AN EVALUATION OF THE COMMUNICATION STRATEGIES USED BY ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY (ZEMA) IN PROMOTING ENVIRONMENTAL SUSTAINABILITY: A CASE STUDY OF KABWE AND LUSAKA DISTRICTS

By

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A report submitted to the University of Zambia in Partial fulfilment of the requirements for the degree of Master of Communication for Development

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DECLARATION

I, Mushimba Kabashi Nicholas, declare that this report:

a. Represents my own work;

b. Has not previously been submitted for a degree at this or any other university; and

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APPROVAL

This report of Mushimba Kabashi Nicholas is approved as fulfilling the partial requirements for the award of the Master of Communication for Development degree by the University of Zambia.

Supervisor: ……..……

Sign: …….

Date: ……..…

DEDICATION

I dedicate this work to my beloved late parents Mr Frederick Chisala Mushimba and Mrs Esther Katende Mushimba, who laid a strong foundation for my education and life in general. I will always be indebted to you.

My beloved daughter, Christina Kabashi Mushimba, that beautiful smile encourages me to work extra hard every day. You are my shining star!

I also dedicate it to my family and friends who have always been there for me to ensure that I achieve whatever I have managed to achieve so far.

Thank you Lord, I give you Glory and Honour!

ABSTRACT

Zambia has been facing numerous challenges of environmental issues which resulted in various programs and projects to try and address these problems. Despite the efforts to put in place various programs to ensure environmental sustainability through ZEMA and other cooperating partners, the environment remains at risk hence requires more action by various stakeholders including the communities and there are still gaps in the promotion of Environmental sustainability as the affected communities lack information on how best they can promote environmental sustainability. Communication does not just happen. It must be organized, developed and built. It is in this regard that ZEMA has developed an overall institutional strategy to address the communication needs to different audiences.

The study was aimed at evaluating the communication strategies used by Zambia Environmental Management Agency (ZEMA) in promoting Environmental Sustainability. The main objective of the study was to assess the communication strategies used in sensitising the people of Kabwe and Lusaka so that they are aware of environmental sustainability.

The study was conducted in Kabwe and Lusaka Districts where 100 questionnaires were administered to 100 Kabwe and Lusaka residents. Of the four in-depth interviews conducted, two were done in Lusaka while the other two were done in Kabwe. One Focus Group Discussion was also conducted. SPSS and thematic analysis were used to analyze quantitative and qualitative data respectively.

The study results indicate that despite ZEMA having a communication strategy in place, public awareness on environmental sustainability is very low. This has been attributed to inadequate sensitization, limited communication channels, and inadequate resources among others. It becomes important that reinforcement of the communication strategy is considered, more stakeholder involvement and a wide diversification of appropriate communication channels. There is need to allocate more resources to the environmental sector particularly communication and sensitization. Without the environment, there will be no development and no human life hence there is need to safeguard the environment and ensure environmental sustainability.

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ABBREVIATION AND ACRONYMNS

ADCs - Area Development Committees

CSOs - Civil Society Organizations

ECU - Education and Communication Unit

EITE - Environmental Information, Training and Education

EMA - Environmental Management Act

FGD - Focus Group Discussion

FNDP - Fifth National Development Plan

GRZ - Government of the Republic of Zambia

METNR - Ministry of Environment, Tourism and Natural resources

MDG - Millennium Development Goal

MDGR - Millennium Development Goal Report

NGO - Non-Governmental Organization

SPSS - Statistical Package for Social Sciences

TV - Television

UNDP - United National Development Programme

WECSZ - Wildlife Environmental Conservation Society of Zambia

ZCCM - Zambia Consolidated Copper Mine

ZEMA - Zambia Environmental Management Agency

ZNBC - Zambia National Broadcasting Corporation

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INTRODUCTION

Environmental issues and their sustainability have triggered a lot of discussion not only in Africa but at the global level. This is due to its impact on humanity. This has resulted in many programs, for instance, the Millennium Development Goals (MDGs), among others, drawn up in the quest of reinforcing development goals of different countries, Zambia included, and to combat the human development deprivation to which majority of the world population is still exposed. According to Lungu (2007, p. 22), over the years, environmental degradation has been seen to manifest in a variety of ways from time immemorial till today. However, environmental degradation issues have not been widely discussed and adequately understood in Zambia.

According to ZEMA (2012, p. 55), even though Zambia may not be one of the worst countries in violating the environment, yet the consequences of environmental degradation have hit the country badly. Actually, it is ranked as one of the worst hit countries by the consequences of environmental degradation. These might include calamities like droughts, too much rain, very high temperatures or very low temperatures thereby posing a danger on the natural environment.

However Zambia has its own share in environmental degradation. For example the country has had environmental challenges due to the increasing population and the influx of the mines posing a serious threat on environmental sustainability. Some parts of the country have also faced various environmental challenges where water in some rivers has been polluted while other rivers have dried up due to various human activities which are not environmentally friendly.

The UNDP report (2004, pp. 783-798) states that environmental sustainability may be looked at from the economic and natural point of view in order to understand its implications on human life. The economic perspective may look at all those economic activities from human beings which may have a danger on environmental

sustainability. These activities may include farming, fishing, irrigation, mining and charcoal burning activities among others. On the other hand, the natural perspective looks at those natural activities which pose a threat on the environment. These may include natural calamities like volcanoes, too much rain, and too much sunshine which poses a danger on the natural environment.

According to ZEMA (2012, p. 238), some human actions that lead to environmental degradation result from lack of information. For example the absence of information about the nature and extent of pollution caused by emissions from industrial activities, may result in communities being unaware of potential hazards and what can be done to reduce the risks. Information and education can, therefore, be effective tools for mobilizing affected communities, expanding knowledge about the environment and health conditions, and supporting environmental management decisions.

The ability to communicate is essential to the success of any undertaking and an important factor in the achievement of its objectives. ZEMA recognizes that management and communication of environmental information to the general public is fundamental to changing attitudes, equipping individuals and communities with knowledge of the environment, and ensuring their involvement in providing solutions to various environmental problems (ZEMA, 2012, pp. 203-213).

Looking at the above environmental, information and communication issues, this study endeavored to evaluate the communication strategies used by ZEMA to promote environmental sustainability. It, therefore, looked at what has been able to work and build on them and on what has not been able to work, recommends means and ways of making them work.

In order to undertake this study, this report is divided into seven key chapters. Specifically, chapter one looks at the background of the environmental issues in Zambia and some of the strategies or actions that have been put in place to ensure environmental sustainability. Chapter Two looks at literature review done by other scholars in the field of study in order to see what communication strategies other

countries had employed. Chapter three is the methodology used in data collection while chapter four looks at the concepts and theories used in the study. Chapter five presents the findings of the study/ research. Chapter six looks at the discussion of the findings in order to expose the results. Finally, chapter seven summarises the findings and concludes. In addition, chapter seven also presents recommendations and future research suggestions.

CHAPTER ONE

1. BACKGROUND INFORMATION

1.1. Introduction

Environmental Management is important for human wellbeing and for sustainability of the natural resources. Zambia and many other countries recognize that its people depend highly on the environment for their livelihoods and that there is need, therefore, to maintain a good environment. Hence, to attain sustainable development, there is need to have a sound environmental management (KMC, 2010, p. 223).

In other words some human actions that lead to environmental degradation result from lack of information. For example the absence of information about the nature and extent of pollution caused by emissions from industrial activities, may result in communities being unaware of potential hazards and what can be done to reduce the risks. Information and education can, therefore, be effective tools for mobilizing affected communities, expanding knowledge about the environment and health conditions, and supporting environmental management decisions.

Moreover, the ability to communicate is essential to the success of any undertaking and an important factor in the achievement of its objectives. Zambia Environmental Management Agency (ZEMA), which was established as Environmental Council of Zambia (ECZ) through the enactment of the Environmental Protection and Pollution Control Act Cap 204 of 1990, transformed to ZEMA after the enactment of the Environmental Management Act (EMA) No. 12 of 2011. ZEMA recognizes that management and communication of environmental information is fundamental to changing attitudes, equipping individuals and communities with knowledge of the environment, and ensuring their involvement in providing solutions to environmental problems (LCC, 2012, p. 342). In other words, effective environmental communication is necessary to enabling knowledge, reflection and action which have become necessary pre-conditions for thoughtful action in dealing with issues of sustainable development.

Communication does not just happen. It must be organized, developed and built. It is in this regard that ZEMA developed a communication strategy to address the communications needs of different audiences. Often, understanding what one wants to do, and who you want to reach takes time and effort of gathering knowledge, understanding issues and making informed decisions.

According to ZEMA (2012, pp. 66-74), the strategy elaborates on stakeholders and their information requirements, communication mechanisms to be used, key elements of information to be distributed by the different mechanisms, roles and responsibilities of key individuals responsible for ensuring that communication is adequate and identification of how unexpected information from other stakeholders should be integrated in the already existing environmental activities.

1.1.1. ZEMA's Communication Strategy

ZEMA's Communication Strategy was developed to address the communication needs to various audiences and also as a tool to enhance ZEMA's internal communication culture so as to create a workforce that understands the mission, goals, values and procedures of the organization. The intent is to create an organizational culture that brings coherence to the workplace, and allows better coordinated action (ZEMA, 2012, pp. 6-12).

The Communication Strategy is based on behavioral change; it is a combination of communication tools and several conversions regarding different behavioral change attitudes and activities which ZEMA and its various stakeholders should undertake. The strategy is an overall tool to assist ZEMA in achieving better communication performance and ultimately begin to provide leadership in environmental related communication. ZEMA will also pay attention to promoting and encouraging effective external communication and internal collaboration.

1.1.1.1. Goal of the Communication Strategy

According to Munthari (2011, p. 236) a communication strategy is a tool used to enhance communication through implementation of its action plan. It strives for behavioral change not just information dissemination, education, or awareness rising.

The mission of ZEMA is to safeguard human health and the environment through effective environmental management in order to provide for present and future generations. In line with this mission, the overall goal of the communication strategy is to meet the communication and information needs of ZEMA and the various stakeholders that include individuals, organizations, communities, and commercial institutions by way of communication activities that will bring all relevant participants on board, and ensure sustainable environmental practices.

1.1.1.2. Major issues of the strategy

ZEMA (2012, p. 78) highlights that major issues of the strategy are as follows:

- Provision of information to the public about environmental issues and their risks;
- Provision of information to the public about environmental issues for their active participation;
- Organization of effective two-way communication;
- Enhancement of trust and credibility of all actors in the communication activities;
- Involvement of stakeholders in the process and resolution of conflicts.

1.1.1.3. The strategic outcomes

ZEMA (2012, pp. 78-79) points out that the strategic outcomes of the strategy includes the following:

- Greater and more active stakeholder participation in the implementation of environmental management practices.
- New partnerships formed between governments and civil society including local communities, indigenous people, private sector and the general public;
- An increased capacity of the general public to elaborate environmental issues and to assess priorities, policy and strategic decisions.
- Improved coordination among NGOs and civil society on matters related to the environment

1.1.1.4. Implementation of the Communication Strategy

This Strategy aims at creating awareness so that the public/communities participate in environmental management and enforcement. ZEMA pays particular attention to transferring knowledge of sustainable land management to stakeholders (EMA, 2011, p. 4). While all stakeholders are important, three essential groups have been addressed. These are:

- **Individuals**: need to understand the full impact that the personal or collective choices they make have on the environment. Furthermore, a well-informed individual will be able to play a more meaningful role in the overall environmental decision-making process.
- The regulated **community**, at a minimum, must meet all of its baseline compliance obligations as outlined in the regulations. Beyond that, a heightened understanding of the actual and potential impacts, as well as the opportunities for improvement, can lead to improved environmental performance and begin the shift towards sustainable business practices.
- **Regulators** must fully understand the effects of their decisions on all stakeholders. ZEMA is committed to providing the appropriate leadership to achieving this outcome.

1.1.1.5. Criteria for Selecting Priorities

The five main areas of environmental concern in Zambia include wildlife depletion, air pollution, land degradation, deforestation; water pollution and inadequate sanitation (KMC, 2010, p. 22). Moreover, the five key environmental issues and risks the country faces include: poverty, HIV/AIDS and malaria, food scarcity, street kids, illiteracy and waste. These issues are the focus of the Communication and Information Strategies to be implemented through various teaching/learning techniques and communication media. It was hoped that this approach was going to raise public and political awareness and understanding of the need for environmental protection, sustainable natural resource utilization, conservation and management as essential partners for sustainable development.

Within the scope of the national priorities, primary consideration has been given to local priorities and interests. Resources and opportunities for effective environmental communication differ from place to place. Selection criteria consider Cost Effectiveness, Wide Outreach, Sustainability, Integration and overall Participation.

1.1.1.6. Strategic Objectives of the Strategy

Through a process of consultation and consensus-building, the objectives, strategies, and activities for the Communication Strategy were determined. The main objectives of the Communication Strategy are to:

- To promote participation of different sectors in the environmental regulatory framework.
- Form and strengthen partnerships with media organizations.
- Support broad-based environmental education in Zambia.
- Promote environmental information exchange to support stakeholder participation and cooperation.
- Build effective environmental information.
- Market integrated environmental assessment reports in Zambia in order to enhance stakeholder participation and public knowledge.
- Build an effective internal communication system at ZEMA.
- Increase provision and usage of environmental information services to key target audiences.

1.1.1.7. Approaches to Communication

• Informal and formal meetings • Workshops • Mailing lists • Bulletin boards • Fact sheets	• Door to door canvassing • Posters • Field trips • News papers • Magazines, books, flyers	• Environmental sites • Radio • Television • Exhibits • Press kits

1.2. Historical and Geographical Background Information

1.2.1. Kabwe

Kabwe is the capital city of Central Province of Zambia with a population estimated at 202,914 at the 2010 census. Formerly named Broken Hill, it was founded when the Broken Hill lead and zinc deposits were discovered in 1902. Kabwe also has a claim to being the birthplace of Zambian politics. It is an important transportation and mining centre (KMC, 2010, pp. 3-11).

The name *Kabwe* or *Kabwe-KaMukuba* means 'ore' or 'smelting' but the European/Australian prospectors named it after a similar mine in Broken Hill, New South Wales, Australia. The mine became the largest in the country until overtaken in the early 1930s by larger copper mining complexes on the Copperbelt. Apart from lead and zinc it also produced silver, manganese and heavy metals such as cadmium, vanadium, and titanium in smaller quantities. In 1921 a human fossil (a skull) called Broken Hill Man or Rhodesian man (classified as *Homo rhodesiensis or Homo heidelbergensis*) was found in the mine (KMC, 2010, p. 16).

The closure of the mine led to an economic decline in Kabwe. It used to have a number of manufacturing industries including the Zambia-China Mulungushi Textiles plant established with Chinese investment in the 1980s, but after suffering large losses this plant closed at the beginning of 2007(CSO, 2010, p. 86) . Other industries include pharmaceuticals, milling and cotton ginning, and leather tanning. Commercial farming areas surround the city about 10 km from the centre, and the road and rail links provide ready access to markets of the Copperbelt and Lusaka. The mine, which occupies a 2.5 km^2 site just 1 km south-west of the town centre, is now closed but metals are still extracted from old tailings. A study by the Blacksmith Institute found Kabwe to be one of the ten worst polluted places in the world due mostly to heavy metal (mostly zinc and lead) tailings making their way into the local water supply (http://www.irinnews.org/Report/61521/ZAMBIA-Kabwe-Africa-s-most-toxic-city).

1.2.2. Lusaka

Lusaka is the capital and largest city of Zambia that is located in south central Zambia. According to the 2010 census, the city has a population of 2,198,996. Lusaka is the capital city of Zambia hence making it the most densely populated and tribally diverse region. It is an administrative, financial, and commercial center. There are a lot of products manufactured in Lusaka such as foodstuffs, beverages, clothing, and Lafarge cement. Lusaka is located at the junction of the Great North Road (to Tanzania) and the Great East Road (to Malawi) and is on Zambia's main railroad (LCC, 2012, pp. 32-38).

Attractions include Lusaka National Museum, the Political Museum, Zintu Community Museum, the Freedom Statue, the Zambian National Assembly, the Agricultural Society Show grounds, the Moore Pottery Factory, the Lusaka Playhouse theatre, a cinema, the zoo and botanical gardens of the Munda Wanga Environmental Park among others. Lusaka has a mixed economy. An international airport and the University of Zambia are just outside the city. The area surrounding the city consists of mostly flat grassland that supports ranches and farms. Farming and stock rearing are the principal economic activities in this region (CSO, 2010, pp. 356-367).

1.3. STATEMENT OF THE PROBLEM

Environmental pollution has reached alarming levels in Zambia. Mining and Industrial activities have been responsible for water, soil, plant and air pollution. For example, according to the IRIS news, Kabwe is among the 10 worst polluted towns in the world. According to KMC (2010, p. ix), the key environmental issues of concern associated with mineral resources in Kabwe are land degradation and air pollution. The mining and mineral processing operations were undertaken during a period when statutory environmental controls within the mining sector were almost non-existent. During the later years of ZCCM operations, poor economic performance also undoubtedly inhibited environmental due diligence. Closure of the mines left substantial legacy of environmental hazards some of which persist today. For example, lead contaminated mine dumps have been a major health hazard.

