

**FACTORS LEADING TO POOR OUTCOMES OF THE KEEP ZAMBIA CLEAN  
AWARENESS CAMPAIGN: THE CASE OF MTENDERE RESIDENTIAL AREA OF  
LUSAKA.**

**BY**

**EDGAR BANDA**

**A DISSERTATION SUBMITTED TO THE UNIVERSITY OF ZAMBIA IN PARTIAL  
FULFILMENT OF THE RESEARCH REQUIREMENTS FOR THE AWARD OF THE  
DEGREE OF MASTER OF EDUCATION IN ADULT EDUCATION.**

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**THE UNIVERSITY OF ZAMBIA**

**LUSAKA**

**2013**

## **DEDICATION**

This study is dedicated to my mother Ms Irene Banda, my sister Emelda B. Shawa and my brother in-law Mr. Billy Sayona Shawa, my brothers, my nephews, nieces and especially my wife Justina K. Banda and my daughter Taina C. Banda.

To my nephews (Mtini Shawa, Daniel Banda and Tamani Shawa) and nieces (Tisa Banda, Tamara Nkhoma, Taonga Shawa, Thandiwe Shawa and Dineal Norah Banda) I say, if this dissertation can inspire you to pay attention to school, please get all the inspiration you can get as you reflect on the work. It is my wish that when you grow up, you will realize and remember that education should never be compromised. When you go to university and come to have knowledge of the most vital things in life, utilize the knowledge so that you become responsible and pragmatic citizens as you reflect on this and other works done by this adult educator. Until then, you will have to stay focused and work hard!

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**AUTHOR’S DECLARATION**

I, Edgar Banda do declare that this dissertation represents my own work and that it has not in part or in whole been presented as material for award of any degree at this or any other university. Where other people’s work has been used, acknowledgement has been made.

Signature of author: .....

Date.....

Signature of the supervisor: .....

Date: .....

**APPROVAL**

The University of Zambia approves the dissertation of Edgar Banda as fulfilling part of the requirements for the award of the degree of Master of Education in Adult Education.

**Signed:** ..... **Date:** .....

**Signed:** ..... **Date:** .....

**Signed:** ..... **Date:** .....

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## **ABSTRACT**

This study was set to determine factors that led to poor outcomes of the Keep Zambia Clean Awareness Campaign in Mtendere Residential area of Lusaka.

A descriptive research design was employed which consisted of both qualitative and quantitative methods to collect data from the respondents. Of the universe population, the sample population was 150 which comprised older men (40), older women (50), Youths (58), Chairperson (1) from Mtendere Residential Area and an officer from the Department of Public Relations of the Lusaka City Council (1). Simple random sampling technique was employed to select Participants in the Residential area from all corners of Mtendere Residence labelled A, B, C and D.

Data was collected using both questionnaires and interview guide. Qualitative data was analyzed based on categorizing similar themes as they emerged and was presented in qualitative form (narration). With respect to quantitative data, its analysis was by the use of Microsoft Excel (MSE) and was presented using frequency bar charts.

The study revealed that the Keep Zambia Clean Awareness Campaign lacked substance in its implementation due to: lack of presence of the organizers in the Residential Area and due to lack of dialogue with the residents concerning their real needs in connection with waste disposal. The study revealed that more respondents (i.e. 79=52.7%) confirmed that there were no benefits accrued from the campaign as compared to 69 (i.e. 46%) respondents who were positive about the outcome of the campaign; and only 2 (i.e. 1%) respondents were not sure.

Therefore, the study recommended that the Lusaka City Council should aim at educating the community through awareness campaign by going door to door instead of relying much on few television stations; the awareness campaign should be coupled with education through demonstration on how the public should be disposing of waste by providing bins.

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## ACRONYMS

<i>EPPCA</i> -----	Environmental Protection and Pollution Control Act
<i>IPPP</i> -----	Industrial Pollution Prevention Programmes
<i>LCC</i> -----	Lusaka City Council
<i>MLGH</i> -----	Ministry Of Local Government and Housing
<i>NEAP</i> -----	National Environmental Action Plan
<i>WSAZ</i> -----	Water and Sanitation Association of Zambia
<i>ZEMA</i> -----	Zambia Environmental Management Agency
<i>ZNBC</i> -----	Zambia National Broadcasting Cooperation
<i>DStv</i> -----	Digital Satellite Television

# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 BACKGROUND

Proper waste disposal has been a key activity in many societies for centuries. This has been necessitated by the need to maintain a clean environment. The need to maintain a clean environment is as old as human existence and it is visible in biblical times (i.e. BC and AD) where the Israelites were taught how to dispose body of waste. There is also a common saying: 'cleanliness is next to godliness' (The Watchtower, 2002).

Therefore, societies have adopted various ways of keeping their environments clean despite the fact that economic activities of humanity have been countering these efforts due to their increased sophistication. For instance, mining has been producing large amounts of waste that has been a challenge to dispose. Waste disposal is the process of collecting, transporting, processing or removal, managing and monitoring of waste materials. According to Larsen (2005), the term usually relates to materials produced by human activity, and the process is generally undertaken to reduce their effect on health, the environment or aesthetics. McClaren and Hammond (2005) report that waste disposal is a distinct practice from resource recovery which focuses on delaying the rate of consumption of natural resources. The management of waste treats all materials as a single class, whether solid, liquid, gaseous or radioactive substances, and try to reduce the harmful environmental impacts of each through different methods.

According to Boustead and Hancock (1981), the problem of waste management and disposal becomes increasingly pressing as human population, industrial activity and material consumption expand. To most Zambians, the collection and disposal of public wastes poses the most visible and costly solid waste management problem. Agricultural and mining waste, however, dwarf urban wastes in magnitude and industrial wastes particularly toxic and hazardous wastes present a severe danger to the environment.

This is because of the resource potential of urban refuse, simple disposal not only cause aesthetic and pollution problems but is wasteful as well. Boustead and Hancock (1981) add that the discarded materials contain large quantities of potentially usable paper fiber, glass, metals, organic material for compost and energy.

The amount of waste has been increasing because of the capitalist economic system that encourages industrialization that in turn produces huge amounts of waste. The imperial powers also imposed their approach of waste management when they colonized various countries, Northern Rhodesia inclusive (Tordoff, 1979).

Tordoff (1979) further contends that in Northern Rhodesia, village rules were established to govern the people. These rules also included those that concerned hygienic practices where the locals were told to clean their surroundings and houses at specific times.

After independence, the new government also tried to find new ways of keeping the country clean. Through the ideology of humanism, the first Republican President, Dr. Kenneth Kaunda was keen to have a clean country for a healthy nation. Citizens were expected to clean their houses early in the morning and an inspection was done around 5 AM. Further, the government used to provide bins and reliable transport for waste disposal. This used to be done by the councils around the country. The councils had more power as they used to collect enough revenue that enabled them to execute their functions effectively. The citizens were also cooperative in the sense that they used to use designated places for waste disposal. This could probably be attributed to the government's use of force to implement its policies in the one-party system.

In the Third Republic, during the reign of former President Chiluba, most of the practices associated to the previous regime such as humanism were abandoned. This included the hygiene and waste management practices mentioned above during the second republic. This had a negative effect on the people's attitudes towards cleanliness and waste disposal. The amount of waste also started getting out of hand partly because the regime also employed a capitalist economic system which encourages industrialization as earlier mentioned and centralization. Therefore, the councils also began to lose focus in the sense that they never used the revenue

they collected prudently and their powers to collect enough revenue were reduced. This enabled them to execute their functions ineffectively.

When the third former President Mwanawasa succeeded President Chiluba, the situation continued to be bad. Therefore, he decided to do something about it. In 2007, President Mwanawasa made a declaration that gave birth to the Keep Zambia Clean Awareness Campaign. The campaign has continued to exist to this day. However, many people began doubting the effectiveness and impact of the campaign especially after his demise (). Efforts to rejuvenate it have been made but have remained abstract ideas as the people did not seem to get involved while other government officials were also making statements without concrete action and systematic approach.

It is clear that waste disposal practices differ between developed and developing nations, urban and rural areas, and between residential and industrial waste producers. Hart (1997) argues that management for non-hazardous waste from residential and institutional waste in metropolitan areas is usually the responsibility of local government authorities.

The need for environmentally acceptable yet cost effective waste disposal is becoming a priority in Zambia. According to Hart (2003), this is because increasing population and urbanization have resulted in growing waste generation, placing pressure on the environment. There is also an increasing awareness of environmental issues and a desire for a clean environment on the part of the public. Awareness is often achieved through education, training or life experience and the goal of awareness is to change cultural sensitivity on a given topic or issue.

The Zambian government has also responded to the problem of waste management by undertaking a number of initiatives which have not solved the problem even after the declaration of the Keep Zambia Clean Awareness Campaign. This included the enactment of Environmental Protection and Pollution Control Act (EPPCA) in order to control activities which are related to environmental protection. The other initiative is called National Environmental Action Plan (NEAP) of 1994, which aimed at integrating environmental concerns into the social and economic development planning process. The last initiative which is called Industrial Pollution Prevention Programmes (IPPP) with the purpose of increasing the capacity for pollution

prevention and monitoring in the industry, thus a creation of Environmental Council of Zambia (ECZ) now called Zambia Environmental Management Agency (ZEMA) (Sichaaza, 2009).

Waste in Lusaka for instance, is being managed by Lusaka City Council (LCC) in conjunction with the Waste Management Unit. Hence, their responsibilities include solid waste management in the city. In addition, the council has two waste management systems to serve both conventional and peri-urban areas respectively. To support the two new systems, LCC has elaborated the municipal solid waste management by laws of 2004. According to Sichaaza (2009), on the basis of the bylaws, which came into effect in October, 2004, all waste generators, that is commercial outlets, residents, industry and other institutions have to register with their respective companies to use their services and pay a fee. These measures led to the prohibition of disposing of waste through burning, burying and digging of refuse pits.

Sichaaza (2009) further states that in order to implement an effective waste collection service in the conventional housing and commercial areas, Lusaka City Council has established partnership with private waste management companies. Fien (1991) argues that individuals achieve understanding in their own context and then are guided, shaped and supported with materials and training tailored to them.

Some persons throw the rubbish on their neighbor's premises during the night; they may not discern that once the disease breaks out it would also affect them. It is not only the diseases that the community should be worried of, but the contamination or polluting of the environment with garbage or waste. When there is an outbreak of a disease and drainage blocks, they start blaming the government or asking for assistance from well-wishers. Most of the streets in the residential area are littered with trash from the dust-bin in form of sacks and this poses a danger to the environment as a human habitation and most importantly to the health of the community as a whole.

Sterling (2010) affirms that knowledge is developed through literacy and education and this can be done through awareness campaigns, knowledge of self, knowledge of society, of the country and of the world, knowledge of good or bad, knowledge of skills and of professions and knowledge of the progress of the world are all obtained through literacy and education campaigns. To be clued-up is the best human virtue and it is education alone that develops this

virtue. Fals and Rahman (1991) downright that in the absence of education, there is ignorance and illiteracy which not only hold up progress and development but also subject humanity to innumerable dangers of undesirable influence which retard all development and progress. And once the knowledge is developed through literacy and education campaigns, the communities in Zambia would know how to manage the throwing away of wastes.

Despite the presence of the Keep Zambia Clean Awareness Campaign, many people in the area have continued to throw garbage or wastes anyhow. They throw the trash on roads or streets, in the stagnated water on the road and in drainages with the idea that when the rain falls the wastes may go with the rain water, hence leading to the blockages. It is, therefore, important that the Keep Zambia Clean Awareness Campaign was launched to educate people because they are the most important resource of any nation. Thus, the health, happiness and well being of every person concern not only the person himself, but his community as well.

## **1.2 STATEMENT OF THE PROBLEM**

In 2007, the then Republican President of Zambia, upon noticing the degrading sanitary condition in the country, saw it fit to devise a campaign that was intended to keep the country clean. The campaign was left in the custody of the Ministry of Local Government and Housing whose mandate includes keeping the country clean through the district councils across the country. At its inception, the Keep Zambia Clean Awareness Campaign was well received by a cross-section of society. For instance, researchers Harvey and Mukosha (2008) said that it was a good motive since it was a way of strengthening information dissemination and awareness creation among members of the public.

However, despite the vigorous dissemination of information regarding cleanliness and waste disposal arising from the campaign, most residents have continued to dispose waste in undesignated places especially in the high density areas like Mtendere Residential Area of Lusaka District. Thus, there was a void in relation to knowledge of the factors that led to the poor outcome of the Keep Zambia Clean Awareness Campaign in the Residential Area. Lack of this knowledge has the potential to cause future campaigns to replicate whatever mistakes made in the Keep Zambia Clean Awareness Campaign.

### **1.3 PURPOSE OF THE STUDY**

The purpose of the study was to determine the factors that led to the poor outcome of the Keep Zambia Clean Awareness Campaign in Mtendere Residential Area of Lusaka.

### **1.4 PRINCIPLE OBJECTIVE OF THE STUDY**

To assess the implementation of the Keep Zambia Clean Awareness Campaign on waste disposal in Mtendere Residential Area leading to poor outcome.

### **1.5 OBJECTIVES OF THE STUDY**

This study was guided by the following objectives to:

- (i) determine the factors leading to poor outcome of the Keep Zambia Clean Awareness Campaign on waste disposal in Mtendere Residential Area;
- (ii) investigate the attitudes of the residents of Mtendere residential area to the Keep Zambia Clean Awareness Campaign on waste disposal; and
- (iii) come up with modes provided by all stakeholders on how to keep Mtendere Residential Area clean.

### **1.6 PRINCIPLE RESEARCH QUESTION**

What are the factors that led to poor outcome of the Keep Zambia Clean Awareness Campaign on waste disposal in Mtendere?

### **1.7 RESEARCH QUESTIONS**

Arising from the above objectives, a number of research questions were formulated as follows:

- (i) what factors led to poor outcome of the Keep Zambia Clean Awareness Campaign on waste disposal to the residents of Mtendere?;
- (ii) what are the attitudes residents of Mtendere Residential Area to the Keep Zambia Clean Awareness Campaign on waste disposal?; and
- (iii) what modes can be provided by all stakeholders on how to keep Mtendere Residential Area clean?

## **1.8 SIGNIFICANCE OF THE STUDY**

The study may add to the already existing body of knowledge in the area of waste disposal. It is also expected to change the wrong attitude that Mtendere Residents have towards waste disposal and possible reprogramming of the Keep Zambia Clean Awareness Campaign. This has a direct influence on the health of the residents. Additionally, the study is vitally important as it can initiate the formulation of education programmes on waste management in order to avoid the risks of epidemics. Interested parties like Public Health Care Providers, Lusaka City Council (LCC), Zambia Environmental Management Agency (ZEMA), Ministry of Local Government and Housing (MLGH), Water and Sanitation Association of Zambia (WSAZ), Environmentalists and other stakeholders may use this knowledge for the establishment of a permanent solution to the problem of illiteracy on waste management.

## **1.9 DELIMITATION**

The research was conducted within the four (4) sections of Mtendere Residential Area of Lusaka District, namely sections A, B, C and D.

## **1.10 LIMITATIONS OF THE STUDY**

It was not easy for the researcher to collect information because would be respondents demanded to be paid for completing the questionnaire, especially when they realized that the researcher was from the University of Zambia. They were under the impression that all students are on bursary which they took to be a salary. For others, it was difficult for them to answer the questionnaires because they found it difficult to read and write (in English Language) which meant that the researcher had to assist them in completing the questionnaires.

Some residents were unwilling to answer the questionnaires as they had a perception that most people who go round in compounds seeking information would introduce them to Satanic churches while others thought that the researcher was disguising as a police inspector because some residents were found taking illicit beer (*Kachasu*) at the time they were approached to participate in the study. The researcher had to produce his student identity card and introductory letter to assure the participants that the research was purely for academic purposes. Thereafter, the researcher created rapport by using the local language.

## **1.11 THEORETICAL FRAMEWORK**

Schwandt (2003) argues that a theoretical framework is a foundation for the parameters or boundaries of a study. Once these themes are established, researchers can seek answers to topical questions they have developed on broad subjects. With a framework, they can resist getting off track by digging into information that has nothing to do with their topic. Often researchers are curious about broad subjects, but with a theoretical framework they can stay tightly within the theme or topic. Therefore, this study was premised on the theory of popular education propounded by Paulo Freire Brazilian educator.

### **Popular education theory**

Popular education is the term applied to a series of principles that have their roots in the theories of Paulo Freire. These include: inclusiveness and accessibility to people with a variety of education levels; addresses the issues people face in their communities; moves people toward a place of action; develops new grassroots leadership; is based on the lived experience of those participating in the learning; incorporates non-traditional methods of learning – such as poetry, music or visual arts; everyone teaches; everyone learns; learning begins with the learner's own experience; people want to learn where the knowledge is relevant and valuable to them; adults will make time for learning that has immediate results; and learning is a cyclical experience of knowledge, reflection, and action.

Popular education can be used in different settings that include campaigns of various types, namely Campaign against Illiteracy, Campaign against Elderly Abuse, Keep America Beautiful and Keep Zambia Clean Campaign. Thus, community educators, classroom teachers, trade-union educators and many others may have been inspired by Freire's theories. There are other terms that are sometimes used to refer to popular education. These include: Liberatory Education and Critical Pedagogy, but essentially all these terms denote education that is working towards helping people to analyze their reality and work towards the transformation of society ([http://www.projectsouth.org/pages/Programs/program Intro.htm](http://www.projectsouth.org/pages/Programs/program%20Intro.htm)).

