education, 42 percent had basic education and 14 percent had secondary/technical education. This drew a conclusion that the more people spent time in formal education the more likely they were to pay more to improve solid waste management, and they were expected to have positive attitude and perceptions because they had knowledge, considering that majority of the respondents had attended formal school.

ATTITUDES TOWARDS SOLID WASTE MANAGEMENT

A research done in India by Kiran.K.G 2015 categorized findings into parts for easier collection and interpretation of findings and these parts included information from participants concerning their; socio demographics, knowledge of solid waste management, environmental contaminants, attitudes towards management, practices towards waste management. Their findings showed that 20 percent of the respondents were unskilled workers and 7.3 percent had studied to primary class and 38.7 percent were illiterate. Thereafter, the type of resident's attitude towards solid waste management was also assessed, and these were divided into positive attitude, negative and no sure. Findings showed that most of the residents had positive attitude as It was 62 percent of the respondents, 25 percent showed negative attitude and 13 percent of them were not sure. In Somalia a study done by Aldikadir A O, at el (2018) on knowledge, attitude and practices towards the solid waste management in KARAN district, Moganishu showed that, despite the participants having bad practices of solid waste management, they had had good knowledge and attitude. In Ghana, a similar study was done on the 'residents' perception and attitude towards urban solid waste management by Daudan S, at el (2015), Results showed that the age group with more people was between 36-40 and the respondents were all from the ranges of 20-60 years. Another factor was the income levels that showed that most of the respondents had relatively low income and earned 'GH¢50 (1$=GH¢2.55)', and this meant that 36 percent of the respondents would be unwilling to pay because of their low income. Apart from the background factors, also looked at were the perceptions and attitudes towards urban solid waste management. Respondents were asked about what environmental problems the faced from a list of problems in their locality, it was indicated by most of the respondents that solid waste was the biggest problem having 40.2

percent of the respondents and 26 percent of the respondents indicated pollution of water bodies. This supported Chazzan's (2002) finding that 'most developing countries are drowning in waste'. An observation made was that waste management was a problem in low and middle income communities, which conquers with the first findings in the study of most people not willing to spend more on waste because of their low income. Which indicated an attitude of unwillingness in taking part in payments directed to improving services for solid waste management.

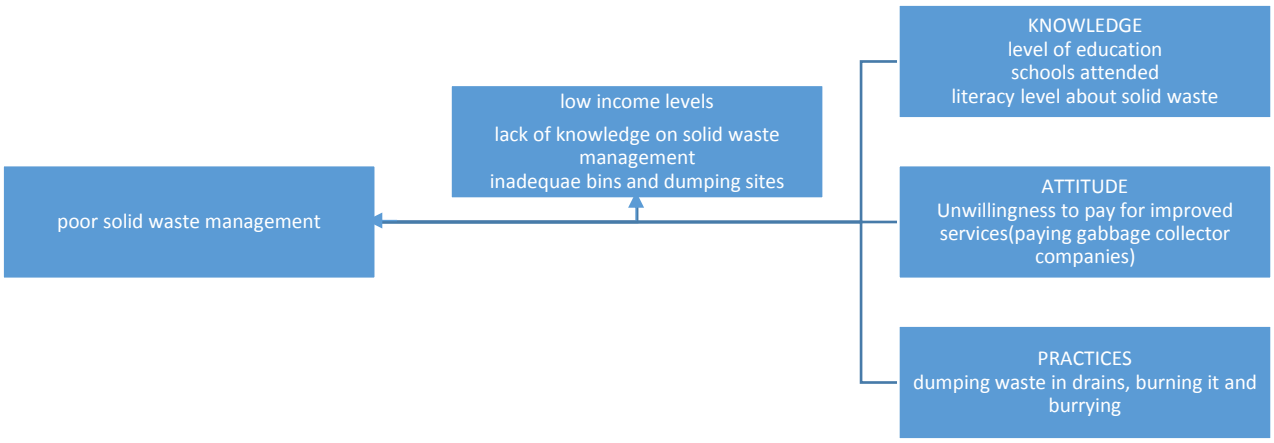
PRACTICES OF SOLID WASTE MANAGEMENT

In Livingstone, Zambia. A study on the waste management system "assessment of opportunities for the reduction of open burning practices" was done. This study was looking at the entire grid from point of origin to end-of-life disposal, including fee paying structures, waste collection systems and contracting. Which helped identify areas that need further assessment. The study further presented proposals for system improvement, which could have possibly been made with existing level of results (Muleta. T, 2016). A KAP study in Philippine by Barloa, E.P at el (2016) on the Knowledge Attitudes and Practices of undergraduate students at a Philippine state university towards solid waste management showed the practices of the students were correlated to their knowledge and attitudes. As it was found that reuse of plastic bottles, cans, rainwater and others were mainly related to the knowledge they had and no their attitude. The study also gathered information about the relationship between the socio-demographic background of the students and their KAP's towards solid waste management. Kiran K.G did a similar study in India, the study looked at the methods of solid waste disposal used by the respondents in households of kuttar and Manjanadi which included results showing practices of burying, burning, and throwing away. An important factor looked at in this study was the number of people in each house hold. And these included 26.7% of participants had less than 5 members 67.5% had more than 5 members but less than 10, and only 5.8% lived above 10 members. A modified BG Prasad classification of 2014 was used to classify the respondents from class 5 socio-economic strata to second class economic strata, and the findings indicated the majority being in class 5(v) with a record of 107 (89.2%), 10 belonged to class 4 (iv) and 2(1.7%) belonged to class 3(iii) socio- economical strata, and only 1(0.8%) belonged to class 2 socio-economic strata. Research findings in Somalia Karan district, Moganishu, based on a study done by Aldikadir A O, at el (2018), revealed that practices of the residents towards solid waste are poor, but they had good level of knowledge and attitude. Furthermore, this study also assessed the respondents' practices towards solid waste