In addition, in 2006 the Kafue river was heavily polluted by Konkola Copper mines (ZEMA, 2012, p.34). The mines overlooked the pollution control measures and this resulted into the discharge of a large volume of pollutants into Kafue river and surrounding streams. The effects of this pollution were seen in the brownish colour of water coming from taps and water in Kafue river and surrounding streams turned greenish. Over 75,000 people depending on piped water from Kafue river and underground were heavily affected by this problem. Apart from that the slurry dams discharged effluent of 1.5Ph, which was heavily contaminated with pure acid. This affected the environment (ZEMA, 2012, p.34).

The Zambian Government and various stakeholders have come up with programs and policies aimed at promoting environmental sustainability. In this light, Zambia has recorded success in some of the activities that have been planned such as authorizing Environmental Agencies in reviewing environmental impact assessments and negotiating environmental management plans. A good example is the Copperbelt Environmental Project which is a World Bank funded project run by the Zambian government.

Despite such efforts to put in place various programs to ensure environmental sustainability through ZEMA and other cooperating partners, the environment remains at risk hence requires more action by various stakeholders including the communities. However, there are gaps in the promotion of Environmental sustainability as the affected communities lack information on how best they can promote environmental sustainability. This in turn tends to cripple the efforts by government and other cooperating partners. It is not clear whether this failure is as a result of the communication strategies used by ZEMA in promoting environmental sustainability or not. However, the lack of information has not yet been conclusively proved, hence, this study focused on the evaluation of the communication strategies used by ZEMA in the promotion of environmental sustainability using Kabwe and Lusaka districts as a case study.

1.4. JUSTIFICATION OF THE STUDY

The issue of environmental sustainability has become a very important topical issue at many fora because of its importance. It is very clear that if the environment is not taken care of, it has far reaching consequences which may not be both desirable and bearable to humanity. Hence the research assessed the communication strategies used by ZEMA to promote environmental sustainability. It looked at how ZEMA communicates environmental issues to the general public particularly Kabwe and Lusaka districts. It is very important to evaluate communication styles, channel and also look at the content of the message to assess efficiency and effectiveness and to what extent the messages may have an impact on society. Therefore to ensure that there is environmental sustainability, ZEMA and other cooperating partners should package the messages well and communicate appropriately to the general public if the issue of environmental sustainability was to be realized.

This research helped to understand the importance of having communication strategies in place to communicate very important messages to the intended beneficiaries. In this case it helped to understand and show the value of the communication strategies used by ZEMA to promote environmental sustainability. In addition the research findings would be very beneficial to both ZEMA and the general public. ZEMA would be able to see their performance where delivering of the messages is concerned. They should be able to see if they are doing enough or do they need to do more. In other words, they are expected to identify gaps in their communication strategies and how they communicate to the general public in this case the communities of Kabwe and Lusaka Districts.

The study was conducted in Kabwe and Lusaka districts of Zambia. For instance, Kabwe district has been rated as one of the most poisonous place on earth. From the early 1900s to 1994, Kabwe hosted Africa's largest lead mining and smelting operation which left the place contaminated that the blacksmith institute, a New York-based environmental group, ranked Kabwe among the world's 10 worst

polluted places in 2007 but however, Kabwe has attracted minimal remediation funding or international scrutiny relative to the magnitude of the on-going health problems. Therefore, a study on the evaluation of the communication strategies used by the Zambia Environmental Management Agency (ZEMA) using Kabwe and Lusaka as a case study brought out valuable insights on how best Environmental Sustainability can be promoted.

The study was also helpful to assess the level of awareness of environmental issues in various communities of Kabwe and Lusaka Districts. It was important to know what the people know and what they do about what they know. How aware are they about causes and effects of environmental degradation. Are the people doing something to promote environmental sustainability? In other words, this study informed the knowledge and practices of the people in Kabwe and Lusaka regarding environment sustainability.

This research was very important and relevant because it appears that some people do not know the effects of environmental negligence hence their involvement in various activities which are not environmental friendly like charcoal burning, illegal fishing and mining among others. Hence such practices will continue unless the general public becomes aware about these environmental issues and their impact on society. This is only possible if they access the right information from the reliable sources.

This research brought out some issues regarding the state of the environment and the key findings would help to provide various means and ways of solving some environmental problems by putting in place some measures that promotes environmental sustainability. Hence ZEMA, key stake holders and cooperating partners will be informed and stands a better chance to plan for the future regarding environmental issues.

The findings of this study are thus expected to contribute to the current efforts by the Zambian government with support from cooperating partners regarding the promotion

of Environmental Sustainability. Therefore it becomes cardinal for this paper to evaluate communication strategies used by ZEMA in promoting environmental sustainability.

1.5. OBJECTIVES OF THE STUDY

1.5.1. General Objective

The objective of this study was to evaluate communication strategies used by ZEMA to find the best way of promoting Environmental Sustainability.

1.5.2. Specific Objectives

The specific objectives were;

- To determine information communicated to Kabwe and Lusaka residents on environmental sustainability.
- To assess the effectiveness of the Communication channels used by ZEMA in promoting environmental sustainability.
- To assess awareness levels of Kabwe and Lusaka residents on environmental sustainability.
- To determine the effectiveness of ZEMA's communication strategy.

1.6. RESEARCH QUESTIONS

The study answered the following questions;

1.6.1. General Question

What Communication strategies does ZEMA use to promote best ways of environmental sustainability?

1.6.2 Specific Questions

- What kind of messages does ZEMA communicate to Kabwe and Lusaka residents regarding environmental sustainability?
- What are the communication channels used by ZEMA to promote environmental sustainability to Kabwe and Lusaka residents?

- What are the awareness levels of Kabwe and Lusaka residents on Environmental sustainability?
- How effective is ZEMA's communication strategy?

1.7. HYPOTHESIS

The communication strategies used by ZEMA are not effective enough in promoting environmental sustainability.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

In this chapter, the report presents previous researches, studies and findings that have been done by other people in the field of environmental sustainability in Zambia and other places. It is very important to look at what others have done and what suggestions or recommendations they have come up with to ensure environmental sustainability is achieved.

2.2. Egypt Prioritize MDG 7 To Save The Environment

According to The UNDP study conducted in Egypt (2004, pp. 551-678), access to water has increased overall, but contamination of water, poor sanitation, and solid waste still pose major health and environmental concerns. Solid waste management, air and water pollution, and land degradation are noted in the Millennium Development Goal Report (MDGR) as the key priorities for Egypt to ensure environmental sustainability is achieved. In the MDGR, Egypt monitored all of the eight global environmental indicators and added emissions of pollutants by source and the cost of environmental degradation. Egypt also set two country-specific targets for increasing the area of natural protectorates and for ensuring full access to water and sanitation services.

Egypt has also focused on reports on fish catches, cultivated area, renewable water resources, energy consumption, and food production to ensure appropriate actions are taken. As a result, environmental sustainability issues have become part of priority national development issues. It links these sanitation improvements to achieving each of the MDGs. Protecting environmental resources is also a priority for tourism. Egypt has effectively communicated its intentions on environment to all stakeholders especially the rural communities.

It could be seen that in order for Egypt to reach out to the communities, it used communication strategies such as billboards, posters, fliers, and social media such as

Facebook and LinkedIn where various environmental messages have been communicated.

2.3. Kenya Government Integrates Environment Into Recovery Strategy.

Kenya prepared and analyzed all its MDG Reports in order to establish the linkage of environmental issues with the Government's Economic Recovery Strategy. Work on the MDGs has focused on conducting an analysis of national requirements as an initial step in formulating a strategy through which the goals could be achieved. The Government has passed the Environmental Management and Coordination Act (1999) and has established the National Environmental Management Authority as demonstration of its commitment to conservation of the environment. The majority (80 percent) of the population inhabit about 20 percent of fertile land given over to agriculture while the remaining 20 percent live in semi-arid and arid land, which make up 80 percent of total land area. High levels of poverty that are implicated in health and mortality events are the greatest challenge to Kenya. Since wood fuel is the main source of energy, deforestation is a major challenge (ROK, 2003, p. 4556)

Kenya proposed to protect its environment but the challenge is to create protected areas and to reduce the use of wood fuel by rural populations and to introduce them to alternative sources of renewable energy such as solar energy, which is abundant, while at the same time attempting to reduce poverty levels. As such, the country proposed to set aside 25,000 ha of forested area for biodiversity preservation, to install solar power in 16 secondary schools, and to increase electricity connections to rural customers to 150,000 per year.

In response to increased energy consumption per capita, Kenya plans to increase energy efficiency from earth kilns from the current 15 percent to 20 percent through investment in educational awareness programmes and intensive training of charcoal makers to mobile artisans. The country also plans to reduce petroleum imports and to tap energy from biomass. Associated with poverty reduction is the availability of good quality water and proper sanitation facilities. The Government has developed an autonomous institutional framework that will oversee management of scarce water resources. It continues to communicate to the general public on all these plans and all

activities under way. A number of radio and tv programs have been running to ensure that all these ideas reach all parts of the country.

Kenya set targets to increase access of urban populations to a safe supply of water from 89 percent to 96 percent and of rural populations from 49 percent to 66 percent. Targets for improved sanitation involve improving, by 2015, sanitation facilities for urban populations to 96 percent and for rural populations to 89 percent, recognizing that these are below the global targets. The country also proposes to reduce the number of people living in slums; the Government has approved a Housing Bill and has established a Trust Fund to improve the lives of slum dwellers. Kenya proposes to provide 300,000 housing units per year in rural areas. (ROK, 2003, pp. 4556-4621)

The Kenyan government recognizes the role the late Wangari Muta Maathai played on environmental sustainability in Kenya and other countries. Born in 1940 in Nyeri city of Kenya, she became a powerful politician and environmental activist whose work earned her a Nobel Peace Prize. While working with the National Council of Women of Kenya, Maathai developed the idea that village women could improve the environment by planting trees to provide a fuel source and to slow the processes of deforestation and desertification. The Green Belt Movement, an organization she founded in 1977, had by the early 21st century planted some 30 million trees. Leaders of the Green Belt Movement established the Pan African Green Belt Network in 1986 in order to educate world leaders about conservation and environmental improvement. As a result of the movement's activism, similar initiatives were begun in other African countries, including Tanzania, Ethiopia, and Zimbabwe (http://www.britannica.com/EBchecked/topic/973110/Wangari-Maathai).

From Kenya, a number of lessons can be drawn on various communication strategies used to communicate to the public on various programs and activities on environmental sustainability. The government has shown its commitment to environment issues by passing the Environmental Management and Coordination Act. It has also invested heavily in training personnel and awareness programs country

wide. There is also a continuous communication with all stakeholders and the general community on various plans and activities underway. TV and radio has been widely used to reach out to the masses. Furthermore, Wangari Maathai used her education and influence to develop various materials on environmental care which she shared with the general public worldwide at various fora and in the communities. Apart from using women groups to influence tree planting activities, she also took advantage of various audiences to educate them on conservation, environment improvement and care.

2.4. Botswana Government Implements Environmental Activities through Decentralization Strategy.

According to a study conducted by Munthari (2011, pp.782-798) to establish the state of the environment on Botswana, it was revealed that the country faces numerous environmental challenges. Land, water and air pollution has affected the country's economic growth. Government and other stakeholders have tried to put up measures to save the environment. For example the government declared war against environmental mismanagement by reinforcing the laws that support protection of the environment. These activities have been ongoing.

Furthermore, in order to reach out to the communities, the Botswana government has taken advantage of the decentralization strategy where environmental issues are concerned. This has also seen an increase in the resources allocated to environmental related activities and also support from various stakeholders. Under the decentralization strategy, all environmental activities are being implemented by the local authorities. The local authorities have formed Area Development Committees (ADCs), a structure at community level spearheading and supervising all developmental activities at community level. The structure has also incorporated the traditional and local leadership such as chiefs, headmen to help reach out to the communities. The local authorities through ADCs are reaching out to various communities by conducting village meetings where environmental messages are spread through various activities such as drama, songs and speeches among others. At various functions, prominent men and women such as sports men and women,

politicians, academicians and musicians have been seen sensitizing the general public on environmental sustainability. Hence government's declaration of war against environmental mismanagement has been well received and supported by various stakeholders including the communities (Munthari, 2011, pp. 852-868).

Therefore, it can be seen that the communication strategies used by the government of Botswana included laws, village or community meetings, drama, songs and speeches. These proved to be effective especially at community level. They have also been using the role models such as prominent sports men and women, politicians, academicians and musicians who have composed songs bearing messages on environmental care and sustainability.

2.5. Environmental Sustainability in Italy

In Italy it was found that the environmental concerns, closely linked to issues such as development and quality of life, are to emphasize the need for changes in education, training and information processes as a key factor to promote among citizens the sharing of criticisms, proposals and decision-making processes. The study done by Melkote (1991, pp. 132- 354) to this end, suggested that relevant actions are achieving greater importance and attention thanks to the involvement of national, regional and local authorities. Effective communication for a wider awareness and involvement of citizens and young people is centered on planning guidelines on Environmental Information, Training and Education (EITE).

The study clearly shows how environmental issues are taken seriously in Italy. The communication strategies used include development of education materials and proposals which guide decision making in environmental related issues. In other words, environmental issues have been integrated in the education system and are communicated to the students in schools at various levels guided by the environmental information, training and education materials. The UNDP report (2002, p. 654) points out that authorities at national and community levels have been involved to ensure that key messages on environmental sustainability reach the general public. Leaders are trained so that they also pass on the training on

environmental issues to other members of the public. The local leaders also use their authority and various awareness campaigns to help reach out to more members of their communities on various issues regarding environmental care. In addition, telephone service providers and social institutions such as recreation facilities and churches have been utilized to reach out to the masses.

It is clearly seen that apart from the education materials, proposals, and various awareness campaign materials, the communication strategies used in Italy also include telephone service providers, social institutions such as recreation facilities and the church used to sensitize the general public on various environmental issues. This has helped to reach out to the masses on environmental issues.

2.6. Environmental Issues in Zambia

According to Lungu (2007, p. 89), Zambia`s environmental situation is equally bad. Zambia has had numerous environmental challenges. For example, there have been environmental challenges in different parts of the country like the Copperbelt due to ever increasing population and the influx of the mines posing a serious threat on environmental sustainability. Other parts of the country have also faced various environmental challenges where for instance, water in some rivers have been polluted while other rivers have dried up due to various human activities which may not be environmental friendly.

It was reported that urban development including development in recharge areas have resulted in reduced water retention while increasing the direct run off over short periods resulting in flush floods especially where the drainage system is very poor. Hence, poorly managed wastes from the surrounding areas contribute to the blockage of drains, pollution of water and outbreak of diseases such as cholera. It is also evident that despite the growth in population, there has been no corresponding increase in sewerage infrastructure and of the existing ones are in poor state of repair (Lungu, 2007, pp. 664-687).

Based on the above, the general public needs to be given information using the relevant and effective communication channels. Another study conducted reviewed that the general public is not fully aware of the cause and effect of environmental degradation. It is due to this reason that some of the people have engaged themselves in activities which are not environmentally friendly. This poses a threat on their life and other living things.

Information revolution is a possible intervention with the potential to ensure that the knowledge and information on important technologies, methods and practices are put in place. Balit (1996, p. 311) points out that the least expensive input of rural development is knowledge. Knowledge and information are the basic ingredients of food security and are essential for facilitating rural development and bringing about social and economic change. Rural development is based/ premised on the improvement of the standard of living of the rural population and includes agriculture, industry and social facilities. Rural communities require information inter alia on supply of inputs, new technologies, early warning systems to do with diseases, pests and drought so that they can prepare themselves. Forno (1999, p. 576) also points out that there is need to connect rural communities, research and extension networks and provide access to the much needed knowledge, technology and services.

Other studies which have been conducted reveal low levels of activities regarding environment sustainability. Not much has been happening compared to the sectors like the HIV and AIDS. There are few notable activities in different parts of the country while the state of the environment is worsening. These studies have also recommended that there should be more measures put in place. To save the environment, government should be supported in its quest to ensure environmental sustainability. There is need to put in place awareness activities to capture the general public on issues relating to the environment, coupled with activities which promotes its sustainability. These activities should be realistic like tree planting and also involvement in various economic activities to ease the pressure on activities that are

not environmentally friendly. These activities should target the right people so that it is put to good use and ensure continuity (Mcquel, 2005, p. 906).

CHAPTER THREE

3. METHODOLOGY

3.1. Introduction

This chapter represents the research methodology that was used in this study. It focused on research design, study population, sample selection, sample size, data collection tools, data collection technique and plan for data analysis.

In conducting the study, the researcher used the triangulation methodology. This entails that both the qualitative and quantitative research methods and approaches were used. The choice to use the two methodologies was informed by the fact that the two compensates for each other's inherent inadequacies. Hence both methodologies were very important for this study.

3.2. Research Design

A research design is a plan or strategy for conducting a study. Uys and Basson (2000,p. 335), define research design as the total strategy for the study from identification of the problem to the final plans for collecting data or as a structural framework within which the study is to be implemented.

In this study, a non-experimental exploratory study design using both qualitative and quantitative methods were employed to evaluate communication strategies used by ZEMA in promoting environmental sustainability in Kabwe and Lusaka districts. The study used a formal and systematic approach to collect information on communication strategies. The exploratory study type was chosen because this is a small scale research study which was conducted over a relatively short duration in partial fulfillment of the requirements of the Post Graduate in communication for development. In addition, little was known about communication strategies that ZEMA uses in promoting environmental sustainability in Kabwe and Lusaka. Thus, the exploratory study helped to explain the communication strategies that ZEMA uses in promoting environmental sustainability in Kabwe and Lusaka.