There are many times in the practice where you will see the principles of popular education intertwined with the methodological aspects. Although we may never want to reduce popular

education to a series of techniques, it is good to know that some of the methods that people use in various undertakings such as the Keep Zambia Clean Awareness Campaign come from these principles. The belief that all people have the capacity to become critical thinkers and to work to solve their own problems such as that of hygiene lies at the heart of popular education methodology. Participants in a popular education setting are active subjects, not passive objects. Therefore, any undertaking which is categorized as popular education must be participatory in nature. Taking an active role helps people learn better. It helps them care more about what they are learning. A facilitator who works this way becomes a co-learner with the participants. Indeed, the facilitator should take guidance from the participants throughout the planning and workshop process. Whenever possible the facilitator should incorporate the personal experiences of the participants into the work (<http://www.projectsouth.org/pages/Programs/programIntro.htm>).

In popular education, the learning process starts with identifying and describing everyone's own personal experience and that knowledge is built upon through various activities done in groups. After the activity, a briefing process allows the organizing team to analyze the situation together by seeing links between their own experience and historical and global processes in order to get the big picture. Through the generation of this new knowledge, the communities would be able to reflect more profoundly about themselves and how they fit into the world. This new understanding of society is a preparation to actively work towards social change. In fact, in popular education, the education process is not considered to be complete without action on what is learned; whether it be on a personal or political level (<http://www.projectsouth.org/pages/Programs/programIntro.htm>).

Education as social practice is focused specifically on production, circulation and transmission of specified knowledge, norms and behavior. As a social practice it is not neutral; it is rooted within the perspectives of a given model of social organization. Popular education is defined as a social practice that clearly is at the service of popular groups and their interests such as the subject of this research (cleanliness as sought by the Keep Zambia Clean Awareness Campaign). Historically, popular education has been characterized by dealing with this knowledge, those norms and behaviors within projects that are more or less explicit in social transformation. These projects can take on characteristics and forms that are absolutely dissimilar, ranging from small

activities to form groups in small communities to the vast mobilizations against international organisms. ([http://www.projectsouth.org/pages/Programs/program Intro.htm](http://www.projectsouth.org/pages/Programs/program%20Intro.htm)).

As an educational process it deals with content and method. The contents refer to social struggle analysis and strategies. The methodology of popular education, in a specific manner, has dealt with active and participatory modalities, where the action of the entire group, educators and learners, occurs horizontally and democratically, without reproducing forms of domination and individualism. It is also within its perspective, as educational work, that social groups gain autonomy for learning as a methodology to promote the independence of social players ([http://www.projectsouth.org/pages/Programs/program Intro.htm](http://www.projectsouth.org/pages/Programs/program%20Intro.htm)).

The community must be able to understand a problem before they can (or will) do anything about it and this is a process called awareness-education-action as the case was with the Keep Zambia Clean Awareness Campaign. This is because popular education lives in people. Freire (1972) explicates that the focus for community participation and popular education is the key factor for community development and that adult education is to be the motor for developing the necessary organization of the community.

Therefore, this study sought to find the best way of implementing a good cause like the Keep Zambia Clean Awareness Campaign. It may have to be scrutinized whether it is people centered or not; was it just a statement or not? Who should be involved? What methods of dissemination are most suitable? According to Larsen (2005), a single message will not appeal to everyone, the message will not succeed if there is a one-size-fits-all approach, because they fit no one. Pursue specific results by targeting specific audiences. It is no wonder that the residents of Mtendere see nothing wrong with the throwing of liter anyhow.

Hall (1993) asserts that there should be collective mobilization, planning for implementing change, evaluation of implemented change, re-planning of the future action and further evaluation of social reality with the community. Should this have been the case in the implementation of the Keep Zambia Clean Awareness Campaign if it was not?

## 1.12 DEFINITION OF OPERATIONAL TERMS

**Campaign:** a series of actions intended to achieve a particular result relating to politics, business or a social improvement or to lead or to take part in a series of actions intended to achieve a particular social political result (Cranz, Glennon and Walter, 2008).

**Disposal:** final placement or riddance of wastes, excess, scraps under proper process and authority with no intention to retrieve. Disposal may be accomplished by abandonment, destruction, incineration, internment, donation or sale (OECD from <http://www.oecd.org/dataoecd/22/58/41878186.pdf>, 2008).

**Environment:** the natural features of a place, for example its weather, type of land it has and the type of plants that grow on it or the air, water, and land on Earth, which can be harmed by man's activities (Hart, 2003).

**Impact:** the word impact refers to the situation of having an effect or influence on something, for instance having influence on one's career, decisions or attitude in this study (McClaren, and Hammond, 2005).

**Waste:** includes all items that people no longer have any use for, which they either intend to get rid of or have already discarded (Larsen, 2005).

## 1.13 ORGANISATION OF THE STUDY

The layout of the dissertation is explained below:

Chapter one covered the background of the study, statement of the problem, purpose of the study, principle objective, research objectives, principle research question, research questions, significance of the study, delimitation of the study, limitation of the study, theoretical framework, operational definitions and organization of the study.

Chapter two gives a review of literature which is relevant to the study undertaken.

Chapter three discusses the research methodology employed in the collection and analysis of data. The subtitles in this chapter are: research design, population, sample size, sampling procedure, data collection procedure, data analysis and ethical consideration.

Chapter four presents the research findings through frequency charts which were used for easier analysis of data. Two data collection instruments were used to decode the findings. The instruments were a questionnaire which contained both structured and unstructured questions, and structured interview guides.

Chapter five discusses the findings; the discussion is centered on the objectives of the study. Finally, the concluding remarks of the study and recommendations were made based on the findings of the study.

### **Summary**

This chapter looked at the introduction or background of the problem, statement of the problem, purpose of the study, principal objective. It also discussed the objectives of the study, principal questions, and research questions, significance of the study, theoretical framework (popular education as its theory), definition of terms and organization of the study.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

Awareness campaigns have fundamental aspects of solving various social, economic and political challenges in society. This is usually done by way of getting messages across to the masses. Hart (2003) explains the phenomenon of campaigns and models of awareness campaigns. This study has reviewed literature in the following order: the concept of awareness campaign, typical cases of campaigns in general and a specific campaign on waste management. This will be followed by past studies from different countries on the subject of waste management; and a brief background on waste management in Zambia and finally, conclusion.

#### 2.1.0 The concept of awareness campaign

##### 2.1.1 Meaning

An Awareness Campaign is a set of messages in form of newsletters or follow-ups that can be sent out to a particular group of people. Larsen (2005) contends that the meaning of awareness campaign in the communication industry is to make a targeted audience aware of an issue, for example a new law about the importance of recycling which aims at stimulating an action among the targeted audience concerning the issue at hand.

##### 2.1.2 Elements of awareness campaigns

A campaign has specific elements. Therefore, the elements of an awareness campaign include: dialogue, research, group discussions, participatory approach, mass mobilization, creative drama, organization structure, political will, popular education, training of executors, language-thinking, generative words and structure.

**Dialogue** - the essence of dialogue itself is the word. The word is more than just an instrument which makes dialogue possible. Within the word itself one finds two dimensions and these are reflection and action. These two terms work hand in hand in the sense that when one is affected the other also immediately suffers. Thus, speaking a true word is one way of transforming the world, a country or communities (Freire, 1972:65).

Dialogue which requires critical thinking is capable of generating critical thinking. Thus without dialogue there is no communication and without communication there can be no true education. This is the education which is able to resolve the differences which can exist between the organizers of the awareness campaigns and the communities.

The processes of awareness campaigns are linked to development of dialogue through the use of images and generative words. The images could mostly be photographs which should be drawn from the most contaminated communities in the country and also the daily realities of people from these communities. The images could easily be recognized and used to stimulate an initial dialogue.

Through a study of the images, and subsequently the words, and the relations of both to reality of the participants, the educational, and political dimension of the campaign should be amalgamated. The words used should be generative both in generating new words to be shared and generating dialogue. The generative word could be *clean* or *contamination* or *environment*. By relating these words to the images and reflecting on what they know may help in changing the mindset of the residents of Mtendere Residential Area.

However, in this awareness and education method, the word is not something static or disconnected from people's existential experience, but a dimension of their thoughts and language about the world. That is the reason why when they participate critically in analyzing the generative words linked with their existential experience, then they may discover the importance of a clean environment.

**Research** - Louv (2006) argues that in research it is imperative to consider the citizen as a particularly well-aware observer of his or her community. Citizenship or participative research which involves both adults and children in technical investigations advocates that the major stakeholders need to consider the citizen data as additional information for logical research. The data are valuable in spite of the possible margin of error regarding their reliability. Thus, the research is anticipated to produce reliable and valuable methodical data that can be used by both the major stakeholders and local communities. Thus, in endeavors like the Keep Zambia Clean

Awareness Campaign, the implementers need to carry out a needs assessment exercise in order to get an opinion on the felt needs of the residents.

**Group discussion** - Koda (2012) defines group discussion as a critical conversation about a particular topic, or perhaps a range of topics, conducted in a small group that allows participation by all members. A group of two or three generally does not need a leader to have a good discussion, but once the number reaches five or six, a leader or facilitator can often be helpful. When the group number reaches eight or more, a leader or facilitator, whether formal or informal, is almost always helpful in ensuring an effective discussion.

A group discussion gives everyone involved a voice. Whether the discussion is meant to form a basis for action, or just to play with ideas, it gives all members of the group a chance to speak their opinions, to agree or disagree with others, and to have their thoughts heard. In many community-building situations, the members of the group might be chosen specifically because they represent a cross-section of the community, or a diversity of points of view.

A group discussion allows for a variety of ideas to be expressed and discussed. A group is much more likely to come to a good conclusion if a mix of ideas is on the table, and if all members have the opportunity to think about and respond to them. A group discussion is generally a democratic, egalitarian process. It reflects the ideals of most grassroots and community groups, and encourages a diversity of views. Rennie (2008) observes that a group discussion leads to group ownership of whatever conclusions, plans, or action the group decides upon. Because everyone has a chance to contribute to the discussion and to be heard, the final result feels like it was arrived at by and belongs to everyone. An effective group discussion encourages those who might normally be reluctant to speak their minds. Often, quiet people have important things to contribute, but are not assertive enough to make themselves heard. A good group discussion will bring them out and support them.

Group discussions can often open communication channels among people who might not communicate in any other way. Wenger, McDermott and Snyder (2002) add that people from very different backgrounds, from opposite ends of the political spectrum, from different cultures, who may, under most circumstances, either never make contact or never trust one another enough to try to communicate, might, in a group discussion, find more common ground than they

expected. It is therefore important that communities in the Keep Zambia Clean Awareness Campaign are involved fully because without their full participation the campaign would achieve nothing.

**Participatory approach** - Mezirow (2000) observes that participatory approach is very important for sustainability of any project and this can lead to sustainable development in communities. Sustainability means oneness of communities, culture and societal assets to ensure continuity and security of people's livelihood and well-being as for future generations. People's participation should be a self-initiated and sustained mode of social organization and co-operation adopted by a social group in the process of satisfying human need of personal, community and environmental dimensions. However, to bring about popular participation there should be voluntarism in all stages of development, self initiative and endogenous. There should also be education and facilitation of critical awareness, democracy, organization and movement. These attributes must empower people and give them self respect and must also recognize that sovereignty resides with them and this will help the residents to have ownership of any initiative that aims at bringing development like the Keep Zambia Clean Awareness Campaign.

**Mass mobilization** - Wenger, McDermott and Snyder (2002) define mass mobilization as a process that engages and motivates a wide range of partners and allies at national and local levels to raise awareness of and demand for a particular development objective through face-to-face dialogue. Members of institutions, community networks, civic and religious groups and others work in a coordinated way to reach specific groups of people for dialogue with planned messages. In other words, social mobilization seeks to facilitate change through a range of players engaged in interrelated and complementary efforts.

In the awareness campaigns, it is important to have a clear organization structure which has a facilitator to spearhead the project. The facilitator needs also to have a team to help him/her in the mobilization process. The team would also assist in group discussions as a way of formulating dialogue with the community. It is during this period that generation theme are posed, problem solving for critical thinking created and also the planning should be done collectively with the communities. The Keep Zambia Clean Awareness Campaign was one of those campaigns that require a high level of mobilization of human and other resources. Whether

proper mobilization of such resources was done or not in this campaign was something worth looking out for.

**Creative drama** is an improvisation, non-exhibition, process-centered as a form of drama in which participants are guided by a leader to imagine, enact and reflect upon human experience. Rennie (2008) contends that there is a purpose for a creative drama one of which is to foster personality growth and to facilitate learning of the participants rather than to train actors for the stage and end there. Creative drama may be used to teach the art of drama, motivate and extend the learning in other content areas. Participation in creative drama has the potential to develop language and communication abilities, problem-solving skills, and creativity; to promote a positive self-concept, social awareness, empathy, a clarification of values and attitudes, and an understanding of the art of theater. The creative drama built on human impulse and ability to act out perceptions of the world in order to understand it, creative drama requires both logical and intuitive thinking, personalizes knowledge, and yields aesthetic pleasure.

Hungerford and Volk (1990) complete that Problem solving through root cause analysis (RCA) which is a method of problem solving that tries to identify the root causes of faults or problems that cause operating events. Root Cause Analysis practice tries to solve problems by attempting to identify and correct the root causes of events, as opposed to simply addressing their symptoms. By focusing correction on root causes, problem recurrence can be prevented. This is one of the most important aspects that ideally, a campaign needs to consider. For instance, did the Keep Zambia Clean Awareness Campaign consider this aspect during its formulation stage?

### **2.1.3 How awareness campaigns are initiated**

Black Mountain Expeditions (2009) encourages that it is important to integrate the ideas of the communities and their cultures in the messages related to campaigns. It is vital to use and address topics relevant for the people and close to their personal interests and avoid the use of force to change people's attitudes. For instance, throwing of banana outer cover, especially in large gathering places like town centres, there is need to illustrate the consequences of doing that by showing a picture of someone falling after stepping on a banana peel.

Delanty (2003) argues that it is vital to focus on the daily life and quality of life through working on the characteristics of waste management. This will make it possible to reach ordinary people and initiate a change in their mentality regarding waste disposal. The responsibility of the organizer of the campaign should be that of teaching, especially the young generations the good practices of waste management. Therefore, it is vital to highlight what must be done or avoided and explain why, unlike just asking people to Keep Zambia Clean. Haluza (2001) advised that there is need to collaborate with the private sector organizations that have positive approaches and influence on waste control and not those whose focus is solely aimed at profit making.

It is important to involve all stakeholders in the awareness campaigns community leaders, opinion leaders, gate keepers, institutions like schools, churches, elite socio-economic groups and the communities as a whole. The interaction of the campaign initiators and the rest of the stakeholders (e.g. manufacturers) in various activities that are associated with the cause can be a two-way education and awareness-raising method as anticipated of the Keep Zambia Clean Awareness Campaign.

#### **2.1.4 Factors that can lead to a Successful campaign**

**Political will-** Political will is society's desire and commitment to support or modify old programs or to develop new programs. It may be viewed as the process of generating resources to carry out policies and programs. Political will is based on public understanding and support. Here, public refers to both government leadership and the broader community. Public support can influence public health outcomes when economic, social, and intellectual resources are committed to address an issue (for example, Keep Zambia Clean Awareness Campaign) (Johari, 2004).

**Popular education-** Popular education was developed in the 1960s and 1970s by the Brazilian educator Paulo Freire, is a nontraditional method of education that tries to empower adults through democratically structured cooperative study and action. Popular education is carried out within a political vision that sees women and men at the community and grassroots level as the primary agents for social change. In trying to keep Zambia clean, the Keep Zambia Clean Awareness Campaign was a popular means of getting messages across to the masses. This study

endeavors to identify factors that led to poor outcome of the Keep Zambia Clean Awareness Campaign. This clearly required a lot of political will considering the importance of the effort. It is a deeply democratic process, equipping communities to name and create their own vision of the alternatives for which they struggle.

The popular education process begins with critically reflecting on sharing, and articulating with a group or community what is known from lived experience. The participants define their own struggles. They critically examine and learn from the lessons of past struggles and from concrete everyday situations in the present. The process continues with analysis and critical reflection upon reality aimed at enabling people to discover solutions to their own problems and set in motion concrete actions for the transformation of that reality. Organizing guided by the following principles at the core of popular education helps to address two key interrelated challenges many organizations face such as (a) how to make our organizations more democratic, (b) how to get people involved and (c) who will work to make the organization represent their interests and achieve its goals. Ideally, a campaign should have an organization structure in order to produce a positive outcome. In relation to this, this study would consider paying close attention to the organization structure of the Keep Zambia Clean Awareness Campaign.

Popular education is a collective effort in which a high degree of participation is expected from everybody. Awareness Campaign organizers and the participants are not two distinct groups; rather, everyone teaches and everyone learns. The participants should be able to make decisions about what they are learning concerning their environment, and how the learning process takes place. A facilitator is needed to make sure that new ideas arise, progress, and do not get repetitive, but this is not at all the same thing as a teacher. In popular education, then, there is no teaching of another person, but there is facilitation of another's learning and helps each other as they learn.