management, only 2 categories were put and these included poor practices and good practices. the respondents with good practices were below 50 percent recording 35 percent good practices and the poor practices were 65 percent, showing that most of the respondents had poor practices of solid waste management. A study in Ghana on solid waste manage among residents on urban solid waste management by Daudan S, at el (2015), showed that there were poor practices of the management of solid waste in the urban and causes of the environmental problem of solid waste management range from the officials consulted saying that the people were a problem as they disposed waste behind homes and in areas that were prohibited, also stated was that there were sachet water companies that did not provide bins and this led to the sachets being found everywhere. The respondents attested that the problem was with insufficient bins being the cause of the solid waste problem which had 52.7 percent of the respondents. 44 percent of the respondents said the long distance to the dumping site was a problem, and finally 2 percent of them mentioned that the dumping sites were unavailable. Furthermore, the study indicated that third of the respondents were unwilling to pay in order to improve solid waste management services.

In the Philippine study of student's knowledge attitude and practices by Barloa E.P at el 2016, findings in the study showed that students that came from middle sized families and had parents that went to school with stable jobs were more likely to show satisfactory KAP results as compared to students from families low monthly income. Unlike a study done by Dauda 2015 in Ghana, this study found that there was no relation between sex and KAP towards solid waste management. Other attributes that were rated as no association between KAP to solid waste management included age, and civil status.

CONCEPTUAL FRAMEWORK ON KNOWLEDGE, ATTITUDES AND PRACTICES OF SOLID WASTE MANAGEMENT (SWM)



Source; Researcher, 2021

Above is an elastration of how independent variables (knowledge, attitudes and practices) of solid waste lead to dependent variables and finally poor solid waste management. In the diagram components under knowledge include level of education, schools attended, literacy levels about solid waste can lead to low income levels because of level of education or school one has attended. Furthermore, the knowledge marketeers have about solid waste management determines the attitude and later affects solid waste management. Attitudes of the marketeers include unwillingness to pay for improvement of waste management. Practices contributing to poor solid management include burying of waste, burning of waste, dumping waste in drains. And solid waste management is dependent on the above to either be successful or unsuccessful.

THEORETICAL FRAMEWORK

According to the theory of diffusion of innovation that was proposed by Rogers in 1962, diffusion of innovations is the spread of new innovations and methods of doing things over time. Time is a very important aspect in this theory as it accounts to the spread of different methods and concepts of waste management across the community, in the country and to a greater extent the world. ‘‘innovation diffusion theory has formed the basis of various researches in the recent past, integrating into knowledge, attitude, and practice stages of innovation adoption’’ (Hubbard & Haashi, 2003). This is because other people adopt innovations differently, and there are different groups which adapt differently. Some is faster like the innovators; these share their experiences to the community. This group is responsible for sharing innovation this is because of their attitude of sharing their experience.

Continuous environmental education to marketeers is key concept in this theory, this is because it is based on raising marketeers awareness on environmental management (solid waste management) this through cultivating the marketeers KAP which include knowledge to perception, attitude to affection and practices to behavior activities. Well, ‘‘behavior actions are as a result of marketeers learning some skills while practices lead to behavior change and better practices’’ (Wand at el, 2009).

CHAPTER THREE

METHODOLOGY

INTRODUCTION

This chapter include information about the methodology part of the research. Looked at was the research approach, design of the study that was carried out, the population of interest, how participants were picked, tools used for data collection, the methods used for analyzing data collected, ethical considerations, The budget for the study and the work plan.

RESEARCH APPROACH

This research used a quantitative study approach which included quantitative methods. A quantitative approach helped the researcher to provide a more comprehensive and detailed understanding of the data that was collected in order to be able to answer research questions and handle the research objectives.

The quantitative methods aided in the explanation of data collected (findings) including the measurement of knowledge, attitudes, and degree of practices among the participants in the population of interest, Kalingalinga market.

RESEARCH DESIGN

The research used a cross sectional design and looked at what knowledge, attitudes and practices the participants had that led to the kind of solid waste management around their area. This design allowed the researcher to look at the exposure and outcome relation among the respondents in the study.