3.3. Target Population

According to James (2001, p. 306), a target or study population is the total group of individuals or things meeting the designated criteria of interest to the researcher. In this study, the population of interest included ZEMA officers, Government officers and the local community of Kabwe and Lusaka districts. 80% of the sample were the local communities, 10% were ZEMA officers and 10% encompassed Government officers.

3.4. Sample Size

This particular survey used a sample of hundred (100) respondents comprising of local residents of Kabwe and Lusaka districts, ZEMA officers and Government officers. The main reasons among others for choosing this sample size included cost effectiveness, manageability and adequacy in terms of generalization.

3.5. Sampling Unit

The sampling unit that was used included the residents of Kabwe and Lusaka districts, ZEMA officers and Government officers.

3.6. Sampling Procedure

Purposive sampling was used by the researcher to pick part of his sample because Kabwe and Lusaka districts are extremely large and densely populated. Those selected were considered representative of the entire population as it is a homogeneous society in that they have similar living standards. Snow ball sampling was also used to select respondents for qualitative data.

3.7. Data Collection Techniques

A data collection tool is a device that is used to collect data. In order to collect necessary information for the study, structured self-administered questionnaires, in-depth interviews and focus group discussion where used. The questionnaire consisted both open and close ended questions in order to capture a variety of views on the topic. The reason for using questionnaires is to permits privacy and be able to produce honest results. The process of data collection took one month.

3.8. Data Processing and Analysis

Data collected using questionnaires was checked for consistency, uniformity and accuracy before data entry to ensure that the questionnaires were checked against inconsistencies in responses. Thereafter, the questionnaires were entered and coded in Epi-Data and Statistical Package for Social Sciences (SPSS) softwares used for data processing and analysis respectively. Frequency tables, graphs and charts were run in Ms-Excel, while cross tabulations was made in SPSS in order to enhance interpretation of findings. Ms-word was used in the presentation of results. For qualitative responses the study used thematic analysis.

3.9. Ethical Consideration

The study ensured that all information collected remained in privacy. The right of participants to anonymity and confidentiality was ensured by making the questionnaire anonymous, by keeping secret the information revealed by participants and by publishing research findings in a way that would not relate to the respondents.

3.10. Limitation of the Study

During the course of this study, a number of limitations where encountered. ZEMA, being a government institution was not easy to deal with especially at the beginning of the attachment and the study itself. It took a long time for the attachment to be approved due to the institutions internal procedures. Secondly, limited time and resources limited the smooth execution of the study. In addition data collection was not easy due to people's limited knowledge on the topic and lack of willingness for some people to take part in surveys or studies of this nature.

CHAPTER FOUR

4. CONCEPTUALAND THEORETICALFRAMEWORK

4.1. Introduction

This section presents the conceptual and operational definitions and relevant theories that were used throughout the study. For every community to develop, information is key as it bring out very important and much needed information to the community. Hence to achieve environmental sustainability, communication should be effective at all levels. The communication strategy looks at key messages, communication channels and the impact the message may have on the intended beneficiaries.

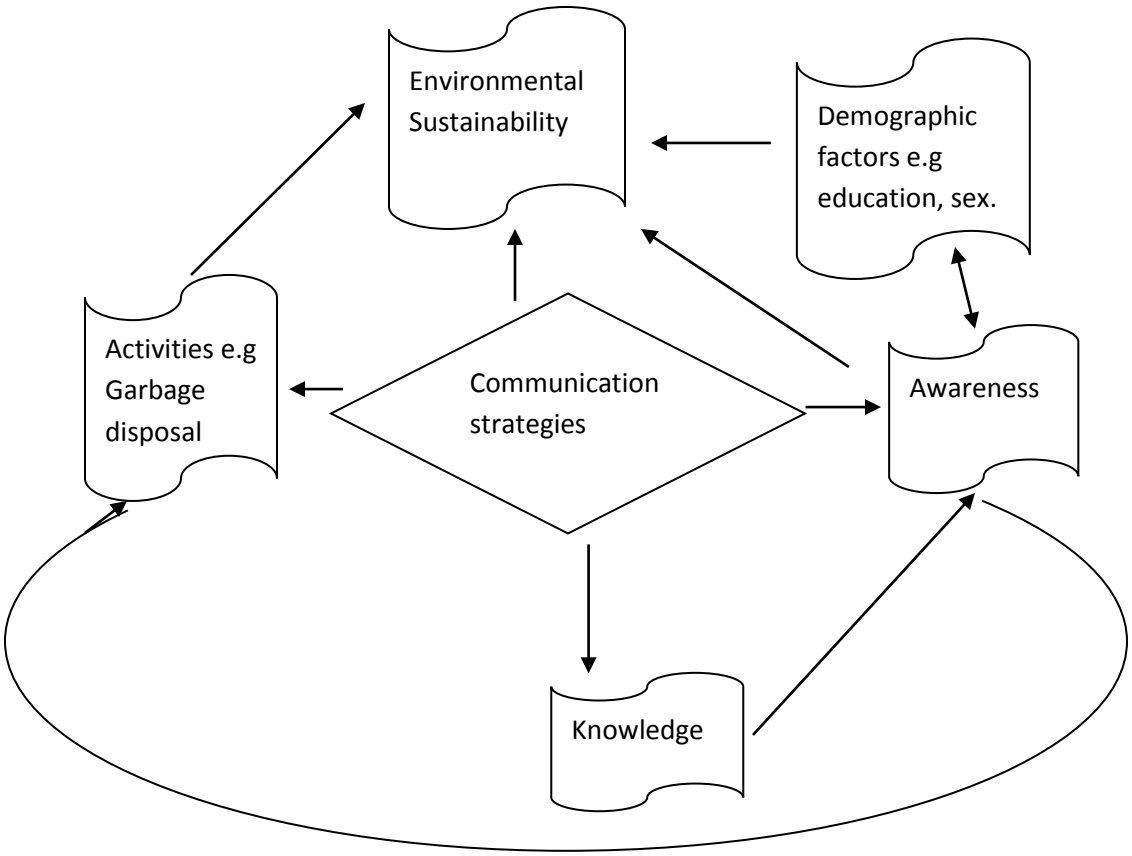
4.2. Conceptual Definitions

4.2.1. Communication

Communication refers to transmission of information from an informed source or sender to the recipient or receiver. However it is worth noting that various scholars have defined and looked at the concept of communication differently. Mattelart (1996, p. 789), notes that the term communication is huge and has various meanings. It may also be very categorical. According to Wilder (1995, p. 976), communication is the flow and exchange of ideas, information and opinions through speech, writing, pictures and other communicating symbols. Therefore, communication can be looked at as a process of sharing messages between the source and the receiver through a certain channel with a view to influencing the receiver's thoughts and actions.

Barelson and Steven (1964, p. 321) also define communication as the transmission of information, ideas, emotions, and skills by the use of symbols, words, pictures, figures and graphs. Hence from the above definitions, it is very clear that communication is simply the transmission of information from the sender to the receiver with the aim of influencing thought and action. It is done to inform so that the receiver can be aware or can take action. This research used the conceptual framework to establish the relationship between independent variables and environmental sustainability. The conceptual framework shows the various

relationships and factors that influence environmental sustainability. Demographic factors influence environmental sustainability. People with higher education are more aware about consequences of environmental degradation. Effective communication strategies have a positive influence on awareness and knowledge of people towards environmental sustainability. Despite this, lack of knowledge and awareness contributes to environmental degradation. All these factors have a positive or negative impact on environmental sustainability. This can be well understood in the following diagrams.



Note that this study maintained the above definition of communication.

4.2.2. Strategy

According to Mefalopulos and Kamlongera (2004, p. 8), a strategy is a systematic, well planned series of actions, combining different methods, techniques and tools to achieve an intended change or objective utilizing the available resources within a specific time frame. A good strategy guarantees a good achievement. The strategy is

an important document because it commits organisations or individuals to improve on how they communicate and also to adopt a common approach to communication right across the board (www.cavancoco.ie/cavanweb, accessed on 21.09.2012). It covers both information and communication. This study maintained this same definition of the strategy.

4.2.3. Channels of Communication

These are means by which a message travels both vertically and horizontally from a source to a receiver. They also include the internal and external communication. These channels include media and interpersonal ways of communicating (Rogers, 1973, p. 17). This study maintained this same definition.

4.2.4. Communication Strategy

According to Mefalopulos and Kamlongera (2004, p. 233) Communication Strategy refers to well-planned series of actions aimed at achieving certain objectives through the use of communication methods, techniques and approaches. It may look at how society has transformed to a much more organized way of doing things. For instance technology advancement has contributed greatly to the transformation of society through putting up good strategies to address various issues in society. The study maintained the same definition.

4.2.5. Environment

Christina (2001, p. 56) looks at the environment as surrounding influences. She defines it as all the external factors influencing the life and activities of people, plants, and animals. This is the aggregate of surrounding things, conditions or influences. This definition of the environment was maintained throughout this study.

4.2.6. Environmental Sustainability

Dally (1990, p. 268) defines environmental sustainability as the maintenance of factors and practices that contribute to the quality of the environment on the long term basis. It entails all those long lasting activities aimed at preserving the environment for the future. The study maintained the same definition.

4.2.7. Interpersonal Communication

Reardon and Rogers (1988, p. 543) define interpersonal communication as face-to-face interaction between two or a few people with opportunities for feedback. It involves two or more people communicating and responding to each other. The study maintained the same definition.

4.2.8. Group Communication

James (2001, p. 976) looks at Group communication as interaction within a small group of people. This communication allows individuals to communicate with each other freely and openly, while maintaining their relationships. The study maintained the same definition.

4.2.9. Organizational Communication

William (1998, p. 326) defines organizational communication as the exchange of messages within and between organisations and their environments to stimulate meaning. It's a day to day communication within an organization or between organisations for a common purpose. This study maintained the same definition.

4.2.10. Social Change

According to Appelbaum (1970, p. 1,786) social change is defined as any significant alteration over time in behavioral patterns and culture, values and norms. These alterations mainly yield profound social consequences in society. The study maintained the same definition.

4.2.11. Opinion Leaders

Opinion leaders are influential people in society who seem to be knowledgeable on key issues in society. Therefore, because of their knowledge, skills and competences, they are capable of influencing certain opinions and decisions in society. They are also perceived to be intermediaries called change agents and gate keepers are also included in the process of interactions or communication channels. Change agents are those professionals who influence others to adopt or reject an innovation. While gate keepers are said to be individuals who control the flow of information to a given

group of people or target audience (Christina, 2001, pp. 576-582). The study maintained the same definition.

4.3. THEORETICAL FRAMEWORK

These are the main Theories that were used to help in the in-depth understanding of the topic and how they applied to the study. This study was based on the Diffusion of innovation theory and supported by Social Cognitive Theory.

4.3.1. Diffusion of Innovation Theory

Diffusion of innovations theory is the most appropriate for investigating the adoption of technology in higher education and educational environments. Rogers defines diffusion as "the process in which an innovation is communicated thorough certain channels over time among the members of a social system" (Rogers, 2003, pp. 568-723). As expressed in this definition, innovation, communication channels, time, and social system are the four key components of the diffusion of innovations.

Four Main Elements in the Diffusion of Innovations:

Innovation

Rogers offered the following description of an innovation: "An *innovation* is an idea, practice, or project that is perceived as new by an individual or other unit of adoption" (Rogers, 2003, p. 12). An innovation may have been invented a long time ago, but if individuals perceive it as new, then it may still be an innovation for them. The newness characteristic of an adoption is more related to the three steps (knowledge, persuasion, and decision) of the innovation-decision process that will be discussed later.

Communication Channels

The second element of the diffusion of innovations process is communication channels. For Rogers (2003, p. 67), communication is "a process in which participants create and share information with one another in order to reach a mutual understanding". This communication occurs through channels between sources.

Rogers states that "a *source* is an individual or an institution that originates a message. A channel is the means by which a message gets from the source to the receiver". Rogers states that diffusion is a specific kind of communication and includes these communication elements: an innovation, two individuals or other units of adoption, and a communication channel. *Mass media* and *interpersonal communication* are two communication channels. While mass media channels include a mass medium such as TV, radio, or newspaper, interpersonal channels consist of a two-way communication between two or more individuals. On the other hand, "diffusion is a very social process that involves interpersonal communication relationships" (Rogers, 2003, p. 19). In interpersonal channels, the communication may have a characteristic of *homophily*, that is, "the degree to which two or more individuals who interact are similar in certain attributes, such as beliefs, education, socioeconomic status, and the like," but the diffusion of innovations requires at least some degree of heterophily, which is "the degree to which two or more individuals who interact are different in certain attributes

Time

The time aspect is ignored in most behavioral research. He argues that including the time dimension in diffusion research illustrates one of its strengths. The innovation-diffusion process, adopter categorization, and rate of adoptions all include a time dimension.

Social System

The social system is the last element in the diffusion process. Rogers (2003, p. 34) defined the social system as "a set of interrelated units engaged in joint problem solving to accomplish a common goal". Since diffusion of innovations takes place in the social system, it is influenced by the social structure of the social system. For Rogers (2003, p. 34), structure is "the patterned arrangements of the units in a system." He further claimed that the nature of the social system affects individuals' innovativeness, which is the main criterion for categorizing adopters.

4.3.2. Social Cognitive Theory

The social cognitive theory explains how people acquire and maintain certain behavioral patterns, while also providing the basis for intervention strategies (Bandura, 1992, pp. 175-208). Evaluating behavioral change depends on the factors environment, people and behavior. The theory is relevant for designing both educational and behavioral programs. This theory explains how people acquire and maintain certain behavioral patterns. The theory can also be used for providing the basis for intervention strategies.

Bandura (1992, p. 61) further argues that each factor affects each of the others. For example, in congruence with the principles of self-efficacy, an individual's thoughts affect their behaviour and an individual's characteristics elicit certain responses from the social environment. Likewise, an individual's environment affects the development of personal characteristics as well as the person's behavior, and an individual's behaviour may change their environment as well as the way the individual think or feel. Social cognitive theory focuses on the reciprocal interactions between these factors, which are hypothesized to determine behavioral change.

CHAPTER FIVE

5. PRESENTATION OF FINDINGS

5.1. Introduction

The research evaluated the communication strategies used by Zambia Environmental Management Agency (ZEMA) in promoting environmental sustainability to Kabwe and Lusaka residents. Presented here are the findings of the evaluation which encompassed five broad areas namely: (a) Evaluating the Communication Strategies used by ZEMA in promoting environmental sustainability, (b) Determining the Information communicated to Kabwe and Lusaka residents on environmental sustainability, (c) assessing the effectiveness of the Communication Channels used by ZEMA in promoting environmental sustainability, (d) Assessing awareness levels of Kabwe and Lusaka residents on environmental sustainability (e) Determining the effectiveness of ZEMA's communication strategy on environmental sustainability.

A total of 100 questionnaires were administered to Kabwe and Lusaka residents. Four in-depth interviews were conducted with the Principal Information & Communication Officer from ZEMA, a teacher of Environmental Studies and Coordinator Chongololo School Club, Environmental Education Co-coordinator from Wildlife & Environmental Conservation Society of Zambia (WECSZ), and an environmental activist. Finally, one focus group discussion was conducted comprising various stake holders from government institutions, NGOs, civil society, media houses, and learning institutions among others.

5.2. Evaluation of the Communication strategies used by ZEMA in promoting Environmental Sustainability

The communication strategy used by Zambia Environmental Management Agency (ZEMA) in promoting environmental sustainability was assessed among the Kabwe and Lusaka residents enquiring on how information was disseminated and received. Variable consideration was made to determine any bearing on the assessment.

5.2.1. Description of Variables

The variables of interest for the 100 Kabwe and Lusaka residents that participated in the study to assess any bearing they would have on the results included sex, age, education, occupation and income variables.

5.2.1.1. Sex Variable

Table 5.1: Sex

Sex	Frequency	Percentage
Female	40	40.0
Male	60	60.0
Total	100	100.0

Table 5.1.Show the distribution of respondents by sex and it shows that 60 % of the respondents for the study where male while 40% where females.

5.2.1.2. Age Variable

Table 5.2: Age

	Frequency	Percent
19yrs & below	2	2.0
20-29	21	21.0
30-39	35	35.0
40-49	23	23.0
50-59	13	13.0
60 & above	6	6.0
Total	100	100.0

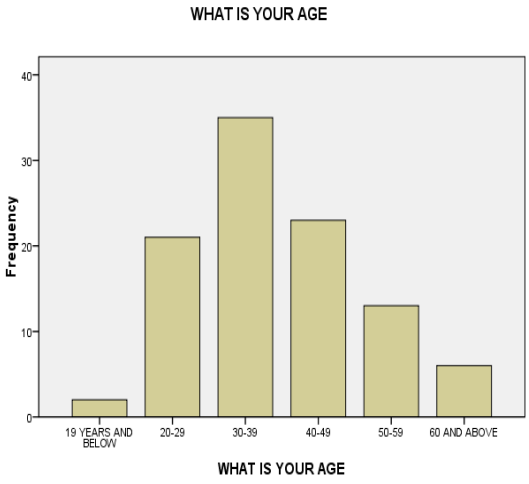


Figure 5.1: Age

Table 5.2 and figure 5.1 show the age distribution of respondents. The Majority respondents were in the age group 30-39 years representing 35%, followed by the age group 40-49 representing 23%. The least age group was aged 19 years and below representing 2%.