In popular education, the learning process starts with identifying and describing everyone's own personal experience and that knowledge is built upon through various activities done in groups. After the activity, a debriefing process allows them to analyze their situation together; seeing links between our own experience and historical and global processes in order to get the big picture. Freire (1972) affirms that through the generation of this new knowledge, people are able

to reflect more profoundly about themselves and how they fit into the world. This new understanding of society is a preparation to actively work towards social change. Whether this was done or not in the Keep Zambia Clean Awareness Campaign is what the study sought to find out among other issues. In fact, in popular education, the education process is not considered to be complete without action on what is learned; whether it be on a personal or political level.

Popular Education is a learning process with elements such as inclusive and accessible to people with a variety of education levels; addresses the issues people face in their communities; moves people toward a place of action; develops new grassroots leadership. Is also based on the lived experience of those participating in the learning; and incorporates non-traditional methods of learning such as poetry, music or visual arts ([http://www.projectsouth.org/pages/Programs/program Intro.htm](http://www.projectsouth.org/pages/Programs/program%20Intro.htm)).

**Training of executors** - This activity is both focused upon, and evaluated against, the job that an individual currently holds. The stakeholders in training and development are categorized into several classes. The sponsors of training and development are senior managers. The clients of training and development are business planners. Line managers are responsible for coaching, resources, and performance. The participants are those who actually undergo the processes. The facilitators are Human Resource Management staff. And the providers are specialists in the field. Each of these groups has its own agenda and motivations, which sometimes conflict with the agendas and motivations of the others (<http://www.amazon.com/dp/1564147045>).

The teacher training component is vital in all the campaigns. This is another aspect that this study will consider. It allows for modifications, it brings teachers together and gives an importance and validity to mine and literacy awareness which can be very difficult to achieve. Some outsiders do often assume that the intrinsic importance of a programme such as mine or literacy awareness is obvious and therefore such a programme will be given its due significance in the classroom. It is this false expectation that leads to limited effectiveness in many campaigns. Mine or any other awareness campaign may be very necessary to the home population but often it is not prioritized by those who need it most. These campaigns need to be sold to the teachers or to the officials who will implement them. One way to do this is through teacher training.

**Language-thinking** involves the use of language, which is a system of communication composed of symbols and a set of rules permitting various combinations of symbols. According to Sterling (2010), one of the most significant symbols in language is the concept. A concept is an abstraction representing an object, a property of an object, or a certain phenomenon. Through language we can connect with other people and make sense of our experiences. Whether language was one of the factors that could have led to the poor outcome of the Keep Zambia Clean Awareness Campaign was yet to be found out by this study. The campaign which was done in Cuba and other countries yielded positive results because it was conducted in vernacular language which helped proper communication between the participants (<http://www.amazon.com/dp/1564147045>).

**Generative words** - are fundamental to the improvement of a really predicament posturing education. The object of knowledge is to be understood through dialogue among those organizing the awareness campaigns and the communities (for example, Mtendere Residential Area) in order to bring about change of attitude in waste management in their environment (<http://www.amazon.com/dp/1564147045>).

Freire (1972) confirms that Generative words are central to the development of a truly problem posing education. The object of knowledge is to be understood through dialogue between those organizing the awareness campaigns and the communities in order to bring about change of attitude in waste management in their environment. This, in turn, requires a word that problematizes reality. Any effective problematization must avoid being deliberately imperceptive like puzzle, or too explicit like a piece of propaganda, but rather ensures that knowledge is developed by both the community (for example, Mtendere Residential Area) and those campaigning for the clean environment (in the case of a campaign that deals with cleanliness like the Keep Zambia Clean Awareness Campaign) in the process of decoding the word.

**Structure** - The most common approach to designing a new campaign structure is almost certainly to start by naming responsible groups on the basis of the products and services at hand or being offered, and let that drive the organization of campaigns. It is important for organizers to employ the grouping tactics; they will be able to see that grouping keywords in any awareness

campaign is just as easy as grouping shapes, animals, and foods. They should think topically when deciding how to build their campaigns and responsible groups (<http://www.amazon.com/dp/1564147045>).

The flexibility of this structure can be designed to allow the organizers to gather keywords into logical groups organized around common themes and then write adverts specifically for those themes. A keyword theme might be a product, or it might be a concept, whatever makes sense for the particular campaign. (<http://www.amazon.com/dp/1564147045>).

**Monitoring and evaluation** - Monitoring is the systematic collection, analysis and use of information from projects and programmes for three basic purposes: learning from the experiences acquired; accounting internally and externally for the resources used and the results obtained; and taking decisions. Evaluation is assessing as systematically and objectively as possible an ongoing or completed project, programme or policy. The object is to be able to make statements about their relevance, effectiveness, efficiency, impact and sustainability. Based on this information, it can be determined whether any changes need to be made at a project (for instance the Keep Zambia Clean Awareness Campaign), programme or policy level, and if so, what they are. What went well, where is the room for improvement? Evaluation thus has both a learning function - the lessons learned need to be incorporated into future proposals or policy and a monitoring function partners and members review the implementation of policy based on objectives and resources mobilised.

Monitoring and evaluation are complementary. During an evaluation, as much use as possible is made of information from previous monitoring. In contrast to monitoring, where emphasis is on the process and results, evaluation is used to provide insight into the relationships between results, for example, the strengthened capacity of an organisation, effects for instance, improved services or products and impact for example, improved living conditions for the ultimate target group (<http://www.amazon.com/dp/1564147045>).

### **2.1.5 Approaches used in any campaign that endeavors to keep the environment clean**

As mentioned earlier, awareness campaigns occur in various settings (social, economic and political). However, the methods of undertaking a cleanliness campaign are similar. In a waste disposal awareness campaign such as the Keep Zambia Clean Awareness Campaign, communities may be introduced to the following methods of waste disposal: storage, landfill, Incineration, recycling, sustainability, open dump, garbage reduction, biological reprocessing, energy recovery, avoidance and reduction, and waste handling and transport.

#### **Storage**

Waste, also known as rubbish, trash, refuse, garbage, junk, and litter is unwanted or useless materials.

The aesthetic, land use, health, water pollution, air pollution and economic considerations make proper solid waste storage, collection and disposal municipal, corporate and individual functions that must be taken seriously by all. Salvato (1972) asserts that indiscriminate dumping of solid waste and failure of the collection system in a polluted community for two or three weeks would soon cause many problems. Gaines (1981) contests that the odors, flies, rats, roaches, crickets, wandering dogs and cats, and fires would dispel any remaining doubt of the importance of proper waste storage, collection and disposal.

According to Dalzell (2000), there are numerous sources and types of solid wastes ranging from the home to the farm garbage to radioactive wastes, junked cars, and industrial wastes. Handling involves storage, collection, transfer and transport. Boustead and Hancock (1981) figure that the processing includes incineration, densification, composition, separation, treatment and energy conversion, disposal methods show the environmental interrelation of air, land, water and the place of salvage and recycling.

This is a situation where refuse is temporarily stored in the premises, an adequate number of suitable containers should be provided to store the refuse accumulated between collections. Salvato (1972) profiles that watertight rust-resistant containers with tight fitting covers are the most needed. Dalzell (2000) adds that containers for incinerator residue and ashes must be fire resistant. Cans for ordinary refuse and ash cans up to 20 or 30 gal capacity and rubbish

containers up to 50 gal capacity are practical sizes. The 10 gal can for kitchen wastes alone is a good household size for the average family when there is twice-a-week collection.

## **Landfill**

Salvato (1972) informs that sanitary land filling is an engineered method of disposing of solid wastes on land by spreading them in thin layers, compacting them to the smallest practical volume, and covering them with soil each working day in a manner that protects the environment.

Gaines (1981) adds that disposing of waste in a landfill involves burying the waste, and this remains a common practice in most countries. Landfills were often established in abandoned or unused quarries, mining voids or borrow pits. A properly designed and well-managed landfill can be a hygienic and relatively inexpensive method of disposing of waste materials. Little (1984) records that older, poorly designed or poorly managed landfills can create a number of adverse environmental impacts such as wind-blown litter, attraction of vermin, and generation of liquid leach-ate. Another common byproduct of landfills is gas (mostly composed of methane and carbon dioxide), which is produced as organic waste breaks down aerobically. This gas can create odor problems, kill surface vegetation, and is a greenhouse gas.

According to Boustead and Hancock (1981), designing characteristics of a modern landfill include methods to contain leach-ate such as clay or plastic lining material. Deposited waste is normally compacted to increase its density and stability, and covered to prevent attracting vermin (such as mice or rats). Many landfills also have landfill gas extraction systems installed to extract the landfill gas.

## **Incineration**

According to Westerhoff (1969), incineration is a controlled combustion process for burning solid, liquid or gaseous combustible waste to gases and a residue containing little or no combustion material when properly carried out. Hart (2003) adds that it is a volume reduction process suitable for about 70 percent of the municipal solid waste.

Incineration is a disposal method in which solid organic wastes are subjected to combustion so as to convert them into residue and gaseous products. Dalzell (2000) utters that this method is useful for disposal of residue of both solid waste management and solid residue from waste water management. Boustead and Hancock (1981) argue that this process reduces the volumes of solid waste to 20 to 30 percent of the original volume. Incineration and other high temperature waste treatment systems are sometimes described as "thermal treatment". Incinerators convert waste materials into heat, gas, steam and ash.

Salvato (1972) argues that Incineration is carried out both on a small scale by individuals and on a large scale by industry and that it is used to dispose of solid, liquid and gaseous waste. It is recognized as a practical method of disposing of certain hazardous waste materials (such as biological medical waste). Incineration is a controversial method of waste disposal, due to issues such as emission of gaseous pollutants.

Westerhoff (1969) appends that incineration is common in countries such as Japan where land is scarcer, as these facilities generally do not require as much area as landfills. Waste-to-energy or energy-from-waste are broad terms for facilities that burn waste in a furnace or boiler to generate heat, steam or electricity. Salvato (1972) argues that combustion in an incinerator is not always perfect and there have been concerns about pollutants in gaseous emissions from incinerator stacks. Particular concern has focused on some very persistent organics such as dioxins, furans, which may be created and may have serious environmental consequences.

## **Recycling**

Kamal and Chambers (2008) outline that recycling is processing used materials waste into new products to prevent waste of potentially useful materials, reduce the consumption of fresh raw materials, reduce energy usage, reduce air pollution from incineration and water pollution from land-filling by reducing the need for "conventional" waste disposal. Recycling is a key component of modern waste reduction and is the third component of the "reduce, reuse, recycle" waste hierarchy.

According to Hart (2003), recyclable materials include many kinds of glass, paper, metal, plastic, textiles, and electronics. Although similar in effect, the composting or other reuse of

biodegradable waste, such as food or garden waste – is not typically considered recycling. Materials to be recycled are either brought to a collection center or picked up from the curbside, then sorted, cleaned, and reprocessed into new materials bound for manufacturing.

In the strictest sense, recycling of a material would produce a fresh supply of the same material—for example; used office paper would be converted into new office paper, or used foamed polystyrene into new polystyrene. Kamal and Chambers (2008) argue that, this is often difficult or too expensive compared with producing the same product from raw materials or other sources, so "recycling" of many products or materials involves their reuse in producing different materials instead. Another form of recycling is the salvage of certain materials from complex products; either due to their intrinsic value e.g., leads from car batteries, or gold from computer components, or due to their hazardous nature (e.g., removal and reuse of mercury from various items).

Critics such as Harvey and Mukosha (2008) dispute the net economic and environmental benefits of recycling over its costs, and suggest that proponents of recycling often make matters worse and suffer from confirmation bias. Specifically, these critics further argue that the costs and energy used in collection and transportation detract from and outweigh the costs and energy saved in the production process. And also that the jobs produced by the recycling industry can be a poor trade for the jobs lost in logging, mining, and other industries associated with virgin production. Thus, materials such as paper pulp can only be recycled a few times before material degradation prevents further recycling.

According to Harvey and Mukosha (2008), economic analysis of recycling includes what economists call externalities, which are unpriced costs and benefits that accrue to individuals outside of private transactions. Examples include: decreased air pollution and greenhouse gases from incineration, reduced hazardous waste leaching from landfills, reduced energy consumption, and reduced waste and resources consumption, which leads to a reduction in environmentally damaging mining and timber activity. Hart (2003) argues that about 4000 minerals are known; of these only a few hundred minerals in the world are relatively common. At current rates, current known reserves of phosphorus will be depleted in the next 50 to 100 years. Without mechanisms such as taxes or subsidies to internalize externalities, businesses will ignore them despite the costs imposed on society. To make such non-fiscal benefits economically

relevant, advocates have pushed for legislative action to increase the demand for recycled materials. Kamal and Chambers (2008) contend that the United States Environmental Protection Agency (EPA) has concluded in favor of recycling, saying that recycling efforts reduced the country's carbon emission by a net 49 million metric loads in 2005. In the United Kingdom, the waste and resources action programme stated that Great Britain's recycling efforts reduce carbon dioxide emission by 10-15 million loads a year. Recycling is more efficient in densely populated areas, as there are economies of scale involved.

Harvey and Mukosha (2008) contend that certain requirements must be met for recycling to be economically feasible and environmentally effective. These include an adequate source of recyclates, a system to extract those recyclates from the waste stream, a nearby factory capable of reprocessing the recyclates, and a potential demand for the recycled products. These last two requirements are often overlooked—without both an industrial market for production using the collected materials and a consumer market for the manufactured goods, recycling is incomplete and in fact only "collection".

According to Hart (2003), waste is directly linked to human development, both technological and social. The compositions of different wastes have varied over time and location, with industrial development and innovation being directly linked to waste materials. Examples of this include plastics and nuclear technology. Some waste components have economic value and can be recycled once correctly recovered. Harvey and Mukosha (2008) add that waste is sometimes a subjective concept, because items that some people discard may have value to others. It is widely recognized that waste materials can be a valuable resource, whilst there is debate as to how this value is best realized. Such concepts are colloquially expressed in Western Culture by such idioms as "One man's trash is another man's treasure."

According to Gaines and Stodolsky (1993), recycling is a resource recovery practice that refers to the collection and reuse of waste materials such as empty beverage containers. The materials from which the items are made can be reprocessed into new products. Material for recycling may be collected separately from general waste using dedicated bins and collection vehicles, or sorted directly from mixed waste streams. Recycling requires the owner of the waste to separate it into various different bins (typically wheelie bins) prior to its collection.

Dalzell (200) states that the most common consumer products recycled include aluminum such as beverage cans, copper such as wire, steel food and aerosol cans, old steel furnishings or equipment, and glass bottles and jars, paperboard cartons, newspapers, magazines and light paper, and corrugated fiberboard boxes. Westerhoff (1969) states that these items are usually composed of a single type of material, making them relatively easy to recycle into new products. The recycling of complex products (such as computers and electronic equipment) is more difficult, due to the additional dismantling and separation required. The type of material accepted for recycling varies by city and country. Each city and country has different recycling programs in place that can handle the various types of recyclable materials. However, variation in acceptance is reflected in the resale value of the material once it is reprocessed.

### **Sustainability**

Dalzell (200) contends that the management of waste is a key component in a business' ability to maintaining accreditation. Companies are encouraged to improve their environmental efficiencies each year. Westerhoff (1969) adds that one way to do this is by improving a company's waste management with a new recycling service, such as recycling: glass, food waste, paper and cardboard, plastic bottles.

### **Open dump**

The open dump is all too common and it is never satisfactory, as usually maintained. Refuse is generally spread over a large area, providing a source of food for and harborage for rats, flies, and other vermin. It is unsightly, an odor and smoke nuisance, a fire hazard and often a cause of water pollution.

### **Garbage reduction**

Dalzell (200) affirms that in the reduction method of garbage disposal, the garbage is cooked under pressure. Fats melt out and are separated from the remaining material. The fat is then used in the manufacturing of soaps or glycerin and the residue is dried, ground, and sold for fertilizer or cattle feed.

## **Biological reprocessing**

Gaines and Stodolsky (1993) point out that the waste materials that are organic in nature, such as plant material, food scraps, and paper products, can be recycled using biological composting and digestion processes to decompose the organic matter. Westerhoff (1969) argues that the resulting organic material is then recycled as mulch or compost for agricultural or landscaping purposes. In addition, waste gas from the process (such as methane) can be captured and used for generating electricity and heat maximizing efficiencies. The intention of biological processing in waste management is to control and accelerate the natural process of decomposition of organic matter.

According to Dalzell (200), there is a large variety of composting and digestion methods and technologies varying in complexity from simple home compost heaps, to small town scale batch digesters, industrial-scale enclosed-vessel digestion of mixed domestic waste. Methods of biological decomposition are differentiated as being aerobic or anaerobic methods, though hybrids of the two methods also exist.

Gaines and Stodolsky (1993) contend that anaerobic digestion of the organic fraction of municipal solid waste has been found to be more environmentally effective, than landfill, incineration or pyrolysis. The resulting biogas (methane) though must be used for cogeneration (electricity and heat preferably on or close to the site of production), can also be used with a little upgrading in gas combustion engines or turbines. With further upgrading to synthetic natural gas, it can be injected into the natural gas network or further refined to hydrogen for use in stationary cogeneration fuel cells. Its use in fuel cells eliminates the pollution from products of combustion.

An example of waste management through composting is the Green Bin Program in Toronto, Canada, where Source Separated Organics (such as kitchen scraps and plant cuttings) are collected in a dedicated container and then composted.