STUDY POPULATION

A population consists of people and objects with similar qualities, values and characteristics (Mugenda & Mungenda, 2003). The population of kalingalinga was about 39,139 as at 2010 population census but the population increased (census 2010). The study population was the marketeers at kalingalinga market who were estimated by the vice market chairperson to be about 140. Well, reasons as to why this population was chosen was because of its nature of being a very influential group in the community. Like the ‘‘saying charity begins at home’’, what they knew, their attitudes, and practices towards solid waste management was just an elastration of what happens in their homes. Therefore, obtained information about management of solid waste from this group meant that we got a chance now have an idea of how waste was managed at home and how it would help policy makers come up with better strategies to get this population to handle waste in a much safer way.

SAMPLE SIZE

With reference to an online sample size calculator, a population of 140 with a confidence interval of 90 percent and margin of error 10 percent showed a sample size of 59 participants. The Taro Yamane formula was used to determine the sample size and it was calculated as shown below;

$n = {}^{N}/_{1+N(e)^2}$

n= sample size

N = Population of marketeers

e = 0.01

. ˙ .

N = 140

n =?

e = 0.01

$n = {}^{140}/_{1+140(0.01)^2}$

n = 58.333333333333

n = 59 participants

SAMPLING TECHNIQUES

The respondents were sampled by convenience, as it allowed for respondents to be picked depending on who was available at the time of the study. Availability to mean that, respondents chosen for the study were dependent on which marketeers were present at the market at the time the study was being carried out and convenient sampling technique allowed for this. The sampling technique also enabled the selection of respondents depending on who was willing to respond at that time, this was because some of the marketeers were busy and may not cooperate.

DATA COLLECTION TECHNIQUES

This study was more interested in collecting quantitative data directly from marketeers at Kalingalinga market, which facilitated in the interpretation of findings which included knowledge, attitude and practices. The data was collected by the use of distribution of questionnaires that were written in English language among the study population, and requested that the respondents fill in the questionnaires. This enabled the researcher to leave

the questionnaires with the participants and allowed them to fill it at their own convenient time, and collection of the tool was done as agreed with the respondent. In a case that respondents did not know how to read or understand English, the questions were read out to them and translated in their local language.

DATA ANALYSIS

After the collection of data, the findings were organized and analyzed using a Statistical Package for Social Sciences (SPSS) as well as presentations of tables. This helped in arranging the categorized data obtained and facilitated data transfer as well as the analyses. Relative frequencies, counts and scores from mean was used in descriptive analysis, and to describe characteristics found among the study population of interest.

VALIDITY AND RELIABILITY

The accuracy of the study was dependent on the accurate of measures in the study, this made the study valid as results were accurate rather on point. Reliability was about the depiction of consistence in the procedures chosen for analysis. Trying by all means that the results found were error free, the research upheld a high level of integrity which was maintained through the coherent and well-structured questionnaires that led to accuracy and in turn led to error free data. The study could also be validated if no manipulation was done to the findings.

ETHICAL CONSIDERATIONS

Permission to carry this research was obtained from the gate keepers in Kalingalinga that include the ward councilor and the market management. The participants were not forced to disclose any private information as their right to privacy was considered. The study is only to be used for education purposes and information obtained from participants is protected and not used for any other purposes. Integrity was observed throughout the study and as methods used and findings obtained in the research allowed for the gain of trust and confidence of others. The researcher collected the ethical clearance from the university of Lusaka ethical clearance committee and the National Health Research Authority. This gave a go ahead and was accepted to be ethically cleared.

CHAPTER FOUR
PRESENTATION OF RESEARCH FINDINGS
INTRODUCTION

Data collected from the marketers is meaningless if not changed into meaningful and useful information. the software application Statistical Package for Social Sciences (SPSS) was used to come up with tables to show findings. the tables were arranged in order of Socio-demographic factors included information of social demographics from what was asked to the marketeers in the data collection tool, Knowledge table had all responses that were asked to assess the knowledge of the participants, Attitudes and Practices of marketers.

RESULTS

Variable	Category	Mean(sd)	Frequency	Percentage%
Sex				
	Male		30	56.6
	Female		23	43.4
	Total		53	100
Education level				
	Primary		10	18.9
	Secondary		24	45.3
	Tertiary		19	35.8
	Total		53	100
Marital status				
	Single		31	58.5
	Married		19	35.8
	Divorced		1	1.9
	Deceased spouse		2	3.8
	Total		53	100
Age		29.74(8.09)		
	18-25		16	30.3
	26-33		25	47.1
	34-41		8	15.2
	42-49		2	3.8
	50-58		2	3.8
	Total		53	100

Table 1 represents socio demographic factors of the participants. The results show (30) 56.6% of the participants were male and (23)43.4% were female. education level of included 10(18.9%) ended at primary level, 24(45.3%) ended in secondary and 19(35.8%) reached tertiary level. Marital status results included 31(58.5%) single participants, 19(35.8%) were married, 1(1.9%) divorced, and 2(3.8%) had spouses that died. The mean age was 29.74 and standard deviation 8.09, age group 18-25 were 16(30.3%) 26-33 were 25(47.1%), 34-41yrs were 8(15.2%), 42-49yrs were 2(3.8%) and finally 50-58 were 2(3.8%).