5.2.1.3. Education Variable

Table 5.3: Education

Education	Frequency	Percent
NONE	5	5.0
PRIMARY	4	4.0
SECONDARY	24	24.0
TERTIARY	67	67.0
Total	100	100.0

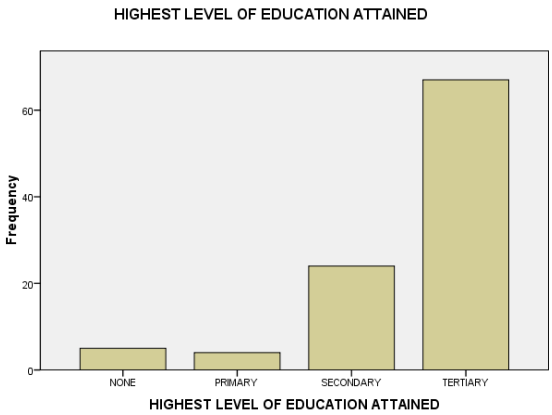


Figure 5.2: Education

Table 5.3: and figure 5.2: show that among the respondent's 67% have attained tertiary education, followed by secondary with 24% and respondents without any level of education constituted 5%. Respondents with primary education were 4%.

5.2.1.4. Occupation Variable

Table 5.4: Occupation

Occupation	Frequency	Percent
Accountant	6	6.0
Banker	4	4.0
Businessman	18	18.0
Civil Servant	27	27.0
Driver	6	6.0
Engineer	9	9.0
Farmer	9	9.0
Lecturer	5	5.0
Researcher	9	9.0
Student	7	7.0
Total	100	100.0

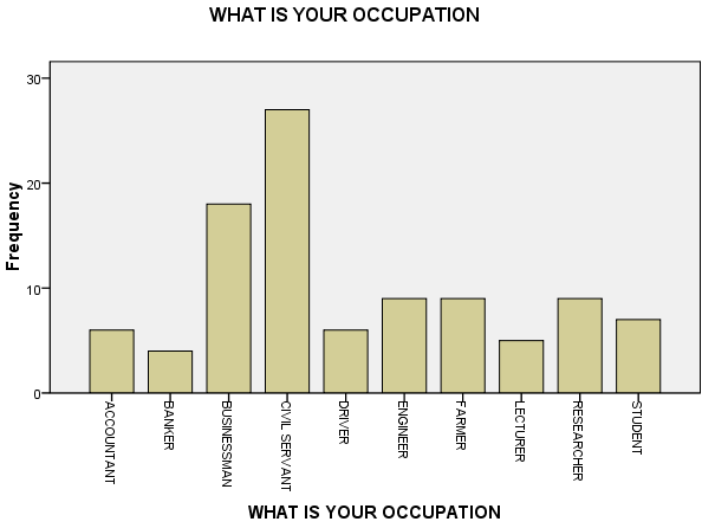


Figure 5.3: Occupation Variable

Table 5.4 and figure 5.3 show that out of the 100 respondents, majority where civil servants representing 27%, followed by business men representing 18%. The least were bankers representing 4% only.

5.2.1.5. Income Variable

Table 5.5: Income

Income	Frequency	Percent
Less than K150	5	5.0
K150-K499	8	8.0
K500-K999	24	24.0
K1000 and above	63	63.0
Total	100	100.0

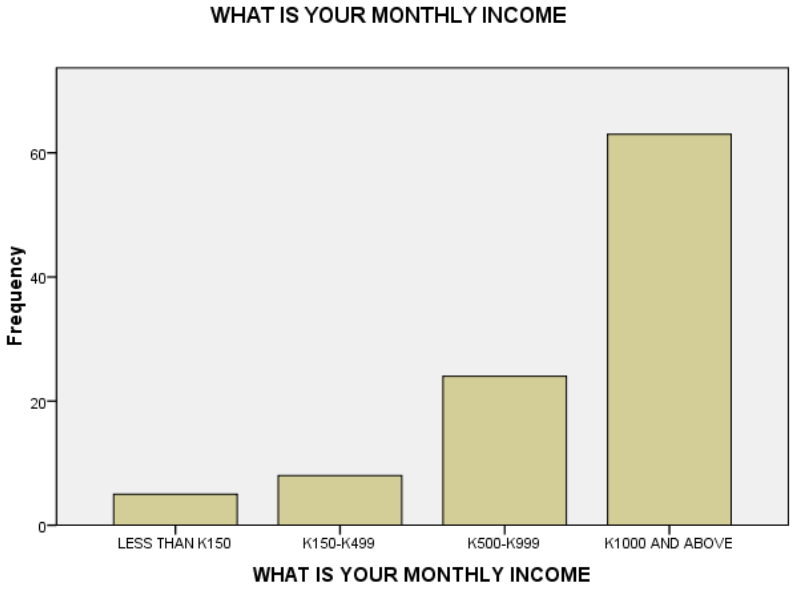


Figure 5.4: Income Variable

Table 5.5 and Figure 5.4 show the respondent's monthly income with about 63% of the respondents earning K1000 and above, while about 37% of the respondents are earning less than K1000 a month.

5.2.2. Kabwe & Lusaka Resident's Information source

Table 5.6: Information source

	Frequency	Percent
ZEMA Officer	30	30.0
Officer From Ministry	15	15.0
Environmental Activist	34	34.0
School Teacher	21	21.0
Total	100	100.0

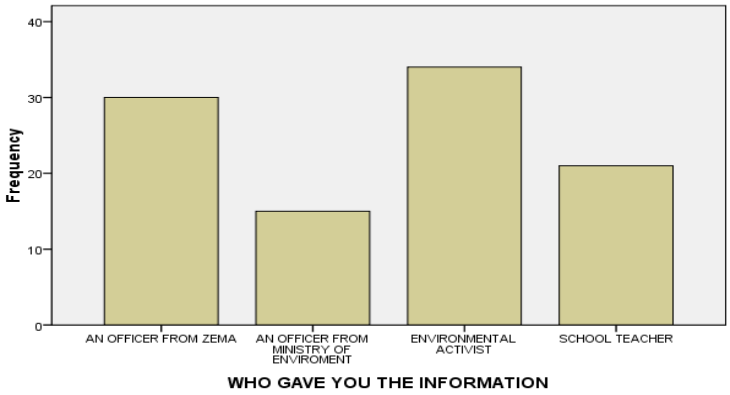


Figure 5.5: Information source.

Table 5.6 and figure 5.5 show that 34% of the respondents received information from an environmental activist where as 15% of the respondents said that they received information from an officer from the Ministry of Tourism, Environment and Natural Resources.

5.2.3 Environmental Assistance

Table 5.7: Assistance

WHO GAVE YOU THE ASSISTANCE?

Assistance	Frequency	Percent
A friend	20	20.0
Government	32	32.0
NGO	18	18.0
None	30	30.0
Total	100	100.0

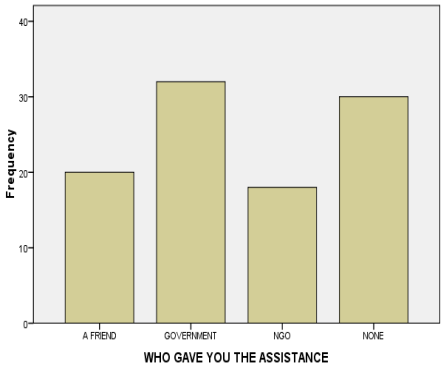


Figure 5.6: Assistance

Table 5.6 and Figure 5.6 show that the majority of the respondents received assistance from government representing 32%, followed by those who did not receive any assistance representing 30%. The least are those who received assistance from NGOs representing 18%.

5.2.4. ZEMA and Stakeholders on Communication Strategy

Question: What communication strategies has ZEMA put in place?

Table 5.8: Officer's Responses

Respondent		Response
1	Principle Information & Communication Officer _ZEMA	- Various workshops - Parliamentary committee on energy, environment and tourism - Facilitating the commemoration of environmental related international days (for example world water day, world environmental day, energy week) - Providing various environmental literature through the communication centre - Participating in various exhibitions like the agricultural show, trade fair among others.
2	Teacher_ Environmental Studies (Coordinator Chongololo School Club)	- Through workshops - Radio and TV programs - Through various documents like environmental manuals, outlooks, brochures and other booklets
3	Environmental Education Co-ordinator_ WECSZ	- Holding fora on environmental issues - Supplying various literature on environmental related issues
4	Environmental Activist	- Developed various environmental reports which are distributed to the public - Made various environmental documentaries played on TV and radio - Conducted environmental related workshops / seminars and meetings

5.3. Determination of the Information communicated to Kabwe and Lusaka residents on environmental sustainability

5.3.1. Messages communicated to Kabwe and Lusaka residents

Table 5.9: Messages

	Frequency	Percent
Afforestation	8	8.0
Environmental management	27	27.0
No information received	60	60.0
Safe disposal of waste	5	5.0.0
Total	**100**	**100.0**

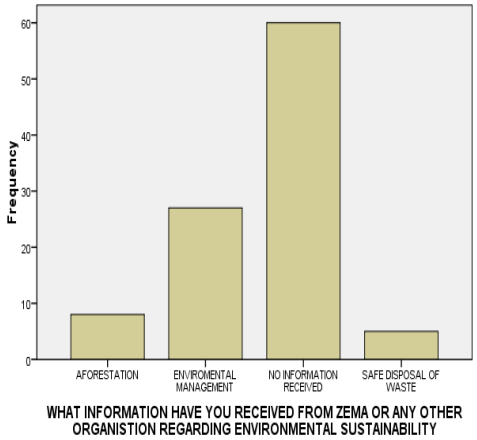


Figure 5.7: Messages

Table 5.9 and figure 5.7 reveal that 60% did not receive any information on environmental sustainability while 8% of the respondents indicated that they received information on the importance of afforestation, 27% indicated that they had received information on environmental management and 5% had received information on the importance of safe disposal of waste.

5.3.2. FGD on Information communicated to Kabwe and Lusaka residents

Table 5.10: FGD Information

Question	Responses
What kind of information is passed on to the beneficiaries?	- New technology on conservation farming and other environmental related issues - Importance of guarding our natural resources - Benefits of safe waste disposal - The role each one can play to achieve environmental sustainability - Behavioural change towards environmental sustainability.

5.3.3. In-Depth Interviews on Information Communicated

Q 1: What kind of information is given to the general public regarding environmental sustainability?

Q 2: What messages do you bring out?

Table 5.11: In-depth Interview on information

Respondent	Response	
	Q 1	**Q 2**
Principle Information & Communication Officer _ZEMA	- Safe disposal of waste - Stakeholder participation in all environmental issues - Benefits of environmental care - Climate change resilience activities - Importance of safeguarding natural resources	- ZEMA`s mandate regarding environmental sustainability - Importance of taking care of our own environment - Importance of safeguarding our own natural resources - Each one`s responsibility in ensuring environmental sustainability.
Teacher_ Environmental Studies (Coordinator Chongololo School Club)	- General cleanliness - Tree planting or replacements - Safe disposal of waste - Environmental care - Good utilisation of natural resources	- The role each individual can play to ensure environmental sustainability is achieved - The importance of looking after natural resources - Benefits of environmental care and cleanliness
Environmental Education Co-ordinator_ WECSZ	- They discuss their role and how the general public can support them - Environmental protection - The dos and don'ts of environmental resources	- Importance of safeguarding natural resources - Benefits of natural resources to humanity and other living things - Usage of natural resources - Balance of nature
Environmental Activist	- Actions to look after the environment - Importance of tree planting	- Actions to safeguard the environment - Importance of safe waste

	exercise - General cleanliness and safe waste disposal - Avoid air, water and land pollution	disposal - Importance of general environmental sustainability - Role of individuals, schools, churches and others can play to achieve environmental sustainability

5.4. Assessment of the effectiveness of the Communication channels used by ZEMA in promoting environmental sustainability

5.4.1. Communication Channels

Table 5.12: Radio Listening

	Frequency	Percent
0	5	5.0
1	3	3.0
2	5	5.0
3	9	9.0
4	1	1.0
5	15	15.0
6	2	2.0
7	60	60.0
Total	100	100.0

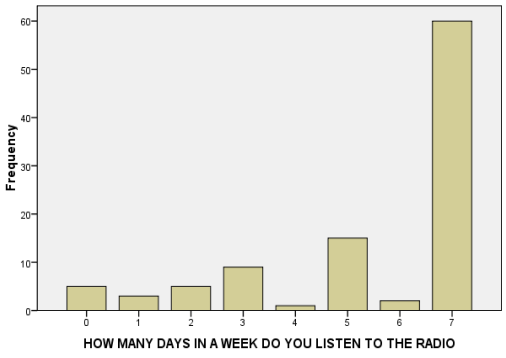


Figure 5.8: radio listening

Table 5.12 and figure 5.8 show that 60% of the respondents listen to the radio everyday while only 5% do not listen to the radio at all.

5.4.2. Television Watching

Table 5.13: TV Watching

	Frequency	Percent
0	8	8.0
2	2	2.0
3	5	5.0
4	4	4.0
5	12	12.0
6	5	5.0
7	64	64.0
Total	100	100.0

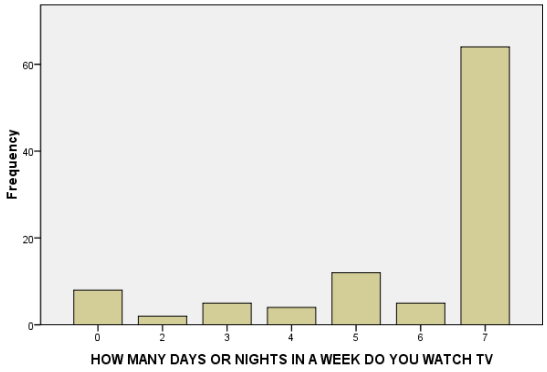


Figure 5.9: TV watching

Table 513 and figure 5.9 reveal that the majority respondents watch TV everyday representing 64%, while 2% only watch twice a week and 8% do not watch TV at all.

5.4.3. Newspapers Reading

Table 5.14: Newspaper Reading

	Frequency	Percent
Once a month	2	2.0
Once a week	10	10.0
2-3 times a week	34	34.0
everyday	46	46.0
Do not have access to them	3	3.0
Do not know how to read	5	5.0
Total	100	100.0

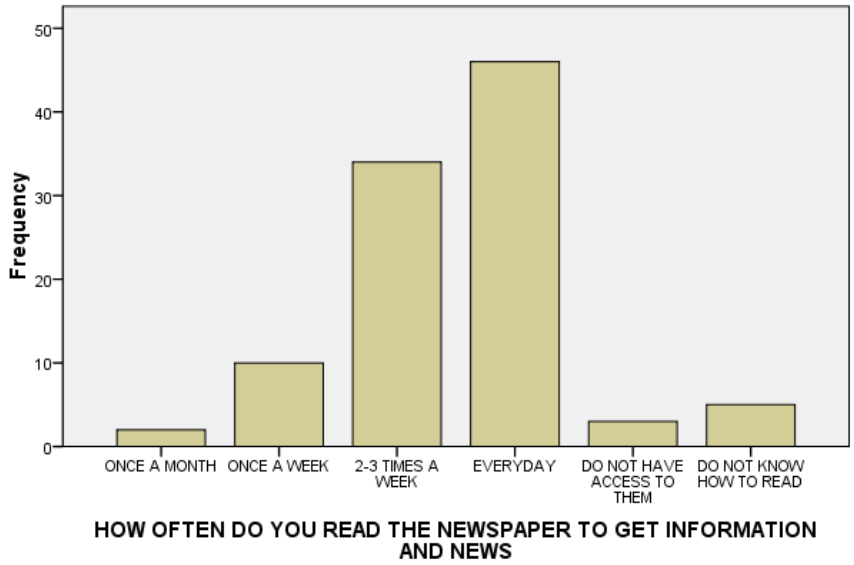


Figure 5.10: Newspaper

Table 5.14 and figure 5.10 indicate that out of the 100 respondents, 46% read the newspaper every day, while 5% do not know how to read and 3% have no access to newspapers.

