

**STAKEHOLDERS' ENGAGEMENT WITH INTEGRATION OF ENVIRONMENTAL
EDUCATION IN THE ZAMBIAN SCHOOL CURRICULUM**

**By
Loveness Nakwiza**

**A dissertation submitted to the University of Zambia in partial fulfillment of the
requirements of the degree of Master of Education in Environmental Education.**

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DECLARATION

I, LOVENESS NAKWIZA, declare that the dissertation hereby submitted is my own work and it has not previously been submitted at the University of Zambia or any other University. All sources of information have been sincerely acknowledged.

Signed:

Date:

CERTIFICATE OF APPROVAL

This dissertation by LOVENESS NAKWIZA is approved as a partial fulfillment of the requirements for the award of the Master of Education (Environmental Education) degree of the University of Zambia.

Examiner 1:.....Signature..... Date:.....

Examiner 2:.....Signature..... Date:.....

Examiner 3:.....Signature..... Date:.....

**Chairperson, Board of Examiners:.....Signature.....
Date:.....**

Supervisor:.....Signature..... Date:.....

DEDICATION

I dedicate this work in appreciation of my husband, Fredrick Chomba, my parents, Mr. Ketson S. Sikwiza and Mrs. Klennet Muzumara Sikwiza, the Sihalwes, my family and friends who have always stood by me and supported me in my academic endeavors.

ABSTRACT

The study aimed at examining key stakeholders' engagement with the integration of Environmental Education (EE) in the Zambian School Curriculum. The objectives of the study were to: determine actions of key stakeholders towards integration of EE in the curriculum, examine the contribution of such actions towards the integration of EE in the school curriculum, assess whether or not key stakeholders collaborated towards the integration of EE in the school curriculum and suggest best practices for integrating EE in the school curriculum.

The study used a qualitative approach and a descriptive case study design involving three selected secondary schools of Chilanga district was employed. The target population was the University of Zambia (UNZA), Ministry of Water Development, Sanitation and Environmental Protection (MoWDSEP), Ministry of General Education (MoGE), Curriculum Development Centre (CDC) officials, secondary school managers and teachers.

Purposive sampling was used to select the respondents. Data was collected using semi structured interviews, focus group discussions and non- participant observations. Data was analyzed using thematic analysis and validated using in between method of triangulation.

Results showed that key stakeholders were involved in a number of actions towards the integration of EE in the curriculum. The contribution of most of such actions was however, found to be limited mainly due to underutilization. With regards to collaboration, the study found that stakeholders' collaboration towards EE was poor. Stakeholders merely informed each other most of the times and did not truly involve or engage with each other.

In conclusion, the study showed that stakeholders' engagement towards EE integration in the Zambian school curriculum was poor. Based on these findings, it was recommended that key stakeholders needed to engage in monitoring and evaluation of EE and in developing an effective communication strategy to ensure that actions were fully utilized and collaboration enhanced respectively.

Keywords: Environmental Education, collaboration and stakeholder engagement.

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ABBREVIATIONS AND ACRONYMS

CDC	Curriculum Development Centre
DEBS	District Education Board Secretary
DESOs	District Education Standards Officers
EE	Environmental Education
MoWDSEP	Ministry of Water Development, Sanitation and Environmental Protection
MoGE	Ministry of General Education
MoE	Ministry of Education
NEAP	National Environmental Action Plan
NGOs	Non-Governmental Organizations
NPE	National Policy on Environment
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNZA	University of Zambia
UNICEF	United Nations International Children's Emergency Fund
WCED	World Commission on Environment and Development
ZECF	Zambia Education Curriculum Framework

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CHAPTER ONE: INTRODUCTION

1.1 Overview

This chapter presents the background that brought about the need for this research, statement of the problem, purpose, the specific objectives and research questions of the study. The chapter also includes the significance of the study, operational definitions used in the study and finally outlines theoretical framework of the research.

1.2 Background

Environmental Education (EE) as a field of study traces its roots back to the late 1960s and 1970s when the modern environmental movement arose from Nature Studies. It emerged as a response to many environmental challenges like deforestation, pollution and land degradation that arose mainly due to the war and industrialization (Lounghland, 2006). These problems threatened not just human life but also that of other fauna and flora. There was therefore, need to embark on a kind of education that would help to solve these problems. This assertion was reaffirmed internationally in Stockholm, in 1972, at the United Nations conference on Human Environment where it was declared that Environmental Education must be used as a tool in arresting global environmental problems. Furthermore, another conference held in Tbilisi on Environmental Education in 1977 emphasized the role of Environmental Education in preserving and improving the global environment (MacGregor, 2003).

Having recognized the important role that education plays in addressing these problems, goals, objectives and guiding principles for environmental education were formulated and endorsed. The goals of Environmental Education were articulated as; fostering awareness of, and concern about economic, social and ecological interdependence in urban and rural areas, providing every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment and creating new patterns of behavior of individuals, groups and society as a whole towards the environment (George, 1999). The conference also recommended that member states should develop national policies and strategies for furthering environmental education research and incorporating their findings into the general educational process through appropriate courses. In this regard, many countries, such as Mauritius, South Africa and Tanzania have since mainstreamed Environmental Education in the formal school curricula (Hungerford, 2010; Mwendwa, 2017).

However, the rate of environmental damage has continued to increase across the planet because humans keep damaging the environment at a far much faster rate than it can recover (UNEP, 2016). There is therefore, a need for radical action and continued efforts in order to combat the increasing rate of environmental damage. Hence, the need to enhance the performance of EE integration in the formal curriculum in responding to this cause cannot be overemphasized.

In Zambia, government's effort to address environmental challenges can be traced to 1994 when the National Environmental Action Plan (NEAP) was formulated. This policy was the basis for preparing the National policy on Environment and a guide to curriculum development of EE (GRZ, 2013). In 2000, concern for the inclusion of Environmental Education was one of the issues that led to the revision of the syllabi through the Curriculum Development Centre (CDC) of Zambia. Currently, the Zambia Education Curriculum Framework (ZECF) of 2013 which acts as a guide for integrating EE in the curriculum recognizes EE as a cross cutting issue of nation concern (GRZ, 2013).

It was hoped that this integration would consequently help to reduce environmental degradation and help solve the many environmental challenges that the country was facing. However, this has not been the case as environmental degradation in the country in the form of deforestation, pollution and other environmental problems have continued to raise [World Wide Fund for Nature (WWF), 2017]. The problem of environmental degradation still remains at large in Zambia despite the government's effort to formally integrate EE in the curriculum been over a decade. In addition to that, environmental awareness levels have also been found to be poor in some schools where EE is implemented thereby making EE integration in the school curriculum not be as effective as it should be in raising awareness and helping solve environmental problems (Dauti, 2014).

This poor performance of EE has been attributed to many barriers and challenges, such as lack of support and coordination among stakeholders. In this regard, many world conferences such as the Global Action Programme (GAP) have since been held to recognize the important role that stakeholders play in the successful integration of EE in order to address environmental problems (UNESCO, 2014). This is also affirmed by Griffiths (2011), who notes that effective stakeholder engagement is fundamental in ensuring the successful implementation of any project or program through quality and durable environmental decisions. In addition, Athman and Monroe (2001), note that effective environmental education programs involve stakeholders in all stages of the program, from the development of the program through to its evaluation. This is based on an

understanding that there is no subject that can be effectively integrated into the curriculum without proper collaboration of actions among stakeholders. Therefore, for EE in the Zambian curriculum to be successful in solving environmental challenges, stakeholder engagement is a must.

1.2.1 Contextualizing the study within the field of Environmental Education.

This study was informed and guided by part 7.1.5.2 (c) and (d) of the National Policy on Environment (NPE) which states that Environmental Education shall be taught on a multi-disciplinary basis and integrated into on-going curricula at all levels and on a continuous basis, emphasizing that EE should be promoted through formal and non-formal education channels by all government institutions, NGOs, and the private sector.

Furthermore, from a broader perspective, an International conference for EE/ESD practitioners held in Nagoya, Japan in 2014, stressed the need to review and assess the extent to which EE and Education for Sustainable Development (ESD) were being integrated. Additionally, the Global Action Plan (GAP) by United Nations Educational, Scientific and Cultural Organization (UNESCO) under its priority area 15 (b) clearly encourages agents of EE and (ESD) to expand multi-stakeholder networks at local level through involving a wider range of stakeholders towards implementation of sustainability.

1.3 Problem statement

The problem of environmental degradation continues to increase in Zambia despite the integration of EE in the curriculum (WWF, 2017). Environmental Education as integrated in the Zambian curriculum aimed at bringing about increased awareness, knowledge, skills and help develop values and attitudes that can positively contribute to environmentally friendly action and solving of environmental problems. This implied developing a population that is aware of and concerned about the total environment and its associated problems, and which has knowledge, attitudes, motivations, commitments, and skills to work individually and collectively toward solutions of current problems and the prevention of new ones (Intergovernmental Conference on Environmental Education, 1978).

However, EE integration in the school curriculum has continued performing poorly in effectively achieving its aim. This is evidenced by prior research studies that have shown that environmental awareness levels are still very poor in some schools (Dauti, 2014). Studies by Monde,(2011); and Dauti (2014), indicate that majority of teachers and pupils still do not have adequate information

of environmental related issues. This situation has contributed greatly to the continued environmental degradation and problems such as charcoal burning and deforestation in the country. This poor performance of EE in schools has been attributed to many factors such as poor implementation, low levels of compliance in the implementation of EE (Dauti, 2014), poor communication mechanisms among key stakeholders (Monde, 2011; Sitali, 2014) and lack of definitive way of ensuring EE is taught as expected.

According to Heimlich, (2002), environmental issues and taking action to confront them are challenges that need to be addressed not only by teachers, but also by planners, policy makers and trainers. This means that for EE in the curriculum to effectively attain its goals, key stakeholders such as the ones mentioned earlier must work together in an engaged process. However, to date, there has been little, if any, formal analysis of how key stakeholders have engaged to improve the performance and effectiveness of EE in the formal school curriculum. There was need, therefore, to examine stakeholders' engagement towards integration of EE in the Zambian curriculum in order to improve its performance of attaining its aim.

1.4 Purpose of study

The purpose of the study was to examine key stakeholders' engagement with integration of environmental education in the Zambian School Curriculum

1.5 Objectives of study

Arising from the purpose of the study were the following specific objectives;

- i. to determine actions which key stakeholders were engaged in towards integration of Environmental Education in the Zambian school curriculum.
- ii. to examine the contribution of such actions towards the integration of EE in in the Zambian school curriculum.
- iii. to assess whether stakeholders collaborate towards the integration of Environmental Education in Zambian school curriculum.
- iv. to suggest best practices for Environmental Education integration in the Zambian school curriculum.

1.6 General research question

The general research question that guided the study was:

How were key stakeholders of EE engaged towards the integration of Environmental Education in the Zambian school curriculum?

1.7 Specific research questions

The above general research question was addressed through the following specific research questions;

- i. What actions are key stakeholders engaged in towards the integration of Environmental Education the Zambian school curriculum?
- ii. In what way(s) do such actions contribute towards the integration of Environmental Education in Zambian school curriculum?
- iii. Do key stakeholders collaborate towards the integration of Environmental Education Zambian school curriculum?
- iv. What best practices can be used to integrate Environmental Education in the Zambian school curriculum?

1.8 Significance of study

This study may offer new insights on gaps among key stakeholders and provide solutions on how such gaps may be addressed in order to effectively integrate Environmental Education in the Zambian school curriculum. The study may also help stakeholders to rethink their actions so as to successfully integrate EE in the formal school curriculum in a way that will make the subject to be appreciated.

1.9 Operational definitions of terms

The concepts given below were defined in the context of this particular research;

Stakeholders:

This study uses “stakeholders” to refer to people, institutions, or groups who, because of power, authority, responsibilities, or claims over the resources, are central to the integration and implementation of EE in the curriculum. The key stakeholders are thus trainers, policy makers, and implementers. In the context of this study trainers was used to refer to EE lecturers, policy makers referred to officials from the Ministry of General Education (MoGE), Ministry of Water

Development, Sanitation and Environmental Protection (MoWDSEP) and Curriculum Development Centre (CDC). Implementers was used to refer to all school managers and teachers.

Stakeholder engagement;

Stakeholder engagement refers to the process by which stakeholders interact, are involved, develop relationships and generally collaborate with other stakeholders in order to achieve a desired outcome.

Collaboration;

Collaboration as applied in this study is generally treated as meaning the way that stakeholders work together toward a shared goal which in this regard is the integration of EE in the Zambian formal School curriculum.

1.10 Theoretical framework

This part explores the theory that guided this study. The study was guided by the social systems approach theory which was first introduced by Von Bertalanffy (1968) and later by Rudolf (2011). According to this theory, society is made up of groups and institutions which must function together to make a complete whole or in order for a system to work. These groups and institutions are what the social theorists call social systems. As such, a social system is also defined as a network of interactions between actors.

Although people tend to think of such institutions as being independent entities that provide various particular services, they are also individual pieces that comprise a 'community'. Therefore, the theory asserts that failure in one sub system or institution jeopardizes the whole system. This is because all parts of an organization or system are interconnected and interdependent. This implies that the success of any subject must not just be looked at in isolation but rather in a more holistic way. For instance, the school as an organization is an open system which interacts with other stakeholders to successfully implement the curriculum. Thus, success or failure in a subject must not be looked at in isolation of other stakeholders. This makes stakeholder engagement a critical factor to successful integration of EE in the formal school curriculum

1.10.1 How the theory relates to the current study

As a concept and academic theory, social systems provided an important basis for identifying key stakeholders and the relationships that connected them to the integration of Environmental Education in the Zambian school curriculum.

Instead of just focusing on one group of stakeholders for the success of environmental education in the formal school curriculum, the theory enabled the researcher to view EE in a more holistic manner. Environmental Education was thus, viewed as a whole in which various stakeholders must each play a part and work together with other key stakeholders in order for it to achieve its set goals. Stakeholders were thought of as a way of breaking down a larger group and categorizing them for purposes of understanding how their interactions combine to make EE integration in the Zambian school curriculum more meaningful.

For this study the subsystems which make a system of EE consisted of trainers (lecturers from the University of Zambia), policy makers (officials from the Ministry of General Education and Ministry of Water Development, Sanitation and Environmental Protection) and implementers (teachers from schools). Schools exist to achieve educational objectives through the engagement of trainers, policy makers and implementers in the curriculum integration process. This promotes collective effort of individuals and groups thereby making achievement of the school goals a result of successful interaction of the various key stakeholders involved.

Nonetheless, although the strength of systems theory is that systems are both interrelated and interdependent, the theory fails to specify the nature of relationship and interdependences between stakeholders. As such, the engagement of trainers, policy makers and implementers through their active involvement in curriculum integration must be investigated. The systems theory was therefore useful in conceptualizing the key stakeholders engaged to achieve the goals of EE in the formal school curriculum.

1.11 Summary

This chapter presented the background, statement of the problem, purpose of the study, specific objectives of the study, research questions, rationale and the operational definitions of terms.

The next chapter evaluates the significance of this study in relation to the related literature from studies that were done responding to similar challenges arising from the need to improve the performance of EE in the school curriculum.