TABLE 1: SOCIO-DEMOGRAPHIC FACTORS OF MARKETEERS AT KALINGALINGA MARKET

Table 2 represents knowledge of participants on solid waste management. 47(88.7%) of the participants admitted to know what solid waste is, while 6(11.3%) said they didn't know waste. 47(88.7%) expressed that they knew risks associated with waste and 6(11.3%) of the participant indicated they had no knowledge over the same. On whether the participants had knowledge on solid waste polluting their environment, some participates said yes 47(88.7%), 1(1.9%) said no, 1(1.9%) participant was not sure, 4(7.5%)of the participants didn't know. 46(86.8%) of the participants said solid waste can be converted into usable material, 2(3.8%) said no, 1(1.9%) said they were not sure and 4(7.5%) said they don't know. Can waste be sorted and recycled, 46(86.8%) indicated yes and 7(13.2%) said no. A question was asked on whether participants knew any laws that regulate solid waste management, 32(60.4%) said yes and 21(39.6%) said no.

TABLE 2: PARTICIPANTS' KNOWLEDGE ON SOLID WASTE MANAGEMENT

Variable	Category	Frequency	Percentage%
Do you know waste			
	Yes	47	88.7
	No	6	11.3
	Total	53	100
Do you know risks associated with waste			
	Yes	47	88.7
	No	6	11.3
	Total	53	100
Do you think waste pollutes the environment			
	Yes	47	88.7
	No	1	1.9
	Not sure	1	1.9
	I don't know	4	7.5
	Total	53	100
Can waste be converted to other usable material?			
	Yes	46	86.8
	No	2	3.8
	Not sure	1	1.9
	I don't know	4	7.5
	Total	53	100
Can waste be sorted and recycled			
	Yes	46	86.8
	No	7	13.2

	Total	53	100
Do you know laws relating to solid waste management			
	Yes	32	60.4
	No	21	39.6
	Total	53	100

Table 3 represents attitudes of participants grouped in categories and analysed for frequencies and percentages. Findings included; participants were asked if they felt or thought solid waste needed attention, 44(83.0%) agreed, 7(13.2%) disagreed, 1(1.9%) said they were not sure, 1(1.9%) also indicated they didn't know. Results from the question on how they felt about how waste was handled, 30(56.6%) felt comfortable, 21(39.6%) were uncomfortable, 1(1.9%) was not sure and the one didn't know. The participants were asked about whether it was ok to use 3r's (reduce, reuse and recycle) on waste, 45(84.9%) said yes, 4(7.5%) said no, another 4(7.5%) said they didn't know.

TABLE 3: PARTICIPANTS' ATTITUDE TOWARDS SOLID WASTE MANAGEMENT

Variable	Category	frequency	Percentage %
The current handling of waste needs more attention			
	I agree	44	83.0
	I disagree	7	13.2
	Not sure	1	1.9
	I don't know	1	1.9
	Total	53	100
How do you feel about how waste is handled?			
	Comfortable	30	56.6
	Uncomfortable	21	39.6
	Not sure	1	1.9
	I don't know	1	1.9
	Total	53	100
Is it ok if waste is reduced, reused and recycled?			
	Yes	45	84.9
	No	4	7.5
	I don't know	4	7.5
	Total	53	100

Practices of the participants are presented in table 4. Presences of waste bins at shops/stand included 42(79.2%) had, 11(20.8%) did not have, methods of disposal included 10(18.9%) buried their waste, 13(24.5%) burnt, 1(1.9%) dumped behind market, 1(1.9%) dumped in drainages. Participants were asked if they obeyed laws relating to solid waste management 34(64.2%) said yes 19(35.8%) said no.

TABLE 4: PARTICIPANTS' PRACTICES

variable	Category	frequency	Percentage %
Do you have waste bins for your shop/stand?			
	Yes	42	79.2
	No	11	20.8
	Total	53	100
How do you dispose your waste?			
	Burying	10	18.9
	Burning	13	24.5
	Dump behind market	1	1.9
	Dump in drains	1	1.9
	Others	28	52.8
	Total	53	100
Do you obey laws relating to solid waste management			
	Yes	34	64.2
	No	19	35.8
	Total	53	100

CHAPTER FIVE

DISCUSSION OF FINDINGS

In the study, majority of the respondents were male who were 56.6% of the participants. The level education most marketers attained in our study was secondary 45.3%, tertiary 35.8% and a much smaller number in primary 18.9%. marital status for most participants was single 58.5%, followed by married with the largest age group falling between 26-33yrs 47.1%.