5.4.4. Communication Channels

Table 5.15: Communication Channel

	Frequency	Percent
ZNBC Radio	23	23.0
Radio Maranatha	14	14.0
Muvi TV	15	15.0
ZNBC TV	21	21.0
News Paper	11	11.0
Poster	7	7.0
Relatives and Friends	9	9.0
Total	100	100.0

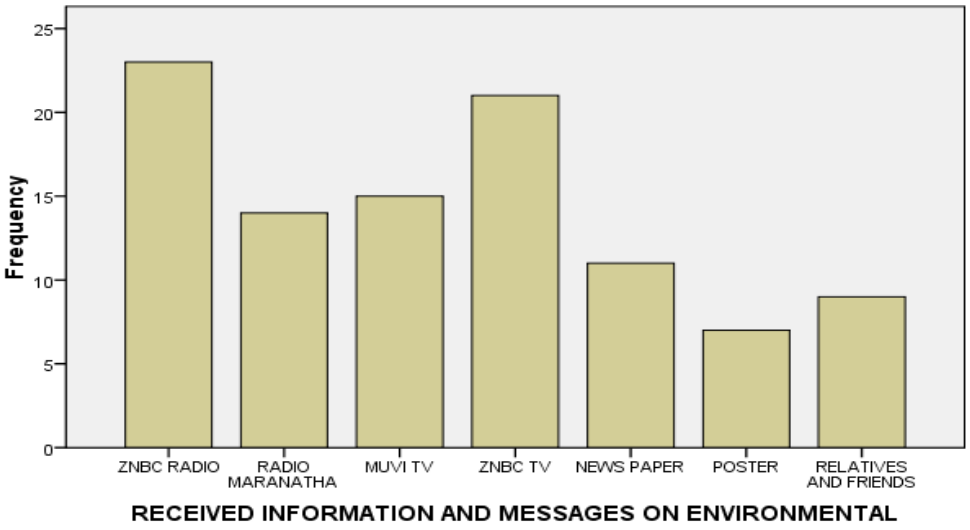


Figure 5.11: Channel

Out of the 100 respondents, 23% got the information through listening to ZNBC radio, 21% by watching ZNBC TV and only 7% got it from a poster.

5.4.5. FGD on Communication Channels

A focus group discussion was held with various stakeholders in the environmental sector. The group consisted of government institutions, NGOs, media houses among others.

Table 5.16: ZEMA Communication Channel

Question	Responses
What are the correct channels of communication used to pass on information to the beneficiaries?	- Local radio stations - Electronic media - Information desks and libraries - Meetings and workshops - Commemorating environmental days - Various print outs like t-shirts, magazine and other brochures - Through drama, poems , sketches and road shows
How effective and efficient are these communication channels?	- They are effective and efficient because of the ability to reach out to the masses. - The use of English and all local languages has given an opportunity to the masses to access information in the language that suits them - Use of drama, poetry or songs also adds colour to the message delivery to the target audience - Brochures and other hand-outs have the ability to reach out to many - Radio and TV programs have been very useful because of the ability to reach out to many

5.4.6. In-Depth Interview on Communication channels

Q 1: What communication channels do you use to disseminate information to the general public?

Q2: How effective and efficient are the communication channels used by ZEMA?

Table 5.17: In-depth Interview

Respondent	Response	
	Q 1	**Q 2**
Principle Information & Communication Officer _ZEMA	- Radio and TV programs - Documentaries - Brochures, magazines, booklets, news papers - Road shows using the PA system	- They are very effective and efficient because they have been able to reach out to various audience - They are tailored to the target audience.
Teacher_ Environmental Studies (Coordinator Chongololo School Club)	- Holding talk shows and debates at school - Drama, sketches, poems and songs on environmental sustainability - School magazines and booklets - Radio programs - Demonstration plots	- They are effective and efficient depending on the targeted audience - The Chongololo club has helped to achieve a lot in school environmental wise. - They have helped to change pupils attitude towards the environment hence maintaining a clean surrounding
Environmental Education Co-ordinator_ WECSZ	- Holding environmental fora - Radio and TV programs - Sketches, poems and songs on environmental care Through both electronic and print media	- They are fairly doing fine though more can be done to achieve a bit more
Environmental Activist	- Documentaries on DVD and audio	- They are e effective though

	CDs - Both electronic and print media(magazines, brochures, leaf lets) - Road show to promote environmental care	they require more resources to reach a wider community

5.5. Assessing awareness levels of Kabwe and Lusaka residents on Environmental sustainability

5.5.1. Awareness Level

Table 5.18: Awareness

	Frequency	Percent
Actions to look after the environment	56	56.0
Programs which help to understand environmental issues	35	35.0
Do not know anything	9	9.0
Total	100	100.0

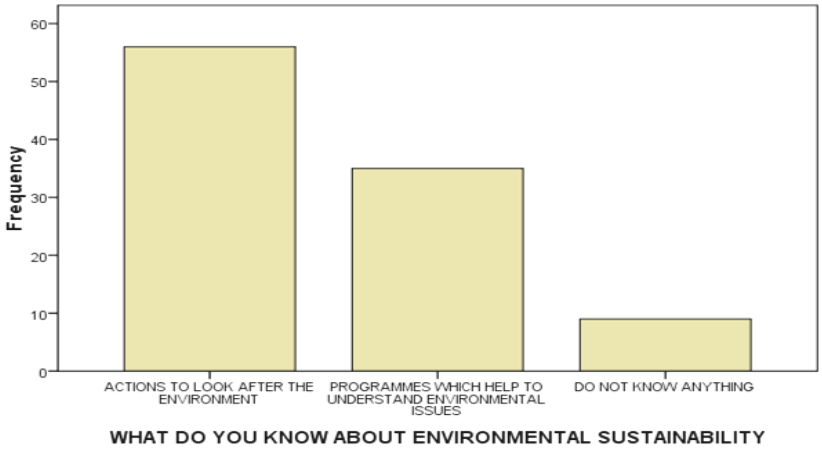


Figure 5.12: Awareness

Table 5.18 and figure 5.12 show that out of the 100 respondents, 91% of the responds are knowledgeable about environmental sustainability, while 9% do not know anything.

5.5.2. Affected by Environmental Degradation

Table 5.20: Affected

	Frequency	Percent
Yes	77	77.0
No	22	22.0
Non Response	1	1.0
Total	100	100.0

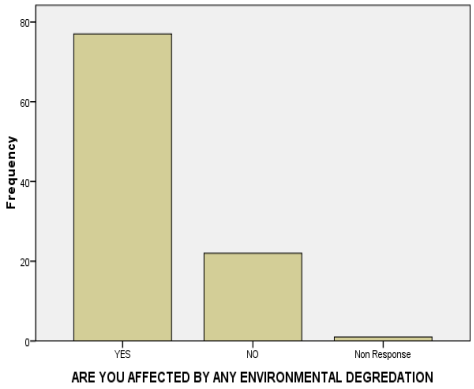


Figure 5.13: Affected

Table 520 and figure 513 show that 77% of the respondents are affected by environmental degradation, while 22% are not. However 1% did not respond to this question.

5.5.3. How affected by Environmental Challenges

Table 5.21: How Affected

	Frequency	Percent
Not applicable	25	25.0
Change in weather patterns	7	7.0
deforestation	1	1.0
flooding	16	16.0
pollution	43	43.0
Uncollected waste	8	8.0
Total	100	100.0

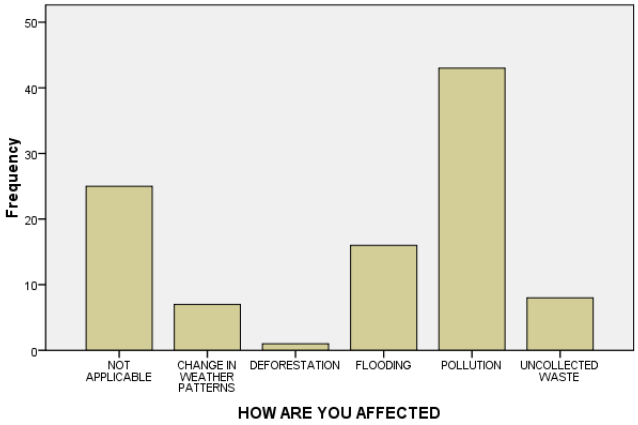


Figure 5.14: How are you Affected

Table 5.21 and figure 5.14 reveal that the majority of the respondents were affected by pollution representing 43%, while the least were affected by deforestation representing 1%.

5.5.4. How long have you been affected

Table 5.22: Length Affected

	Frequency	Percent
1 years	15	15.0
2 years	25	25.0
3 years and above	60	60.0
Total	100	100.0

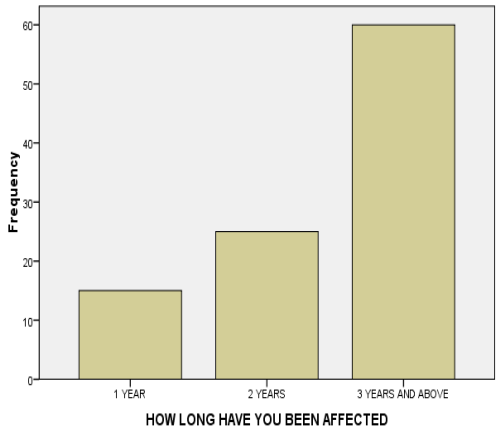


Figure 5.15: Length Affected

Table 5.22 and figure 5.15 indicate that the majority respondents, 60%, have been affected by environmental degradation for more than 3 years and only 15% have been affected for the past 1 year.

5.5.5. Burning of Waste

Table 5.23: Waste Burning

	Frequency	Percent
Yes	85	85.0
No	15	15.0
Total	100	100.0

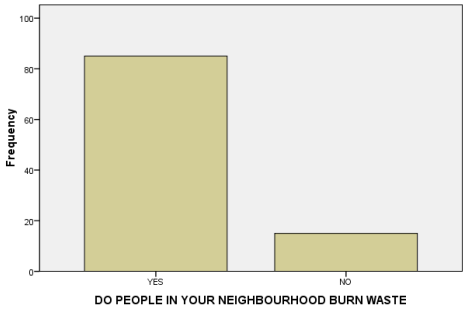


Figure 5.16: Waste burning

Table 5.23 and figure 5.16 indicate that out of the 100 respondents, the majority representing 85% revealed that people in their neighborhood burn waste while 15% revealed that people in their neighborhood do not burn waste at all.

5.5.6. Knowledge on burning of waste

Table 5.24: Knowledge on waste burning

	Frequency	Percent
Non Response	10	10.0
Effects of environmental safety	11	11.0
Bad practice	75	75.0
Good practice	3	3.0
Pollutes the environment	1	1.0
Total	100	100.0

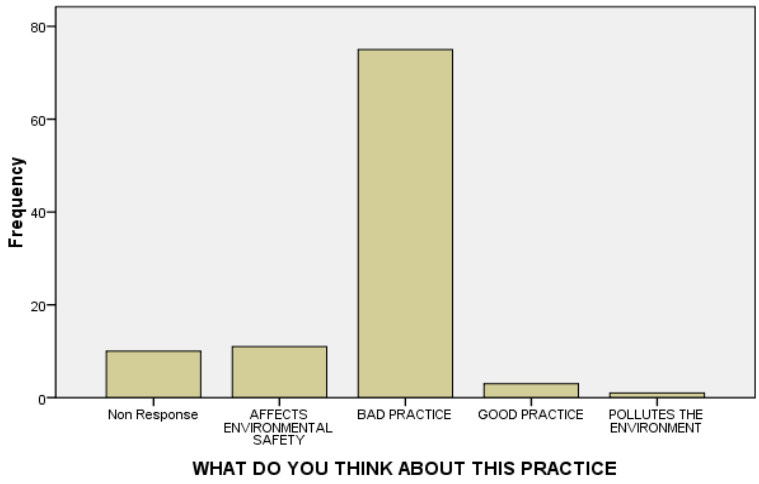


Figure 5.17: Knowledge on waste burning

Table 5.24 and figure 5.17 show that 75% of the respondents states that burning waste is a bad practice while 1% states that it pollutes the environment.

5.5.7. Times affected by environmental problem

Table 5.25: Affected Frequency

	Frequency	Percent
Daily	13	13.0
Weekly	23	23.0
Monthly	37	37.0
Annually	16	16.0
Non Response	11	11.0
Total	100	100.0

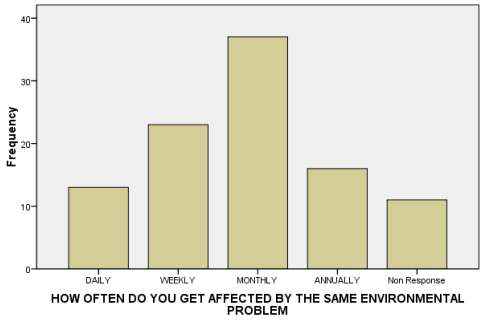


Figure 5.18: Affected Frequency

Table 5.25 and figure 5.18 indicate that out of the 100 respondents, the majority get affected by the same environmental problem monthly representing 37% , 13% are affected daily and 11% did not respond to the question.

5.5.8. Deforestation

Table 5.26: Deforestation

	Frequency	Percent
Yes	24	24.0
No	76	76.0
Total	100	100.0

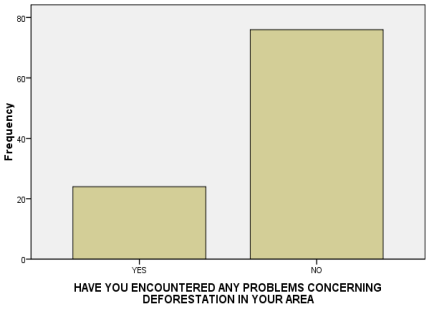


Figure 5.19: Deforestation

The table 5.26 and figure5.19 reveal that out of the 100 respondents only 24% encountered deforestation related problem while 76% did not.

5.5.9. Understanding Environmental Sustainability

Table 5.27: Understanding Environment

	Frequency	Percent
YES	48	48.0
NO	13	13.0
DIDN'T	39	39.0
Total	100	100.0

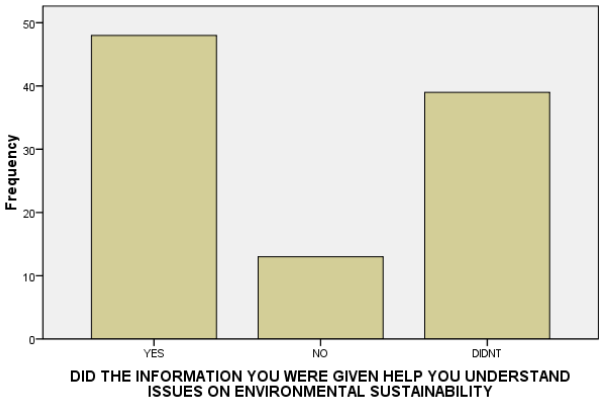


Figure 5.20: Understanding environment

Table 5.27 and figure 5.20 show that 43% of the respondents agreed that the information they received helped them understand environmental sustainability issues, while 13% disagreed that the information did not help them at all.

5.5.10. FGD on Awareness Level of Kabwe and Lusaka residents

Table 5.28: FGD Awareness

Question	Responses
Q1: What is your understanding of environmental sustainability?	- Environmental sustainability involves making decisions and taking actions that are in the interest of protecting the natural world with particular emphasis on preserving the capability of the environment to support human life. - Making responsible decisions that reduces negative impact on the environment - Wise utilisation of the environmental resources for future use - The ability to regenerate its ability
Q2: What are the pressing issues regarding the state of the environment?	- Air, water and land pollution - Noise pollution - Poor waste management (poor sanitary facilities) - Illegal and unnecessary cutting of trees has led to forest

	degradation - Uncontrolled mining led to various environmental challenges - Unplanned and illegal settlements has resulted in numerous environmental challenges
Q3: How can these environmental issues be solved?	- Sensitization to the communities must continue - Enforcement of all environmental related laws - Resettlements - Strong links among all stakeholders - Institutional collaboration through planning and implementing environmental projects together - More resources to be channelled to environmental related activities - Attitude change and increased participation of all the stakeholders at all

5.5.11. In-depth Interviews on Awareness Level

Q1What is ZEMA?

Q2: What is your perception of the state of the environment?

Q3: What selection criteria are used in selecting eligible officers to be involved in dealing with environmental issues?

Table 5.29: Awareness In-depth Interview

Respondent	**Response**		
	Q 1	**Q 2**	**Q3**
Principle Information & Communication Officer _ZEMA	- ZEMA is an institution mandated to implement and enforce provisions of environmental management act number 12 of 2011. - It focuses on	- The economic growth and population increase is posing a threat on the environment - During the rainy season there are challenges relating	- Mainly involve individuals or institutions which are already involved in environmental related

	integrated environmental management, protection and conservation of the environment and use of natural resources - Provides reports on all environment issues and advice the policy direction	to waste management which has mainly resulted in environmental degradation and disease outbreak - The dry season has also seen uncontrolled bush fires causing massive pollution to the environment - Increased industrial activities has also posed numerous challenges to the environment.	activities - Some are involved as consultants and interns or students on attachment.
Teacher_ Environmental Studies (Coordinator Chongololo School Club)	- ZEMA is a government institution mandated to supervise and control environmental activities - It regulates all environmental activities to ensure that its sustainability is not compromised	- The environment is not very health at the moment - Poor drainage system - Uncollected garbage in townships - Too much pollution in industrial areas	- Anyone who joins the club become active in all environmental related activities - Other stakeholders come in to support the activities the club is involved in like sponsoring radio programs among others.
3 Environmental Education Co-	- ZEMA is a government institution whose mandate is to	- State of environment being threatened by rapid	- Works with active individual and

ordinator_ WECSZ	monitor and report on the state of the environment and associated environmental trends - It regulates and control pollution in support of sustainable development - Undertakes environmental education and awareness	population increase - Poor implementation environmental projects has resulted in massive pressure on the state of the environment	institutions in the environment sector. - Work with pupils and teaches in various schools - All individuals who have the passion for environmental sustainability
4 Environmental Activist	- ZEMA is an institution charged with the responsibility to educate, inform and regulate all environmental issues in the country.	- The environment is very much compromised at the moment especially in urban areas where the population is increasing while the facility to support its sustainability remains static - High pollution and poor waste management	- Targets high profile and influential figures to pull the crowds and also sponsor our activities - Focus on areas where the information is needed most and who is suitable to help deliver that critical information

5.6. Determining the Effectiveness of ZEMA's Communication Strategies

5.6.1. Assistance Received

Table 5.30: Environmental Assistance

	Frequency	Percent
Cash	3	3.0
Material	8	8.0
Information	51	51.0
None	38	38.0
Total	100	100.0

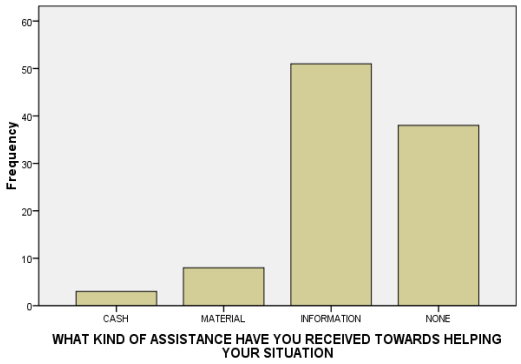


Figure 5.21: Environmental Assistance

Table 5.30 and figure 5.21 indicate that the majority respondents receive assistance in form of information representing 51%, 3% in form of cash and 38% did not receive any form of help.