CHAPTER TWO: LITERATURE REVIEW

2.1 Overview

This chapter presents literature related to this study. It begins with a brief definition and history of EE, its relevance, contributions of EE integration in various countries, origins of stakeholder engagement in environmental education and the need for stakeholder engagement in EE integration.

2.2 Definitions of Environmental Education

Environmental Education (EE) is a term that was coined from two words namely; environment and education. Therefore, in attempting to understand EE, it is important to understand what the term environment means. According to Government of the Republic of Zambia (GRZ, 2007: iv) environment refers to “the Ecosystem of which mankind is part including cultural and man-made features. It can sometimes be defined as the complex set of physical, geographic, biological, social, cultural and political conditions that surround an individual or an organism and that will ultimately determine its form and nature of its survival.” UNESCO (1991:13), also defines environment as the whole global ecosystem including the natural and man- made environment

From the above definitions, it can be seen that environment refers to everything that surrounds a person including humans themselves. It also indicates the interdependency of humans on the natural environment which makes care of the environment an important part of everyone’s life. On the other hand, education, includes all organized efforts to educate the public and other audiences (UNESCO, 1991). Having an understanding of how the natural environment functions is important because it imparts in people an inherent respect for nature and enhances their public environmental awareness (UNESCO, 2014). As such, concern is extended to all activities that people participate in including their interaction with other abiotic and biotic organisms.

Therefore, environmental education is centered on this understanding and different authors have defined the concept in various ways. However, in the simplest terms, environmental education is defined as education *in*, *about*, and *for* the environment (Lucas, 1972). Education *in* the environment helps people develop sensitivity to the natural environment. Education *about* the environment promotes understanding of the systems that make up the environment and education *for* the environment motivates people to work to improve the natural environment (Cantrell and Bousquet, 1980).

From a broader perspective, UNESCO (1980:11), states that “Environmental Education, properly understood should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world”. In this light, EE is not limited to the years spent in schools but goes beyond the walls of the formally established education systems to include the non-formal and informal education aspects. This helps in dealing with environmental issues even in traditional societies where formal schools may be limited, or for any other reason may not be effective in the transmission of EE.

In addition, Palmer (1998:7) defines EE as a “process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness between man, his culture, and his biophysical surroundings.” This definition of EE also encourages human beings to take responsibility for environmental protection in order to live sustainably. For example, right skills and attitudes towards the environment can enable people to explore environmental issues such as environmental degradation and deforestation, find ways of solving them, take action to improve the natural environment and find ways of preventing future environmental problems.

This assertion is supported by UNESCO (2005) who defines Environmental Education as a process of identifying critical environmental issues and problems, observing them, monitoring them, acting and determining effective strategies of action in order to come up with solutions.

Likewise, Le Roux (2001: 56) defined EE as a “planned process which enables participants to explore the environment, to investigate recognized concerns and take action to make the world a better place for all living things.”

On the other hand, UNESCO (1991), came up with a definition for EE which was more focused on formal education by stating that Environmental Education is education that conveys environmental attitudes, knowledge, skills and preparedness based on pedagogical thinking so as to strengthen the environmental awareness of pupils and students.

As can be seen from the above definitions, developing durable solutions to complex environmental issues by everyone is what EE advocates for. This is also seen from its history.

2.3 History of Environmental Education

According to Palmer (1998), the roots of EE can be traced back to the 18th century when Jean-Jacques and other philosophers stressed the need for a focus on environment in education although the term EE was not widely used by then. Later on, in the 19th century, Scottish professor and botanist Patrick Geddes linked the terms environment and education (Rao and Reddy, 1997). During this period, EE was based on the belief that certain sets of values, knowledge, perspectives and attitudes are better in contributing to environmental friendly action and the solving of environmental problems than others (Sandel, Ohman and Ostman, 2005). This belief was further strengthened in 1965, when it was agreed that EE be made an important part of education for all due to its potential in informing environmental sustainability and addressing environmental challenges.

It is asserted that several decades later, a movement called ‘nature study’ led to a concrete EE program when Louis Agassiz, echoed Rousseau’s philosophy in his encouragement to students to “study nature and not books.” This nature movement helped students to appreciate the natural world. From then on, a number of environmental movements emerged and a number of international conferences and meetings were consequently held. This was accelerated by need to address the many environmental problems such as pollution and land degradation that had arisen around that time due to the cold war. These problems not only threaten human life but also other organisms.

Internationally, Environmental Education gained recognition in 1972, when the United Nations conference on Human Environment was held in Stockholm. The conference made a declaration that EE must be used as a tool in arresting global environmental problems. In 1977, another conference which emphasized on the role of Environmental Education in preserving and improving the global environment was held in Tbilisi (MacGregor, 2003). Although, this view of EE is generally accepted by many, its integration and implementation was slow in most countries’ curricula.

For instance, interest in Environmental Education (EE) in South Africa started as early as the 1960s, but by 1989 there had been no nationwide and a state driven attempt to include EE into the formal curricula (Irwin, 1990). Mosidi (1997) explains that the first attempt to include EE in the formal curriculum was in the 1989 White Paper on Environmental Education. He further explains

that the White Paper's inclusion of the guidelines adopted at the international conferences held in Belgrade (1975) and Tbilisi (1977), was an encouraging shift from narrow interpretations of Environmental Education held up to that point.

In Zambia EE can be said to have only been formally infused in the formal school curricular after 2000. Until then, EE can be said to have just been a good recognized concept that was not fully utilized. It is however, important to note that merely, recognizing the importance of EE without practical steps to enforce it does not contribute much towards environmental protection or solving of environmental problems. Practical steps must be taken to ensure EE is effective and meaningful. This argument is supported by Clacherty (1994:56) who in relation to South Africa points out that, implementation of the white paper in formal education was not very successful because the white paper was not enacted in parliament.

From the various analyses on the origin of EE in this section, it can be noted that EE as a concept is generally accepted as a means of addressing environmental challenges. It also shows that most countries are now striving to use education as a panacea for solving many economic, political, social and natural crises.

2.4 Environmental Education and its relevance

Environmental Education has been found to be an important tool in responding to rapidly increasing global environmental crisis. UNESCO (1980), explains that Environmental Education should not respond to a momentary concern but should be an essential component of the effort taken by individual countries to give greater social effectiveness to education and to make it a factor in national development. Therefore, countries should explicitly provide the means required to develop Environmental Education in educational policies and general planning by making it an essential and permanent component of the educational process.

This is important because the inclusion of EE in the formal curriculum greatly facilitates its implementation and gives people an opportunity to fully participate in EE which is an essential tool in addressing environmental problems (Molapo, 1999). Environmental Education viewed in this light should stimulate civic action, decision making and the elaboration of a personal code of conduct with regard to problems concerning eco-development and the quality of life. This calls for countries like Zambia to have an organized system through which the knowledge and values of

Environmental Education can be imparted in people to allow them act for the environment so that EE can achieve its goal.

2.4.1 Main Goal of Environmental Education

According to UNESCO (1998), the overall goal of EE is to develop an informed citizenry that is environmentally conscious and motivated to actively participate in managing and sustainably utilizing its environment.

As such, UNESCO (1985) outlined the three goals which EE focuses on and which have also been a foundation for much of what has been done in the field of EE since 1978. These goals are to;

- i. foster clear awareness of, and concern about, economic, social, political and ecological inter-dependence in urban and rural areas.
- ii. provide every person with opportunities to acquire knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.
- iii. create new patterns of behavior of individuals, groups, and society as a whole towards the environment.

These were considered important to the study as they provide a platform for integrating EE in the formal curriculum. It was therefore important to come up with objectives that would help in achieving the goals of EE.

2.4.2 Objectives of EE

In this regard UNESCO (1998), outlined the objectives of EE as:

- i. awareness – to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.
- ii. knowledge – to help social groups and individuals gain a variety of experiences in, and acquire a basic understanding of the environment and its associated problems.
- iii. attitude – to help social groups and individuals acquire a set of values and feelings for the environment and the motivation for actively participating in environmental improvement and protection.
- iv. skills – to help social groups and individuals acquire the skills for identifying and solving environmental problems.

- v. participation – to provide social groups and individuals with an opportunity to be actively involved at all levels in working towards resolution of environmental problems.

The above EE objectives are essential tools in the successful integration of environmental education as it instills awareness, knowledge, skills, attitudes and participation in environmental care and protection in individuals (EETAP, 2000). However, Gough (2009), asserts that although many efforts have been made to introduce EE in curricular, achieving the objectives has not been successful. There is therefore need for key stakeholders to fully comprehend the above objectives and work together towards achieving them otherwise EE integration will remain ineffective. To do this, there is need to understand what is already happening in terms of EE integration in the curriculum.

2.5 Contributions of EE integration in the curriculum

Global view;

There are main ways that are used to integrate EE in the curriculum but the most common approaches have been to either integrate it as a single subject or infused in other subjects. Whichever, way a country chooses to integrate EE, the aims and objectives of EE usually remain the same. Palmer (1998), gives a comprehensive view of how other international societies implement EE in their curriculum by categorizing those schools that teach EE as a cross-curricular theme like Hong Kong and Spanish schools and those that have no clear policy on EE teaching, like Taiwan and Norwegian schools. There has been raising concern over the lack of EE policy in some countries. It is argued that this lack of policy on EE deprives learners of the right to information, awareness and skills on what EE entails. It also leaves a lot of questions on what actions the various stakeholders are engaged in, which themes are taught and generally the effectiveness of such curriculum integration. Perhaps this is why Hungerford and Volk (1990), reported that the present Environmental Education in public school curricula can often be characterized by loose organization and little sense of direction.

On the other hand, even though most countries have now integrated EE as a cross-cutting theme in their curricula, there has been concern over its performance due to the continued environmental challenges and problems. Hence the need to further improve the quality and relevance of environmental education still remains. Most researchers such as Mweembe (2008) have argued

that what is in documents and agreements contradicts what is in the real practice. This could indicate gaps in the process of EE integration in the curriculum.

At international level, Lounghland (2006), asserts that the boundary between curriculum and pedagogy is somewhat blurred in the education literature which he argues indicates that research focus is on what should be taught rather than how it should be taught. It is however, important to note that both the what (subject) and how (method of delivery) should be put into consideration in order to effectively achieve the goals of EE because wrong delivery of a topic for instance, may jeopardize the attainment of its objective.

In addition Athman and Monroe (2001), also argue that although there are some good programs to train pre-service and in-service teachers in Environmental Education, these programs tend to be inconsistently available. As such, teachers often express misgivings about their ability to conduct Environmental Education programs and outdoor classroom management. This has led to poor and in some cases lack of EE implementation by some teachers in schools (Dauti, 2014). In this regard, further research, training, professional development and other collaborative measures are recommended to improve the quality of EE.

Taiwan

Furthermore, in Taiwan, Yueh (2007), also notes that the limited pre-service and in-service teacher training and the lack of instructional materials leads to inappropriate teaching of Environmental Education such as teacher dominated approaches. The problem with these approaches is that emphasis is mostly placed on cognitive aspects only and this may become a general pattern. This is not enough to tackle and address environmental challenges which require among other aspects critical thinking and problem solving skills. According to Conde and Sanchez (2010), one needs to know what is really incorporated into the curriculum and how it is worked on in order to understand how these experiences contribute to achieving the objectives of environmental education for sustainable development in schools.

Hong kong

On this aspect, teachers in Hong Kong revealed moderate to strong needs for in-service training in order to accomplish the Environmental Education goals set in the curriculum guidelines (Nam, 2011). This indicates that there is limited training in EE for teachers and educators as well as

limited application of strategies used in teaching EE which has a negative consequence on curriculum integration. The above studies enables for identification of loop holes that need filling in order to effectively integrate EE. There is therefore, need for training institutions such as universities and curriculum developers to work more closely together in order to overcome this challenge.

Africa view;

Kenya

In Kenya, Otunga and Nyandusi (2010), assert that the influence of politics in curriculum development negatively affects integration as it exhibits political connectedness rather than expertise in curriculum. This renders curriculum development actions irrelevant since most decisions are top down and implemented at the discretion of the ruling elite. Such a power-coercive approach does not augur well for curriculum development and integration which should ideally be a deliberative, consultative, and participatory exercise (Mutch, 2001).

In addition, not prioritizing EE has also negatively affected its implementation. This is evidenced in the poor funding allocations towards EE programmes. This is in spite of the fact that the government allocates seemingly huge budgetary allocation of over 30% of its annual budget to education, (Kinuthia, 2009). More priority is given to recurrent expenditure at the expense of research and development. This makes EE integration and goal attainment even more difficult since the means for implementing it are almost always inadequate. According to Kimiti (2013), the goals of mainstreaming Environmental Education in the school curriculum have only been partially achieved even though themes on Environmental Education were mainstreamed in the school curriculum with a major objective of reducing the negative impact of human activities on the environment.

Tanzania

In Tanzania, a study conducted by Kimaryo (2011), on integrating Environmental Education in primary schools revealed that primary school teachers have variations in their perceptions of Environmental Education. Most of the teachers focused on the aspect of knowledge acquisition. The author also contends that although the Tanzanian education and training policy states that Environmental Education has to be integrated into all subjects, it is not integrated on an equal

footing in all subjects. Some subjects like science, social studies and geography have more environmental content than other subjects. This finding is supported by Mwendwa (2017), who found that most environmental education competencies are delivered mainly through the geography subject, and some in biology using an integrated teaching approach. This may cause teachers of other subjects to feel a lesser responsibility with regards the integration of EE thereby compromising the effectiveness of EE in their subject areas. It was also discovered that EE integration in the curriculum faced a number of barriers such as lack of teaching and learning resources, time constraints and large class size. This research enables for the identification of barriers to EE at different fields which is a good starting point to effective integration of EE.

The author also notes that in the sub-category of pre-service training, many of the teachers suggested that if they are supposed to teach Environmental Education, they should be taught the content and the methodology of teaching it in their pre-service training, just as they are taught the other subjects which they teach. Teachers also claimed that the approach used to integrate environmental education into the school curriculum was not favored because what is to be taught as environmental education in the various subjects is not shown clearly. The effect to this was revealed in the analysis of results when it was discovered that educators only implemented environmental education in their learning areas to a limited extent (Kimario, 2011).

South Africa

In South Africa, Makhoba (2009), likewise discovered that actions of educators in integrating EE were not very effective because they limited themselves mainly to the use of question and answer, discussion and narrative methods as opposed to projects, research and fieldwork. She further explains that a limited number of lessons were taught using the participatory and action-based methods like research and discovery methods. In view of the fact that Environmental Education seeks to develop learners' knowledge, skills, awareness and action on environmental issues, it can be said that the methods used by educators in the study did not cater for all the skills because they were few or no lessons on practical implementation of EE, like action research and projects that aim at engaging learners in community development projects. In addition, teachers also suggested that they should go for pre- service and further training to upgrade their knowledge. This is important because quality teaching depends much on the quality of the teachers. This is in line with Kastova and Atosoy (2008), observation that successful learning in environmental education (EE) is closely related to methods used by the teacher and the learners. Therefore, Environmental

Education teachers need to have the necessary and relevant environmentally related content knowledge and skills (May, 2000).