KNOWLEDGE LEVELS ON SOLID WASTE MANAGEMENT

In order to assess the participants' knowledge, the marketers were provided with questions used to categorise them into groups based of what they know. The first question was about whether they knew waste, 88.7% of the participants admitted to knowing waste while 11.3% denied knowing waste, showing a good position in in level of knowledge among participants as more than ¾ knew what solid waste is. Furthermore, the researcher found out if they knew risks associated with waste. The outcome was similar with knowing waste, 88.7% knew the risks associated with waste which was a larger part of the respondents, while a smaller part 11.3% did not know the risks associated with waste (poor handling of waste), this justified reasons of concern among participants to get rid of waste in their working environment. The researcher further found out if the participants thought waste pollutes their environment. Majority of the respondents said yes, which meant a bigger population 88.7% knew that waste pollutes the environment leaving the rest falling into I don't know, no and not sure, 7.5%,1.9%,1.9% respectively, bringing us to a total of 11.3% of the participants with no knowledge that waste pollutes their environment. Respondents further answered whether they thought waste can be processed and made into other usable materials, from the responses most of the participants said yes 86.8% showing they knew about recycling, and the remaining population fell between no3.8%, not sure 1.9% and I don't know 7.5%, implying that not the entire population of respondents knew about transforming waste into usable materials. Another question posed was whether the respondents thought waste can be sorted, majority said yes 86.8% and a smaller population said no 13.2%, sorting of waste is one of the steps to recycling. When waste is sorted from point of generation it makes easier to be processed by recycling companies, and from the outcome of the responses it shows that a good percentage of the participants knew about sorting waste increasing chances of them separating waste, though this was not of concern as to whether they sorted their waste. Lastly the participants' knowledge about any laws that regulate solid waste management was assessed, and among those that admitted to knowing some laws were 60.4% of the population which is over half of the sample population

leaving no big difference between those falling in not knowing any of the laws, while the rest 39.6% said they did not know any such laws. This showed a thin line of difference between those that knew and those that did not know any laws on solid waste management. The respondents shoed a relatively high level of knowledge. In line with a study done in Karan, Magadishu Somalia (feb,2018) it was found that 58% of the residents had good knowledge on solid waste management and 13% had excellent knowledge, which meant more than half of the community had knowledge about waste management. In another study done in Ghana Sanjay et al in 2018, it was found that subjects had good knowledge about what solid waste is, which is similar to the findings of this study.

ATTITUDE TOWARDS SOLID WASTE MANAGEMENT

The attitude of participants was analysed with the help of a set of questions and statements. The first was solid waste is one of things that need immediate attention in our community, majority 83.0% agreed to this statement, the rest falling between I disagree 13.2%, I don't know 1.9% not sure 1.9%, showing a higher prevalence of positive attitude as majority felt solid waste management in their community needed immediate attention. A study in karan (2018) also showed that residents had above average good attitude amounting to 62% with positive attitude towards waste management. This showed a good number of participants with good attitude towards the concern on handling of waste in their community. Another study in Ghana 2018 found that 90.8% participants felt 'they had a role to play in solid waste management, and this was categorised as good attitude. To add on to questions in the process of analysis of attitudes, the participants were asked about how they felt generally about how waste was handled in their community. Responses included comfortable 56.6%, uncomfortable 39.6%, I don't know 1.9% and not sure 1.9%. Showing that majority of that participants were ok with how waste was being handled as at that time, followed by a few respondents that expressed concern as they were uncomfortable with the current situation not covering the entire percentage leaving same in not knowing and not being sure leaving them no particular place to fall under. Lastly on attitudes, amongst areas of concern for attitudes was whether the respondents cared about using 3rs (reduce, reuse, recycle) to handle waste. The 3rs are a process of making waste safe and reusable. Majority said yes 84.9%, followed by no 7.5% and I don't know 7.5%, bringing out a larger percentage of those that cared about the process of reusing waste. With regards to study done in livingstone, Zambia by Chiinga.G 2014. It was evident "that most of the households in all the three socio-economic households surveyed were of the opinion that showed positive attitude towards Domestic Solid Waste Management which they

admitted was a very important activity". This shows a relation to our study as attitudes of participants were above average good towards the handling of solid waste. Furthermore, results of the study by Chiinga.G gave a clear indication that a campaign make Zambia Clean and Healthy headed by the Ministry of Local Government and Housing under the auspices of the Livingstone city council to a large extent was ineffective and unsuccessful in the city of Livingstone. "This made it clear that from findings of the study, the participants in Livingstone were of the view that the programme failed to enhance Domestic Solid Waste Management in the residential areas of the city" (Chiinga.G , 2014).

PRACTICES OF SOLID WASTE MANAGEMENT

The study further evaluated practices of marketers when it comes to waste management around working place including storage facilities before final disposal. A question was asked if the responds had waste bins for their shop or stand, 79.2% said they had bins in form of boxes, plastic waste bags and other storages for waste.20.8% did not have waste bins nor alternatives, often opted for direct disposal, numbers don't lie but proportions matter too, not all of them used waste bins which implied that littering among the population was present but at a smaller percentage not leaving the market free from being littered by people working there (marketeers). Methods of final disposal, determining where the waste finally goes after storage, responses given included burning 24.5%, burying 18.9%, dumping behind market 1.9%, dumping in drainages 1.9% and other responses (paying garbage collectors, taking home to handle with waste produced at home, also keeping behind market awaiting to make enough money to pay collectors) 52.8%. This showed poor practices among marketers that need immediate attention. The bigger numbers fell around others, not restricted to paying but other practices that could pose a harm to the environment and the society. Lastly marketers were asked if they obeyed laws related to solid waste management 64.2% said yes they obeyed and 35.8% said no. We can then question ourselves how the practices can be poor yet they obey laws. The actual solution to the question could be what laws do they obey, as it may be the reason why practices are still poor. A similar study done in Karan Magadishu Somalia (2018) categorised practices into good and poor practices, and found that more than half 65% of the respondents had poor practices.