5.6.2. Rate of Assistance

Table 5.31: Rate of Assistance

	Frequency	Percent
Enough	22	22.0
Cannot tell	39	39.0
Not enough	39	39.0
Total	100	100.0

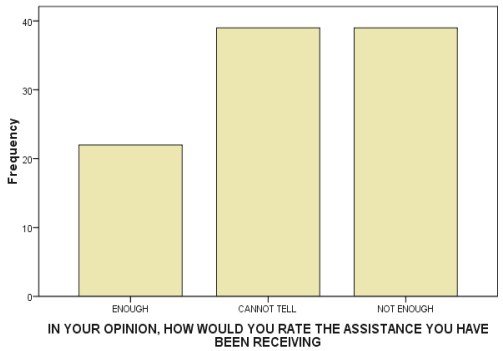


Figure 5.22: Rate of Assistance

Table 5.31 and figure 5.22 show that out of the 100 respondents, 22% rated the assistance they received enough while those who could not tell and those who rated it not enough were 39% each.

5.6.3. Environmental Challenges Faced

Table 5.32: Environmental Challenges

	Frequency	Percent
Poor Drainage System	29	29.0
Over Population	1	1.0
Floods	12	12.0
Disease Outbreak	6	6.0
Pollution	49	49.0
None response	3	3.0
Total	100	100.0

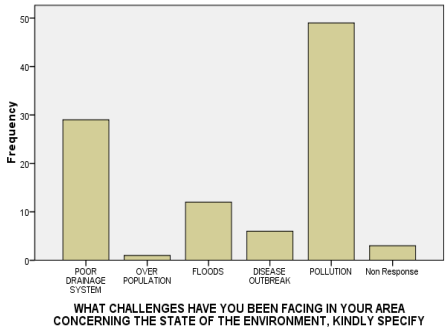


Figure 5.23: Environmental Challenges

Table 5.32 and figure 5.23 indicates that the majority respondents face challenges of pollution representing 49%, while the least faced challenges was over population representing 1% only.

5.6.4. Response To Environmental Challenges

Table 5.33: Response

	Frequency	Percent
YES	25	25.0
NO	75	75.0
Total	100	100.0

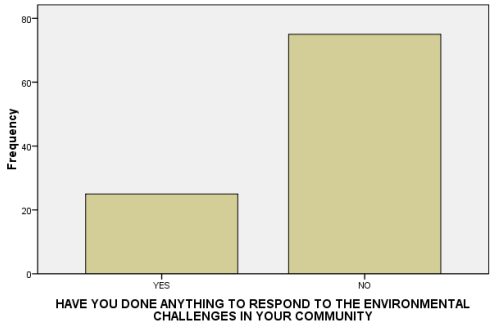


Figure 5.24: Response

Table 5.33 and figure 5.24 shows that 75% of the respondents have not done anything to respond to environmental challenges while only 25% have done something to respond.

5.6.5. Actions on environmental activities

Table 5.34: Reason for no action

	Frequency	Percent
Lack of energy	6	6.0
Lack of resources	27	27.0
Inadequate information	36	36.0
None response	31	31.0
Total	100	100.0

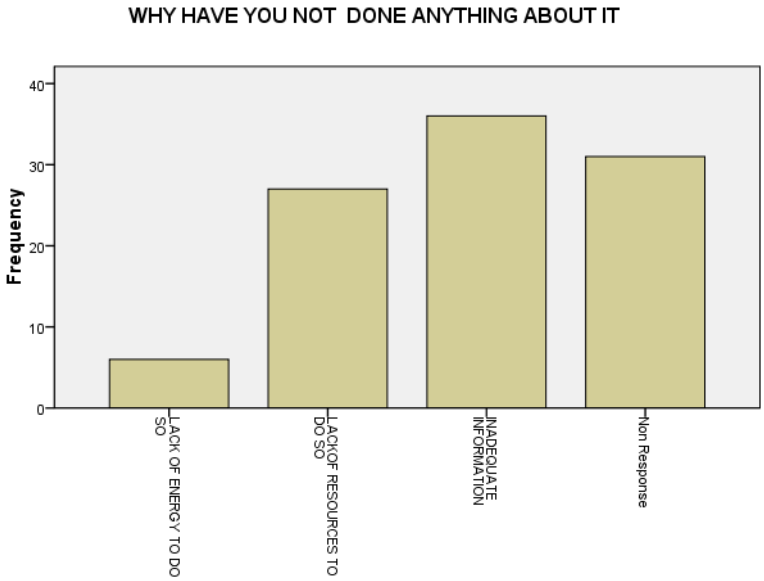


Figure 5.24: Reason for lack of action

Table 5.34 and figure 5.24 indicate that out of the 100 respondents, 36% have not done anything about the environment due to inadequate information while 6% has been due to lack of energy.

5.6.6. Focus Group Discussion on the Effectiveness of Communication Strategies

Table 5.35: Strategy Effectiveness FGD

Question	Responses
What is your perception of the local programs promoting environmental sustainability?	- They are good though not being shared with some key stakeholders - Significant efforts have been seen on environmental issues - Programs are there but they lack motivation for the masses to join in - Programs in schools are doing fine and achieving a lot - All stakeholders should plan and implement environmental programs together to achieve its sustainability
What are the correct channels of communication used to pass on the information to the beneficiaries**?**	- Local radio and TV stations - Information desks and libraries - Meetings and workshops - Commemorating environmental days - Various print outs like t-shirts, magazine and other brochures - Through drama, poems , sketches and road shows
What kind of information is passed on to the beneficiaries?	- New technology on conservation farming and other environmental related issues - Importance of environmental care - Importance of guarding our natural resources - Benefits of safe waste disposal - The role each one can play to achieve environmental sustainability - Behavioural change towards environmental sustainability.

5.6.7. In-Depth Interviews on Strategy Effectiveness

Q1. Is ZEMA's Communication strategy working?

Q2: What language is used to communicate this information?

Q3: What audience do you service?

Table 5.36: Strategy Effectiveness In-depth Interview

Respondent	Response		
	Q 1	**Q 2**	**Q 3**
Principle Information & Communication Officer _ZEMA	Despite numerous challenges, they have been useful and working very well. A lot has been achieved this far	- English and all Zambian languages	- The general public. (Includes individuals and institutions.)
Teacher_ Environmental Studies (Coordinator Chongololo School Club)	- It depends, some are working well while some are not so well - For example brochures and booklets have been useful in schools but not very useful in the communities - Use of TV and radio may be very useful but only to those who have access to them - Meetings and workshops are very informative but may mainly benefit those who are invited and those who receive reports for such events	- English, Chibemba and Chinyanja	- School pupils, teachers and neighbouring communities.

Environmental Education Co-ordinator_ WECSZ	- They are very useful especially that the reading culture is low hence discussions become more effective - Some are not as effective as they should due to various challenges faced out there	- English and all local languages - Illustrations through pictures and signs	- All local communities
Environmental Activist	- Some are working very well while some are not accessible to many hence its a 50-50 chance	- Mainly use local languages mixed with English	- Schools, churches, markets, various institutions or workplaces and surrounding communities.

CHAPTER SIX

6. DISCUSSION OF FINDINGS

6.1 Introduction

The research evaluated the communication strategy used by Zambia Environmental Management Agency (ZEMA) in promoting environmental sustainability to Kabwe and Lusaka residents.

Presented here are the findings of the evaluation which encompassed five broad areas namely: (a) evaluating the Communication strategies used by ZEMA in promoting environmental sustainability. (b) Determining the Information communicated to Kabwe and Lusaka residents on environmental sustainability (c) Assessing the effectiveness of the Communication channels used by ZEMA in promoting environmental sustainability. (d) Assessing awareness levels of Kabwe and Lusaka residents on environmental sustainability (e) Determining the effectiveness of ZEMA's communication strategies on environmental sustainability

6.2. Discussion of the findings on the Communication strategy used by ZEMA in promoting environmental sustainability

This objective enquired on the communication strategy used by ZEMA in promoting environmental sustainability. Hence this discussion highlights the source of information for Kabwe and Lusaka residents, and also tries to establish who gave them any assistance towards resolving their environmental problems. The two questions helped to assess the communication strategy. The findings were as follows:

6.2.1. Kabwe and Lusaka Residents Information Source

The findings of the study shows that the majority of the Kabwe and Lusaka residents, representing 34%, received information on environmental sustainability from environmental activists who go round the communities sensitising and educating the communities regarding environmental sustainability. Environmental Activists have taken it upon themselves to supplement ZEMA and other stakeholder's efforts to sensitise and educate the general public on environmental issues. Others said they got

the information from ZEMA officers representing 30%, further 21% said that they received information from school teachers while 15% received it from officers from the Ministry of Environment, Tourism and Natural resources (MTNR).

To assess the communication strategy, the study enquired the assistance Kabwe and Lusaka residents received towards solving their environmental challenges. To that effect, the study revealed that the majority received assistance from government. This came in form of information and infrastructural development. GRZ through ZEMA have developed various literatures like brochures, flyers and bulletins which they have been distributing to the general public. In addition, government embarked on environmental infrastructure development like the construction of drainage systems. Furthermore, 30% of the respondents revealed that they did not receive any form of assistance. 20 % received information from friends while 18% received it from NGOs.

6.2.2. ZEMA and Stakeholders on Communication Strategy

The in-depth interviews conducted with ZEMA officers and other stakeholder's revealed the importance of the communication strategy ZEMA put in place to promote environmental sustainability. Communication to the general public is done through holding various workshops and fora, Parliamentary committee on energy, environment and tourism which discusses all environmental related issues, facilitating the commemoration of environmental related international days like world water day, world environmental day, energy week among others. In addition provision of various environmental literatures through the communication centre where various documents like environmental manuals, outlooks, brochures and other booklets can be accessed, various radio and TV programs, participating in various international and local exhibitions like the agriculture show, trade fair among others. The use of drama, posters, printed t-shirts and banners have also been useful to reach out to the communities.

In addition, the strategy was developed as a tool to enhance ZEMA's internal communication culture so as to create a workforce that understands the mission, goals, values and procedures of the organization. The intention is to create an

organizational culture that brings coherence to the workplace, and allows better coordinated action.

The Communication Strategy is based on behavioral change; it is a combination of communication tools and several conversions regarding different behavioral change attitudes and activities which ZEMA and its various stakeholders should undertake. The strategy is an overall tool to assist ZEMA in achieving better communication performance and ultimately begin to provide leadership in environmental related communication.

6.2.3. Consideration of Variables

The sex and education variables were considered. According to table 5.1 , the sex variable was not equally proportionately distributed as it shows that out of the 100 respondents 60% were male while 40% where female. This can be attributed to the fact that men are usually in the fore front and taking the leading role while women find themselves behind men, hence the imbalance in the distribution pattern. On the other hand, the education variable was evenly distributed where 67% of the respondents have attained tertiary education, 24% have attained secondary education, and respondents without any level of education constituted 5%. Respondents with primary education were 4% as shown in table 5.3. This distribution was attributed to the fact that the majority of the respondents were civil servants.

6.3. Discussion of the findings on the Information communicated to Kabwe and Lusaka residents on environmental sustainability

This objective focused on the information or key messages communicated to the Kabwe and Lusaka residents on environmental issues.

6.3.1. Information ZEMA communicates to Kabwe and Lusaka residents

The findings of the study shows that the majority of the Kabwe and Lusaka residents did not receive any information on environmental sustainability representing sixty percent (60%), while eight percent (8%) of the respondents indicated that they received information on the importance of Afforestation, twenty seven percent (27%) indicated that they had received information on environmental management and five

percent (5%) had received information on the importance of safe disposal of waste. Hence, as table 5.9 and figure 5.7 clearly show, out of the 100 respondents, sixty (60%) respondents did not receive any information while Fourty percent (40%) received various information including messages on Afforestation, safe disposal of waste and environmental management.

6.3.2. Focus Group Discussion on the Information Communicated to Kabwe and Lusaka residents

From the FGD, it was clear that ZEMA strives to give out various messages on environmental sustainability. Key messages that came out of the discussion included new technology on conservation farming, importance of environmental care, importance of guarding natural resources, benefits of safe waste disposal, the role each one can play to achieve environmental sustainability and behavioral change towards environmental sustainability.

6.3.3 ZEMA Officers and stakeholders on information ZEMA communicates to Kabwe and Lusaka residents

In order to establish the kind of information ZEMA communicates to the general public, the officers were asked to state the exact messages disseminated on environmental issues. In their response they mentioned key messages such as Safe disposal of waste, stakeholder participation in all environmental issues, and the benefits of environmental care. The officers also mentioned climate change resilience activities, the importance of safeguarding natural resources, general cleanliness, and tree planting or replacements. The study also revealed that these messages are originally designed in English language then later translated into key Zambian local languages.

6.3.4. Consideration of Variables

The variables which were looked at here include sex and education. As table 5.1 shows, the sex variable distribution was not equally proportionate where out of the 100 respondents 60% were male while 40% where female. This can be attributed to the fact that men are usually in the fore front and taking the leading role while women find themselves behind men, hence the imbalance in the distribution pattern.

However, the education variable was evenly distributed where 67% of the respondents have attained tertiary education, 24% have attained secondary education, and respondents without any level of education constituted 5%. Respondents with primary education were 4% as shown in table 5.3. This distribution was attributed to the fact that the majority of the respondents were civil servants. The study further shows that the sex and education variables did not have adverse effects on the results of the assessment because table 5.3 clearly shows that the majority of the respondents are educated representing 95% and only 5% where not educated, hence the majority where able to read and write therefore able to understand the messages without much difficulties.

6.4. Discussion of the findings on the effectiveness of the Communication Channels used by ZEMA in promoting environmental sustainability

This objective was enquiring how effective communication channels used to promote environmental sustainability are.

6.4.1. Communication channels used in promoting environmental sustainability

To assess the effectiveness of the communication channels, the study began by enquiring on the most common and frequent communication channels that are used by ZEMA in promoting environmental sustainability. It was discovered that out of the 100 respondents, 23% got the information through listening to ZNBC radio, 21% by watching ZNBC TV and only 7% got it from a poster. 15% got the information from Muvi TV, 14% from radio Maranatha, 11% from reading newspapers while 9% got it by interacting with friends and relatives. This information is presented in table 5.15 and figure 5.11.

6.4.1.1. Radio Listening

According to table 5.12 and figure 5.8, sixty percent (60%) of the respondents listen to the radio every day or throughout the week, fifteen percent (15%) listen to the radio five times a week, while only five percent (5%) do not listen to the radio at all. The study also reviewed that nine percent (9%) of the respondents listen to the radio at least three times a week, two percent (2%) listen to the radio six times a week, five percent (5%) access the radio twice a week and three (3%) listen to the radio only

once a week. Therefore, the study shows that at least the majority of the respondents have access to radio. This was attributed to the fact that many people own a radio sets at home and in the office, while some listen to the radio in their cars while others access the radio while travelling on public transport.

6.4.1.2. TV Watching

Table 5.13 and figure 5.9 reveal that the majority respondents watch TV everyday representing 64%, while 2% only watch twice a week and 8% do not watch TV at all. 12% watch TV five days a week, 5% six days a week and 4% four days a week. This shows that out of the 100 respondents, 92% have access to a TV while only 8% do not have access to the TV at all. This was attributed to the fact that TV is a major source of entertainment in many households hence accessible to many.

6.4.1.3. Newspaper Reading

According to table 5.14 and figure 5.10, out of the 100 respondents, fourty six percent (46%) read the newspaper every day, while five percent (5%) do not know how to read and three percent (3%) have no access to newspapers. The study further reveals that thirty four percent (34%) read newspapers at least two to three days a week, two percent (2%) twice a month while ten percent (10%)read the newspaper only once a month. Therefore, it is clear that out of the 100 respondents, ninety two percent (92) have access and read newspapers while eight percent either do not know how to read or have no access to the newspapers. This result was attributed to the fact that some respondents can afford to buy a newspaper, some access newspapers at their place of work while others read them at public institutions like schools, hospitals and other public offices.