In addition, (Makhoba, 2009), indicates that although the educator's environment based competences are spelt out through a clear statement by the Department of Education, most educators have not been trained on how to apply and demonstrate them. This is because most of them were trained in the apartheid era, where no mention of such competences was made. It was also found that some of the educators in the study could not use environmental themes because they assumed that they were not relevant to their learning areas although there was good content for their learning areas. This poses a challenge for EE because teachers have limited ability to implement environmental education in their learning areas. Teachers need broader understanding of the term 'environment' on which environmental education is based and place learners at the center of their teaching when they integrate EE into their learning areas. Teaching methods also need to be learner-centered as much as possible so that learners might benefit from the environmentally-related lessons. However, this was not the case as results of this study showed that most of the lessons taught were far from being learner-centered (Makhoba, 2009). The above research study helps to realize the limited effectiveness of actions by various stakeholders in EE integration and also offers suggestions that may help to effectively integrate EE.

Furthermore, Nsubuga (2009) in another study conducted in South Africa, revealed that there was a very low level of in-service teacher training workshops. This was also the case for integration of Natural Resource Management (NRM) in school documents, activities and practices, especially in the Grade 10 Life Science lessons, and in schools' end-of-year Grade 10 Life Sciences examination papers. This was in spite of the fact that there was very high overall level of Natural Resource Management (NRM) integration in the Grade 10 Life Sciences curriculum documents produced at national and provincial levels. In her recommendations, the researcher emphasizes the importance of integrating NRM into out of class school activities, practices and documents. However, this study was confined to poor rural schools and aimed at improving curriculum relevance in these schools which leaves a knowledge gap on the situation in urban schools. Additionally, the researcher's interest was limited to the integration of natural resource management in grade 10 life sciences rather than stakeholders' engagement towards Environmental Education as a whole. According to Nsubuga (2009:318), the focus of the study was on analyzing the extent of NRM integration, rather than the quality of the NRM knowledge that features in that integration.

Zambia

2.5.1 Environmental Education in the Zambian formal curriculum

Like many other countries, Zambia's environment has not been spared from the many environmental issues and problems such as deforestation, pollution and climate change. As such, Environmental Education has also become of great emphasis in Zambia to an extent that a course of study to train people in Environmental Education has been introduced at the University of Zambia (SADC, 2005). Another important step that has been undertaken in recognizing the role education plays in addressing these challenges is to formally infuse EE in the school curriculum. According to GRZ (2013:22), "EE focuses on certain sets of values, knowledge-perspectives and attitudes which can contribute to environmental friendly action and solving of environmental problems."

This is also in line with the national policy on environment which states that all learning institutions, at all levels ought to provide aspects of environmental education in order for teachers and learners to uphold the values and importance of EE. In this regard, EE has been acknowledged to be an important cross-cutting issue integrated across the curriculum at all levels of the education system. Schools are therefore, encouraged to come with appropriate activities for teaching and learning environmental education (GRZ, 2013).

However, EE integration in the Zambian curriculum has been met with a number of challenges and barriers which range from lack of environmental awareness among some stakeholders like teachers to lack of coordination. This is mainly due to lack of stakeholder engagement among key stakeholders. This was evidenced in the failure by some Ministry of Education (MoE) officials and teachers to recognize and define EE (Monde, 2011). It was also reported that when asked whether EE was offered in schools or not, all the CDC officials answered in the affirmative while some respondents from Provincial Education Office indicated that EE was not being offered in secondary schools. This showed a lack of coordination among officials of the same ministry. More to that, the high school administrators were also not aware of EE being integrated in the existing subjects, hence, giving different answers on whether EE was offered in their schools or not (Monde, 2011; Mweembe, 2008).

In addition, Monde (2011), notes that although all MoE respondents indicated that the National Policy on Education (NPE) had facilitated the implementation of EE in Zambian Schools, they

could not explain precisely how the policy had achieved that. She also states that most teachers were not aware of this policy and therefore are not aware of how it helps in implementing EE in Schools. This shows the insufficiency of the policy in practice which negatively affects EE implementation.

Furthermore, Shumba and Kampamba (2013), also reported that teachers were lacking in guidance on teaching and learning approaches to integrate environmental issues. This has led to mixed perceptions and misconceptions about EE integration among teachers even though it is generally understood from the biophysical perspective. According to Mwanza (2016), while some perceive EE as only appearing in some subjects, others are ignorant on EE integration thereby contributing to the lack of EE implementation in some schools.

In addition, a study by Sitali, (2014), on environmental knowledge and practices of teachers also found that less than a quarter of respondents (31.9%) were very informed while the majority were only fairly informed (62.9%). This situation has contributed to making Environmental Education which is supposed to be a whole-school commitment and concern to be treated as an option. As a trickle-down effect, a study conducted by Dauti, (2014) found that most pupils do not have enough information on environmental related issues especially sustainable development. Lack of EE programs was one of the reasons given for this scenario.

Nonetheless, many other reasons have been cited as being responsible for the poor implementation of EE in schools including lack of support, poor communication, lack of training and inadequate knowledge on EE (Monde, 2011). This shows that EE integration is not a once off activity but rather an ongoing process requiring support and engagement of various stakeholders in order to achieve its goals. It is therefore, important to note that EE integration is not an issue that can be solely blamed or left for teachers to handle or address. From the analysis above, it can be seen that the education system is not neutral and is influenced by many actors. Therefore, it has to be viewed from a more holistically point because for EE integration to materialize and achieve its goals requires that stakeholders involved work more closely together. It requires practical steps to be taken by various key stakeholders in order to make EE more responsive and relevant to the society. Therefore, the need for stakeholder engagement in integration of EE in the Zambian school curriculum cannot be overemphasized.

2.6 Origin of stakeholder engagement in environmental education

Although stakeholder engagement has its roots in the business sector (Freeman, 1984), it is also applicable within environmental education and it has since been utilized by authors such as (Griffiths 2011, Mushove and Vogel 2005, Prell, Hubacek and Reed, 2009 and Reed, 2008). Stakeholder engagement in environmental management is reported to have originated from the raise in public awareness on environmental matters and involvement in natural resource management in the 1960s and 1970s respectively to become a key driving force in the 1990s (Burroughs, 1999 and Lynam, De Jong, Sheil, Kusamanto and Evans, 2007). According to Reed (2008), stakeholder engagement is an emerging concept in environmental education that is increasingly included in environmental policy.

2.7 The need for stakeholder engagement in integrating Environmental Education in the formal curriculum.

Stakeholders' engagement towards the integration of Environmental Education (EE) in the curriculum is critical as it has a special role to play in promoting its effectiveness to addressing environmental challenges. This notion is supported by Griffiths (2011), who states that effective stakeholder engagement is fundamental in ensuring the successful implementation of any project or program through quality and durable environmental decisions. Despite the significance of this, it is noted that communication which is at the core of holistic engagement is consistently inadequate in incorporating two-way flows of information in many cases (Coppola, 1997). This has led to discontent over the quality, effectiveness and relevance of engagement with stakeholders (Coppola 1997, Davies 2008, Norton 1998). Furthermore, the increase of environmental policy from international to local levels has left considerable inconsistencies, resulting in a greater need for improvement (Turner, Van den Berge, Barendregt and Maltby, 2000). Subsequently, there is an emerging trend towards stakeholder engagement as a means to resolve this issue (Collins and Ison 2006), hence, the need to study into this area.

In Taiwan, Yueh, (2007) notes that lack of cooperation and the slow or even impossible task for of EE administrators to bring together experts and organize various educational agencies to develop programs with valid content to introduce in schools has been one of the barriers to successful implementation of EE in Taiwanese secondary schools. He asserts that cooperation is a

crucial factor in the successful implementation of environmental education in schools due to the interdisciplinary nature of environmental issues.

Lack of stakeholder engagement has also led to inconsistencies in the manner in which EE is implemented. Dambudzo (2015), results showed that while schools in Zimbabwe had the same curriculum document to follow, implementation differed from school to school with some schools being more creative and implementing than others. This is also evident among countries when it comes to integrating EE in the curriculum. For instance, Malaysian schools have a better implementation approach with more than 75 % of students having better environmental education awareness as against their counterparts in Nigeria with regular community and social development programs embedded in the schools (Akinuoye and Abd, 2011). One main cause of this is lack of engagement among stakeholders both at local and international level.

In Kenya, Otunga and Nyandusi (2010) affirm the above by recommending the need for formal collaborations between curriculum researchers in institutions of research and higher learning and Kenyan Institute of Education (KIE). In 2001, a study on the perception of employers in Kenya on the relevance of the school curriculum to employment showed that employers were dissatisfied with the preparedness of school graduates for the world of work. Further, the employers indicated a strong willingness for participating in curriculum development, but they hadn't been involved (Nyandusi, 2001).

Furthermore, Kethoilwe (2007), states that there are problems concerning EE implementation including the lack of information from the curriculum development units, untrained teachers, negative attitudes of teachers and lack of facilities. The author asserts that there are gaps among various stakeholders in curriculum integration and implementation in Southern African countries like Botswana, Malawi, Mozambique, Zambia and Zimbabwe where environmental education is taught as a cross-curricular theme at all levels of education. Therefore, the author recommends that various agents and agencies involved at national level work more collaboratively together with other stakeholders in order to effectively integrate EE.

In Tanzania, Mwendwa (2017), found that the main challenges facing implementation of environmental education included an integrated learning approach, inadequate knowledge on environmental education and lack of support among stakeholders and from school administration.

In Zambia, Monde (2011), argues that since the MoE officials, who are the overseers of all school programs in Zambia, differ in their responses, the situation in schools is not expected to be any better. True to the researcher's argument, the study revealed that EE integration in the Zambian formal curriculum was not effective due to main factors which included lack of coordination among stakeholders.

From the above studies, it can be seen that there is a lack of high level collaboration among various curriculum agencies and agents which consequently affects the extent of curriculum integration negatively. It can also be observed that even though EE has been integrated in most countries curricular, stakeholders' engagement in this process has not been thoroughly looked into. Most studies have been biased towards implementation and the teachers' role towards EE integration than on stakeholders such as trainers and policy makers. Nevertheless, most of such research has helped to highlight a number of challenges and barriers been faced by teachers in implementing EE. In addition, the above literature also indicates gaps among the various agencies and agents responsible for the integration and implementation of EE in the curriculum.

2.8 Research gap

Unlike other studies that have mainly just focused on teachers and pupils like Kimaryo (2011) on teacher perceptions and practices, Sitali (2014) on knowledge and practices of teachers, Dauti (2014) on environmental awareness of pupils, Mwanza (2016) on teachers' and pupils perceptions of EE, this study also examined the actions of other key stakeholders towards the integration of EE in the curriculum. Other notable studies by Monde (2011) on barriers to EE implementation and Ketlhoilwe (2007) on EE policy implementation challenges helped to identify the barriers and gaps towards the implementation of EE but did not undertake to find out what key stakeholders were doing to ensure EE was well implemented. Hence to build on this knowledge gap, this study focused on stakeholders' engagement with the integration of Environmental Education in the school Curriculum.

2.9 Summary

The chapter provided a review of literature related to the study. It traces the origins of Environmental Education, contribution of EE in the curriculum and the need for stakeholder engagement in the integration of EE in the formal school curriculum. The following chapter explains the methodology that was used to carry out this study.

CHAPTER THREE: METHODOLOGY

3.1 Overview

Having reviewed the relevant literature in the previous chapter, this chapter described the research methodology that was used to collect data in the study. This includes the research design which consequently influenced the procedures which were followed when conducting the study such as target population, sampling techniques, data collection tools, ethical considerations, data analysis, validation and limitations of the study.

3.2 Research Design

The research approach for this study was qualitative in nature because it brought out subjective experiences and views of stakeholders with regards to their engagement towards EE integration in the formal curriculum. Using a qualitative approach was also necessary in order to have a rich description of the phenomena and have an enhanced understanding of EE (Creswell, 2003). A descriptive case study design involving selected secondary schools of Chilanga district with particular focus on Junior Secondary School Curriculum level was employed. According to Gillham (2000:1), “a case study is an investigation to answer specific research questions which seek a range of different evidences from the case settings”. In this regard, the design fitted well in analyzing actions of stakeholders, contribution of such actions and collaboration among them towards the integration of EE in the formal school curriculum.

3.3 Study Area

The study was conducted in Chilanga District of Zambia. Chilanga was purposively chosen because of its many unique and valuable features such as having an elephant nursery, botanic gardens, wildlife areas, fish farming areas, biggest cement plant in the country, central research institutes and many other features of environmental interest which the researcher considered opportunities for teaching and learning EE. Although other districts were considered, Chilanga had the most unique features near most secondary schools. As such, schools that were in close proximity to these areas were considered to be more advantaged and thus, opting to sample such schools. Nonetheless, because Lusaka is where the University of Zambia (UNZA), Curriculum

Development Centre (CDC) and Ministry of Water Development, Sanitation and Environmental Protection (MoWDSEP) head offices are located, it was also necessary to get first-hand information from the respondents in these places.

3.4 Target Population

According to Ary, Jacobs and Razavieh (1972:160), a “population consists of all the subjects you want to study”. In this regard the target population consisted of lecturers of Environmental Education from UNZA (trainers), officials from the MoGE, MoWDSEP as well as CDC (policy makers), school managers and teachers (implementers). These participants were chosen because they all had an idea of the subject and were considered key to the successful integration of EE in the curriculum. Thus, it was from this population that the sample was drawn. According to Kombo and tromp (2006), an effective sample should have some ideas on the topic being investigated.

3.5 Sample size

The sample size for the study was 32 consisting of 4 lecturers of Environmental Education from UNZA, 3 MoWDSEP officials, 3 MoGE officials from the DEBS office, 4 CDC officials, 6 school managers (2 from each school) and 12 grade eight and nine teachers from three selected secondary schools in Chilanga district. This seemingly small group was selected to enable for intensive study. The composition of the target population and sample size is shown in table 3.5;

Table 3.5: Sample size

	FIELD	TARGET POPULATION	SAMPLE	
1.	Trainers	UNZA	4	4
2.	Policy makers/ planners	MoWDSEP	3	10
		DEBS	3	
		CDC	4	
3.	Implementers	School managers	6	18
		Teachers	12	
	Total		32	32

Source: Field data (2019).

3.6 Sampling Techniques

In selecting the above sample, purposive sampling was applied in selecting respondents from UNZA. In this regard, all lecturers of EE were invited to be part of the sample because of their role as trainers of Environmental educators but only those who were available and willing took part in the study. At the MoWDSEP, MoGE and CDC, the researcher was directed to 3, 3 and 4 officials respectively and because these were few in number, the researcher opted to use total population sampling to include them in the sample. The 3 selected secondary schools of Chilanga district were purposively selected because they were considered advantaged due of their proximity to areas of environmental interest earlier referred to in section 3.3 of the study. This was meant to allow for diversity of views rather than entirely relying on the information gotten from a single school. Six (6) head and deputy head teachers were automatically selected to be part of the sample because of their role as school managers and since they were few (2 from each school), total population sampling was applied in selecting them. 12 teachers who taught grades 8 and 9 were purposively included in the sample based on the compulsory subjects that were been offered at Junior Secondary School Level (JSSL) as long as they were available and willing to take part in the study. This was to ensure that all subject areas were represented thereby allowing for diversity of views on EE.