## **Energy recovery**

The energy content of waste products can be harnessed directly by using them as a direct combustion fuel, or indirectly by processing them into another type of fuel. Gaines and

Stodolsky (1993) spat that the thermal treatment ranges from using waste as a fuel source for cooking or heating and the use of the gas fuel, to fuel for boilers to generate steam and electricity in a turbine. Pyrolysis and gasification are two related forms of thermal treatment where waste materials are heated to high temperatures with limited oxygen availability. Gaines (1981) adds that the process usually occurs in a sealed vessel under high pressure. Pyrolysis of solid waste converts the material into solid, liquid and gas products. The liquid and gas can be burnt to produce energy or refined into other chemical products (chemical refinery). Westerhoff (1969) contends that the solid residue can be further refined into products such as activated carbon. Gasification and advanced plasma arc gasification are used to convert organic materials directly into a synthetic gas composed of carbon monoxide and hydrogen. The gas is then burnt to produce electricity and steam. An alternative to pyrolysis is high temperature and pressure supercritical water decomposition (hydrothermal monophonic oxidation).

It is difficult to determine the exact amount of energy consumed or produced in waste disposal processes. How much energy is used in recycling depends largely on the type of material being recycled and the process used to do so. Kamal and Chambers (2008) contend that aluminum is generally agreed to use far less energy when recycled rather than being produced from scratch. Recycling aluminum cans, for example, save 95 percent of the energy required to make the same amount of aluminum from its virgin source bauxite. In 2009 more than half of all aluminum cans produced came from recycled aluminum.

Every year, millions of tons of materials are being exploited from the earth's crust, and processed into consumer and capital goods. After decades to centuries, most of these materials are "lost". With the exception of some pieces of art or religious relics, they are no longer engaged in the consumption process. Where are they? Recycling is only an intermediate solution for such materials, although it does prolong the residence time in the anthrop-sphere. For thermodynamic reasons, however, recycling cannot prevent the final need for an ultimate sink.

Davis (1980) suggests that the sole benefit of reducing landfill space is trumped by the energy needed and resulting pollution from the recycling process. Others, however, have calculated through life cycle assessment that producing recycled paper uses less energy and water than harvesting, pulping, processing, and transporting virgin trees. When less recycled paper is used,

additional energy is needed to create and maintain farmed forests until these forests are as self-sustainable as virgin forests.

Dalzell (2000) has shown that recycling in itself is inefficient to perform the “decoupling” of economic development from the depletion of non-renewable raw materials that is necessary for sustainable development. The international transportation or recycle material flows through different trade networks of the three countries result in different flows, decay rates, and potential recycling returns. When global consumption of a natural resource grows by more than 1 percent per annum, its depletion is inevitable<sup>1</sup>, and the best recycling can do is to delay it by a number of years. Nevertheless, if this decoupling can be achieved by other means, so that consumption of the resource is reduced below 1 percent per annum, then recycling becomes indispensable indeed. Recycling rates above 80 percent are required for a significant slowdown of the resource depletion.

### **Avoidance and reduction**

An important method of waste management is the prevention of waste material being created, also known as waste reduction. Gaines and Stodolsky (1993) contend that the methods of avoidance include reuse of second-hand products, repairing broken items instead of buying new, designing products to be refillable or reusable such as cotton instead of plastic shopping bags, encouraging consumers to avoid using disposable products such as disposable cutlery, removing any food/liquid remains from cans, packaging, and designing products that use less material to achieve the same purpose for example, light weighting of beverage cans.

### **Waste handling and transport**

Gaines (1981) positions that waste collection methods vary widely among different countries and regions. Domestic waste collection services are often provided by local government authorities, or by private companies in the industry. Some areas, especially those in less developed countries, do not have a formal waste-collection system. Examples of waste handling systems inter alia include:

- (a) in Europe and a few other places around the world, some communities use a proprietary collection system known as Envac, which conveys refuse via underground conduits using a vacuum system. Other vacuum-based solutions include the MetroTaifun single-line and ring-line systems;
- (b) in Canadian urban centers, curbside collection is the most common method of disposal, whereby the city collects waste and/or recyclables and/or organics on a scheduled basis. In rural areas people often dispose of their waste by hauling it to a transfer station. Waste collected is then transported to a regional landfill;
- (c) In Taipei, the city government charges its households and industries for the volume of rubbish they produce. Waste will only be collected by the city council if waste is disposed in government issued rubbish bags. This policy has successfully reduced the amount of waste the city produces and increased the recycling rate; and
- (d) in Israel, the Arrow Ecology company has developed the arrow-bio system, which takes trash directly from collection trucks and separates organic and inorganic materials through gravitational settling, screening, and hydro-mechanical shredding. The system is capable of sorting huge volumes of solid waste, salvaging recyclables, and turning the rest into biogas and rich agricultural compost. The system is used in California, Australia, Greece, Mexico, and the United Kingdom and in Israel. For example, an Arrow-Bio plant that has been operational at the Hiriya landfill site since December 2003 serves the Tel Aviv area, and processes up to 150 tons of garbage a day.

Harvey and Mukosha (2008) affirm that while waste transport within a given country falls under national regulations, trans-boundary movement of waste is often subject to international treaties. The Basel Convention, ratified by 172 countries, deprecates movement of hazardous waste from developed to less developed countries. The provisions of the Basel convention have been integrated into the EU waste shipment regulation. Nuclear waste, although considered hazardous, does not fall under the jurisdiction of the Basel Convention.

## **2.2 Typical cases of campaigns**

Holling and Gunderson (2002) reveal that the term awareness campaign means symbolization, consciousness and this is the representation of some portion of experience. Mezirow (2000)

shares that experience is all that is going on in a person at a given time, whether in awareness of potentially available to awareness of a psychological nature, the experiential field or the phenomenal field. Experience as a verb means to receive in the person the impact of the sensory or emotional events which are happening at the moment. This section provides an overview of some of the successful campaigns on different subjects. These are: literacy (Cuba, Nicaragua and Somalia) and waste management (United States of America – Keep America Beautiful).

## **Cuba**

The Cuban literacy campaign was a year-long effort to abolish illiteracy in Cuba after the Cuban revolution. It began on January 1<sup>st</sup> and ended on 22<sup>nd</sup> December, 1961, becoming the world's most ambitious and organized literacy campaign. Before 1959 the official literacy rate for Cuba was between 60-76%, with educational access in rural areas and a lack of instructors the main determining factor. As a result, the Cuban government of Fidel Castro at Che Guevara's behest dubbed 1961 the year of education and sent literacy brigades out into the countryside to construct schools, train new educators, teach the predominately illiteracy peasants to read and write. The campaign was a remarkable success and by the completion of the campaign, 707,212 adults were taught to read and write, raising the literacy rate to 96%.

Parsa (2000) contends that it was estimated that 1,000,000 Cubans were directly involved as teachers or students in the literacy campaign. There were four categories of workers and these were:

- a) Conrado Benitez Brigade - 100,000 young volunteers aged between 10-19 years who left school to live and work along with their students in the countryside. The number of students leaving schools to volunteer was so great that an alternative education was put in place for eight months of the 1961 school year;
- b) Popular Alphabetizers- adults who volunteered to teach in cities or towns. It was documented that 13,000 factory workers held classes for their illiteracy co-workers after hours. This group also includes the numerous individuals who taught friends, neighbours or family members out of their own homes;

- c) Fatherland or Death Brigade-a group of 15,000 adult workers who were paid to teach in remote rural locations through an arrangement that their co-workers would fill in for them, so that the workforce of Cuba remained strong; and
- d) School teacher Brigade-a group of 15,000 professional teachers who oversaw the technical and organizational aspects of the campaign. As 1961 progressed, their involvement grew to the extent that most teachers participated full-time for a majority of campaign. The fatherland or death brigades, along with the school teacher brigade, are sometimes simply referred to as the Workers Brigade.

The government provided teaching supplies to volunteers and workers that travelled to rural locations to teach and in turn received a standard grey uniform, a warm blanket, a hammock, two text books ‘We Shall Read and We Shall Conquer’, and gas-powered lantern, so that lessons could be given at night after work ended.

Before 1959, it was the countryside versus the city. The literacy campaign united the country because, for the first time, people from the city understood how hard life was for people before the revolution, that survived on their own and that as people they had much in common. This was very important for the new government (<http://www.Cuban Method to Teach 350,000 Nicaraguans to Read>).

Many of the literacy campaign’s volunteers went on to pursue teaching careers and the rate of teachers is now 11 times higher than it was before the revolution. Before the revolutionary, government nationalized schools, private institutions often excluded large segments of society; wealth Cubans often received exemplary instruction to private schools, while children of the working class received low-quality education, or did not attend school at all. Education became accessible to a much larger segment of the population after 1959. The percentage of children enrolled in school in Cuba aged between 6-12 years increased dramatically over the years as follows: in 1953, it was at 56%, 1970 it was at 88% and in 1986 it was nearly at 100% (<http://www.Cuban Method to Teach 350,000 Nicaraguans to Read>).

It was estimated that 268,000 Cubans worked to eliminate illiteracy during the year of education and around 707,000 Cubans became literate by December 22, 1961. By 1962, the country's literacy rate was 96%, one of the highest in the world.

Cuban literacy educators trained during the campaign later went on to assist in literacy campaigns in fifteen other countries, for which a Cuban organization was awarded the King Sejong Literacy Prize by UNESCO. Additionally, over the past 50 years, thousands of Cuban literacy teachers have volunteered in countries such as Haiti, Nicaragua and Mozambique (<http://en.wikipedia.org/w/index.php?title>).

From the discussion above, it is clear that the Cuban experience of a Literacy Campaign was close to a perfect one. This can be observed from the impressive outcome that saw the country record 96% literacy rate in 1962. Even if the Keep Zambia Clean Awareness Campaign was about cleanliness, a lot can be learnt from the Cuban experience. This ranges from the methods used, political will, organization structure, language used, voluntarism, a targeted audience, consistency and continuity, involvement of the targeted population enabled the benefits of the campaign to spread to the wider population as the participants owned the process. One of the negatives about the Cuban literacy campaign was that, in the School teacher Brigade, most professional teachers were allowed to participate on a full-time basis for most of the period of the campaign at the expense of their everyday work.

## **Somalia**

The Mine Awareness Campaign for Somalia was developed in 1994. It drew on lessons learned in Cambodia. The Somali campaign materials consisted of the normal things expected in a campaign—a poster showing types of mines and a warning poster which showed a *do or don't do* scenario. The posters were made of cloth for longevity, and when the community campaign was initiated they were also printed on paper. They were A1 size which was unusual at that time in Somalia and proved a novelty. There were also disadvantages: sometimes the poster was as big as or bigger than any flat area on which it could be hung, and in a country of dust and poverty the cloth proved extremely useful in ways that were not quite as anticipated. The campaign also had the requisite leaflet, but it had one other important element—a small brochure for the teacher with

two lesson plans and several classroom activities to try. The campaign itself had a training component so that teachers could be given ideas on how to implement the campaign. This was reinforced by a booklet with additional information for teachers and trainers all in the Somali language.

The Somali campaign was originally designed for returnees and the nomads of central Somalia. Most towns had been cleared of mines and although people understood the problem of mines, they did not have reasonable solutions. There was a genuine audience in the returnee population and with some nomad groups. Many of these people had been away from areas for a long time and had not lived with the mine problem. In addition, many of the anti-personnel mines used in Somalia were the light, plastic pressure mines which float and therefore moved in the deluges of rain. Regardless of how meticulously they had been laid originally, the location of mines became completely random. This, in turn, meant no safe areas.

The problems encountered with the initial Somali campaign were both educational and political. The returnee populations were not returning to the sedentary lifestyles they had before the conflict. The nomads kept wandering away from sites where the programme could be implemented. Although it was implemented in schools, it could be argued that it was invalid as the material, the audience and the need did not match.

According to Baxter and Hoffman (2011), implementing the mine awareness campaign in town and village schools, however, provided a wonderful pilot approach. It was at this level, when travelling in central Somalia with Somali colleagues, which the evolution from campaign to programme really began. Originally the lesson plans were written by Somalis for Somalis a valid approach. What they did not realize was that the Somali writers had already taken into account the problems of limited teachers and a very rigid syllabus. Hence the lessons outlined in the mine awareness campaign were lecture style; content oriented and made no real attempt to help the children understand the problems of mines and their ramifications. New lessons were written so as to make the problem of mines relevant to the children's lives. This was achieved by highlighting the premise of something dangerous: broken glass, a baby near a fire, playing football on the road. This approach proved to be very effective and was used in the teacher training for mine awareness.

The teacher training component was vital. It allowed for modifications, it brought teachers together and gave an importance and validity to mine awareness which can be very difficult to achieve. Some outsiders do often assume that the intrinsic importance of a programme such as mine awareness is obvious and therefore such a programme will be given its due significance in the classroom. It is this false expectation that leads to limited effectiveness in many campaigns. Mine awareness may be very necessary to the home population but often it is not prioritized by those who need it most. These campaigns need to be sold to the teachers or to the officials who will implement them. One way to do this is through teacher training.

The idea of selling the importance of the campaign and the information contained in it was first tackled in Northwestern Somalia. Baxter and Hoffman (2011) affirm that the school programme was accepted by the Ministry of Education just as the long summer vacation began. Rather than waste valuable time waiting until the new school year began to implement the campaign, it was decided to initiate a community campaign. The approach was to utilize the oral tradition of the Somalis to disseminate information through song and drama.

Two teams of singers and actors travelled throughout Northwest Somalia telling of the dangers of mines and how to avoid them. This was done through songs, skits and plays. Between the two teams, every town and village in the country was visited. Concerts were held in conjunction with market days so that the target audiences could be reached. The teams also held impromptu concerts along the roadside for nomads. The teams trained and rehearsed with both national and international peer trainers with the emphasis on teaching awareness.

By utilizing a style of communication familiar to the Somalis, the information was both well communicated and received. For example, one very popular skit revolved around a small toothless man wooing a beautiful young girl by promising her marriage and wealth. Each promise is more elaborate than the last-he would fetch the water, herd the goats, give silken cushions for her to recline on, give jewels beyond price. Each time the girl refuses until the man offers her all this and a house. Then, after she finally accepts, he tells her she has to fix one small problem-the house has mines around it. This was used to introduce a dialogue with the audience about mines and the dangers inherent in their presence, especially in houses and buildings abandoned by soldiers in small villages.

When the school campaign started at the end of the summer, the message was more acceptable as it already had the seal of success. Children knew that their parents had seen and enjoyed the concert and that gave legitimacy to the school campaign.

According to Baxter and Hoffman (2011), in Somalia, the approach used in Northwestern Somalia was not possible because of security problems. Instead, a video was produced and distributed to the towns and villages to be shown in the local video halls. The school kits were distributed. Teachers were trained through the cascade training approach where an international educator trains a small group of national educators, who in turn, train regional trainers, who train local trainers.

As mentioned earlier, the Somali campaign consisted normal things (materials) expected in a campaign – a warning poster. However, there were also disadvantages: sometimes the poster was as big as or bigger than any flat area on which it could be hung, and in a country of dust and poverty the cloth proved extremely useful in ways that were not expected.

As a positive aspect, the Somali mine awareness campaign graduated quickly from a campaign to programme level and the programmes were visible. Further, a familiar style of communication was used; songs and drama, use of national figures (actors and singers), use of leaflets and posters to disseminate messages, use of Somali language and presence of target audience. In short, most of the factors that lead to a successful campaign were used. Whether this was done or not was to be investigated through undertaking this study.

## **Nicaragua**

The Nicaraguan Literacy Campaign, also called the Sandinista Literacy Campaign, was a campaign launched in 1980 by the Sandinista government in order to reduce illiteracy in Nicaragua. There have been many other literacy campaigns in the country since the first one was launched in 1980 (<http://www.Historical Background of Nicaragua>).

Prior to the Sandinista Revolution in 1979 the majority of the rural population of Nicaragua was illiterate, with estimates as high as 75%-90%. The total population had an estimated illiteracy rate of 50%. Planning for the literacy campaign began approximately four months after the Sandinista Revolution which overthrew the Somoza political dynasty. Nearly 60,000 youths

(high school and college age) and 30,000 adults of varying backgrounds were trained in two weeks for the five-month campaign. Citizen groups, workers' associations, youth organizations, and public institutions provided organizational support for the campaign. The goals of the literacy campaign were of a social-political, strategic and educational nature:

- |   |  |
|---|--|
| (a) to eradicate illiteracy;  | (d) to nurture attitudes and skills related to creativity, production, co-operation, discipline and analytical thinking; |
| (b) to encourage an integration and understanding between Nicaraguans of different classes and backgrounds; | (e) to support national cohesion and consensus;  |
| (c) to increase political awareness;  | (f) and to strengthen the channels for economic and political participation  |

The first Nicaraguan Literacy Campaign was launched by the Sandinista government and took place between March 3 and August 23, 1980. It was just one of the key large scale programs that the Sandinista government implemented during their presidency (<http://www.Cuban Method to Teach 350,000 Nicaraguans to Read>).

Volunteers came from all over the country to participate in the project. There were two types of volunteers in the project, those who could not leave for the countryside such as: housewives, government employees and workers; thus, they worked in urban neighborhoods as Citizens' Literacy Promoters. The second and most important groups of volunteers under the Popular Literacy Army were the youth that worked full-time in the rural and mountainous areas. The groups of influential youth, who mostly came from secondary schools or universities, were named after the brigadistas that contributed to the Cuban Literacy Campaign. Like their Cuban mentors, the brigadistas did not only teach the rural peasants to read and write; but they were also integrated into the families, bridging the gap between the rural and urban citizens of the nation. Because the young volunteers were as young as 12 years of age, many parents speculated on the idea of allowing them to participate (<http://www.Historical Background of Nicaragua>).