6.4.2. Focus Group Discussion on Effectiveness of the Communication Channels

During the FGD, to establish the effectiveness of the communication channels, two key questions were asked on the communication channels used and how effective they are. The discussion highlighted that local radio and TV stations, electronic media, information desks and libraries are the key channels used. Others included meetings and workshops, commemorating environmental days and also various print

outs like t-shirts, banners, magazine and other brochures. Drama, poems, sketches and road shows have also been used to reach out to the general public.

On the other hand, the effectiveness of the communication channels used by ZEMA in promoting environmental sustainability was given a fifty-fifty chance. For instance it was highlighted that the nature of the channels used like TV and radio have the ability to reach out to the masses. The use of English and all local languages has given an opportunity to the masses to access information in the language that suits them, also use of drama, poetry or songs also adds colour to the message delivery to the target audience. In addition, brochures and other handouts have the ability to reach out to many in a much easier way. However some participants questioned the timing of the programs on both Radio and TV and how many people are interested in watching or listening to the programs of that kind. They noted that most of the people only watch or listen to news, entertainment programs like music and soccer among others. Poverty has led to many not being able to buy newspapers or any other literature on environmental issues. In addition, ignorance has also disadvantaged the general public from accessing important environmental information.

6.4.3. ZEMA Officers and stakeholders on the Effectiveness of the Communication Channels

To establish the effectiveness of the communication channels used by ZEMA in promoting environmental sustainability, ZEMA officers and other stakeholders where asked what communication channels ZEMA use and how effective they are. The most utilized channels include the local radio stations, TV stations, and electronic media, information desks and libraries. Other channels include meetings and workshops, commemorating environmental days, various print outs like t-shirts, magazine and other brochures. Road shows, poems, sketches and drama are the other communication channels used to disseminate the key messages to the general public.

The officers and stakeholders pointed out that using the local and available communication channels has helped to reach out to the general public in as far as sensitization on environmental issues is concerned. These channels are used according to the target audience. Other initiatives like the Chongololo club have

helped to achieve a lot in the school environment. They have helped to change pupil's attitude towards the environment hence maintaining a clean surrounding. Moreover, the officers pointed out that these communication channels are fairly doing fine though more can be done to achieve a bit more in addition to what has been achieved so far. The channels have been effective though they require more resources to reach a wider community.

6.4.4. Consideration of variables

The variable looked at here were sex, education and income. Table 5.1 shows that out of the 100 respondents 60% were male while 40% were female. Hence sex distribution was not evenly distributed. This was due to the fact that men are usually more active in such things where they are usually in the fore front and taking the leading role while women find themselves behind men, hence the imbalance in the distribution pattern. Moreover, the education variable was evenly distributed where 67% of the respondents have attained tertiary education, 24% have attained secondary education, and respondents without any level of education constituted 5%. Respondents with primary education were 4% as shown in table 5.3. Thus, the majority were able to read and write.

Table 5.5 and Figure 5.4 show that out of the 100 respondents, 63% of the respondents who were the majority were earning K1000 and above per month, while about 37% of the respondents are earning less than K1000 per month. Hence it is clear that the majority respondents could afford to buy a newspaper, magazine or any other type of information which is helpful in terms of environmental sustainability.

6.5. Discussion of the findings on awareness levels of Kabwe and Lusaka residents on environmental sustainability

The purpose of this objective was to enquire how aware Kabwe and Lusaka residents are on environmental sustainability.

6.5.1. Kabwe and Lusaka resident's awareness level on environmental sustainability

Kabwe and Lusaka residents were asked what they knew about environmental sustainability. The study shows that out of the 100 respondents, the majority knew actions to look after the environment representing fifty six percent (56%), thirty five percent (35%) knew the programs which help to understand environmental issues, while nine percent (9%) did not know anything. As presented in Table 5.19 and Figure 5.12, ninety one percent (91%) of the responds are knowledgeable about environmental sustainability, while only nine percent (9%) do not know anything.

Furthermore, the study was finding out how Kabwe and Lusaka residents were affected by environmental challenges. Table 5.21 and figure 5.14 reveals that the majority of the respondents were affected by pollution representing fourty three percent (43%), sixteen percent (16%) were affected by floods, and eight percent (8%) were affected by uncollected waste. Moreover, seven percent (7%) of the respondents were affected by changing weather patterns, while the least were affected by deforestation representing one percent (1%) only.

The study also looked at Kabwe and Lusaka residents' perception on burning waste. Table 5.24 and figure 5.17 show that seventy five percent (75%) of the respondents stated that burning waste is a bad practice; eleven percent (11%) said it affects environmental safety. Three percent (3%) stated that it is a good practice because it is quickest way to get rid of the waste, while one percent (1%) stated that it pollutes the environment. However, ten percent (10%) did not respond to the question.

Furthermore, the study enquired on how helpful the information Kabwe and Lusaka residents received concerning environmental sustainability. According to table 5.27 and figure 5.20, fourty three percent(43%) of the respondents agreed that the information they received helped them understand environmental sustainability issues very well, thirteen percent (13%) disagreed that the information did not help them in any way, however thirty nine percent (39%) did not know whether the information was helpful or not. They could not tell.

6.5.2 Focus Group Discussion on Kabwe and Lusaka resident's awareness level on environmental sustainability

In order to understand the awareness level, the group was asked what they understand on the concept of environmental sustainability, pressing issues regarding the state of the environment and how those issues can be solved. The discussion noted that environmental sustainability involves making decisions and taking actions that are in the interest of protecting the natural world with particular emphasis on preserving the capability of the environment to support human life. In other words, it involves making responsible decisions that reduces negative impact on the environment. They further described environmental sustainability as a wise utilization of the environmental resources for future use.

With regard to the pressing issues regarding the state of the environment, the discussion brought out issues of air, noise, water and land pollution, poor waste management (poor sanitary facilities). In addition, illegal and unnecessary cutting of trees has led to forest degradation. On the other hand uncontrolled mining led to various environmental challenges which have been very difficult to contain. Unplanned and illegal settlements have also resulted in numerous environmental challenges.

The group discussed that finding sustainable solution to the above pressing issues can be a huge task. However, the discussion suggested that Sensitization to the communities on issues of the environment must continue or should be a continuous process. They further pointed out the need to enforce all environmental related laws so that they become as strong as other laws of the land. Resettlements, especially to well-planned areas was suggested so that people can live in more habitable places and reduce on environmental risks that come with unplanned settlements. Other suggestions were formation of strong links among all stakeholders which also include institutional collaboration through planning and implementing environmental projects together. Furthermore, more resources should be channeled to environmental related activities to help achieve environmental sustainability. One of the most important

solutions that came out of the discussion was attitude change and increased participation of all the stakeholders at all levels.

6.5.3. ZEMA Officers and stakeholders on the Kabwe and Lusaka resident's awareness level on environmental sustainability

In order to establish awareness levels of Kabwe and Lusaka residents on environmental sustainability, the officers and stakeholders were asked what ZEMA is and what it does, their perception on the state of the environment and the selection criteria of officers to work with on environmental issues. ZEMA was described as a government institution mandated to implement and enforce provisions of environmental management act number 12 of 2011. In other words, it is there to monitor and report on the state of the environment and associated environmental trends. It focuses on integrated management, protection and conservation of the environment and use of natural resources. It also provides reports on all environment issues and advice the policy direction. It is there to spearhead environmental sustainability through undertaking environmental education and awareness. In summary, ZEMA is charged with the responsibility to educate, inform and regulate all environmental issues in the country.

The officers pointed out that economic growth and population increase is posing a threat on the environment. For instance during the rainy season there are challenges relating to waste management which has mainly resulted in environmental degradation and disease outbreak. The dry season has also seen uncontrolled bush fires causing massive pollution to the environment. In addition, increased industrial activities have also posed numerous challenges to the environment. According to the stakeholders, poor implementation of environmental projects has resulted in massive pressure on the state of the environment. They further noticed that the environment is very much compromised at the moment especially in urban areas where the population is increasing while the facility to support its sustainability remains static.

ZEMA officers and all the stakeholders who responded to the in-depth interviews said they have been involved in environmental issues for more than five years now and it has been a very interesting experience. When it comes to selecting criteria for other

people to work with, they mainly involve individuals or institutions already involved in environmental related activities. The officers disclosed that some are involved as consultants, some as interns or students on attachment. At a school level, any teacher or pupil who joins the club becomes active in all environmental related activities the club is involved in.

Further, other stakeholders come in to support the activities the club is involved in like sponsoring radio programs among others. High profile and influential figures are also targeted to profile the programs and also help to pull the crowds and also sponsor various activities aimed at promoting environmental sustainability. In other words, focus is on those areas where the information is needed most and who is suitable to help deliver that critical information.

6.5.4. Consideration of Variable

Under this objective, the variables of interest were education and occupation. Table 5.3. and figure 5.2. show that among the respondents ninety five (95%) have attained various levels of education, while five percent (5%) were without any level of education. It means that majority respondents are educated hence could at least read and write making it easy for them to read and interpret the message on environmental sustainability they come across. With regard to occupation, Table 5.4 and figure 5.3 show that out of the 100 respondents, majority where civil servants representing twenty seven percent (27%), followed by business men representing 18%. The least were bankers representing four percent (4%). Hence the level of education and occupation helped the respondents to acquire substantial information on environmental sustainability.

6.6. Discussion of the findings on the effectiveness of ZEMA's communication strategy on environmental sustainability

This objective was aimed at finding out how effective the communication strategy is in terms of delivering the messages to the intended beneficiaries.

6.6.1. Effectiveness of ZEMAs Communication Strategy on environmental sustainability

To assess the effectiveness of the communication strategy, the study looked at what assistance the Kabwe and Lusaka residents received towards helping various environmental challenges and how they rate that assistance; challenges concerning the state of the environment and what exactly they have done to respond to numerous environmental challenges in the communities.

According to table 5.30 and figure 5.2, majority of respondents received assistance in form of information representing fifty one percent(51%), eight percent(8%) in form of material, three percent(3%) in form of cash and thirty eighty eight percent (38%)did not receive any form of assistance. In terms of rating the assistance received, the study shows that twenty two percent (22%) of the respondents rated the assistance they received enough while those who could not tell and those who rated it not enough were thirty nine percent (39%) each. Table 5.32 and figure 5.22 indicates that the majority respondents face challenges of pollution representing 49%, while the least faced challenges was over population representing 1% only.

Table 5.32 and figure 5.22 indicate that the majority respondents face challenges of pollution representing fourty nine percent (49%), twenty nine percent (29%) poor drainage system, twelve percent (12%) floods, six percent (6%) faced disease outbreak, and the least faced challenges was over population representing one percent (1%) only. However, three percent (3%) did not respond to the question.

Moreover to find out whether the respondents have done anything to respond to environmental challenges, table 5.33 and figure 5.23 show that seventy five percent (75%) of the respondents have not done anything to respond to environmental challenges while only twenty five percent (25%) have done something to respond. Furthermore, Table 5.34 and figure 5.24 indicate that thirty six 36% percent of the respondents have not done anything about environmental challenges due to inadequate information, twenty seven percent (27%) has been due to lack of resources, while six percent (6%) has been due to lack of energy. However, thirty one (31%) did not respond to the question.

6.6.2. Focus Group Discussion on the Effectiveness of ZEMAs Communication Strategy on environmental sustainability

To find out how effective the communication strategy was in promoting environmental sustainability, a number of questions were asked on the perception of the local programs promoting environmental sustainability, how the messages are packaged and also the suitability of the communication channels being used. During the discussion, the participants pointed out those local programs addressing various environmental challenges which are good but not done adequately. For example, they said that some stakeholders are not even aware of what programs are taking place. In other words, not much information is being shared with some key stakeholders. They further appreciated the fact that significant efforts are being seen on various environmental issues. For example, environmental programs going on in schools are doing fine as most schools have achieved a lot. The discussion acknowledged the fact that programs are there but somehow lack motivation for the masses to join in or be part of it. Some key stakeholders who should have been in the fore-front are not doing so because they feel that it is the role of ZEMA and the Ministry of environment to address all environmental challenges.

The discussion brought out challenges of how messages are packaged. They said that messages are too formal hence give challenges to people in communities to understand it clearly. In other words, the messages are not very practical. They believe that such messages on environmental issues should be packaged in such a way that communities or the general public should be able to assimilate easily. In most cases they need clarifications and illustrations. Messages should be self-explanatory and should be convincing.

The use of both print and electronic media has proved to be very useful in reaching out to the general public on environmental issues. This is because people access different type of media channels depending on their location. For example use of TV and radio has helped to disseminate information because it is one of the most accessed media channels in the country. The discussion noted that TV and radio are a major source of entertainment, news and education hence they are very useful to

reach out to the masses. Newspapers, magazines and other literature books are also very useful in reaching out to the general public. However discussants noted that TV and Radio could be difficult to access especially in rural areas where they receive poor signals and difficulties with power sources. On the other hand, print media has been difficult due to people's poor reading culture. They pointed out that one can access a newspaper or magazine but their concentration will be on entertainment and those news items they feel are more relevant to them. Inadequate resources have hindered regular use of channels like drama and public announcement systems which could be very useful especially in the communities.

6.6.3. ZEMA Officers and stakeholders on the Effectiveness of ZEMA's Communication Strategy on environmental sustainability

To assess the effectiveness of the communication strategy, ZEMA officers and stakeholders were asked their perception about the local programs addressing environmental challenges, the messages disseminated to the general public and the language used, also the appropriateness of the communication channels used and the target audience. According to the officers, despite numerous challenges, the communication strategy has been very useful and has helped to reach out to the general public. The document has been a principle guide in terms of disseminating information to the masses. ZEMA's communication strategy has not only helped to communicate environmental issues to the general public, but also internal communication within the institution itself thereby helping the officers to work together on critical communication issues.

Moreover, some stakeholders questioned the effectiveness of the communication strategy, claiming that some activities on environmental sustainability are almost invisible. They noted that various activities are there on paper but they have not seen them in practice. The study brings out the fact that messages on environmental issues are there but whether they are being delivered accordingly was questioned by some stakeholders. However, most of the stakeholders acknowledged the role the media has been playing in trying to disseminate information to the general public. Both electronic and print media have been very useful though not without challenges. For

example brochures and booklets have been useful in schools but not very useful in the communities. In addition, the use of TV and radio may be very useful but only to those who have access to them. The use of English and various Zambian languages has also helped the communities to understand messages in the language they are familiar with.

Furthermore, meetings and workshops are very informative but mainly benefit those who are invited and those who receive reports for such events. Hence they are sometimes seen to be servicing the minority. The discussion fora are very useful especially that the reading culture is low hence discussions become more effective as it also gives chance for clarifications where needed. The officers noted that it is very important to identify and understand dynamics of the target audience, then package the messages on environmental issues which will be easy for the communities to understand and assimilate, thereafter identification of appropriate communication channels that will help to effectively disseminate information to the target audience. Hence planning for the communication strategy is key in achieving its objective of reaching out to the general public at all levels such as schools, places of work as well as the community.

6.6.4. Consideration of Variables

Under this objective, the variables of interest were education, occupation and income. Table 5.3 and figure 5.2 show that among the respondents ninety five (95%) have attained various levels of education, while five percent (5%) were without any level of education. Hence the education variable did not have any effect because the majority of the respondents are educated hence can at least read and write making it easy for them to read and interpret the message on environmental sustainability they come across.

With regard to occupation, Table 5.4 and figure 5.3 show that out of the 100 respondents, majority where civil servants representing twenty seven percent (27%), followed by business men representing 18%. The least were bankers representing four percent (4%). In addition, table 5.5 and figure 5.4 show the respondent's monthly income with about 63% of the respondents earning K1000 and above, while about

37% of the respondents are earning less than K1000 a month. Therefore, the occupation and income variable did not have any influence on the findings as majority respondents where in formal employment and earning at least more than K1, 000 in a month. Therefore, it is easy to access information, hence may be aware about environmental related issues.

6.7. CHALLENGES

In implementing, its communication strategy ZEMA faced the following challenges;

- Inadequate human resources
- Inadequate resources (funds, transport)
- Poor infrastructure
- Political interference

CHAPTER SEVEN

7. CONCLUSION AND RECOMMENDATIONS

7.1. Introduction

The research evaluated the communication strategy used by Zambia Environmental Management Agency (ZEMA) in promoting environmental sustainability to Kabwe and Lusaka residents.

Presented here are the findings of the evaluation which encompassed five broad areas namely: (a) evaluating the Communication strategy used by ZEMA in promoting environmental sustainability (b) Determining the Information communicated to Kabwe and Lusaka residents on environmental sustainability (c) assessing the effectiveness of the Communication channels used by ZEMA in promoting environmental sustainability (d) Assessing awareness levels of Kabwe and Lusaka residents on environmental sustainability (e) Determining the effectiveness of ZEMA's communication strategy on environmental sustainability.

7.2. Conclusion

The main objective of this study was to evaluate the communication strategy used by ZEMA in promoting environmental sustainability. The key issues regarding ZEMA's communication strategy were raised from the in-depth interviews with ZEMA officers and stakeholders, focus group discussion and questionnaires administered to Kabwe and Lusaka residents. Moreover, data analysis confirms the importance of the communication strategy at ZEMA since 2007. It has been a guiding document on various communication issues concerning the environment. The study revealed that out of the 100 respondents, thirty four percent (34%) of the respondents received information from an environmental activist; thirty percent (30%) from ZEMA officer; twenty one percent (21%) from ZEMA; and fifteen percent (15%) of the respondents said that they received information from an officer from the Ministry of Tourism, Environment and Natural Resources.