3.7 Data collection

According to Conrad and Serlin, (2006:379) qualitative research approaches typically make use of a number of different techniques of data collection. In this regard, semi-structured interviews, focus group interviews and non-participant observations were used to collect primary data for the study. On the other hand, secondary data was collected from relevant literature on EE such as policy documents and other research works. These methods were used concurrently to verify and to supplement the information gathered by any one of them in line with Richardson, Dohrenwend and Klein (1965) suggestion.

3.7.1 Primary data collection tools

Primary data was considered important in this study because it provides first-hand information concerning the topic under investigation. This is in line with Beck (2000) assertion that “primary data is a type of information that is obtained directly from first hand sources by means of surveys, observation, focus groups, in depth interviews or experimentation.” Hence, primary data in this

study consisted of information collected through interviews and focus groups from key stakeholders of EE and observations.

Interviews

Semi structured interview guides were prepared to ensure that the same basic lines of enquiry are pursued with each stakeholder interviewed. In addition, semi structured interview guides enabled the researcher to remain free to build a conversation, and to ask questions spontaneously but with focus on a subjects that were predetermined.

The interviews were conducted via verbal interaction with the respondents. This is in line with Kahn and Cannel (1957), views when they defined an interview as a specialized pattern of verbal interaction, which is initiated for a specific purpose and focused on some specific content area with consequent elimination of extraneous material. It is a planned conversation in order to gather certain information. In this case, the interviews were conducted for the purpose of understanding stakeholders' engagement towards EE integration in the Zambian secondary school curriculum.

Focus groups

Focus group interviews were conducted with the same teachers that participated in the semi structured interviews. The focus of the discussion was mainly on EE actions and collaboration with other stakeholders. Questions were asked in an interactive-group-setting where members were free to discuss.

Observations

The other data collection method that was utilized is non-participant observation. This involved purposeful and selective watching, counting and listening to, of behavior and of phenomena as they took place (Richardson *et al*, 1965). Observation as an instrument for collecting firsthand information is considered to be one of the core research methods for data collection (Adler and Adler, 1994). Hence, non-participant observations were particularly useful in this study to discover whether stakeholders do what they say they do, or behave in the way they claim to behave.

The choice of observation as a tool for collecting data was also an opportunity to collect live data from naturally occurring settings. This enabled the researcher to see what was being done instead of entirely relying on spoken or written accounts (Cohen, Manion and Morrison, 2007). It has been argued that what people do may differ from what they say they do (Robson, 2002). In addition,

through observations, the researcher was able to access information that could have been missed during the interview and discover things that stakeholders did not want to talk about in the interview.

3.7.2 Secondary data collection

Secondary data comprises of information originally presented elsewhere (Monagahn and Hartman, 2011). As such, secondary data was collected from relevant literature on EE such as policy documents and other research works.

3.8 Ethical considerations

The following ethical standards were strictly observed when conducting this research study; To start with, permission and consent to conduct this research was requested from the University of Zambia, MoWDSEP, MoGE, CDC and the schools. The stakeholders' right to privacy, confidentiality and dignity was also considered at all times before, during and after conducting this study. Consequently, names of respondents and the schools involved in this study were held anonymous. In fact, respondents were not allowed to record their names in this study.

In addition, honesty, transparency, empathy and objectivity were maintained throughout the study. For this reason, all the participants were informed about the purpose of the study, the methods to be used and what was expected of them. Furthermore, as a way of respecting the participants as rational human beings, the researcher was sensitive to their cultural norms, respecting their space, and making sure that the study did not cause them physical or psychological harm.

3.9 Data analysis

Thematic analysis was used to analyze the collected data in the study. The researcher developed a coding system based on the sample of collected data. These were then classified into major issues and key quotations highlighted indicating major themes. The coded material was then put into themes identified and put together. The analyzed data was then presented using subheadings, themes, direct quotations, graphical techniques as well as tables.

3.10 Data Validation

In order to ensure validity of the findings in this study, methodological triangulation and triangulation of sources were applied. This involved using different methods and sources

respectively. Specifically, in between-method triangulation was used. In this regard, both semi-structured interviews, focus groups and non-participant observations were used to collect data and findings compared. In addition, different samples were engaged in this case trainers, policy makers and implementers to find out data on a particular objective and findings compared.

After compiling the collected and analyzed data, the researcher also cross checked the research findings by going back to the respondents to validate. Initial results were tested with participants to see if they were still true. This is in line with Giorgi (2002) who states that after research has been interpreted and condensed, participants should still recognize them as authentic.

3.11 Limitations of the study

The main limitation of the study was subjectivism since stakeholder analysis was based on what stakeholders communicated to the researcher. As such, the researcher had to interview at least 3 respondents in each category separately. Non participant observations were also useful in this regard.

3.12 Summary

This chapter gave a description of the methodology. It described the research design, how data was collected, analyzed and validated. The next chapter presents the findings of the study.

CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

The previous chapter gave a description of the methodology that was used in carrying out the research. This chapter deals with presentation of findings on stakeholders' engagement with the integration of environmental education in the Zambian school curriculum. These include background information of the respondents, stakeholders' actions towards the Integration of EE in the Zambian school curriculum, contribution of such actions towards the integration of EE in the school curriculum, collaboration among stakeholders and practices for consideration when integrating EE in the school curriculum. The main instruments used to collect primary data were; semi- structured interview guides which were administered to all the participants, a focus group discussion which was conducted with school managers and teachers and a general observation was made on the environment where EE was implemented. The findings were presented using themes and research objectives that guided the study. The following were the research objectives;

- i. to determine actions which key stakeholders were engaged in towards integration of Environmental Education in the Zambian school curriculum.
- ii. to examine the contribution of such actions towards the integration of EE in in the Zambian school curriculum.
- iii. to assess whether stakeholders collaborate towards the integration of Environmental Education in Zambian school curriculum.
- iv. to suggest best practices for Environmental Education integration in the Zambian school curriculum.

The findings are presented under the subheadings below starting with the characteristics of the respondents that were in the study.

4.2 characteristics of respondents

This part of the study findings gives characteristics of the respondents. They are addressed in items 4.2.1 to 4.2.4.

4.2.1 Composition of study sample

The sample that was used in this study consisted of 32 stakeholders from the university of Zambia, Ministry officials and teachers. The composition of the study sample is shown in Table 4.2.1;

Table 4.2.1: Composition of the study sample

	STAKEHOLDER	TARGET POPULATION	SAMPLE	
1.	Trainers	UNZA	4	4
2.	Policy makers/planners	MoWDSEP	3	10
		DEBS	3	
		CDC	4	
3.	Implementers	School managers	6	18
		Teachers	12	
	Total		32	32

Source: Field data (2019).

Table 4.2.1 shows that a total of 32 respondents formed the sample. When viewed from a stakeholders point of view, implementers represented the majority of respondents (18), followed by the policy makers who were 10 whereas the trainers were 4.

4.2.2 Gender of respondents

The study sample comprised of both female and male respondents. Gender was important in addressing the research objectives because it helped the researcher to get diverse views on stakeholders' engagement with integration of EE in the Zambian school curriculum. Table 4.2.2 shows the composition of the study sample by gender;

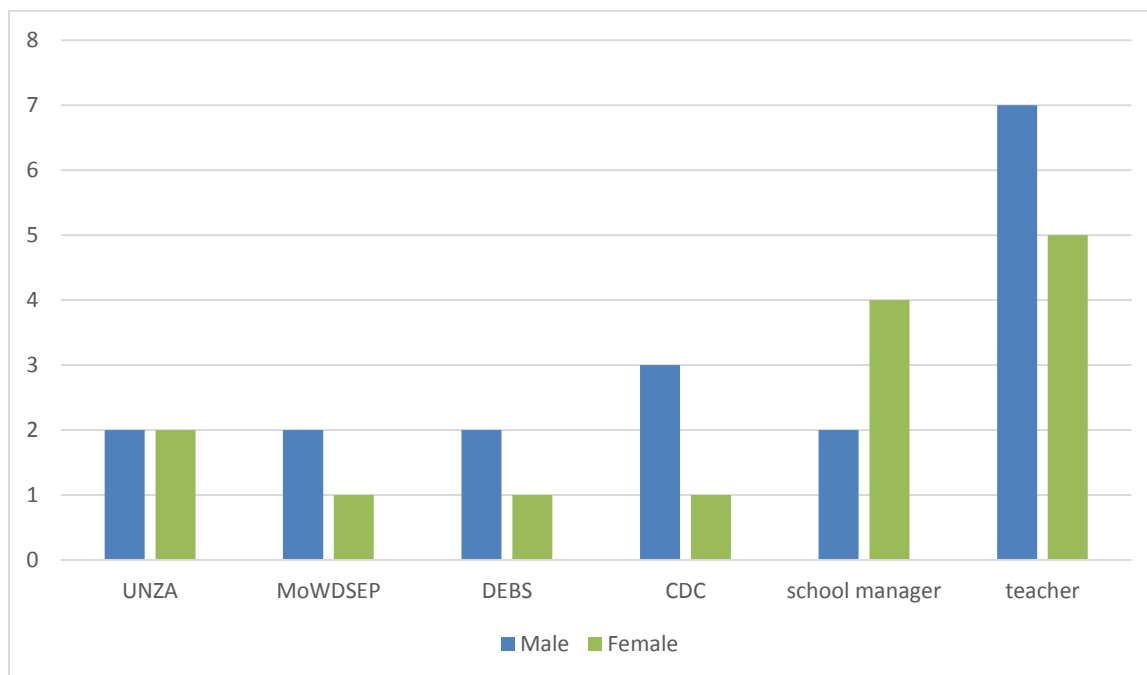
Table 4.2.2: Composition of study sample by gender

Sex	Number	Percentage
Male	18	56
Female	14	44
Total	32	100

Source: Field data (2019)

Table 4.2.2 above shows that out of the 32 respondents who took part in this study, 18 were males (56%) while 14 were females (44%). The distribution by gender for the various stakeholders mentioned above is shown in figure 4.1.

Figure 4.1: Distribution of stakeholders by gender



Source: Field data (2019)

Figure 4.1 shows that there were more males generally for all stakeholder categories as compared to females. However, school manager respondents comprised a majority of females who were 4 in

number as compared to the males who were 2 in number. Having looked at the gender, the next item dealt with was the training orientation in Environmental Education of respondents.

4.2.3 Respondents training orientation in Environmental Education

The respondents’ training orientation in EE was important because it influenced respondents’ impressions of environmental education and consequently affected the actions they took towards it. This is shown in table 4.2.3;

Table 4.2.3: Training orientation in EE of respondents

Training Orientation in EE of respondents		
POSITION	YES (FREQUENCY)	NO (FREQUENCY)
UNZA	4	-
MoWDSEP	3	-
CDC	4	-
DEBS	2	1
School manager	1	5
Teacher	1	11
TOTAL	15	17

Source: Field data (2019).

The findings in table 4.2.3 shows that 15 respondents (47%) had received training orientation in EE while 17 (53%) which was the majority had not received any training orientation in EE. Having dealt with the training orientation, the next item looked at the respondents’ understanding of EE since the study was centered on it.

4.3 Stakeholders’ understanding of Environmental Education

In order to find out stakeholders’ understanding of environmental education, one item on the schedule asked participants to define EE. From the responses, the following four major themes emerged and these are shown in table 4.3;

Table 4.3: Stakeholders' definitions of Environmental Education

Theme	Frequency
Creating awareness and sensitization about the environment.	4
Study about the environment and how to take care of it.	21
Acquisition of knowledge, skills, values and attitudes needed for environmental stewardship.	4
Teaching/learning about change of attitudes towards the environment.	3
Total;	32

Source: Field data (2019).

Table 4.3 shows the main themes that emerged from responses on stakeholders understanding of environmental education. Having gotten stakeholders views on what EE is, the next item determined the actions which were undertaken by key stakeholders towards the integration of EE in the Zambian school curriculum.

4.4 Actions of stakeholders towards the integration of Environmental Education in the Zambian formal school curriculum

This was the first objective and it sought to determine the actions of stakeholders towards the integration of Environmental Education (EE) in the Zambian formal school curriculum. In the context of this objective, respondents were asked what actions they undertook towards the integration of Environmental Education in the curriculum. The first category of stakeholders comprised of lecturers of EE from the University of Zambia (UNZA); also been referred to as trainers. The second category of respondents comprised of officials from the Ministry of Water Development, Sanitation and Environmental Protection (MoWDSEP), District Education Board Secretary's (DEBS) office and Curriculum Development Centre; also been referred to as policy makers and the other category consisted of school managers and teachers; also been referred to as implementers . Findings for actions of trainers were presented first, followed by actions of policy makers and later, actions of implementers.

4.4.1 Actions of trainers

When trainers were asked what actions they undertook towards the integration of Environmental Education in the school curriculum, the major themes that came out were training, research and outreach. EE programmes were offered at undergraduate, masters and doctoral levels and research in EE was a mandatory part of all EE programmes at the institution. Lecturers were also involved in ongoing research studies and publications. Outreach programmes included the ‘keep UNZA clean campaign, clean-up activities on Fridays, radio programme and school/community outreach programmes through the University of Zambia Environmental Education Students Association (UNZAEESA) and Umodzi network.

The major theme that emerged from site observations by the researcher was outreach. Observations from the school environment showed that there were outreach programmes in the form of a radio programmes dubbed *‘focus on the environment’* on UNZA radio (91.7 FM) every Monday at 9hours, posters of environmental awareness and pick litter and clean-up activities on Fridays.

4.4.2 Actions of policy makers/ planners

In relation to policy makers’ actions towards the integration of Environmental Education in the Zambian school curriculum, the emerging themes were policy formulation, checking for compliance/ approval of educational material, provision of resources for Environmental Education, capacity building, monitoring and development of a communication strategy.

4.4.3 Actions of implementers

On stakeholders’ actions of implementers towards the integration of Environmental Education in the Zambian school curriculum, emerging actions were observation and monitoring of EE implementation by school managers. School managers indicated that they observe the EE lessons conducted by teacher, check and mark lesson plans. Teacher respondents indicated actions of classroom lesson teaching, supervising pupils during preventive maintenance, clean ups, classroom discussion/talks and field trips. Site observations by the researcher confirmed the acts of clean ups and preventive maintenance.

4.5 contribution(s) of stakeholders' actions towards the integration of EE in the curriculum

The second objective sought to examine whether such actions were helpful towards the integration of EE in the Zambian formal school curriculum. The research questions under this objective asked respondents to describe way(s) in which the named actions were contributing to the integration of EE in the school curriculum. Findings for contributions of trainers' actions were presented first, followed by those of policy makers and later contributions of actions by implementers.

4.5.1 Contribution of trainers' actions towards the integration of Environmental Education in the Zambian school curriculum

Training;

With regards to training, the main theme that emerged was that it provided a readily available trained Human Resource that could be useful in the implementation of EE in schools. One of the respondents stated that;

“Training provides a ‘pool’ of trained human resource which would be very useful in successfully implementing Environmental Education in schools” (Participant T3, 4th January, 2018 Interviews).