Massive campaigns through the media and youth groups were organized in order to convince the people. Other campaigns had to also be arranged to convince teachers to participate, because a lot of them despised the idea of working closely with their students. Altogether, approximately 95,140.87 Nicaraguans actually volunteered in the campaign.

The campaign used a number of tactics to increase the participation and creativity of the illiterates during their learning process which included experiential learning, dialogue, group discussions and collective problem solving. However, these tactics were not as successful as perceived because the training process of the volunteers was very brief and started a month before the actual campaign. The first stage of the training process consisted of a two week intensive workshop and those trained first would train the next group of volunteers. After the 3rd group was trained, schools and universities were closed down in order to train the remaining (<http://www.Cuban Method to Teach 350,000 Nicaraguans to Read>).

Literacy Congresses were held in order to evaluate the outcome of the literacy campaign. The evaluation illustrated impressive results considering the fact that a rocky road was taken to get to where they were. Altogether, about one-fifth of the population participated directly in the campaign and almost everyone was affected in at least an indirect way. Overall, illiteracy had reduced by about 37.39% with about 7% illiterates in the industrialized Pacific and 25.95% in the less developed regions. Even though illiteracy was still higher in the rural areas, they were more affected by the campaign with a major decrease of about 52.5%. The interaction between the rural and urban regions in Nicaragua was one of the most important results. Such interactions led to the integration of the once quite independent two regions, with a binding sense of nationalism throughout the country. The fact that every class, race, gender and age was involved brought about a new perspective towards the distribution of power and wealth. Women also played a major role in the literacy campaign. Like the Cuban example, about 60% of the brigadistas were female and such a title made the women feel a sense of belonging and equalization in the revolutionary process of their country. Lastly, due to the great success of the campaign, Nicaragua made a substantial contribution in finding solutions for the eradication of illiteracy worldwide. In September 1980, UNESCO awarded Nicaragua with the Nadezhda K. Krupskaya award for its successful literacy campaign. This was followed by the literacy

campaigns of 1982, 1986, 1987, 1995 and 2000, all of which were also awarded by UNESCO (<http://www.Nicaragua Pre-election Delegation Report>).

**Other literacy campaigns** also took place in Nicaragua. From October to March 1981 additional campaigns were held in Nicaragua's Caribbean coast to reduce illiteracy to over 12,000 people in their native languages in local Miskito, Sumo and various Creole languages such as Nicaraguan Creole. This was followed by many other literacy campaigns throughout the nation (<http://www.Historical Background of Nicaragua>).

**Literacy campaigns of 2005-2009** - The first phase of the literacy campaign was carried out with support of Sandinista mayors' offices and used audiovisual equipment and teaching materials donated by Cuba as well as consulting assistance. During that period, around 70,000 people learned to read and write.

In 2007, after Daniel Ortega began his second term as president of Nicaragua, under the Carlos Fonseca Amador Popular Education Association, a new literacy campaign was announced and later launched in March 2007. The new literacy campaign was based on the Yes, I can Cuban method. Estimates say over 350,000-500,000 Nicaraguans would be taught to read and write. The literacy campaign was coordinated by Orlando Pineda and received finance and support from Cuba, Spain and Venezuela. The goal of the literacy campaigns is to declare Nicaragua free of illiteracy by 2009 (<http://www.Cuban Method to Teach 350,000 Nicaraguans to Read>).

The Nicaragua literacy campaign was close to a replica of the Cuban Campaign. In fact, it closely followed the elements and factors of an ideal awareness campaign. Thus, this study also investigated whether participation of the target group was good enough. The American case was quite different.

### **United States of America**

The Keep America Beautiful was founded in 1953 by the consortium of American businesses such as Anheuser-Busch, Pepsi and Coca-Cola nonprofit organizations, government agencies, and concerned individuals in reaction to the growing problem of highway litter that followed the construction of the Interstate Highway System, and an increasingly mobile and convenience-

oriented American consumer. The original goal of the organization was to reduce litter through Public Service Advertisement (PSA) campaigns.

Keep America Beautiful conducted many local Public Service Advertisement campaigns early in its history. One of these early campaigns in Pennsylvania (PENNDOT), attributed to having coined the term "litterbug", as opposed to the New York Transit Authority. There is some confusion over the origin of the actual word "litterbug" due to several early uses of it in widespread public service advertisements. It was, in fact, coined by Paul B. Gioni, a copywriter in New York City who originated it for The American Ad Council in 1947. Keep America Beautiful joined with the Ad Council in 1961 to dramatize the idea that every individual must help protect against the terrible effects litter has on the environment.

A popular television campaign theme in 1963, with copy written by Paul B. Gioni who also coined the word "litterbug" in 1947, was "Every Litter Bit Hurts". Another appeared in 1964 featuring character Susan Spotless. In 1970 Keep America Beautiful began distributing a free brochure; more than 100,000 copies were requested within 4 months.

On Earth Day 1971, a new campaign was launched with the theme "People Start Pollution. People can stop it" featuring the now iconic "Crying Indian" played by Iron Eye Cody.

In 1975, Keep America Beautiful introduced its "Clean Community System" which encouraged local communities to prevent litter through education efforts, advertising, local research, mapping of litter "hotspots", and cleanup activities. During the height of the campaign Keep America Beautiful received over 2,000 letters a month from people wanting to join their local programs. The "Clean Community System" evolved into Keep America Beautiful current network of roughly 580 local "Keep My Town Beautiful" organizations nationwide. By the end of the campaign locals had succeeded to reduce litter by 88%.

In 1999 Keep America Beautiful introduced its annual "Great American Cleanup" campaign, where volunteers were organized to clean up litter and illegal dumpsites in their communities, remove graffiti, and plant trees, flowers and community gardens ([http://www.kab.org/site/PageServer?pagename=partners\\_nonprofit](http://www.kab.org/site/PageServer?pagename=partners_nonprofit)).

The American case used a public-private partnership. This meant that companies were approached for sponsorship of the programmes of the campaign. Among all the campaigns

discussed, this was the closest to the Keep Zambia Clean Awareness Campaign. Therefore, more lessons can be learnt from this one as we reflect on the campaign under consideration. For example, in 1975, Keep America Beautiful introduced its "Clean Community System" which encouraged local communities to prevent litter through education efforts, advertising, local research, mapping of litter "hotspots", and cleanup activities. Whether this was considered in the Keep Zambia Clean Awareness Campaign remained a gap to be filled by carrying out this study.

### **2.3 Selected past studies on waste management across the globe**

The problem of waste management and disposal becomes increasingly pressing as human population, industrial activity and material consumption expand. To most Zambians, the collection and disposal of municipal wastes poses the most visible and costly solid-waste management problems.

Adekoya (1991) states that the gigantic mountains of refuse which meanwhile have become a general cause of concern everywhere are clearly the reverse side of this type of management. Jensen and Schnack (1997) establish that for instance, in Germany alone more than 230 million tons of garbage is produced annually by industry and in private households. On the other hand, there is no question that in Germany as well as in other industrialized nations much is thrown away and lost which could very well still be used or recycled such as clothing, food or household appliances. Little (1984) contends that we are wasting sums that run into the millions each year, while elsewhere hundreds of thousands of people have to do without the basic essentials of life. This is cynicism towards nature and the rest of mankind. Waste paper and glass in particular can be recycled. Recycling saves energy, minimizes the impact on climate, and avoids water pollution.

There is the dumping and final disposal of the so-called special wastes in countries of the Third World. Toxic sewage, chemical wastes containing large amounts of damaging substances or radioactive materials can be shipped and dumped there for a fraction of what disposal would cost in Europe. Yet at the same time it is plain that the receiver countries are hardly in any position to store such poisonous substances adequately, or to keep them under close surveillance.

It is also a well known fact that Third World Countries like Zambia have been recipients of sub-standard products with old technology from countries like china. Cheap and low quality products are sold to Africa while high quality products are sold to developed countries.

There is an urgent need of a new responsible approach to the resources of this earth, the chief criteria of which must be the lives of the people with whom we share our planet and the impact of our actions on the environment. Dalzell (2000) avows that such ecological rationality may in the long run also become economically prudent. This will require political action on the part of many people, but also conscious consumer behavior. Possibility includes:

- (i) conscious consumption. We buy many things as a matter of bad habit without stopping to think whether we really need them. We should therefore always ask what do I really need, before we make a purchase;
- (ii) maximum recycling. Paper, cardboard, aluminum, tinsplate, metal, certain kinds of plastics and all kitchen wastes should be collected and recycled or turned into compost. Many communities are provided with special containers for sorting waste;
- (iii) avoid wasteful packaging. When shopping, do not select products in unnecessary fancy wrappings. Leave packaging materials at the store; and
- (iv) no-return bottles, beverages in cans and the like should be boycotted.

Kamal and Chamber (2008:20-30) suggest that waste management poses many challenges around the globe including in a country like Zambia. The main challenges that Zambia face in waste management are:

*Insufficient capacity for the recovery and recycling of various types of waste streams such as plastics; Insufficient capacity and equipment for municipalities to deal with the collection, transportation and disposal of waste; and Inadequate awareness on sound management of waste and their impact on human health and the environment. It is well known facts that, as cities grow economically, business activity and consumption patterns drive up solid waste quantities. At the same time, increased traffic congestion adversely affects the productivity of the solid waste fleet. Productivity loss is exacerbated by longer hauls required of the fleet, as suitable land for disposal is pushed further away from urban centers. The challenge is therefore, to expand services to a rapidly growing urban population in the midst of other equally competing demands of Government and local authorities.*

Zambia's overall goal of solid waste management is to collect and dispose of wastes generated by the population in an environmentally and socially sustainable manner. Harvey and Mukosha (2008) affirm that the Zambian government is making strides in waste management such as the building of an engineered landfill in Lusaka, the Capital City. This has resulted in reduced air and ground water pollution arising from waste. There is a desire on the part of Zambia on its commitment to most of the main international conventions on waste management. To enhance our efforts to effectively manage waste from plastic packaging, the country is developing legislation called Extended Producer Responsibility that is aimed at discouraging the Production of thin plastic packaging and encourage recycling.

Kamal and Chambers (2008) contend that Zambia has gone further in partnering up with the private sector and community based organizations in waste management. A franchise system has been implemented in Lusaka and other towns in the Copper Belt Province in order to encourage the participation of the private sector in waste collection. This would result in increased waste collection and dispose, and consequently to cleaner cities. According to Harvey and Mukosha (2008) Zambia has been implementing the Keep Zambia Clean and Healthy Campaign as a way of strengthening information dissemination and awareness creation among members of the public. Like many developmental challenges, waste management will require the co-operation and support of all stake holders at national, regional and international levels.

Harvey and Mukosha (2008) observe that the Keep Zambia Clean Awareness Campaign is a good motive but it has failed to produce the expected results of seeing public response in relation to waste disposal. This is because of failure to involve the community from the initial stages of planning and implimentation of the programme. Most of the community members are aware of the awareness campaign and understand its benefits but they are not convinced of the consequences of the contaminated environment.

While we welcome the initiatives that are being undertaken by our political and civic leaders, it is important for us to point out that very little, if not nothing, will be achieved in our endeavours to keep Zambia clean if our people are not consulted and involved in whatever we do. If our initiatives start to appear to be impositions or punitive measures on them, they are bound to face

resistance. We don't think the views of our people were widely sought on the 'Keep Zambia clean' campaign. This is a very good campaign but it needs the all-out mobilisation of our people; it needs the full support of all our people (Harvey and Mukosha, 2008).

Even the legislation that we are being told has been revised and tightened was not done with the consultation of our people. However, it is not too late for the government to get moving on these issues; we have no time to lose. Public support is necessary because it will make enforcement of litter disposal and other legislation easier. Education is also easier when people have been prepared to receive it.

Our 'Keep Zambia clean' campaign needs to be simplified with clear priorities and targets so that the most important changes are made first or the most important issues are tackled first. There is need for us to set targets for achieving performance in all aspects of keeping Zambia clean (Harvey and Mukosha, 2008).

There is also an urgent need to address the high cost of keeping Zambia clean. We know that cleanliness comes with a cost, but let's keep this to manageable levels or the whole campaign will soon collapse because of lack of funds. There is need to empower communities to keep their surroundings clean at a very low cost, or at no cost at all. A 'keep Zambia clean' campaign that is totally based on huge amounts of money being made available by the government or the councils is bound to fail because this type of money will not be found, it is not there. So, to keep our country clean let us devise a strategy that is based on what we have – people – and not what we do not have – money (Harvey and Mukosha, 2008).

However, simplicity of the process is not always the solution to the problem of high cost as Harvey and Mukosha, (2008) said. A process of Public - Private Partnership can be ideal as used in the United States of America during the Keep America Beautiful Campaign discussed earlier.

Kamal and Chambers (2008) state that a local Non-Governmental Organization (Foundation for Education, Research and Advocacy) has argued that the Keep Zambia Clean Campaign has lost its original momentum due to lack of public awareness and education. Foundation for Education, Research and Advocacy says the campaign has not had adequate information dissemination. They further argue that the Zambian public seems to have therefore forgotten about the campaign, especially after the demise of Republican President, Levy Mwanawasa, the initiator of

the Keep Zambia Clean Awareness Campaign. The political leaders should be pressured to rise to the challenge and ensure that the Keep Zambia Clean Awareness Campaign is adhered to.

**Finland** - Koda (2012) establishes that Finland is one of the most successful countries in household waste minimization per capita. Waste management companies in Finland have unique environmental policies which are intended to instill the environmentally friendly awareness into local residents by environmental communication. Environmental communication provided by regional waste management companies in Finland highly values a close relationship with local residents. In our Zambian case, the body tasked with the responsibility to take care of the environment Zambia Environmental Management Agency formerly Environmental Council of Zambia surely has much to learn from the Finish waste management companies.

Adekoya (1991) contends that many of the waste management companies in Finland have at least one special center for local residents called eco-center at which anyone can learn about environmental issues for free and, in most cases, anyone can buy recycled or used items. In addition, pupils in Finland have to visit the eco-center to learn the history of the waste and this is strongly suggested by the Finnish curriculum. OECD (2008) confirms that they have to visit the eco-center several times between lower-grade and higher-grade. For the purpose of obtaining interviews from the officers of waste management companies and visiting and observing the sites where environmental communication was actually being put into practice, I visited two waste management companies in Turku and Tampere in Finland. Turun Seudun Jätehuolto Oy (TSJ) is located in Turku, Finland. It is owned jointly by the regional municipalities and its customers include 317,000 residents and businesses located within its operational area. Pirkanmaan Jätehuolto Oy (PJ) is located in Tampere, Finland. It is owned jointly by the regional municipalities and its customers include 416,000 residents and businesses located within its operational area and such action amounts to collaborative Environmental Activities.

Haluza (2001) recommends that experience-sharing is essential in awareness campaigns, because there is no much time being wasted for both the instructors (major shareholders) and the communities. The experience-sharing workshop is the opportunity for the stakeholders to share experiences, to exchange, to establish new contacts and to propose and develop new projects. Gass (1999) adds that any environmental education and awareness-raising activity must be pleasant and enjoyable experiences. It is important to adopt a recreational approach and school

like approaches should be avoided and diversify the means used to communicate the key messages through channel which are suitable to particular community.

Holling and Gunderson (2002) direct that it is not relevant to directly involve the audience in the awareness campaigns, especially when they are not initially interested in this matter. It is important to create new relations; people that shared a pleasant experience might come back and be more open to key messages. Kovan and Dirkx (2003) advise that inspire people and draw their attention during the environmental education and awareness raising activities. Make participation become a form of education: people directly involved in the projects, draw more satisfaction, and generally better remember the information.

The Lusaka City Council is working hand in hand with some private waste collectors in order to manage the waste in Uptown areas as a solution to curb the poor waste disposal practices. The alliances are made between these private sectors and the Lusaka City Council without the full consultation with the communities. Most of the members in the communities are aware of the Keep Zambia Clean Awareness Campaign but they do not understand its meaning. What they usually see are people passing with their wheelbarrows asking them to pay the amount of ten kwacha for the collection of their wastes. This is what the Lusaka City Council agreed with their partners that the communities are supposed to pay this amount per month. The amount seemed reasonable but most members of the public who were approached to give their views said that the amount was imposed on them. They thus, stated that it was hard for some of them to find ten kwacha because most of them were not in employment.

## **Summary**

This chapter has reviewed literature on the subject of waste management. The chapter began by highlighting the concept 'campaign', typical cases of campaigns and past studies. Specific issues relating to waste disposal were also discussed. The awareness campaigns like the Keep Zambia Clean Awareness Campaign can help the society to be sensitized regarding the importance of a health environment through proper waste disposal. It also shows the possible methods which can be applied in waste disposal especially in high density areas like Mtendere. These include: landfill, storage, open dump, garbage reduction and recycling among others.

## **CHAPTER THREE**

### **3.0 METHODOLOGY**

#### **3.1 Research Design**

Oppenheim (1966) defines research design as a programme to guide the research in collecting, analyzing and interpretation of observed facts.

The researcher used a descriptive research design to collect information from the respondents in Mtendere Residential Area. The researcher sourced for responses from the residents from four different locations in the area labeled in sections A, B, C and D. The data collection was done using interview guide and questionnaires.