As most local studies focused on perception and practices of citizens towards solid waste management, there was no study that could be of much significant use for comparison of results with our study.

CHAPTER SIX
CONCLUSION AND RECOMMENDATION

6.0 CONCLUSION

The respondents had revealed high levels of knowledge about waste but had poor practices. Which is of concern and immediate attention is needed so as to get to the bottom of the bad practices and in turn improve practices. The attitude of marketers feeling comfortable with their current methods of handling waste in their community, implies almost no room for the edge of change, they feel comfortable and may not see the need for change which may affect effectiveness of measures put in place for improvement of practices.

6.1RECOMMENDATIONS

- Marketers to be involved in decision making regarding waste management, so they can bring out ideas they can afford and manage.
- Bringing on board health educators from the ministry of health under the council to facilitate sensitization to marketers on solid waste management and benefits they will get from it.
- Using mass media communication (flyers, magazines, posters, newspapers, role play) to facilitate change among marketers with regards to improving their attitudes and practices.
- Ensuring prices for waste disposal are not dictated by garbage collecting companies for example the Lusaka city council, but left open suggestions from residents to ensure maximum participation and commitment.

LIMITATIONS

- Resources were not enough to enable everyday movements for the researcher to and from site.
- Some respondents never gave back the questionnaires, and some left some questions unanswered.
- Had limited time to collect and analyse data as approval for ethical clearance delayed.

RECOMMENDATIONS FOR FURTHER STUDIES

- A study on reasons of poor attitude and practices even with the presence of high level of knowledge.
- Waste management training and local capacity building effectiveness

REFERENCES

Amasuomo, E. and Baird J. (2016). *The concept of waste and waste Management*. *J. Mgmt. & Sustainability,6, p.88.*

Barloa, E.P., Lapie, L.P. and de la Cruz, C.P.P., (2016). *Knowledge, attitudes, and practices on solid waste management among undergraduate students in a Philippine State University*. Journal of Environment and Earth Science, 6(6), pp.'146-153. Philipine

Bryman, A (2004*). Social Research Methods (2nd edition)*. Oxford: Oxford University Press.

Chazan, D., (2002). *A world drowning in litter*. BBC News Online. Accessed at http://news. bbc. co. uk/world/Europe on, 12, pp.05-08. UK

Chilinga, G., 2015. *An analysis of public perceptions of domestic solid waste management*: The case of the make Zambia clean and healthy programme in Livingstone (Doctoral dissertation).

DTM Skips., (2019). *5 Types of waste; Do you know them? Driftwood Blind Lane*, Bllierica, CM12 9SN

Environmental Council of Zambia, September (2004). *National Solid Waste Management Strategy of Zambia*. Zambia.

Kiran, K.G., Kini, S., Ravi, K., Santhosh, N.P. and Kiran, N.U., (2015). KAP *study of solid waste disposal of households in Kuttar & Manjanadi Panchayath covered under gramaskhema programme of KS Hegde Medical Academy*. Nitte University Journal of Health Science, 5(3), p.29. India

Muleta, T., 2016. *An ethical perspective on the effects of garbage disposal on environmental and human health*: A case study of Livingstone City (Doctoral dissertation, The University of Zambia).

Munenga, A. and O. Mungenda, (2013). *Research methods: Quantitative and qualitative approaches Nairobi*: ACS Press. Kenya

Noble,H. and Smith,J., (2015). *Issues of validity and reliability in qualitative research*. *Evidence-based nursing*, *18*(2), pp.34-35.

Omar, A.A., Hossain, M.S. and Parvin, M.M., (2018). *Study On Knowledge, Attitude And Practices Towards The Solid Waste Management In Karan District, Mogadishu Somalia. Age,* 20(25), p.74. Somalia

Suleman, D., Simon, M. and Richard, A., (2015). *Residents' perceptions and attitudes towards urban solid waste management in the Berekum Municipality, Ghana. Oguaa Journal of Social Sciences, 7(2), pp.25-37.*Ghana

The World Bank, 23rd September (2019). *Solid waste management, Understanding Poverty Urban Development*. 1818 H Street, NW Washington, DC 20433 USA

[Accessed online] https://www.lcc.gov.zm/Waste_Management.aspx

APPENDICES

WORK PLAN

Activity	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	June 2021	July 2021	Aug 2021	Sept 2021	Oct 2021	Nov 2021	Dec 2021
Topic submission													
Writing research proposal													
Making adjustments													
Preparation for data collection													
Data collection													
Data entry and analysis													
Final thesis submission													

BUDGET

S No	Activity	Unit/ quantity	TOTAL
1	Transport	-	500
2	Stationary	Four	20
3	Printing proposal	Each	200
4	Printing questionnaires	100	600
5	Photo coping	Each	300
6	Binding	Three	200
7	Miscellaneous	-	500
	TOTAL		2,320

CONSENT FORM

Full tittle of project: Knowledge, Attitudes and Practices of marketeers towards solid waste management in Kalingalinga compound of Lusaka District.