Diffusion of innovations theory, being the guiding principle of this study, is the most appropriate for investigating the adoption of technology in higher education and educational environments. It looks at the process in which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003, pp. 568-723). As expressed in this definition, innovation, communication channels, time, and social systems are the four key components of the diffusion of innovations. Hence, that is exactly what ZEMA and all stakeholders need to consider when passing key information on environmental sustainability to the audience. It starts with an innovation or an idea which is perceived as new by an individual or unit of adoption. Secondly, it looks at communication channels or the means by which the idea shall be communicated from the source to the audience. In this case, ZEMA mainly used mass media as a means of communication. Thirdly, there is need to consider time aspect. This entails how long it may take for the new idea to be adopted. How long will the key elements of ZEMA's communication strategy take to be adopted by the intended beneficiaries? Finally, consider the social system which is the set of interrelated units engaged in the joint problem solving to accomplish a common goal. This emphasizes the need to understand dynamics or characteristics of the audience so that ZEMA and all stakeholders can come up with a multi-stakeholder platform to come up with lasting solutions where environmental challenges are concerned. Hence communication of an idea is key from the source to the audience.

According to the findings of the study, both print and electronic media was used in disseminating information. Print media included various newspapers and posters. On the other hand, electronic media included ZNBC Radio, Radio Maranatha, ZNBC TV and MUVI TV. The use of both print and electronic media has been successful as they complement each other and audience are given an opportunity to at least access information on environmental issues through one of the media channels. However, the study discovered that out of the 100 respondents, thirty seven (37%) got the information through listening to radio, while thirty six (36%) by watching TV. Hence TV and radio are the most utilized communication channels by ZEMA.

However the study revealed that TV and Radio could be difficult to access especially in rural areas where they receive poor signals and difficulties with power sources. On the other hand, print media has been difficult due to people's poor reading culture. The study pointed out that one can access a newspaper or magazine but their concentration will be on entertainment and those news items they feel are more relevant to them. Inadequate resources have hindered the regular use of channels like drama and public announcement systems which could be very useful especially in the communities.

With regard to the information disseminated to Kabwe and Lusaka residents, the study found out that the majority of the Kabwe and Lusaka residents did not receive any information on environmental sustainability representing sixty percent (60%), while fourty percent (40%) received various information consisting messages on afforestation, safe disposal of waste and environmental management. ZEMA strives to give out various messages on environmental sustainability.The study brought out challenges of how messages are packaged. Some messages are too formal hence give challenges to people in communities to understand it clearly. In other words, the messages are not very practical for the communities to be able to assimilate easily. Messages should be self-explanatory and should be convincing.

The study took reference from the social cognitive theory which explains how people acquire and maintain certain behavioral patterns, while also providing the basis for intervention strategies (Bandura, 1992, pp. 175-208). Evaluating behavioral change depends on the factors such as environment, people and behavior. The theory is relevant for designing both educational and behavioral programs. This theory explains how people acquire and maintain certain behavioral patterns. The theory can also be used for providing the basis for intervention strategies. This is helpful in developing key messages of the communication strategy.

With regard to the communication channels, the study illustrated that radio and TV are the most utilized by ZEMA in promoting environmental sustainability. However, timing of the programs on both Radio and TV and how many people are interested in watching or listening to the programs of that kind raised some questions. The study

reveals that most of the people only watch or listen to news, entertainment programs like music and soccer among others. Poverty has led to many not being able to buy newspapers or any other literature on environmental issues. In addition, ignorance has also disadvantaged the general public from accessing important environmental information.

With regard to the Awareness Levels of Kabwe and Lusaka residents on environmental sustainability, the study established that as presented in Table 5.19 and Figure 5.12, ninety one percent (91%) of the respondents were knowledgeable about environmental sustainability, while only nine percent (9%) did not know anything about environmental issues. Hence the knowledge levels were very high. The study further enquired on how Kabwe and Lusaka residents were affected by environmental challenges. Table 5.21 and figure 5.14 reveal that the majority of the respondents were affected by pollution representing fourty three percent (43%), sixteen percent (16%) were affected by floods, and eight percent (8%) were affected by uncollected waste. Moreover, seven percent (7%) of the respondents were affected by changing weather patterns, while the least were affected by deforestation representing one percent (1%) only. The high knowledge levels were also confirmed by the way respondents described environmental sustainability as a wise utilization of the environmental resources for future use. This clearly showed how aware the respondents were on environmental issues. This was attributed to high literacy and educational levels.

Looking at the effectiveness of the communication strategy, the study established that despite numerous challenges, the communication strategy has been very useful and has helped to reach out to the general public. The document has been a principle guide in terms of disseminating information to the masses. ZEMA's communication strategy has not only helped to communicate environmental issues to the general public, but also internal communication within the institution itself thereby helping the officers to work together on critical communication issues. It was noted that some activities on environmental sustainability are almost invisible. They are there on paper but they have not seen them in practice.

7.3. Recommendations

In view of these findings, the following were recommended*;*

- There is need for reinforcement of the existing communication strategy and to empower stakeholders on the ground such as environmental activists.
- The law that protects the environment should be reinforced just like any other laws of the land. All those committing offences relating to the environment should be arrested and punished accordingly.
- Promotion of political will where leaders should be more dedicated to service the general public at the expense of personal benefits. In addition ZEMA should be allowed to operate professionally without any political interference.
- ZEMA and stakeholders need to select appropriate means of communication, packaging and dissemination of information according to the target audiences and environmental issues.
- There is need for more stakeholders involvement in environmental issues and allocate more resources to the sector particularly communication or sensitization**.**
- Improving community involvement in environmental management to enhance public participation.
- ZEMA should decentralise and have structures or officers to operate at a district level. This will enhance their operations at a lower level.
- There is need to harmonise environmental activities where different government departments should convene quarterly to update each other on what environmental activities they are doing. This will foster joint planning and implementation of environmental activities for improved service delivery. Use of a multi-sectorial approach.
- Need to broaden the means of reaching out to the general public such as the use of the church, schools and role models such as celebrities to deliver environmental messages to the target audience. In addition, the use of mobile service providers such as AIRTEL, MTN and ZAMTEL, and printing of

billboards, t-shirts, and chitenge material bearing messages of environmental sustainability.

- The world is now becoming a global village, hence social media such as Facebook, watsup, twitter, BBM, Skype and Linkedln can be used to sensitize the general public on environmental issues.

7.4. Future Research

- Conduct a study to ascertain if bringing various stakeholders on board or use of multi-stakeholder approach would help ZEMA to promote sustainable development through environmental management.

- Conduct a study to asses to what extent the use of existing social media such as Facebook, twitter, watsup, BBM, Linkedln and Skype can assist ZEMA to address communication needs to various audiences regarding environmental sustainability.

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APPENDICES

Appendix I: Research Questionnaire

QUESTIONAIRE FOR KABWE /LUSAKA RESIDENTS NO:……

THE UNIVERSITY OF ZAMBIA

SCHOOL OF HUMANITIES AND SOCIAL SCIENCIES

DEPARTMENT OF MASS COMMUNICATION

POST GRADUATE: COMMUNICATION FOR DEVELOPMENT

COURSE CODE: MCN 5011

Dear respondent

I am a post graduate student at the University of Zambia great east road campus. I am undertaking a research in a course, Communication for Development (MCN 5011). My topic being; **"**to evaluate the communication strategies used by Zambia Environmental Management Agency (ZEMA) in promoting environmental sustainability."

You are part of the selected sample from the entire population of Kabwe and Lusaka districts. I am therefore seeking your assistance in this regard by completing this questionnaire. The information collected will be used for academic purpose with highest confidentiality. To ensure confidentiality is maintained in its strongest terms, I request you not to write your name on the questionnaire.

INSTRUCTION FOR RESPONDENTS

1. Do not indicate your name on the questionnaire.
2. Please try as much as possible to answer all the questions.
3. Give an answer that expresses your view.

ENVIRONMENTAL QUANTITATIVE QUESTIONAIRE 2013/2014

MASTERS OF COMMUNICATION FOR DEVELOPMENT RESEARCH

QID	QUESTION NUMBER	DESCRIPTION	RESPONSE CODE
	Residence		
	Physical Address: Phone Number:	…… …. …… …. …… ….	
	(a) District		
	(b) Province		
	Name of interviewer		
	Date of interview	……../……../……. (DD/MM/YYYY)	
	Name of field editor		
	Date of editing	……../……../…… (DD/MM/YYYY)	
	Name of data entry clerk		
	Date of completion	……../……../…… (DD/MM/YYYY)	

SECTION A: BACKGROUND INFORMATION

1. What is your sex?

   1. Male [ ] 2. Female [ ]

2. What is your age?

   1. 19 years and below [ ]
   2. 20-29 [ ]
   3. 30-39 [ ]
   4. 40-49 [ ]
   5. 50-59 [ ]
   6. 60 and above [ ]

3. Highest level of education attained?

   1. None [ ]
   2. Primary [ ]
   3. Secondary [ ]
   4. Tertiary [ ]

4. What is your occupation? .....

5. What is your monthly income?

   1. Less than K150 [ ]
   2. K150 – K499 [ ]
   3. K500- K999 [ ]
   4. K1,000 and above [ ]

SECTION B: ENVIROMENTAL SUSTAINABILITY

6. What do you know about environmental sustainability?

   1. Actions to look after the environment [ ]
   2. Programs which help to understand environmental issues [ ]
   3. Do not know anything [ ]
   4. Other

      specify……

      ……

7. Are you affected by any environmental degradation?
    1. Yes [ ] 2. No [ ]
8. If yes, how are you affected?
    ……..
9. How long have you been affected?
    1. 1 year [ ]
    2. 2 years [ ]
    3. 3 years and above [ ]
10. Do people in your neighborhood burn waste?
    1. Yes [ ] 2. No [ ]
11. What do you think about this practice?
    .....
12. How often do you get affected by the same environmental problem?
    1. Daily [ ]
    2. Weekly [ ]
    3. Monthly [ ]
    4. Annually [ ]
    5. Once every 2 years [ ]
13. What kind of assistance have you received towards helping your situation?
    1. Cash [ ]
    2. Material [ ]
    3. Information [ ]
    4. Other,
        specify……
        ……
14. Who gave you the assistance?
    1. A friend
    2. Government
    3. NGO
    4. Other, specify ……

15. In your opinion, how would you rate the assistance you have been receiving?
    1. More than enough [ ]
    2. Enough [ ]
    3. Cannot tell [ ]
    4. Not enough [ ]
16. What challenges have you been facing in your area concerning the state of the environment? Kindly specify.
    1. Poor drainage system [ ]
    2. Over population [ ]
    3. Floods [ ]
    4. Disease outbreak [ ]
    5. Pollution [ ]
    6. Other,
    7. specify

       ……
17. Have you encountered any problems concerning deforestation in your area?
    8. Yes [ ] 2. No [ ]
18. Have you done anything to respond to the environmental challenges in your community?
    1. Yes [ ] 2. No [ ]
19. If the answer to question 18 is No, why haven't you done anything about it?
    1. Lack of energy to do so [ ]
    2. Lack of resources to do so [ ]
    3. Inadequate information on how to respond [ ]
    4. Other,

       specify……

       ……..
20. What do you think should be done by Government and other stakeholders to improve the state of the environment?
    1. Increase awareness levels [ ]

2. Improve on infrastructure relating to environmental issues [ ]
3. Other, Specify ……

SECTION C: COMMUNICATION STRATEGY

21. How many days in a week do you listen to the radio? Kindly indicate the number on the following dots: …….days.
22. How many days or nights in the last week do you watch television? Kindly indicate the number on the dots…….days/nights.
23. How often do you read the Newspaper to get information and news?
    1. Once a month [ ]
    2. Once a week [ ]
    3. Two to three time a week [ ]
    4. Everyday [ ]
    5. Never read them [ ]
    6. Do not have access to them [ ]
    7. Do not know how to read [ ]
24. Information and messages about the environment come to us in various channels. Kindly indicate how you received the information and messages on environmental sustainability.

Media source	Yes	No	Don't Know
1. ZNBC Radio 2	[ ]	[ ]	[ ]
2. ZNBC Radio 1	[ ]	[ ]	[ ]
3. Radio Maranatha	[ ]	[ ]	[ ]
4. Muvi TV	[ ]	[ ]	[ ]
5. ZNBC TV 1	[ ]	[ ]	[ ]
6. ZNBC TV2	[ ]	[ ]	[ ]
7. The Post	[ ]	[ ]	[ ]
8. Times of Zambia	[ ]	[ ]	[ ]
9. Daily Mail	[ ]	[ ]	[ ]

10. Poster [ ] [ ] [ ]
11. Relatives and friends [ ] [ ] [ ]
12. Other,
    specify……

25. What information have you ever received from ZEMA or any other organisation regarding environmental sustainability?
    .....
    .....
    .....
    .....

26. Who gave you the information?
    1. An officer from ZEMA [ ]
    2. An officer from ministry [ ]
    3. Environmental activists [ ]
    4. Other,
       specify……
       …..

27. Did the information you were given help you understand issues of environmental sustainability?
    1. Yes [ ]
    2. No [ ]
    3. Don't [ ]

28. If the answer to question 27 is No, what do you think lacked in the information you were given?.....
    .....
    .....
    .....

Appendix II: In-Depth Interview Guide:

I. Introduction

Part 1

- Thank the participants for coming
- Explain the purpose of the study
- Assure them that the discussion will be kept confidential
- Ask for their consent to participate and explain that their participation is voluntary

Part 2

- Explain the purpose of the Interview
- Tell them the amount of time the interview is expected to last
- Introduce the moderator (yourself), the note taker and explain what each one will be doing
- Remind the participant that anything which is said in the interview should not be talked about outside.
- Explain that a voice recorder will be used since the note taker cannot write down everything
- Explain that there is no right or wrong answers and that their opinion is important and respected.
- Have participant introduce themselves and share something about themselves (their name, occupation and name of their organization).

Study purpose:

The researcher is interested in learning how you feel about the communication strategies used by Zambia Environmental Management Agency (ZEMA) in promoting environmental sustainability.

III. Attendance Register

Moderator: ……..

Note taker: …….

Venue: ……..……..

Start Time: …….

End Time: …….

Date: ……..

INTERVIEW REGISTER

NAME	POSITION	ORGANISATION/ INSTITUTION	CONTACT DETAILS

III. In-Depth Interview Questions

(QUESTIONS FOR ZEMA OFFICERS AND STAKEHOLDERS**)**

Name……

Position……

Organization……

Date……

1. What is ZEMA?
2. In what ways have you been involved in environmental issues?
3. For how long have you been involved in environmental issues?
4. What is your perception of the state of the environment?
5. What selection criteria used in selecting eligible officers to be involved in dealing with environmental issues?
6. What communication strategies has ZEMA put in place?
7. Are they working?
8. What kind of information is given to the gener5al public regarding environmental sustainability?
9. What communication channels do you use to disseminate information and how often is the information communicated to the stakeholders/beneficiaries?
10. How effective and efficient are the communication channels used by ZEMA?
11. What messages do you bring out?
12. What language is used to communicate this information?
13. What audience do you service?
14. Which type of media do you think is effective in communicating to the beneficiaries?
15. Why do you think that this type of media is effective?

Appendix III: Focus Group Discussion Guide

I. Introduction

Part 1

- Thank the participants for coming
- Explain the purpose of the study
- Assure them that the discussion will be kept confidential
- Ask for their consent to participate and explain that their participation is voluntary

Part 2

- Explain the purpose of the focus group discussion
- Tell them the amount of time the discussion is expected to last
- Introduce the moderator, the note taker and the assistant and explain what each one will be doing
- Remind the participants that anything which is said in the discussion should not be talked about outside of the group.
- Explain that a voice recorder will be used since the note taker cannot write down everything
- Explain that there is no right or wrong answers and that it is okay to disagree. It is important to respect others' / each other's opinions.
- Ask everyone to speak one at a time
- Have participants to introduce themselves and share something about themselves (e.g. ask each participant to says their name, occupation, the cooperative they belong to or organization and where they live).

Study purpose:

The researcher is interested in learning how you feel about the communication strategies used by Zambia Environmental Management Agency (ZEMA) in promoting environmental sustainability.

II. Attendance Register

Moderator: ……..

Note Taker: …….

Venue: ……...……..

Start Time: …….

End Time: …….

Date: ……..

PARTICIPANT REGISTER

NAME	POSITION	ORGANISATION/ COOPERATIVE	CONTACT DETAILS

III. Focus Group Discussion Questions

(Government officers and other local stakeholders)

Number of participants: ……..……

Location: ……..……

Date……

1. What is your understanding of environmental sustainability?
2. What are the pressing issues regarding the state of the environment?
3. How can these issues be solved?
4. What is your perception of the local programs promoting environmental sustainability?
5. What are the correct channels of communication used to pass on information to beneficiaries?
6. How effective and efficient are these channels?
7. What kind of information is passed on to the beneficiaries?
8. How relevant is the information?
9. Who do you use to communicate your messages?
10. Do you segment the audience?
11. What factors have contributed to the state of the environment in the local communities?
12. In your opinion, what needs to be done to improve on the state of the environment in the local communities?