#### **3.2 Population**

Population is the entire set of a well defined group. Nachmias and Nachmias (1981) define population as the aggregate of all cases that conform to some designate set of specifications and a sample is defined as a subset of the entire population. In this study, the population was composed of all residents of Mtendere.

#### **3.3 Sample and Sampling Procedure**

The sample size for this study was 150 selected randomly using a simple random sampling where every member of the residential area stood a chance of being included in the sample in all sections which are labeled section A, B, C and D. Thus, the sample included 40 older men, 50 older women, 58 youths, the chairperson of Mtendere and one Officer from the Public Relations Department of the Lusaka City Council (LCC).

Sampling is the way of selecting the units in different areas. Davis (1980) states that a sampling unit is not necessarily an individual, but it may be an event, a city, or a nation. To ensure that all the residents had equal chance of being in the representative sample the researcher used a simple random sampling method; this is because Mtendere Residential Area has four big sections.

Nachmias and Nachmias (1981) explain that a simple random sampling is the basic probability sampling design. Simple random sampling is a sampling procedure that gives each of the N sampling units of the population an equal and known nonzero probability of being selected. To ensure this requirement, the researcher used the following basic procedure: the lottery method. Each member of the population is represented by a disk, the disks were placed in a pot and mix well and a sample of the desired size was drawn.

### **3.4 Data collection procedure**

According to Gass (1999), data collection is a process of gathering information from respondents aimed at proving some facts. Different studies demand different ways of entering the field in order to gather data. The field for this study was quite challenging as it was one of the most populated areas of Lusaka District. Therefore, entry was supposed to be systematically done so as to maximize on the number of participants. The first step was to identify the community leaders such as the Area Councilor and the opinion leaders (people who are listened to the most) and at the same time were well aware of issues happening in Mtendere Residential Area.

It was later discovered that most people did not even know their area councilor or where he resided. This made it difficult to locate him which in turn, made it impossible to conduct the scheduled interview with him. Thus, a care-taker and a librarian who were usually involved in most community activities suggested that the Area Chairperson who could represent the Councilor was available. This made the researcher to instead seek permission from the Area Chairperson who also accepted to be interviewed.

The study used semi-structured questionnaires and interview guide to collect data. The closed and open ended questions in the questionnaire assisted in producing both quantitative and qualitative data respectively. Oppenheim (1966) clarifies that a questionnaire is a research instrument consisting of a series of questions and other prompts for the purpose of gathering information from the respondents. An Interview is a face to face conversation or interaction two or more people with an interviewer asking questions.

Thirty seven (37) questionnaires were distributed in each section of Mtendere Residential Area. The researcher distributed questionnaires to the respondents of different age group ranging from

youths to older persons. The researcher had to assist the respondents who could not read and write on their own. This involved interpreting each question into the local language and then recording the responses in the questionnaires. The exercise was both time consuming and involving but it was well achieved in the end through perseverance.

Two key informant interviews were also conducted with the Chairperson of Mtendere Residential Area and another one with an officer from the Public Relations Department of the Lusaka City Council (LCC). The researcher was advised to pay K69 in order to access information of any sort including a face to face interview and payments were made at the account's office although a receipt was not issued.

### **3.5 Data Analysis**

According to Schwandt (2003), data analysis is a practice in which raw data is ordered and organized so that useful information can be extracted from it or it is a process of evaluating data using analytical and logical reasoning to examine each component of the data provided.

Davis (1980) explains that qualitative data is the data which is not transferable to numbers and not comparable by statistical procedures, while quantitative data is the data which are coded and represented by statistical scores which is also called statistical data.

Therefore, qualitative and quantitative methods were used. Qualitative data were analyzed thematically. Themes refer to topics or major subjects that come up in discussions. This form of analysis categorized related topics. In using this form of analysis major concepts or themes were identified.

Quantitative data analysis consists of measuring numerical values from which descriptions such as mean and standard deviations were made. Thus, data was analyzed through the use of Microsoft Excel which was used to generate bar charts. The bar charts showed frequencies and percentages.

### **3.6 ETHICAL CONSIDERATION**

Ethical consideration refers to a code of conduct that respects informed consent by observing confidentiality, description of the role of the participant, description of reasonably foreseeable

risks, description of anticipated benefits, compensation and voluntarism (Syrett and Rudner, 1996).

This study observed the elements of informed consent mentioned in the definition above. This was done by preparing a letter of consent which ensured that the participants voluntarily participated and their benefits for participating in the study were explained. A letter of introduction also introduced the research and the researcher to the would be participants. It also stated that respondents did not need to reveal their personal identity.

The letter of introduction was first give to the chairperson of Mtendere Residential Area so that he could be aware of what the research was about and who the researcher was. This enabled a certain level of trust and thus the researcher was given a go a head. This was done in recognition of his authority and to gain his support and cooperation during the study. Similarly, the researcher introduced himself when meeting the rest of the participants and the purpose of the study was explained to each respondent. Verbal permission was also sought from each participant who was selected in the sample and confidentiality was assured that no names would be indicated on the questionnaires. No resident was forced to give information when he or she was not willing to do so and only a few refused to participate in the study and those who were willing to participate.

The participants were also provided with the contact details of the researcher as follows:

Name: Edgar Banda

Address: Co UNZA, School of Education, Ridgeway Campus, P.O. Box 32379, Lusaka.

Phone number: 0977448240

## **Summary**

This chapter looked at the methodology. It thus discussed the research design, population, sample and sampling procedure, data collection methods, data collection and data analysis. The chapter also described how ethical considerations were tackled.

## CHAPTER FOUR

### PRESENTATION OF FINDINGS OF THE STUDY

#### 4.0 Introduction

This chapter presents the findings of the study. The study was based on the following research questions that emanated from the objectives: (a) what are the effects of the Keep Zambia Clean Awareness Campaign on waste disposal to the residents of Mtendere?; (b) what solutions are provided to the residents to keep Mtendere Residential Area clean?; and (c) what are the reaction by the residents to the Keep Zambia Clean Awareness Campaign on waste disposal? The findings are presented in a descriptive and a chart form according to the responses from the open and closed ended questionnaires. The bar charts show the frequencies and percentages. Each bar chart is followed by a short description of findings.

#### 4.1.0 Findings from Mtendere Residents

##### Bio data

**Figure 1: Distribution of respondents by their responses to their sex**

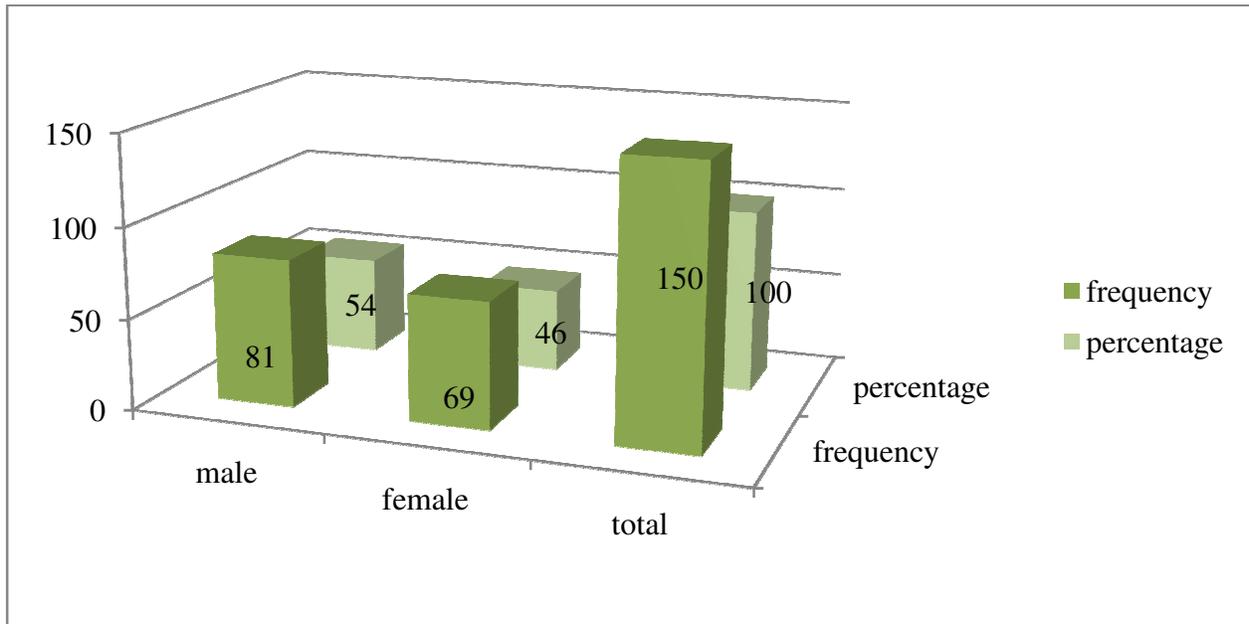
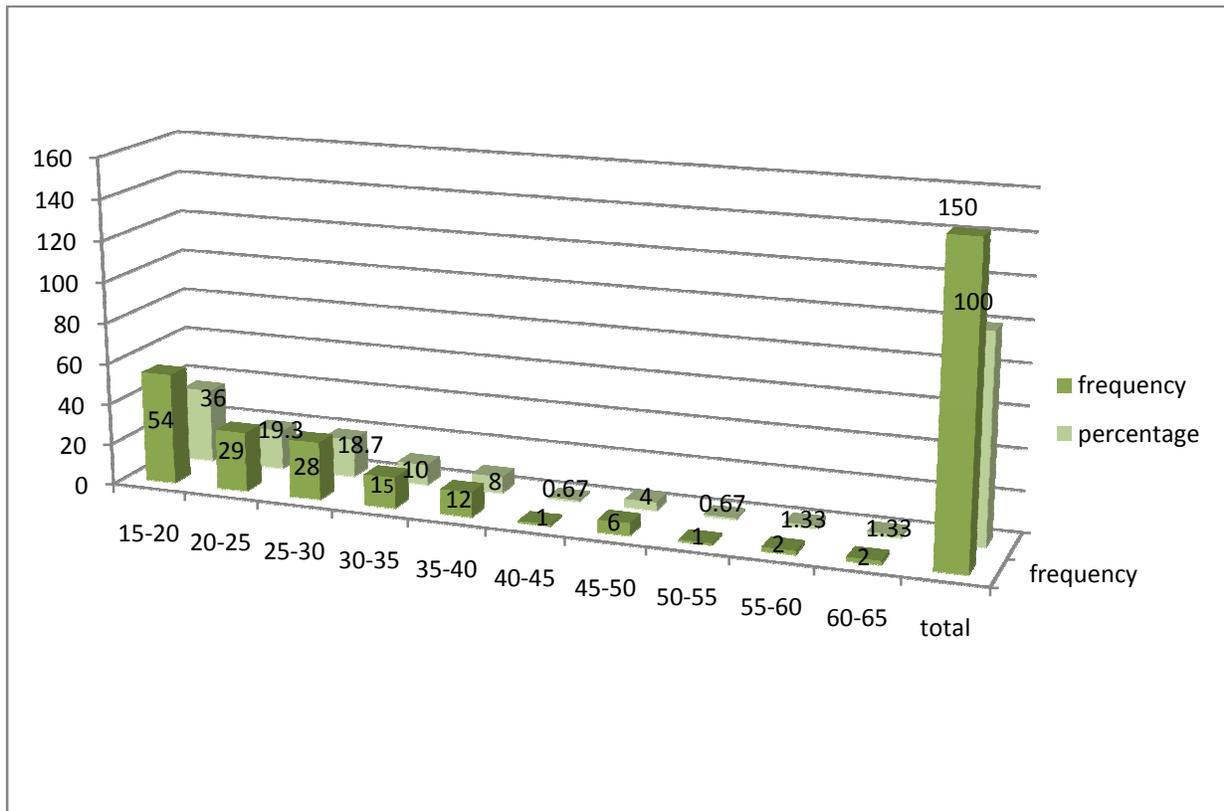


Figure 1 above shows that 81 (i.e. 54%) were males and 69 (i.e. 46 %) were females. Therefore, the sample had more men (i.e. 81=54%) than women (i.e. 69=46%).

**Figure 2: Distribution of respondents by their responses to their age**



As it can be noticed from figure 2 above that 54 (i.e. 36%) respondents were aged between 15-20 years, 29 (i.e. 19.3%) were aged between 20-25 years, 28 (i.e. 18.7%) were aged between 25-30 years, 15 (i.e. 10%) were aged between 30-35 years, 12 (i.e. 8%) were aged between 35-40 years, 1 (i.e. 0.67 %) was aged between 40-45 years, 6 (i.e. 4%) were aged between 45-50 years old, 1 (i.e. 0.67%) was aged between 50-55 years, 2 (i.e. 1.33%) were aged between 55-60 years and 2 (i.e. 1.33%) were aged between 60-65 years old. Therefore, most (i.e. 54=36%) respondents were aged between 15-20 years.

**Figure 3: Distribution of respondents by their responses to their marital status**

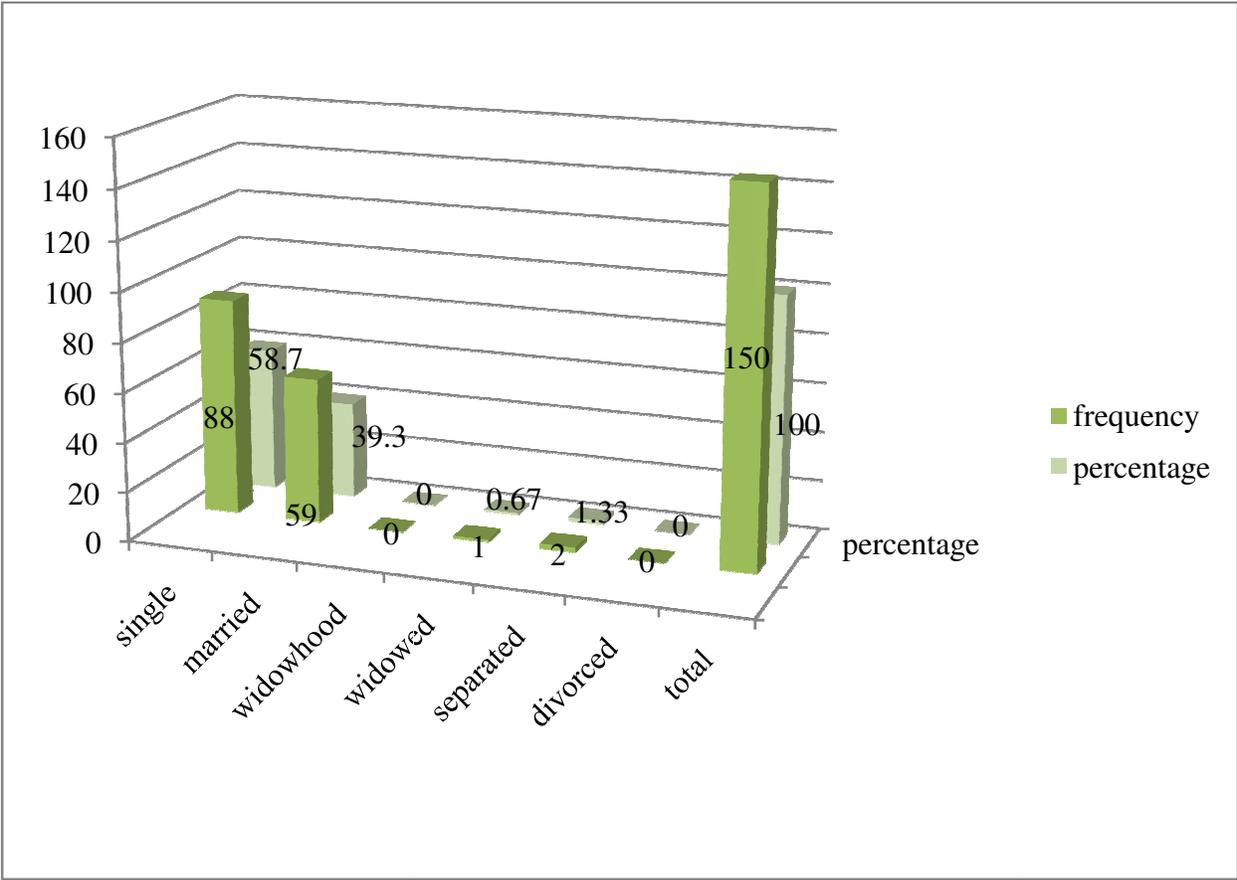


Figure 3 above shows the marital status of respondents. It is observed in the figure 3 above that 88 (i.e. 58.7%) respondents were single. 59 (i.e. 39.3%) were married, 1 (i.e. 0.67%) was widowed, 2 (i.e. 1.33%) were separated and 0 (i.e. 0%) were divorced. Thus, majority (i.e.88=58.7%) respondents were single.