Name of principle investigator: Lisa Nandi Mufukuli

1) I confirm that I have read and understand the subject information sheet dated…… for the above study and have had the opportunity to ask questions which have been answered fully.

2) I understand my participation is voluntary and I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

3) I understand that sections of ant medical notes may be looked at by responsible individuals from the University of Lusaka or from regulatory authorities where it is relevant to my taking part in this research. I give permission to these individuals.

4) I agree to take part in this research.

…….. ……
……

Name of participant signature date

…… ……
……..

Name of person taking consent signature date

DATA COLLECTION TOOL

QUESTIONNAIRE

KNOWLEDGE, ATTITUDE, PRACTICES OF MARKETEERS TOWARDS SOLID WASTE MANAGEMENT IN KALINGALINGA COMPOUND OF LUSAKA DISRICT

INSTRUCTIONS

Below is a data collection tool that will be used to collect data for the above stated research to be carried out. Go through the consent form attached before you begin to indicate your responses.

- Do not indicate your name.
- Indicate your response with a tick in the blank spaces.
- Where need of writing is required, please do so in the space provided.

SOCIO-DEMOGRAPHIC CHARACTERISTICS

1. How old are you?

2. what is our gender?

a) female [ ] b) male [ ]

3. what is your level of education?

a) primary [ ] b) secondary [ ] c) tertiary [ ]

4. what is your marital status?

a) Single [ ] b) Married [ ] c) Divorced [ ] d) None [ ]

KNOWLEDGE ON SOLID WASTE MANAGEMENT

5. Do you know waste?

a) yes [ ] b) no [ ]

6. Do you know the risks associated with waste?

a) yes [ ] b) no [ ]

7. What are the dangers of having waste around our community and trading environment?

……

……

……

8. Do you think waste pollutes the environment?

a) yes [ ] b) no [ ] c) not sure [ ] d) I don't know [ ]

9. Do you think waste can be turned into another resource?

a) yes [] b) no [ ] c) no sure [ ] d) I don't know [ ]

10. Do you think waste can be sorted and recycled?

ATTITUDES TOWARDS SOLID WASTE MANAGEMENT

11. Among the existing environmental problems, waste is one that needs immediate attention

a) I agree [ ] b) I disagree [ ]c) not sure [ ] d) I don't know [ ]

12. How do you feel about how waste is handle

a) comfortable [ ] b) uncomfortable [ ] c) Not sure [ ] d) I don't care [ ]

13. Do you care about waste management (reduce, reuse, recycle)?

a) yes b) no c) I don't know

PRACTICES TOWARDS SOLID WASTE MANAGEMENT

14. Do you have waste bins for your shop or stand?

a) yes [ ] b) no [ ]

15. If yes what kind of storage do you use?

……

……

…….

16. If no where do you dispose your waste?

……

……

……

17. What are the methods used for garbage disposal?

a) burying [ ] b) burning [ ] c) dump behind the market [ ] d) dump in drains [ ]e) others [ ]

18. Do you obey laws concerning waste management?

a) yes [ ] b) no [ ]

UNIVERSITY OF LUSAKA

SCHOOL OF MEDICINE AND HEALTH SCIENCES
LEOPARDS HILL CAMPUS

SCHOOL OF MEDICINE AND HEALTH SCIENCES RESEARCH ETHICS COMMITTEE

Ref no: IORG0010092- 076/2/21

Date: 26th August, 2021

LISA NANDI MUFUKULI BSPH18110866

Re: Research Title – KNOWLEDGE, ATTITUDE, PRACTICES OF MARKETEERS TOWARDS SOLID WASTE MANAGEMENT IN KALINGALINGA COMPOUND OF LUSAKA DISTRICT

The above research was submitted to the research ethics committee for review. The study has no major ethical problems and is approved subject to the following:

1. The study cannot be changed without express permission of the UNILUS Research ethics committee
2. Approval from the Lusaka District health Management or equivalent health authorities should be sought.
3. The study tools should be added.
4. An informed consent form should be attached and filled by all study participants (If dealing with primary data)
5. The risks and benefits should be included in the consent form.

Congratulations and the committee wishes you success in your work.

Prof Kasonde Bowa
MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)
Chairman- UNILUS REC
Professor of Urology and Consultant Urologist
Executive Dean
University of Lusaka and University Teaching Hospital
School of Medicine and Health Sciences.