However, the general view that emerged from trainers was that most graduates of EE were deprived of this opportunity of implementing EE in schools because the ministry of education was reluctant when it came to employing them. Findings indicated that although the University had trained a good number of EE graduates, very few, if any had been employed in the ministry. This claim was also substantiated in schools when it was found that none of the participants there had received training in EE.

Research

Research was said to be helpful through written books and publications which could be useful for planners and teachers in schools. Research as an action was said to have had helped in identifying gaps and offering suggestions on how such gaps would be dealt with in relation to EE. On whether or not these books and publications were helping towards the integration of EE in the curriculum, respondents indicated that most of these books and publications contributed less towards EE integration in the school curriculum because recommendations made on EE through research

studies were not put in effect and that most of such material were not been used in most schools. The reason given for this was lack of adequate cooperation between the university lecturers and those at CDC with regards to EE integration.

Outreach

In relation to outreach, trainers specified awareness raising of EE among the university populace, in schools and to the general public as one way in which this action was contributing towards the integration of EE in the curriculum. This was done through the ‘Keep UNZA/school of Education clean campaign’ and other outreach programmes such as radio and community outreach. In this regard, two respondents explained that the actions had met some of its objectives by raising awareness even though, few EE students usually took part in the activities.

4.5.2 Contribution of policy makers’ actions towards the integration of EE in the Zambian school curriculum

Policy formulation

When asked about the contribution of this action towards the implementation of EE in the curriculum, policy makers indicated that the national policy was the basis for the mainstreaming of EE in the formal school curriculum because it informed the need and provided guidelines on how to integrate EE in educational institutions. EE was said now be more formal and taught in all subjects. Like gender, EE was now considered an issue of national concern that is important to the learners. According to one of the participants;

“...the curriculum document has led to increased awareness of the importance of the EE.”
(Participant P1, Interviews).

Another respondent explained;

“...policy helped implementers such as teachers to gain an understanding of environmental issues.” (Participant P3, Interviews).

The general theme that emerged here was that the curriculum document guided teachers on what should be covered in schools under EE and how it should be covered.

Focus Group Discussion (FDG) revealed that the manner in which EE was classified in the Zambian school curriculum as a cross cutting issue made it difficult for some teachers to properly distinguish and recognize it. This situation was visible in schools where some teachers had equated

EE to integrated science, preventive maintenance and others to cleaning of classrooms and surroundings.

In addition, When respondents were asked way(s) in which the Zambia Education Curriculum Framework (ZECF) was helping them in EE implementation, some teachers showed ignorance over knowing what was contained in the document on EE while those who were aware of ZECF used phrases like “*not helping much*”, “*they have not implemented it*” and “*not at all*”. The awareness level that was found is shown in Table 4.5.2;

Table 4.5.2: Awareness of EE in the Zambia Education Curriculum Framework (ZECF)

AWARENESS OF ZECF by those at the field of reproduction			
POSITION	AWARE	NOT AWARE	HAVE AN IDEA
School manager	4	-	2
Teachers	2	7	3
Total	6	7	5

Source: Field data (2019).

Table 4.5.2 shows that out of the 18 respondents that took part in the FGD, 7 respondents were not aware of what was contained in ZECF on EE while 6 respondents were aware. The remaining respondents said they had an idea of it.

One of the teacher respondents questioned how one would appreciate something that they have never been told about and argued that;

“It is not that we don’t like it, it is just that we don’t know it for us to appreciate it fully”
(Participant I9, FSD).

The respondent added to say that;

“Even media like ZNBC and newspapers don’t cover environmental issues as widely”.

When probed further on why some teachers were not aware of what was written about EE in the curriculum document, some argued that EE was not well planned even from the beginning describing it as disorganized while others complained that they were not consulted before infusing EE and a few of those who were involved in the process did not disseminate the full information to them. Some school managers, also argued that it was difficult for teachers to concentrate on EE

when the curriculum is examination oriented, knowing well that very few questions on EE were asked during examinations. Some school managers felt that the manner in which EE was infused as a cross cutting issue in the curriculum negatively affected its implementation since most teachers don't attach their full attention to it as they would with their own teaching subjects.

Additionally, findings in schools where EE is implemented revealed that some teachers' understanding of EE was limited to cleanliness and characterized by a general lack of policy implementation by some teachers. For instance, while integration of EE is made mandatory in the policy documents, some teachers were still not implementing it.

Checking for compliance/ approval of educational material

Another action towards EE integration in the formal curriculum had to do with checking for compliance and approval of educational material by CDC. When probed about the contribution of this action towards the implementation of EE in the Zambian school curriculum, most respondents indicated that they ensured that books met the requirements in the curriculum before they could be approved for use in schools. In this regard, CDC respondents indicated that they make sure that themes of EE are infused in the books to be used in schools to ensure adequacy of content in EE materials at the implementation field.

However, most of materials used in the schools sampled were found not to have much EE content with the exception of integrated science and social studies books. When asked about this, some CDC respondents admitted that content for EE was still inadequate while others argued that EE was too wide for what was referred to as an 'already overloaded curriculum'. At school, 4 teacher respondents claimed that there was no EE in their subject areas.

Capacity building and orientation of teachers

In relation to capacity building, the general view by policy makers was that it was an important action for enabling EE to be well implemented in schools. However, the study found that most teachers in the sampled schools had not received any capacity building to help them in understanding EE or overcoming challenges associated with its implementation. Results on the ground where EE is implemented showed that only 1 school manager and 1 teacher had received some form of EE training orientation while the rest said no. This was the opposite of the situation

among trainers and policy makers where were everyone (except for 1 respondent at DEBS) agreed to having received some form of EE training orientation.

The study found EE orientation to be more of a theory than a practice because none of the teacher respondents had taken part in any EE training orientation programme claimed by those at CDC and MoGE. 1 school manager and 1 teacher who claimed to have had some form of EE training orientation cited the previous college (Chalimbana College) and Lafarge as their source of the training respectively.

Provision of resources

With regards to the provision of resources, ministry officials indicated that they provided and distributed teaching and learning resources such as books and teaching aids to schools to help in the effective implementation of EE. 2 of the DESO also added that teachers were also able to supplement such resources through a project dubbed TALULAR which stands for Teaching and Learning Using Locally Available Resources.

Implementers contradicted the above claims as most of them complained of lack of EE teaching resources and that there wasn't much EE in most of the educational materials that they had received from the Ministry of General Education. They indicated that most of the EE content in the materials that they used was just on surface. One of the teacher respondents for computer studies argued that it was very difficult to teach EE because the books used in the subject area did not have much to do with EE apart from disposal of computers whose content was very shallow.

Funding

In addition and in relation to resources, MoWDSEP respondents also indicated that there was funding of EE related activities and programmes. As to whether this action was helping towards the implementation of EE in schools, the action was said not have achieved most of its objectives due to limited resources and also poor response from those in schools. According to the respondents, they were few programmes been funded in schools because most of those in schools did not apply for the fund which made it difficult for their activities to be funded. Most of the projects funded such as those on biodiversity conservation were been conducted by Non-Governmental Organizations (NGOs), clubs and other civil society organizations like Bird Watch

Zambia instead of those in schools. One of the respondents said that they were working on a mobilization strategy and a plan to enable them reach out to more schools in engaging projects related to environmental education. Most teachers as implementers were not aware of this fund or that they could have their EE activities funded through this fund.

Monitoring

Monitoring was another action that emerged as one of the actions of policy makers towards EE integration in the curriculum. The action was said to have had helped in identifying gaps and offering suggestions on how such gaps would be dealt with in relation to EE. A case in example that was cited was the development of supplementary material as a way of dealing with the inadequacy in EE content. In indicating its contribution towards the implementation of EE in the school curriculum, most CDC and MoGE respondents indicated that the development of supplementary educational materials for EE which helped fill the deficit gap in EE content for use in schools was a result of monitoring. In this regard, the respondents explained that they had recently developed a document for the infusion of environmental issues in Junior Engineers Technicians and Scientists (JETS). The document had however, not reached any of the sampled schools at the time of this study. Other documents cited were two manuals that were developed for use by teacher educators and teachers for EE. One of the manuals was developed by World Wide Fund for Nature (WWF) in 1999 and another by CDC in 2000.

In addition, one of the respondents said some clubs such as those for Climate Change were already established in some schools even though they were not active at the time of this study as they could not carry out all their activities due to non-localized measurement units on their apparatus. In this regard, the researcher learnt that the ministry of General Education was still revising the measurement units since the ones that were used earlier on most of the clubs' apparatus were not applicable in Zambian schools.

With regards to how often EE was monitored, the study found that there was generally a lack of documented evidence or specific EE monitoring reports to show that EE was been monitored even though 60% (6/10) policy maker respondents indicated that its implementation was been monitored. When asked how EE was been monitored, some respondents indicated that it was been monitored alongside other subjects during the monthly and quarterly visits to schools. This claim was however, refuted by school managers who argued that even their superiors (MoGE officials)

did not know what was happening with regards to EE implementation. One of the school manager respondent complained that;

“Lack of policy monitoring is the biggest weakness when it comes to EE” (Participant I2, Interviews).

Other respondents indicated that EE being a cross cutting issue made it difficult to report on since it doesn't stand on its own while other respondents argued that they were a lot of other national concern issues such as gender and sexuality education that were also competing for center stage.

Development of a communication strategy

When asked about the contribution of the above action towards the integration of EE in the Zambian school curriculum, policy makers indicated that it enabled them to share information on EE with other stakeholders. However, the study found that key stakeholders did not engage in adequate communication on a regular basis despite having a communication strategy in place. This was evidenced from the contradictory statements made concerning EE. When asked about this, ministry officials attributed this failure to increased population and demand, varying interests and the magnitude of work involved in bringing together various stakeholders. One of the respondents argued that it was difficult to reach all the stakeholders even in the presence of a communication strategy. In this regard, they (MoWDSEP respondents) explained that they were already working on developing communication strategies on environment and climate change to enhance communication among stakeholders and other partners.

4.3.3 Contribution of implementers' actions towards the integration of EE in the Zambian school curriculum.

Observing/monitoring of Environmental Education implementation by school managers

The actions of implementers were mainly associated with implementation with an addition of observing/monitoring of EE implementation by the school managers. When asked about how this action helped towards the integration of EE, school manager respondents indicated that it helped in ensuring that teachers implemented EE well. When asked about how well or the extent to which EE was been implemented in their schools, most school managers could not indicate although the majority of them said that they monitor, check and ensure that teachers have their schemes of work, lesson plans and records of marks on a regular basis. Some said they were not sure or could not

tell. When asked how often they observed and monitored EE lessons and activities by teachers, 2 of the school managers claimed not to have had observed any teaching of EE at the time of the interview while another denied having activities and EE lessons implemented in the school despite the main years of work experience in the position.

The general view that emerged from the responses was that assessments in the form of tests and examinations influenced EE implementation tremendously because teachers tended to concentrate on subjects that promote academic excellence and little on issues like EE due to the great value given to examination certificates by communities and schools. This argument was also shared by some teachers who indicated that EE questions rarely came in the examination papers with the exception of integrated science and social studies.

Teaching of Environmental Education

With regards to EE lesson teaching and its contribution towards the integration of EE in the school curriculum, respondents indicated that EE lesson teaching had helped to equip learners with knowledge and skills to properly manage the environment. However, the absence of EE lesson teaching and implementation in general was also evidenced through document analysis of lesson plans and schemes of work of most teachers. Most school managers also acknowledged that some teachers did not implement EE.

The reasons that were given for such a failure were general lack of awareness, no coverage of EE in some subject areas and limited understanding of EE by some teachers. Others attributed it to training by arguing that the way most teachers are trained discourages them from implementing EE since it was not there some years back when most of them received their training. One of the respondents explained that teachers were not well informed of the various ways to use in implementing EE. In this regard, it was suggested that the Ministry of General Education should come up with deliberate efforts to sensitize teachers on EE in the curriculum since most of them were not trained in it. The case of sexuality education was cited as an example where it was emphasized that the MoGE had in partnership with UNESCO been visiting schools and conducting sexuality education with school managers, teachers, other members of staff and some parents from the community. The respondents added that they usually had demo lessons and other activities on how well they can implement sexuality education which made it very simple for them to implement it.

Supervising pupils during preventive maintenance/ keeping the school environment clean

Supervision of pupils during preventive maintenance and keeping the school environment clean were the most popular actions cited by teachers in their quest to implement EE. Most respondents indicated that the action helped to raise awareness of EE and make pupils know the importance of keeping their surroundings and environment clean. On the other hand, the study also found that some teachers thought EE and preventive maintenance were the same. They talked of it as though it were an extra-curricular activity which was more associated with the teacher on duty and not necessarily a part of the main curriculum. This view was also expressed when respondents talked about EE teaching and learning resources. Most of them mentioned hoes, slashes, cobra, brooms and the like.

Classroom discussion/ talks

Classroom discussions with learners were said to have had raised environmental awareness. The study found this action to be very limited since no set objectives or follow ups were made for such activities. From the responses, it was found that the action was not mandatory but dependent on a teacher's discretion and done on ad hoc. Field trips were on the other hand, found to be unsatisfactory with only 1 teacher having claimed to have once taken pupils to *munda wanga* gardens. Lack of resources for undertaking field trips was cited as the reason why this activity was not done often.

4.6 Collaboration of stakeholders towards the integration of EE.

The third objective sought to assess whether stakeholders collaborated towards the integration of EE in the curriculum. In the context of this objective, respondents were asked if they collaborated and describe the ways in which they collaborated/worked together with other stakeholders towards the integration of EE in the Zambian formal school curriculum. The findings between trainers and policy makers are presented first, followed by trainers and implementers, and later between policy makers and implementers.

4.6.1 Collaboration between trainers and policy makers

When asked whether the participants collaborated with other stakeholders towards the integration of EE, the general view was in the affirmative. The main theme that emerged here as way in which collaboration occurred was formal communication in the form of consultation. There was however, varying and contrasting differences in responses of trainers and policy makers over EE integration. For instance, while policy makers described EE integration as a consultative process in which various key stakeholders such as trainers were involved, trainers described their involvement as passive and simply a formality practice. One of the respondents argued that;

“...most of our suggestions are not even considered by those at the ministry of Education”
(Participant T2, Interviews).

Others argued that they had never been invited or involved in any curriculum development process while others felt that they were in most cases misunderstood and most of the talks they had had with policy makers on EE were unsuccessful.

The study also established that there was lack of mutual agreement concerning the integration of EE in the Zambian school curriculum between these stakeholders. While policy makers claimed that integrating EE as a cross cutting issue was the most appropriate due to limited time in the curriculum, trainers argued that EE was poorly integrated and that time was just been used as an excuse for failing to integrate it effectively. All trainer respondents argued that the best way was to integrate EE as a stand-alone subject.