**Figure 4: Distribution of respondents by their responses on the number of years spent in school**

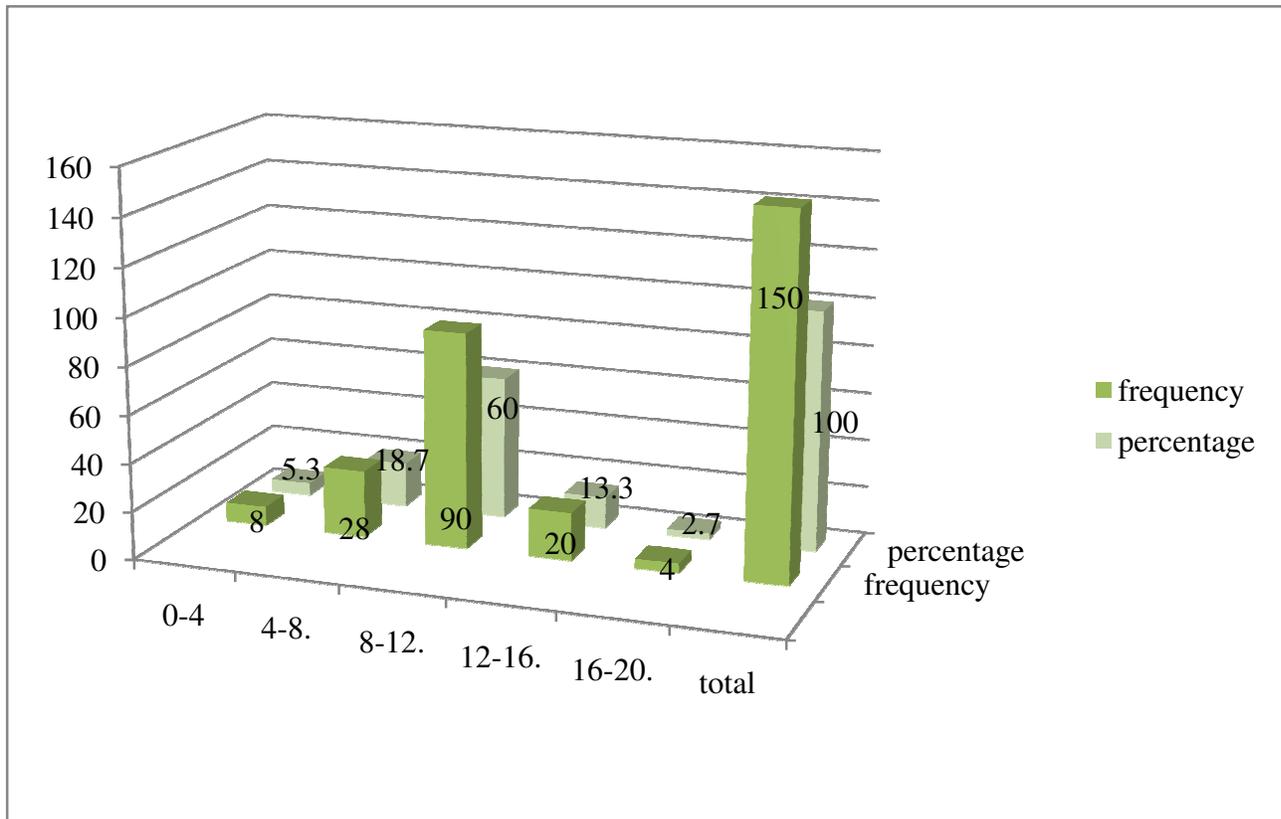


Figure 4 above shows different numbers of years respondents spent in school. It was discovered that 8 (i.e. 5.3%) spent between 0-4 years in school, 28 (i.e. 18.7%) spent between 4-8 years in school, 90 (i.e. 60%) spent between 8-12 years in school, 20 (i.e. 13.3%) spent between 12-16 years and 4 (i.e. 2.7%) spent between 16-20 years in school. Therefore, majority (i.e. 90 =60%) respondents spent between 8-12 years in school.

**Figure 5: Distribution of respondents by their responses on the academic qualifications**

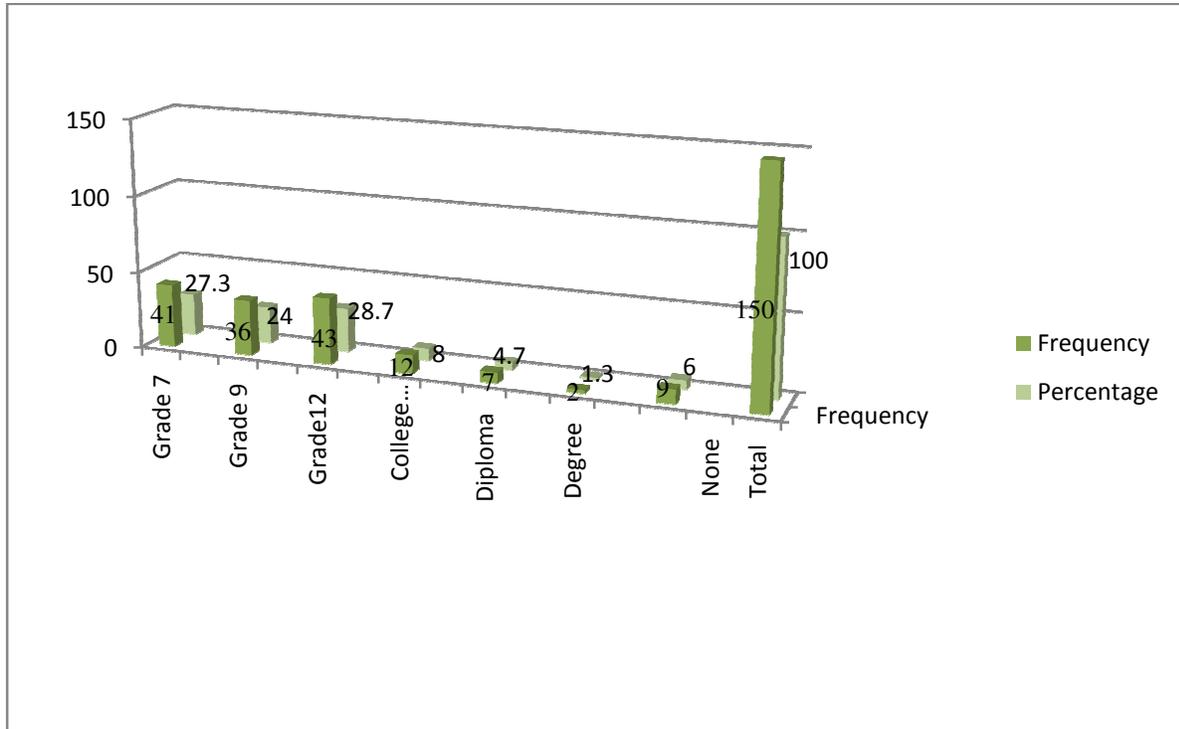


Figure 5 above deals with the academic qualifications respondents attained. It is marked in the bar chart above that 41 (i.e. 27.3%) respondents attained grade 7 certificate, 36 (i.e. 24%) respondents had grade 9 certificate, 43 (i.e. 28.7%) had grade 12 certificates, 12 (i.e. 8%) had college certificates, 7 (i.e. 4.7%) had college diplomas, while 2 (i.e. 1.3%) had degrees and information above shows that 9 (i.e. 6%) had none. Therefore, majority (i.e. 43=28.7%) respondents had grade 12 certificates.

#### 4.1.1 Distribution on the factors leading to poor outcomes of the Keep Zambia Clean Awareness Campaign on waste disposal to the residents of Mtendere

**Figure 6: Distribution of respondents by their responses on knowledge of the Keep Zambia Clean Awareness Campaign**

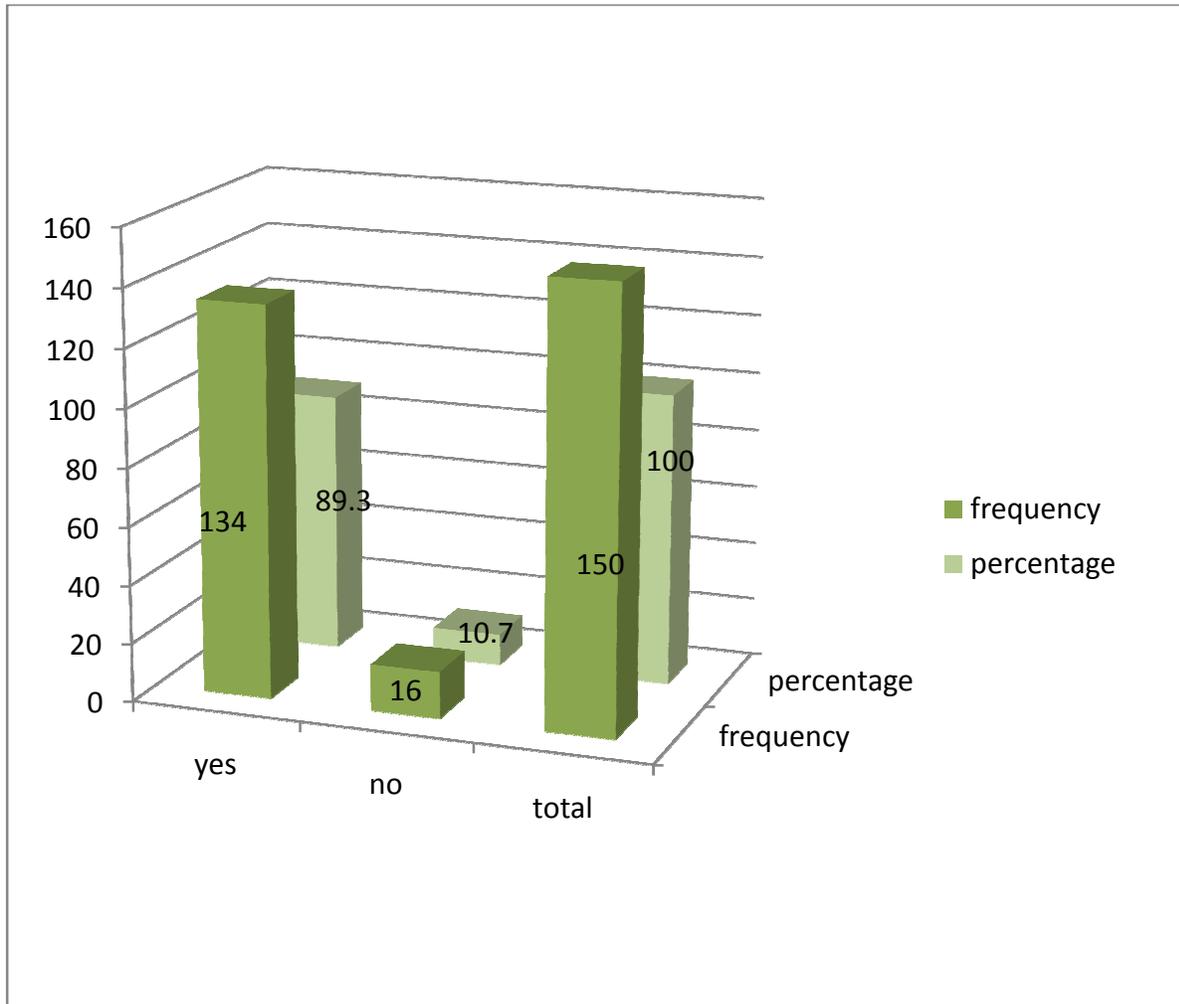


Figure 6 above shows the respondent level of awareness regarding the Keep Zambia Clean Awareness Campaign. It is evident in the figure above that 134 (i.e. 89.3%) respondents were aware of the Keep Zambia Clean Awareness Campaign and 16 (i.e. 10.7%) respondents said they were not aware of the Keep Zambia Clean Awareness Campaign. It is therefore apparent that majority (i.e. 134=89.3%) respondents were aware of the Keep Zambia Clean Awareness Campaign.

**Figure 7: Distribution of respondents by their responses on how the residents view the Keep Zambia Clean Awareness Campaign in relation to their residential area**

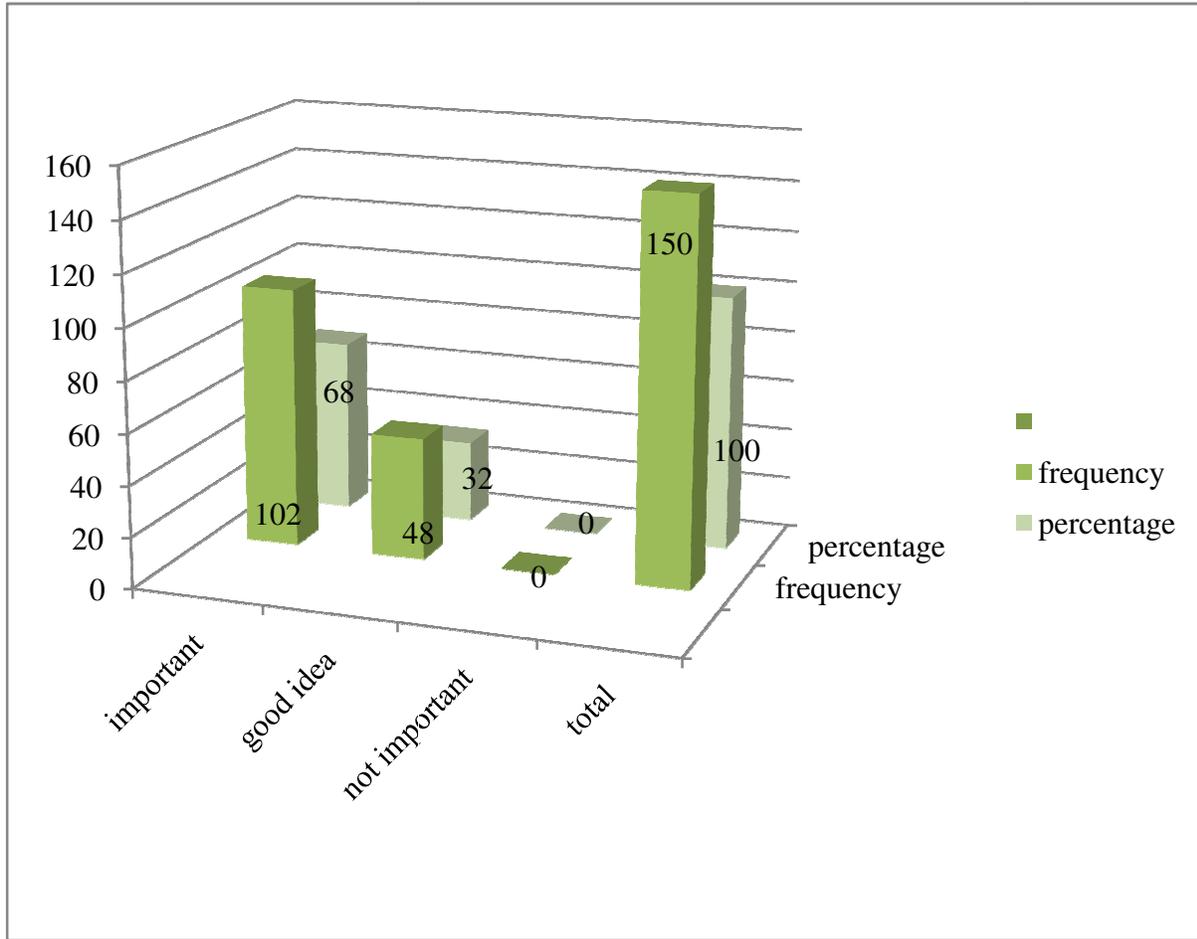


Figure 7 above shows how the community views the Keep Zambia Clean Awareness Campaign. It was observed that 102 (i.e. 68%) respondents viewed the campaign as important, 48 (i.e. 32%) respondents viewed the awareness campaign as a good idea and 0 (i.e. 0%) said it was not important. Therefore, majority (i.e. 102=68%) respondents viewed the campaign as important.

**Figure 8: Distribution of respondents by their responses on assessing the cleanliness of the residential area**

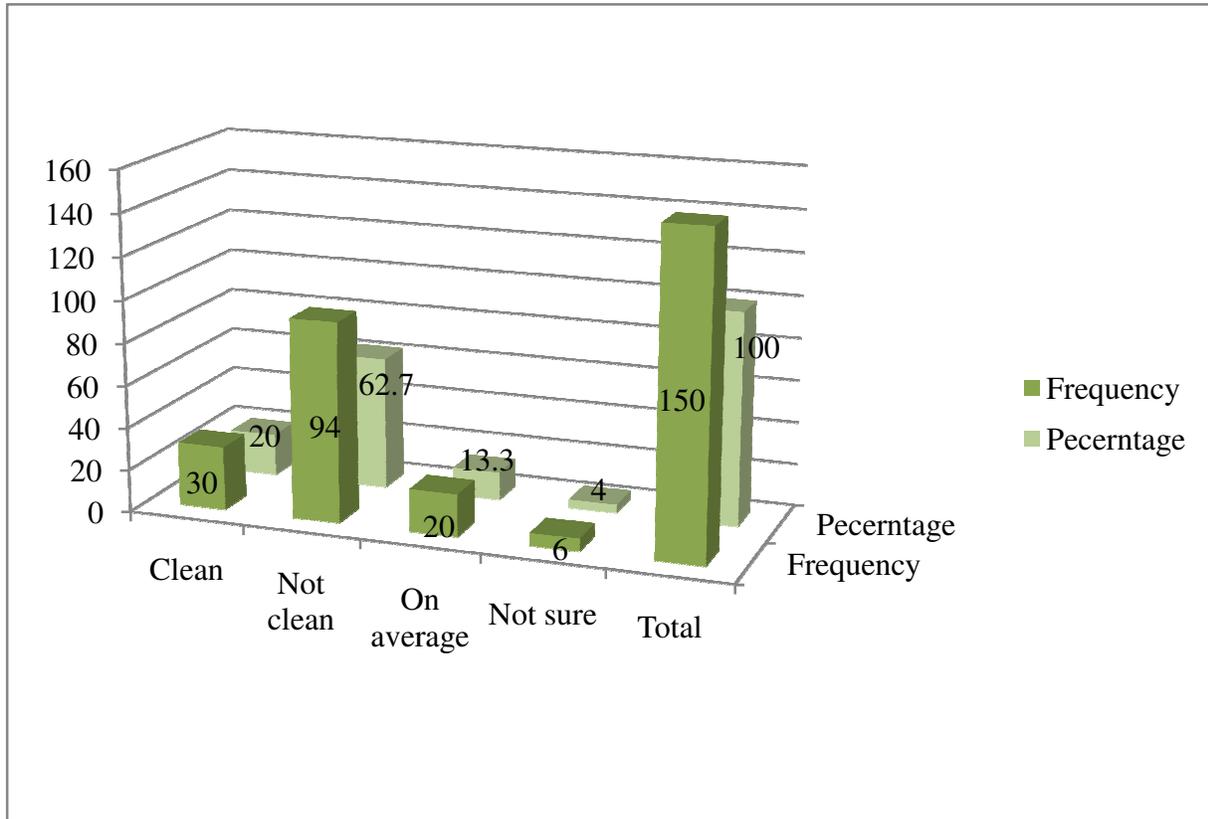


Figure 8 above shows how the resident assesses the cleanliness of the neighborhood. It was observed that 30 (i.e. 18%) respondents said the neighborhood was clean, 94 (i.e. 62%) respondents stated that the neighborhood was not clean, 20 (i.e. 10%) respondents answered that it was on average and 6 (i.e. 4%) respondents were not sure. Thus, majority (i.e. 94=62%) respondents stated that the neighborhood was not clean.