UNIVERSITY OF LUSAKA

SCHOOL OF MEDICINE AND HEALTH SCIENCES
LEOPARDS HILL CAMPUS

LUSAKA CITY COUNCIL
MUNALI CONSTITUENCY
OFFICE OF THE AREA COUNCILLOR
KALINGALINGA WARD 31
13 OCT 2021
P.O.BOX 30077, LUSAKA, ZAMBIA
Email: info@mukubesa@gmail.com
CELL: +260977044199

Date: 26th August, 2021

MUKUBESA NYONI
KALINGALINGA

PERMISSION FOR **LISA NANDI MUFUKULI STUDENT No BSPH18110866** TO CONDUCT A RESEARCH STUDY AT YOUR FACILITY/ INSTITUTION/ ORGANIZATION

Reference is made to the above subject matter

The University of Lusaka, School of Medicine and Health Sciences here by requests for permission for **Lisa Nandi Mufukuli** a Public Health Student to conduct research at your facility/ institution/ organization, entitled; **KNOWLEDGE, ATTITUDE, PRACTICES OF MARKETEERS TOWARDS SOLID WASTE MANAGEMENT IN KALINGALINGA COMPOUND OF LUSAKA DISTRICT.**

The research is in partial fulfillment of the requirements for the degree of Bachelor of Science Public Health. This is purely for academic purposes and information gained in such a way will not be used in the public domain without prior authorization from the institutions/ organizations involved.

The research topic has been cleared by the University of Lusaka, School of Medicine and Health Sciences Research Ethics Committee as per the attached copy. Data collection is expected to be done from **30th August, 2021 to 30th October, 2021**.

The University of Lusaka avails itself of this opportunity to review to your office the assurances of its highest considerations and looks forward to your timely and favorable response.

Prof Kasonde Bowa
MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)
Chairman- UNILUS REC
Professor of Urology and Consultant Urologist
Executive Dean University of Lusaka and University Teaching Hospital
School of Medicine and Health Sciences.

All correspondence should be Director

Tel: +260-211-235554
Fax: +260-211236429

In reply please quote No:.....

REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH

LUSAKA DISTRICT HEALTH OFFICE
P.O. BOX 50827, LUSAKA

7th December, 2021

Lisa Nandi Mufukuli (Ms)
University of Lusaka
P. O. Box 36711
LUSAKA

Dear Ms. Mufukuli,

RE: AUTHORITY TO CONDUCT RESEARCH IN LUSAKA DISTRICT.

We are in receipt of your letter over the above subject.

Please be informed that Lusaka District Health Office has no objection for you to conduct research entitled**" Knowledge, attitude, practices of marketeers towards solid waste management in Kalingalinga Compound of Lusaka District".**

Ensure to share a copy of your findings with Lusaka District Health Office.

By copy of this letter, the Medical Superintendent and Public Health Specialist for Chelstone Zonal Hospital are kindly requested to facilitate accordingly.

Yours faithfully,

Dr. Rhoda Mkandawire
District Health Director
LUSAKA DISTRICT HEALTH OFFICE

REPUBLIC OF ZAMBIA
MINISTRY OF HEALTH
- 8 DEC 2021
DISTRICT HEALTH DIRECTOR
LUSAKA DISTRICT HEALTH OFFICE
P.O.BOX 50827,LUSAKA,ZAMBIA

C.c: The Incharge – Kalingalinga Health Centre, **LUSAKA DISTRICT**
C.c: The Medical Superintendent – Chelstone Zonal Hospital, **LUSAKA DISTRICT**
C.c: The Public Health Specialist – Chelstone Zonal Hospital, **LUSAKA DISTRICT**

NATIONAL HEALTH RESEARCH AUTHORITY
Paediatric Centre of Excellence, University Teaching Hospital, P.O. Box 30075, LUSAKA
Chalala Office Lot No. 18961/M, Off Kasama Road, P.O. Box 30075, LUSAKA
Tell: +260211 250309 | Email: znhrasec@nhra.org.zm | www.nhra.org.zm

Ref No: NHRA0000008/25/11/2021 **Date: 25th November, 2021**

The Principal Investigator,
Lisa Nandi Mufukuli,
University of Lusaka,
Lusaka, Zambia.

Dear Lisa Nandi Mufukuli,

Re: Request for Authority to Conduct Research

The National Health Research Authority is in receipt of your request for authority to conduct research titled **"KNOWLEDGE, ATTITUDE, PRACTICES OF MARKETEERS TOWARDS SOLID WASTE MANAGEMENT IN KALINGALINGA COMPOUND OF LUSAKA DISRICT."**

I wish to inform you that following submission of your request to the Authority, our review of the same and in view of the ethical clearance, this study has been **APPROVED** on condition that:

1. The relevant Provincial and District Medical Officers where the study is being conducted are fully appraised;
2. Progress updates are provided to NHRA quarterly from the date of commencement of the study;
3. The final study report is cleared by the NHRA before any publication or dissemination within or outside the country;
4. After clearance for publication or dissemination by the NHRA, the final study report is shared with all relevant Provincial and District Directors of Health where the study was being conducted, University leadership, and all key respondents.

Yours sincerely,

Prof. Godfrey Biemba
Director/CEO
National Health Research Authority