4.6.2 Collaboration between trainers and implementers

The study found that there were mixed views from respondents on whether these two stakeholders collaborated towards the integration of EE in the Zambian school curriculum. While others agreed that they collaborated, the majority of respondents argued that there was no proper communication or collaboration, others simply expressed ignorance by saying they didn't know or they were not aware of any form of collaboration between stakeholders at the two fields. One respondent emphasized this point by sharing a story in which one of the serving teachers had gone to upgrade studies and chose to do EE but that when it was time for the attachment, the said teacher abandoned the school and opted to do the attachments with Nitrogen Chemicals of Zambia (NCZ). After inquiring as to why the said teacher opted to do attachments with NCZ instead of the school, the

said teacher told the respondent that EE did not prepare them to teach but rather to work in industries.

Student attachment/teaching practice was the main theme that emerged as way in which the two stakeholders collaborated towards the integration of EE in the curriculum.

4.6.3 Collaboration between policy makers and implementers.

When asked whether policy makers and implementers collaborated towards the integration of EE in the Zambian school curriculum, the general answer was yes. Policy makers mentioned dissemination of information, orientation of teachers and distribution of resources as the main ways in which they collaborated with implementers. The other way that was mentioned was consultation. Some MoGE officials, claimed that teachers were consulted during the process and after curriculum integration of EE but the teachers' and school managers' responses indicated otherwise. Most implementers complained of not been consulted while others were ignorant of EE in the curriculum. Implementers used phrases such as *things are not so in place, not really consulted* and *I hear so* in describing their collaboration with policy makers/ planners towards EE integration in the school curriculum.

4.7 Proposed best practices for integration EE in the Zambian School curriculum

The fourth objective was to propose the best practices for integrating EE in the Zambia school curriculum. In this regard respondents were asked to suggest best practices for the integration of EE in the school curriculum. The following points were raised by respondents and from observations;

- advocacy and massive awareness raising on EE,
- utilization of training
- engaging in quality communication,
- Engaging in sustainable actions as well as partnering with key stakeholders and other relevant and interested organization such as UNEP, monitoring and evaluation.

4.7.1 Advocacy and massive awareness raising on EE

Respondents felt that advocacy and massive awareness on EE should be raised especially among teachers so that they can know the importance of EE. Some of the respondents suggested that the Ministry of General Education should come up with deliberate efforts to sensitize teachers and

other stakeholders on EE in the curriculum since most of them were not trained in EE. The case of sexuality education was cited as an example where it was emphasized that the government had in partnership with UNESCO been visiting schools and conducting sexuality education with school managers, teachers, other members of staff and some parents from the community. Teacher respondents added that they usually had demo lessons and other activities on how well they can implement sexuality education which made it very simple for them to implement sexuality education. It was further contended that such an approach was necessary if teachers were to implement EE effectively.

4.7.2 Utilization of training

Most of respondents suggested that training opportunities should be utilized to help towards the successful implementation of EE. In this regard, some respondents suggested that short training courses can be arranged to enable implementers of EE have the necessary knowledge and skills on EE. Others suggested that orientation workshops should be organized for teachers. In addition, other respondents suggested that the MoGE should employ graduates of EE in schools to enable them implement EE and also share their knowledge and skills with other teachers in schools.

4.7.3 Engaging in more quality communication

Engaging in more quality communication was another practice that was suggested by most respondents. Some respondents said this will help in effectively integrating EE in the school curriculum because it will enable stakeholders share information, reach consensus on EE and also work together more closely to ensure EE is successfully integrated.

4.7.4 Engaging in sustainable actions

Engaging in sustainable actions such as developing environmentally friendly technologies, recycling projects and other initiatives that promote sustainable development was another practice that was suggested. In addition, respondents suggested engagements in the form of partnerships with key stakeholders and other interested organizations such as the United Nations Environment Programme, clubs for Climate change and bird watch Zambia among others towards the integration of EE in the Zambian school curriculum.

4.8 Summary

This chapter has given a comprehensive presentation of the findings that were discovered in the study. It brought out the actions that key stakeholders were engaged, the contribution of such actions towards the integration of EE in the *Zambian* school curriculum, collaboration among stakeholders and suggested best practices for integrating EE in the *Zambian* school curriculum. The next chapter discussed these findings comprehensively with literature support from other studies.

CHAPTER FIVE: DISCUSSION OF RESULTS

5.1 Overview

This chapter presents the discussion of the research findings that were presented in the previous chapter.

5.2 Introduction

This chapter discusses the findings presented in the previous chapter (chapter four) in the context of research objectives. The discussion was based on the research objectives which are listed below;

- i. to determine actions which key stakeholders were engaged in towards integration of Environmental Education in the Zambian school curriculum.
- ii. to examine the contribution(s) of such actions towards the integration of EE in in the Zambian school curriculum.
- iii. to assess whether stakeholders collaborated towards the integration of Environmental Education in Zambian school curriculum.
- iv. to suggest best practices for Environmental Education integration in the Zambian school curriculum.

However, the discussion started by discussing the findings on stakeholders' understating of Environmental Education as this the core of the study.

5.3 Definition of Environmental Education

According to the results in section 4.3 and as shown in table 4.3 of this study, the majority of respondents defined EE as a study of the environment or one's surrounding and how to take care of it. Others defined EE in relation to creating awareness and sensitization about the environment, as acquisition of knowledge, skills, values and attitudes necessary for environmental stewardship while 3 other respondents defined EE in terms of attitude change for a better environment. From these results, it was clear that all the stakeholders had an idea of EE because all the answers that were given had an attachment to EE. However, it was also evident from the responses that most stakeholders had a narrow view of EE since most of them perceived it to imply cleanliness and awareness of the environment. This view could negatively affect EE implementation by limiting

it to cleaning activities and sensitization when implementing it. Environmental Education, demands that the environment be perceived from a totality perspective. According to Beckford (2008), lack of shared understanding of what EE is can be a major hindrance in incorporating it into the education system. On the other hand, the broader perspective of EE that encompasses acquisition of knowledge, skills, values and a change in behaviour can help to embrace all study areas thereby enabling stakeholders especially teachers to participate in EE implementation activities. Having dealt with the stakeholders' understanding of EE, the next item discussed the first objective of the study which is determining actions of stakeholders towards EE.

5.4 stakeholders' Actions towards the integration of EE in the Zambian school curriculum

This item discussed the actions of stakeholders towards the integration of EE in the Zambian school curriculum. Actions of trainers were discussed first, followed by those of policy makers/planners and later those of implementers.

5.4.1 Actions of trainers

The study found that trainers were involved a number of actions towards EE. The main actions that emerged were training, research and outreach programmes.

Training

Training was said to be an important action not only because it was a policy requirement of the National Policy on Environment (NPE) to integrate EE in learning institutions but also because there was need for trained human resource that would effectively implement EE. The institution also placed a lot of importance on training human resource as evidenced in the fact that although Environmental Education (EE) as a programme of study at the institution (UNZA) was new and recent in Zambia, the respondents indicated that the university was able to offer EE at undergraduate, postgraduate and doctoral levels. Additionally, the researcher was also shown materials that were made by EE undergraduate students such as a bin made from bottle tops of drinks and an art of a wall clock made from papers and other simple recyclable materials.

This showed that EE was not just a theoretical course but also very practical and responsive to solving environmental issues. The knowledge and skills that students acquire in this programme can be so useful in both the integration and implementation of EE in the school curriculum. This

is because students gain both knowledge, skills, experience and other lessons learnt within the university onto learners and other people outside the university. This is supported by Thierry (2012), who asserts that institutions of higher learning can also help to increase students' competence and familiarize them with their societies' needs favorable for sustainable development.

Training can be helpful in effectively integrating EE as it enhances the provision of trained and knowledgeable human resource who would help to implement it and solve critical environmental problems. According to Jadhav. S, Jadhav. V and Raut (2014), higher learning institutions can use their existing knowledge and trained man power to address environmental problems and issues concerned at the local level, national and global community. Through training, universities can help look for, find and create tools to solve environmental problems (Hans, 2000). Additionally, the institution can work hand in hand with policy makers to offer trained human resource and to train already serving teachers in EE so as to enhance their capability for EE implementation in schools.

Research

With reference to research, study findings showed that the university placed a lot of importance and focus on research in EE. According to the respondents, it was a requirement and part of the programme for students at all levels (undergraduate, postgraduate and doctoral) to be engaged in and conduct research in the course of their programme before graduating. In addition, lecturers were involved in ongoing research in matters of EE on a regular basis. This is an important action in EE because it helps to provide new information, ideas and the necessary data needed to address the main environmental problems thereby helping towards achieving sustainable development. This action was similar to the finding by Otunga and Nyandusi (2010) who indicate that the “Environmental Protection Agency in Kenya acknowledges the need for research relating to environmental education and student learning.”

Research studies in EE and Education for Sustainable Development (ESD) on waste management, curriculum implementation, climate change, pollution, deforestation, biodiversity and other ongoing studies in addition to other written books and published works adds to the body of knowledge whose information could be very helpful in integrating EE in the formal school curriculum. This argument conformed to the assertion that research is an integral part of higher

education and an investigative parameter of getting new information and ideas for the environmental development of man and the society (Ayeni, 2010). It is therefore, important that research should be on going to ensure that challenges that may arise with integrating EE are dealt with in good time.

Outreach programmes

In addition, it was also found that trainers had gone an ‘extra mile’ by initiating and been involved in various outreach programmes in order to raise awareness of EE both within the school and the surrounding community. The assertion here was that people have to be aware if they are to appreciate EE within the curriculum. In this regard, school outreach programmes through *Umodzi* network and University of Zambia Students’ Association (UNZAEESA) were found to be helpful in facilitating public awareness and conducting outreach programmes. The media via radio, posters and bill boards that carried environmental friendly information around the school premises were the other ways that the field was using to raise public awareness. The radio programme that was running on Monday from 9-10 hours on UNZA radio (91.7fm) was dubbed ‘focus on the environment’ and it helped to raise environmental awareness. This showed the institution’s commitment to EE.

In addition, the university had established a committee within the school of education to spearhead a campaign dubbed ‘keep UNZA/School of education clean’. This was said to be a call upon the university community including members of staff as well as students to take responsibility for the cleanliness of the institution. One of the activities was thus, to pick litter and clean the surrounding every Friday from 8 to 10 hours. This was an important action because it has the potential to raise public awareness of EE and encourage people to take responsibility for the environment as per UNESCO (1980), recommendation to foster awareness of, and concern about the environment.

5.4.2 Actions of policy makers

As shown in section 4.4.2, the main actions towards integration of EE that emerged from policy makers were policy formulation, provision of resources, capacity building, monitoring and development of a communication strategy.

Policy formulation

Policy formulation was one important action that was sought to be a guiding tool on how EE was integrated. According to the GRZ, (2007:22), EE has been made mandatory in all formal and non-formal education institutions. The document (NPE) also stipulates how Environmental Education should be taught by stating that; *“EE shall be taught on a multi-disciplinary basis and integrated into on-going curricula at all levels and on a continuous basis.”*

In this regard, the development of the Zambia Education Curriculum Framework (ZECF) was said to be an important action towards the integration of EE in the curriculum. Inclusion of EE in the curriculum was said to be one of the main reasons that lead to the revision of the national curriculum. EE was said to have been captured in the curriculum as a cross cutting theme of national concern. This meant that EE was recognized as an important issue which should be taught at all levels of the formal education system. In this regard, the ZECF was said to be there to help guide, give direction and spell out clearly what should be covered in schools under EE and Climate Change (CC) (GRZ, 2013).

As such, policy makers were through CDC also engaged in checking for compliance and approval of educational material. The respondents said that they assessed, checked for compliance and evaluated educational materials to ensure that they comply with the requirements in the curriculum. This was meant to ensure that EE is mainstreamed in the relevant materials such as text books for use by implementers. There was however, a concern by most of respondents at the centre that EE was too wide to be fully covered within what was referred to as ‘an already overloaded time table of the curriculum’. Another concern was on the limited EE content and materials for use in schools. This implied that EE content for use in schools was still inadequate even though it was said to have had been mainstreamed in the curriculum document.

Provision of resources Distribution of EE teaching and learning resources

As shown in section 4.2.2, provision of resources was one the actions that emerged. Policy makers indicated that they through the MoGE distributed teaching and learning materials such as books which are normally approved by CDC for use in implementation of EE in schools. The respondents here did however make mention that there were no specific books for EE. This implied that teachers had to rely on the EE content that was within their subject text books and other teaching and learning materials in implementing EE.

Additionally, 2 of the respondents admitted that they faced a challenge of inadequate EE content and materials for use when implementing EE. In this regard, the respondents talked about supplementing through a project known as Teaching And Learning Using Locally Available Resources (TALULAR) in which they claimed to have partnered with organizations' such as Step Up Zambia. It was argued that teachers were able to produce materials for use from waste through this project. This claim could however, not be authenticated because teachers were unaware and showed ignorance of even knowing what TALULAR stood for. This showed that there was certain relevant information that ministry officials had which did not reach teachers even though it was meant for their use. It also showed that there was inadequate communication with teachers.

In addition and in relation to provision of resources, funding of environmental education was another action that emerged from policy makers. It was learnt that MoWDSEP had come up with a fund to support EE by providing financial support for EE projects. Funding for environmental projects was consistent with New Zealand Ministry of Education-MoE (1998), Australian Department of the Environment and Heritage-DEH (2005) and UNFCCC, (2009). These are environmental bodies that funded for Environmental Education activities in their respective countries.

It was argued that this programme had helped to a great extent to supplement the means for mainstreaming environmental concerns and solving some of the environmental challenges that the country was facing. MoWDSEP respondents reaffirmed the ministry's commitment to support EE through funding by saying that those in schools should take advantage of the fund by coming up with environmental related activities and projects which they can use to apply for the fund. It was however, found that teachers in the sampled schools were not aware of the fund thereby making it difficult for them to benefit from it. This implied that the MoWDSEP together with the MoGE had not taken the responsibility of making the fund be known to those in schools, particularly to the school managers and teachers. This meant that schools were not actually benefiting from this action as they should especially that none of the schools in this study had even applied for funding for any EE and related activities. Important and beneficial as funding may be, it cannot have any positive effect on EE in the curriculum if implementers such as teachers are not aware of it. Such actions should be well communicated to other key stakeholders for them to have a positive effect on EE.

Capacity building/orientation of teachers

The other emerging actions of policy makers were capacity building and orientation of teachers. With regards capacity building, respondents said that they organize seminars, workshops and trainings to sensitize and build capacity for their staff, school managers and teachers to ensure that EE is well implemented. This was in line with a statement made in the National Policy on Environment (NPE) to catalyse the implementation of Environmental Education, information dissemination and awareness raising in order to fully harness the Nation's latent capacity in this regard (GRZ, 2007).

However, as earlier alluded to in chapter 4, the study also revealed that most teachers had not received training and orientation in EE. This meant that their capacity to implement EE was limited to the knowledge they had before its mainstreaming. It also indicated that the MoGE did do regular follow ups in schools to find out how many teachers had received training and those needing capacity building. This was also evident when some teachers expressed ignorance over knowing EE's existence in the curriculum or their subjects while others limited its implementation to cleaning of classrooms and surroundings by pupils. This implied that most teachers were not sensitized on EE and lacked the capacity to implement it effectively.