**Figure 9: Distribution of respondents by their responses on the benefits from the Keep Zambia Clean Awareness Campaign in residential area**

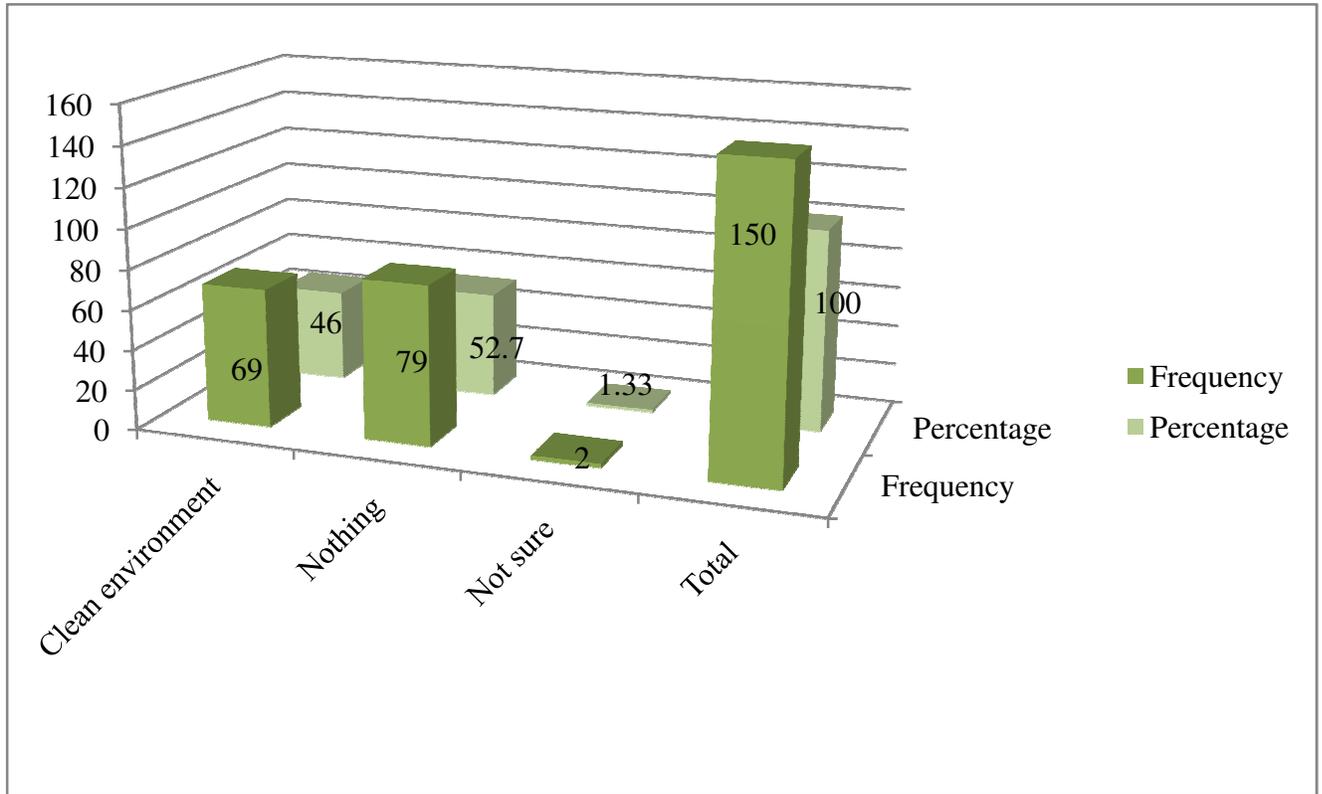


Figure 9 above shows the benefits accrued to the community as a result of the Keep Zambia Clean Awareness Campaign. As it can be seen from figure 9 above, 69 (i.e. 46%) respondents observed that the benefits of the Keep Zambia Clean Awareness Campaign was a clean environment, 79 (i.e. 52.7%) respondents observed that there were no benefits accrued from the campaign, while 2 (i.e. 1.33%) respondents were not sure of the benefits accrued from the Keep Zambia Clean Awareness Campaign. Therefore, most respondents (i.e. 79=52.7%) observed that there were no benefits accrued from the campaign.

**Figure 10: Distribution of respondents by their responses on how they assess the effectiveness of the Keep Zambia Clean Awareness Campaign**

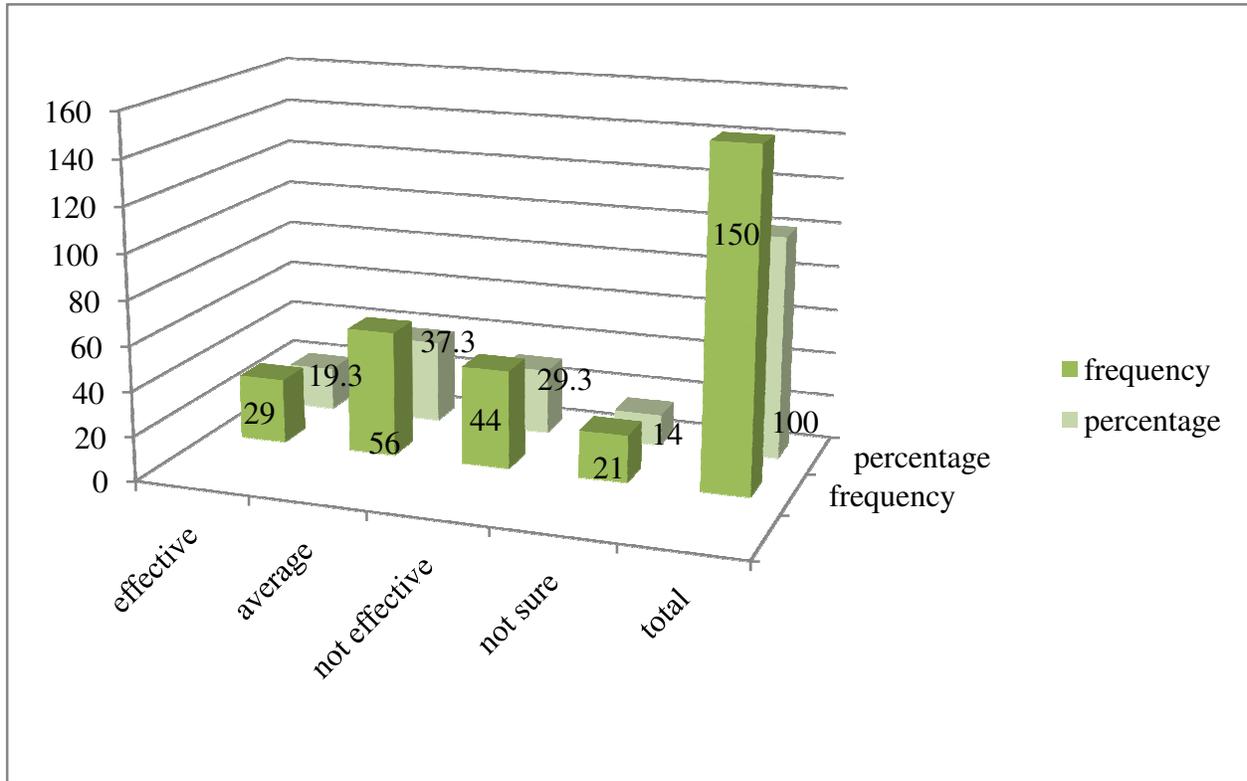


Figure 10 above assesses the impact of the Keep Zambia Clean Awareness Campaign. It can be seen from the figure 10 above, 29 (i.e. 19.3%) respondents stated that the campaign is effective. 56 (i.e. 37.3%) respondents rated the impact of the Keep Zambia Clean Awareness Campaign on average. While 44 (i.e. 29.3%) respondents observed that the campaign was not effective and 21 (i.e. 14%) respondents were not sure of the impact of the awareness campaign. Accordingly, most (i.e. 56=37.3%) respondents rated the impact of the Keep Zambia Clean Awareness Campaign on average.

**4.1.2 Distribution of respondents by their responses on the modes provided to keep the environment clean by all stakeholders.**

**Figure 11: Distribution of respondents by their responses on whose responsibility of cleaning the residential area**

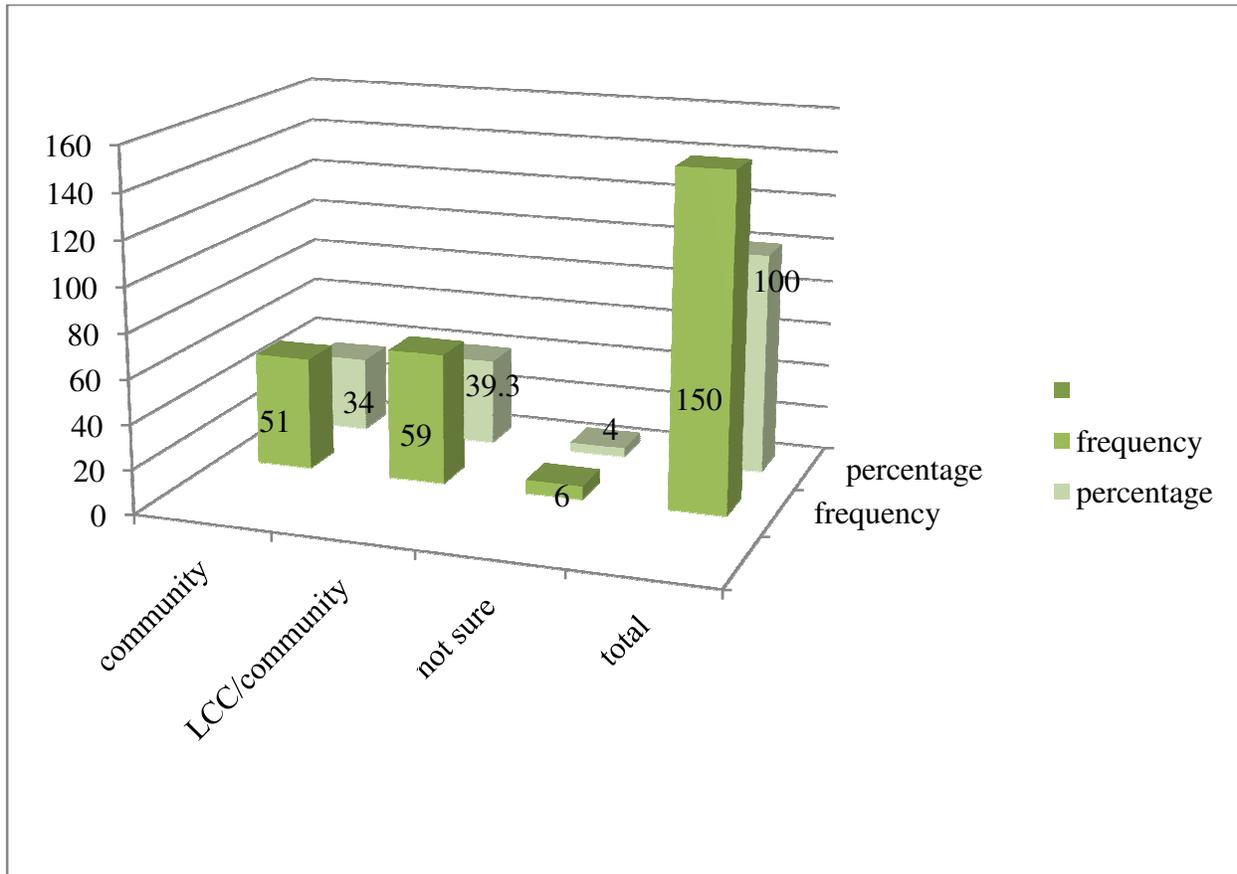


Figure 11 above shows the responsibility of cleaning the community. It can be seen from the figure 11 above that 51 (i.e. 34%) respondents said that the community was responsible in cleaning the environment. 59 (i.e. 39.3%) stated that the Lusaka City Council was responsible in cleaning the community. While 34 (i.e. 22.7%) affirmed that both the Lusaka City Council and community were responsible in cleaning the environment and 6 (i.e. 4%) respondents were not sure as to who were responsible in cleaning the township. Therefore, majority (i.e. 59=39.3%) respondents stated that the Lusaka City Council was responsible in cleaning the community.

**Figure 12: Distribution of respondents by their responses on the dangers associated with dirt environment**

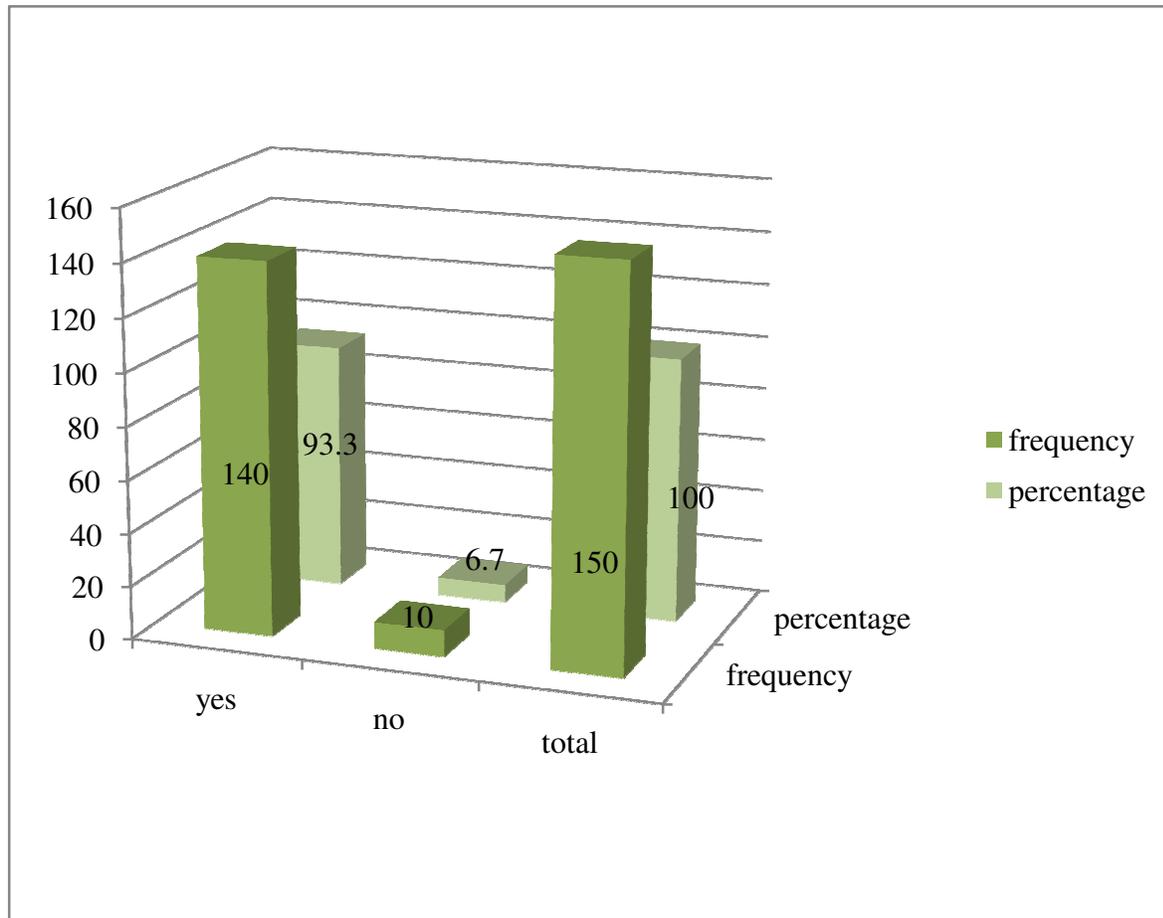


Figure 12 above shows the dangers associated with an unclean environment. It can be seen from the figure above that 140 (i.e. 93.3%) respondents said yes there were dangers associated with a dirt environment. While 10 (i.e. 6.7%) said there were no dangers associated with a dirt environment. Hence, majority (i.e. 140=93.3%) respondents said yes there were dangers associated with a dirt environment.