In relation to orientation of teachers, CDC and MoGE respondents explained that teachers underwent orientation in EE to help them implement it well. However, majority of school managers (5) and teacher respondents (11) were unaware and expressed ignorance of having heard of such an activity. This implied that training orientation in EE did not reach most stakeholders in the selected schools. Teachers well ill prepared for EE because they did not receive any training orientation in EE even though it was not their subject specialization. According to Fien and Rawlings, in Beckford (2008), teachers not only require commitment but also knowledge and skills to 'environmentalise' their curriculum and produce environmentally educated students. There is therefore, urgent need for the MoGE to ensure that all teachers are oriented in EE. This will ensure that the integration of EE is complete and well implemented.

Monitoring

As shown in section 4.4.2. of the study, monitoring was another action towards EE integration in the curriculum that was said to be undertaken by the MoGE to ensure effective integration of EE. In this regard, MoGE respondents said that they conducted monthly and quarterly checking of EE implementation and performance in schools with a view of offering support, applying corrective measures when inconsistencies emerge and organizing training seminars and workshops where teachers faced challenges. This claim was however, found to contradict itself when the researcher asked about reports on EE. The respondents indicated that there were no reports on EE implementation. Some indicated that EE was just monitored alongside other subjects while other respondents indicated that it couldn't be monitored on its own since it was just a cross cutting theme among so many other themes like gender, human rights, governance, life skills and so on.

This implied that there was no consensus or a plan in place on how EE integration was to be monitored. Monitoring EE alongside other subjects and yet not reporting on it, showed that it was not considered with the importance that other subjects such as those in the collection code like Mathematics, Integrated science and so on were considered with. This made it difficult to know how well and the extent to which EE was been implemented.

In addition and in view of the inadequate Environmental Education content in most textbooks, CDC respondents indicated that they recommend and develop EE supplementary materials for use in schools. One example was the development of a manual for the infusion of environmental issues in Junior Engineers, Technicians and Scientists (JETS) which was said to have been developed in partnership with United Nations Children’s Fund (UNICEF). It was also learnt that they work with other NGO’s in training ambassadors for climate change and in developing tool kits for use in schools. These are good initiatives even though they are not enough to cover for the deficit EE content. Therefore, in addition to such initiatives, the MoGE can work with other key stakeholders such as the University of Zambia to enable a constant flow of up-to-date data which can then be recontextualised to overcome the inadequacy in EE content in schools.

Communication strategy

The other action that emerged was the development of a communication strategy. The study found that policy makers through the MoWDSEP were working on developing a communication strategy on environment and climate change which they hoped would enhance cooperation and coordination of strategies and actions relating to the environment. According to the MoWDSEP respondents, there was need for a more comprehensive communication strategy that would enhance communication and coordination of efforts among stakeholders. This implied that the strategy that was currently in place had faced challenges in bringing together stakeholders. It was hoped that the ministry will work with other stakeholders to ensure the successful development and implementation of this strategy. This will help in enhancing communication and coordination for effective EE integration.

5.4.3 Actions of implementers

As shown in section 4.4.3 of the study, the actions of implementers towards the integration of EE that emerged were observing/monitoring of EE implementation, lesson teaching, supervision of pupils during preventive maintenance and clean ups and field trips.

Observing/ monitoring of EE lessons

As indicated earlier in chapter 4, one of the actions that emerged was observing/monitoring of EE lessons and activities conducted by teachers. This was said to be done by school managers with an aim of ensuring that EE implementation was done properly. However, the results revealed that majority of school manager respondents did not observe EE lessons regularly. In fact, 2 of the school manager respondents said that they had not yet observed any teaching of EE lessons. This indicated that school managers were not well informed on the importance of EE and how they can supervise EE lessons and implementation in general. It was also found that there was no mechanism put in place by any of the three schools in this study to ensure that EE was taught. This implied that teachers were not in any way compelled to teach EE unless when they felt like. This calls for the need to orient school managers on the importance of EE and come up with a clear plan for monitoring.

Lesson teaching

As shown in section 4.4.3, teaching of EE lessons was an action that emerged in schools. 4 teacher respondents comprising of teachers of integrated science, social studies and civic education indicated that they implemented EE through lesson teaching to pupils. This showed that some teachers recognized their role of implementing EE through teaching. Nevertheless, the results also indicated that a larger portion of the respondents were not teaching EE even though it was a compulsory component of every study area and teachers were expected to teach it (GRZ, 2013). This finding also showed that teaching EE by teachers was optional since its teaching depended on an individual teacher. This conforms to a number of literature which state that teaching of EE is done through individual effort of a few committed teachers (Beckford 2008; Gough, 2009). The main contributing factor is that some teachers feel that EE is not there in their subject areas and that EE is not usually examined so they tend to focus on those areas that would come in examinations questions.

Classroom discussions/talks

In addition and in relation to lesson teaching, classroom discussions and talks with learners was said to be another action that teachers undertook in their quest to implement EE. Teacher respondents indicated that this action was not mandatory but depended on a teacher's discretion and it was done at ad hoc. This implied that they were no written records for this action which made it difficult to know how often it was done and how it helped in the implementation of EE even though the respondents said that it raised EE awareness to pupils.

Supervision of pupils during preventive maintenance

Supervision of pupils during preventive maintenance was the most cited action and way of implementing EE by the majority of respondents in the sampled schools. Most of them stated that they implement EE by making sure pupils clean the classroom and surrounding, improving school environment to make it look clean and neat, and supervising pupils during preventive maintenance. This showed that the some implementers could not draw a line between preventive maintenance and EE. In fact, it seemed as though some teachers understood preventive maintenance far much better than they did EE. As such, some teachers rarely viewed EE as being part of the main curricular but rather as an extra-curricular activity mainly associated with the teacher on duty. This view compromises EE implementation and hence, needs to change so that EE can achieve its full potential.

Field trips

The other action that emerged was field trips but these were only done once in a while due to lack of resources for undertaking them and only one teacher confirmed having taken the pupils on a field trip that year. This is an important action even though it was been utilized. This is because according to Rosenberg (2008), field trips broadens pupils' perspectives and encourages them to think outside the box by exposing them to different sites of interest and educational purpose. Additionally, direct nature experiences are known to develop learners' environmental awareness and foster related attitudes (Bogner, 2010). This is in line with research studies that have shown that EE outside the classroom provides opportunities to develop environmental awareness (Erdogan and Usak, 2009), environmental consciousness (Yerkes and Haras, 1997) and environmental responsibility (Mathews and Riley, 1995). However, for these opportunities to be

impactful, there is need to plan for such activities so that they can be done more often. Having discussed the actions of stakeholders towards the integration of EE in the Zambian school curriculum, the next section discussed the contributions of such actions towards the integration of EE in the Zambia school curriculum.

5.5 Contributions of actions towards the integration of Environmental Education in the Zambian School Curriculum

Having identified the actions that the various key stakeholders were engaged in, the study sought to examine the contribution of such actions towards the integration of EE in the Zambian school curriculum. In this regard, respondents were asked to describe ways in which the named actions were contributing to the integration of EE in the school curriculum. Findings for contributions of trainers' actions were discussed first, followed by those of policy makers/planners and later contributions of actions by implementers.

5.5.1 Contributions of trainers' actions

Training

As shown in section 4.5.1 of the study, it was revealed that training was an important action towards the integration of EE in the Zambian school curriculum because it led to the availability of readily available trained human resource in EE. It also provided an opportunity teachers and other implementers needing training to be trained in EE. However, there was concern that the contribution of this action was been hampered by the reluctance of the MoGE to employ graduates of EE thereby making it difficult for them (EE graduates) to implement what they were trained for within the formal school curriculum. This implied that trained human resource, knowledge, skills and experience acquired from the University was not been transmitted to the sampled schools despite the lack of capacity for EE implementation that was found in these schools. For instance, recycling of waste materials by students of EE helped students be creative and resourceful but, this idea seemed to only be present within the university because such acts were absent even among teachers. This is in contrast with what Bernstein (2000: 59) assertion that *“the generic capacities to be taught and ‘trained’ cannot be considered independently of the vocation or occupation for which individuals are preparing”*,

Research

As shown in section 4.5.1 of the study, research as an action was said to contribute towards the integration of EE in the Zambian school curriculum through written books and publications which could be useful in integrating EE. The action was however, said to have had contributed less towards EE in the curriculum because most of such materials were not been utilized by policy makers and those in schools and that most of the recommendations made through research studies and publications were not been put into effect. This implied that most of the knowledge that was been produced by trainers was not been transmitted and recontextualised for it to be used in schools.

Outreach programmes

On the other hand, the study found that outreach programmes through radio, school and community outreach, and the ‘Keep UNZA clean’/ ‘keep school of education clean’ campaigns had raised some awareness of EE especially amongst the student populace in the school of education, schools reached out and the general public. There was however, concern over the attitude to the cleanup activities every Friday which still indicated poor participation and a lack of concern by many students and members of staff. This was because a few students who are usually EE students took part in the activities even though there was an established environmental committee within the school of education to spearhead this campaign. This implied that the programme had more impact on EE students than it did on the general university populace.

5.5.2 Contribution of policy makers’ actions

Policy formulation

As shown in section 4.5.2 of the study, policy formulation was an important building block for the recognition, integration as well as implementation of EE in the school curriculum. In view of this, the development of a National Policy on Environment (NPE) in 2007 provided guidelines and led to the inclusion of EE in the Zambian formal school curriculum. The development of the Zambian Education Curriculum Framework (ZECF) to include EE was a great milestone towards EE integration in the formal school curriculum. The argument here is that although EE practices could be said to have been there some years back through the young farmer’s clubs, the extent of

integration was at variance, in that it was now more formal and taught in all subjects. It was also argued that the ZECF had led to increased awareness of EE and helped to guide teachers on what should be covered under EE and how it should be covered.

Nonetheless, as earlier indicated in chapter 4, findings at the sampled schools revealed that the manner in which EE was infused in the curriculum as a cross cutting theme made it difficult for some teachers to properly recognize and distinguish it. This was evident when some teachers equated EE to integrated science, others to preventive maintenance and cleaning of classrooms and surroundings. Some were not even aware of what was contained in the ZECF on EE while others said it was not there in their subject areas. This was contrary to Jekanyifa and Yusuf's (2005) finding that there was heightened awareness of the incorporation of EE in the primary school curriculum in Nigeria. However, the same finding was similar to Lindhe (1999) who found that secondary school teachers in Tanzania were not aware of EE topics in diverse subjects.

This was also similar to the findings by Mweembe (2008), who reported Environmental Education was not recognized by a number of teachers in Zambian Schools as a component that could be integrated or taught in their subjects. In fact, the author explains that a number of teachers who are mandated to implement the curriculum could not define Environmental Education. This worrisome situation contradicted what was written as policy from what was actually taking place in schools. It also raises a lot of concerns as to how learners are helped to develop the knowledge and skills needed for them to understand and address the complex environmental issues and challenges facing society. This is a sad reality which could perhaps be a big contributing factor to the poor recognition and implementation of EE in schools since even the people who would otherwise implement EE were found to be ignorant and did not show much appreciation of the need for EE.

In addition, Drake (2004) asserts that teachers find it difficult to link Environmental Education content with subject content because there seems to be no clear formula for implementation. Adding that many teachers are not comfortable with teaching through integration (Drake, 2004). It also conformed with the findings of (Johnson, 2005 and Palmer, 1998) that integration of Environmental Education into different subjects creates a number of limitations and challenges to education systems (Johnson, 2005 and Palmer, 1998).

Furthermore, the finding that some teachers did not implement EE even though it had been made mandatory in the ZECF of 2013 implied that the policy was not been put into effect. Arguments like it is difficult to concentrate on EE when the curriculum is examination oriented and that very few questions on EE were asked during examinations also showed that EE was given less priority as compared to other subjects because most teachers didn't attach their full attention to it as they would with their own teaching subjects. This finding was similar to Palmer (1998), assertion that EE holds nowhere near the priority position in formal education programmes around the world.

Furthermore, the untenable argument by CDC specialists that caution be given not to unduly fragment or overload the curriculum with cross-cutting issues (GRZ, 2013) was found to be affecting the teaching of EE negatively. This is because the argument was implicitly used as an excuse for not implementing Environmental Education effectively just as Namafe and Muchanga (2016), had found in their study on the relation of mainstreamed EE to the modern schooling system in Zambia. The responses from school managers and teachers also showed that the argument by CDC compromised the importance that had to be attached to EE since most of them tended to view it as just one more thing to squeeze in.

From the discussion above, it can be seen that merely including EE into policy documents is not enough as it does not guarantee its effective integration. According to UNESCO 1980), the aim of teaching EE can only be fully attained if the means required for the development of EE are explicitly provided for in educational policies and general planning. Therefore, raising awareness of EE, trained human resource in EE and provision of professional training and relevant support in addition to policy will help to improve EE understanding and implementation in schools.

Checking for compliance/ approval of educational material

Another action towards EE integration in the formal curriculum was checking for compliance and approval of educational material by stakeholders at Curriculum Development Centre (CDC). Through this action, they ensured that EE themes were infused in the educational materials such as books that are used in schools before they could be approved for use in schools. This was meant to ensure adequacy of content in EE materials that used in schools.

However, as earlier alluded to in section 4.5.2 of the study, some of the books in the sampled schools were found not to have much EE content with the exception of integrated science and

social studies books. Policy makers also admitted that content for EE was still inadequate while others argued that EE was too wide for what was called an ‘already’ overloaded curriculum. In this regard, the approval of educational material and checking for compliance proved not to be enough in ensuring that EE content was adequate in educational materials that were used in schools as there was need for more content of EE in the various subjects where EE is taught. As such, the researcher was of the view that in addition to checking for compliance, stakeholders at MoGE through CDC work together with those at the University of Zambia and other researchers or text book writers to come up a plan of how they can share EE knowledge in form of research studies, publications and so on, and how this knowledge can be included in the textbooks of the various subjects for use in schools.

Capacity building/ orientation of teachers in EE

Capacity building as an action towards the implementation of EE in the Zambian school curriculum was said to be important because of its potential to enable teachers implement EE well. However, responses of teacher respondents indicated that most of them had not received any capacity building in EE to help them in understanding EE or overcoming challenges associated with its implementation. This made implementation of EE potentially threatening to some of them. This was because they were not as firmly in control of its content as they were with their own teaching subjects. This has a negative impact on pupils since the teachers who are supposed to transmit this knowledge seem to lack the capacity to do so.

This finding also showed that capacity building in EE was not prioritized in schools. This was also observed by Jones (1996) in his study that teaching EE was not a priority. This contradicts UNESCO (1980: 87), recommendation that “EE should be an obligatory part of pre-and in-service teacher education”. However, integrating EE into the formal curriculum and its implementation largely depends on the training of the teachers because they are responsible for putting the curriculum into effect (UNESCO, 1980). Therefore, there is a dare need to strengthen EE through pre-and in-service teacher education programmes in Zambia. The MoGE should also facilitate capacity building programmes to ensure that all teachers attain the capacity for EE implementation

Furthermore, one other action that could have otherwise been a turning point for EE implementation was the orientation of teachers. However, the action was found to be more of a

theory than a practice. This is because the majority of teachers had not received any training orientation in EE that was claimed by the policymakers. This implied that the action was not been utilized. This was similar to the findings of Lukonde (2011), who discovered that most teachers did not receive pre-service or in-service training in EE and if they did receive such training then it was irrelevant to the work they were doing. Additionally, in another study on the integration of EE in the curriculum in Tanzania, the results indicated that out of eight teachers interviewed, only two had received training in EE (Mwendwa, 2017). This implies that most teachers do not receive any training orientation in EE even though it has been included in the formal curriculum and expected to be implemented by all teachers. This means that only a few teachers are equipped to teach EE. It is however, important that all teachers receive training orientation in EE to enable them to gain the necessary understanding, skills and knowledge needed for the effective integration of EE. Without orientation, EE may continue to be viewed as just one more thing to squeeze in when a teacher feels like which should not be the case. There is thus, urgent need to orient and train both teacher educators and teachers in EE.

Provision and distribution of resources

As shown in section 4.5.2 of the study, policy makers through the MoGE provided and distributed teaching and learning resources needed for the implementation of EE such as books and teaching aids in schools. When asked ways in which this action contributed towards the integration of EE in the Zambian school curriculum, the respondents said that the action helped in the effective implementation of EE. However, even though most school managers acknowledged having received educational materials, they complained that there wasn't much EE there, arguing that EE content in most of the materials that they used was little and just on surface. This implied that EE content was still inadequate in schools. There is therefore need to do more in this area.

Funding

Furthermore, the study found that there was fund that was meant for environmental related projects and activities through the MoWDSEP. When asked the contribution of this action towards the integration of EE in the curriculum, policy makers explained that this action helped to cushion the financial burden for undertaking EE projects and activities. However, it also learnt that the contribution of this action towards EE integration in the curriculum was less mainly due to the

poor response from those in schools and limited funds. With regard to limited resources, UNESCO (2016), also reported that Zambia did not implement some EE programmes in schools because of lack of funding. This finding was also similar to the findings by Lukonde (2011) who observed that lack of and inadequate resources in terms of funds, support, and, teaching and learning materials was a challenge to teaching EE. Inadequate and lack of funds has been found to be one of the main barriers to effective EE integration (kimaryo 2011; Monde, 2011). So, in order for EE to be successfully integrated, funds should be made available in addition to other factors such as in-service training of teachers and consented efforts among stakeholders. In addition, implementers should be well informed in order for them to benefit from such funds.

Monitoring

The other action which was said to be undertaken by policy makers was monitoring of EE implementation. As shown in section 4.5.2 of the study, policy makers said that this action helped in identifying gaps, areas needing improvement and offering suggestions on how to fill them. A case in example was the development of supplementary materials for EE as a way of dealing with inadequacies in EE content. The development of a document for the infusion of EE in JETS was one of the cited documents. This action was also supported by the Ministry of Education (2000:19), who stated that two manuals were developed for use by teacher educators and teachers for EE. One of the manuals was developed by World Wide Fund for Nature (WWF) in 1999 and another by CDC in 2000.

This shows that policy makers were aware of the need for more teaching and learning resources for EE. It is commendable, that they had taken steps to develop various supplementary materials for EE though there is need to speed up the process and the rate at which such materials are produced to help cater for the deficit in schools.

However, the lack of documented evidence and failure to show that EE implementation was been monitored suggested that there was either, no monitoring of EE integration, and how it was been implemented or it was rarely done and not documented.. There is therefore, need to come up with a monitoring and evaluation plan for EE integration in the formal school curriculum. This will help to give a clear picture on the progress and future of EE in Zambia. According to Bernstein (1996), the key to pedagogic practice is continuous evaluation.

Communication strategy

As shown in section 4.5.2 of the study, the other action that policy makers undertook towards the integration of EE in the Zambian school curriculum was the development of a communication strategy. This was meant to enhance communication among stakeholders but the study found that key stakeholders did not engage in adequate communication on a regular basis despite having a communication strategy in place. This was evidenced in the varying and contradicting statements on EE and the lack of awareness on obvious issues. For instance, while MoWDSEP respondents indicated that there was a fund for EE activities, teacher respondents showed ignorance over knowing the fund. This finding was similar to that of (Coppola 1997) who found that communication between agencies and stakeholders is consistently inadequate in incorporating two-way flows of information even though it is widely agreed that Communication is at the heart of holistic stakeholder engagement. Perhaps this is why there is increased concern that such claims of improved engagement and higher achievement levels among learners, and the rejuvenation of teaching styles (Applebee, Adler and Flihan, 2007) are based more on rhetoric than classroom-based research, and that in general, the field of curriculum integration suffers from lack of empirical data on which to base informed decisions regarding curriculum integration practices at grass roots level (Nsubuga, 2009). In this regard, UNESCO (1990), recommends the establishment and strengthening of machinery for coordination between institutions involved in the framing and implementation of environmental policies. This is one of the important conditions necessary for making EE integration more effective.

5.5.3 Contributions of implementers' actions

Having analyzed the contributions of policy makers' actions towards the integration of EE in the Zambian school curriculum, the researcher also analyze implementers' actions.

Observing/monitoring of Environmental Education implementation by school managers

As indicated earlier in section 4.5.3 of the study, observing/monitoring of EE implementation by the school managers was one the actions that emerged from the implementers. Therefore, in examining the contribution of this action, the researcher asked ways in which the action contributed towards the integration of EE in the Zambian school curriculum. Although the majority of school managers said that the action helped in ensuring that teachers implement EE well, the

findings on this action suggested that supervision and monitoring of EE implementation was not done by most school managers while a few that did it, were biased towards integrated science and social studies leaving out the other subject areas which are also crucial to the integration of EE. This implied that head teachers were also contributing to the lack of EE implementation schools because this may discourage teachers of other subjects from implementing EE in schools. Hence, there is need to train and orient school managers so that they understand the importance of EE.

Teaching of Environmental Education

Teaching of EE was another action that was said to be undertaken by the teacher respondents. As shown in section 4.5.3 of the study, respondents indicated that teaching of EE helped to equip learners with knowledge and skills to properly manage the environment. However, only a few teacher respondents were involved in this action thereby limiting the contribution of this action towards the integration of EE in the curriculum. This implied that only a few teachers were aware of their responsibility to teach EE while the majority did not teach it. It also showed that even though the state had imposed high levels of control over EE by infusing it in the curriculum, this control was never absolute, because of the way in which teachers recontextualised and reproduced the 'official' curriculum in their classrooms. This finding was similar to that of Makhoba (2009) who established that educators implemented environmental education in their learning areas only to a limited extent.

The reasons that were attributed to this failure included training, lack of awareness and time, and limited understanding of EE. These factors had negatively affect the implementation of EE in schools because most teachers use them for not teaching EE. An example of this effect is the argument that the way most teachers were trained discouraged them from implementing EE since it was not there some years back when most of them received their training. This argument is supported by Chatzofotiou (2006) who expressed concern about teachers' lack of training by saying that since many teachers did not receive any training in Environmental Education, it is difficult for them to teach Environmental Education effectively because they do not know why, where and how it came into being.

Given the holistic nature and characteristics of Environmental Education, it is obviously different from most current school subjects in the school curriculum, especially those of language,

mathematics and computer studies in which many boundaries serve to divide rather than integrate knowledge. There is therefore, a number of questions in terms of teachers' preparedness to integrate EE into all of the learning areas, including the question; Are all teachers aware that EE should be integrated into all learning areas, which themes are to be taught and which strategies would be the best? (Monde, 2011).

Supervising pupils during preventive maintenance/ keeping the school environment clean

Supervising of pupils during preventive maintenance and keeping the school environment clean were the most popular actions cited by teachers in their quest to implement EE. This action was said to help in raising awareness of EE, make the school look neat and help to make pupils know the importance of keeping their surrounding and environment clean.

However, it was also noted from the responses that some teachers thought EE and preventive maintenance were the same. Although this view contributed to cleanliness of schools since most respondents shared in the belief of keeping the schools clean, it also contributed to the acceleration of the belief that EE meant cleanliness of the school as evidenced from the many responses. This finding is similar to that of Monde (2011), who reported that teachers associated EE with cleaning of schools and preventive maintenance. This implied that EE was not been accorded adequate weight in all subjects. This finding supported Bernstein's (1996), assertion that weak classification of a subject leads to loss of unique identities and boundaries in the integrated code. The researcher felt that this could have been one of the reasons why some teachers showed ignorance of their role in implementing EE.

As a result, EE was treated like an extra-curricular activity and not necessarily a part of the main curriculum. Consequently, this makes EE not to treated with the importance that it ought to be treated with or implemented in the manner that it ought to since it is limited to cleanliness only. There is need for teachers to be well informed about EE, its goals, objectives and how they can implement it effectively otherwise EE may continue to be mistaken for preventive maintenance.

Furthermore, assessment in the form of examinations negatively influenced EE teaching tremendously due to the great value given to examination certificates by communities and schools. This could be a major contributing factor to the poor attitude that some teachers had towards EE because most of them tended to concentrate on subjects that promote academic excellence and

little on issues like EE. As a result, some teachers may feel that EE is a waste of time since EE questions were not included in examinations. This observation conforms to the findings by Young and Lafollette (2009), who indicated that students were not tested on environmental issues. This shows that teaching of EE was just for the sake of satisfying examinations rather than solving environmental challenges or meeting the needs of society.

It is however, important that teachers realize that there is more to EE than just satisfying examinations. According to Sandel (2005), the primary purpose of school is to serve society. Therefore, teachers should endeavor to prepare learners for life through an understanding of the major problems of the contemporary world and the provision of appropriate knowledge, skills and attributes that will enable learners to participate effectively towards resolution of environmental problems and play a productive role towards improving life and protecting the environment (UNESCO, 1980).

Classroom discussions and talks

As shown in section 4.5.3 of the study, classroom discussions and talks with learners was said to be another action that teachers undertook in the quest to implement EE. This action was said to raise environmental awareness but its contribution towards the integration of EE in the curriculum was very limited since it was not mandatory but depended on a teacher's discretion and was done at ad hoc. There is therefore need to improve this action by way planning it, setting objectives and following up to check if objectives have been met.

Field trips

Field trips was another action that emerged from implementers. This action was said to help learners learn through experience in the natural environment. However, field trips were found to be very rare undertakings which were only done once in a while due to lack of resources for undertaking them. This finding was similar with the findings of Kimaryo (2011) who asserted that that environmental education lacked practical and applied skills that connected with classroom knowledge. This implied that teachers rarely used field trips to teach EE even though it was an effective way to teaching EE. This reaffirmed by Rosenberg (2008), who states that field trips broadens pupils' perspectives and encourages them to think outside the box by exposing them to different sites of interest and educational purpose. Additionally, direct nature experiences are

known to develop learners' environmental awareness and foster related attitudes (Bogner, 2010). This is in line with research studies that have shown that EE outside the classroom provides opportunities to develop environmental awareness (Erdogan and Usak, 2009), environmental consciousness (Yerkes and Haras, 1997) and environmental responsibility (Mathews and Riley, 1995). In this way, learners are helped to understand the man-environment relationship and mutual interaction through direct and first hand experiences such as observation which are important for shaping personal opinions, values and attitudes (Bogner, 2010). However, for these opportunities to be impactful, there is need to plan for such activities so that they can be done more often.

5.6 Collaboration among stakeholders towards the integration of Environmental Education in the Zambian School curriculum

The third objective in this study was to ascertain whether key stakeholders collaborated towards the integration of EE in formal school curriculum. The findings of this objective were discussed below;

5.6.1 Collaboration between trainers and policy makers/planners

As shown in section 4.6.1 of the study, findings indicate that there was some formal communication between the two stakeholders through what policy makers termed as consultations. Communication was however, found to be inadequate and not on a regular basis owing to varying differences in responses between these stakeholders. For instance, while policy makers/planners described EE integration as a consultative process in which trainers were involved, trainers described their involvement as passive and simply a formality practice. In addition, while policy makers said that best way to integrate EE in the Zambian school curriculum was as cross cutting theme, trainers said the best way was to integrate it as a stand-alone subject. This showed that there was no consensus and that these two stakeholders lacked mutual agreement concerning the integration of EE in the Zambian formal curriculum. Instead great contestation was seen because the stakeholders seemed to compete to impose their particular approach on the integration of EE in the formal curriculum. This was similar to Bernstein's (2000) assertion that the pedagogic device is a site of struggle over control of the rules of the pedagogic device, for whoever gains control of these rules becomes the ultimate ruler of consciousness by virtue of being able to determine the content of pedagogic discourse, and the means of its transmission and evaluation

(Bernstein, 1996). In this case, policy makers appeared to be the dominant stakeholders that determined the manner in which EE was integrated, as well as its transmission and evaluation.

5.6.2 Collaboration between trainers and implementers

As shown in section 4.6.2 of the study, collaboration towards the integration of EE in the Zambian school curriculum between trainers and implementers was characterized by inadequate communication between the two stakeholders owing to the mixed views in responses. Some respondents felt that there was no collaboration while others simply expressed ignorance by saying they didn't know or they were not aware of any form of collaboration between them while others agreed that they collaborate. Student attachment/teaching practice was the most frequent response by these two stakeholders in describing the ways in which they collaborate.

This showed a lack of communication and understanding between these stakeholders. Furthermore, although these stakeholders were both involved in actions for EE integration in the curriculum, their efforts were not consented. This meant that even if trainers were involved in the training of human resource in EE programmes, it did not have much impact towards EE integration in the curriculum because some students did not see themselves as people who would implement EE in schools. It seemed as though such an action as training in EE had more effect in the university in which it was produced than in the sampled schools. There is therefore need for these stakeholders to engage in more quality communication. In addition, students should be made to understand their role towards EE integration while teachers and lecturers should realize their complementary and not conflicting roles towards EE in the curriculum.

5.6.3 Collaboration between policy makers and implementers

As shown in section 4.6.3 of the study, most respondents answered 'yes' when they were asked whether they collaborated towards the integration of EE in the Zambian school curriculum. There was however, contradicting responses between these two stakeholders. For instance, while the CDC respondents said that teachers were consulted in curriculum integration, the teachers' and school managers' responses indicated otherwise. They complained of not been consulted while others were ignorant of EE in the curriculum. School manager respondents also complained of lack of involvement in the process of infusing EE. This conformed to the observation made by Otunga and Nyandusi (2010), that the teachers' role is narrowed to implementation of curriculum.

However, as Fullan (1991) notes, the implementation of curriculum innovations is bound to be unsuccessful if teachers are not involved in the entire process of curriculum development.

The findings also showed that communication between these two stakeholders was poor and inadequate towards the integration of EE in the school curriculum. This is similar, to the findings of a study by Monde (2011), in which it was found that the ministry of Education (MoE) officials and those in schools lacked coordination. According to Monde (2011: XV), “MoE officials had a poor mechanism of communicating with high school officials regarding the position of EE and, hence, some information known by MoE was not known by school administrators”.

Furthermore, the lack of knowledge on Environmental Education by some teachers meant either not implementing EE or poorly implementing it. It is therefore, essential that stakeholders such as implementers are not only provided with the information required to fulfil their work, but are given access to the appropriate knowledge, skills and resources, that would enable them to achieve the intended results (Rowe and Frewer 2000).

The study findings also indicates that while stakeholder engagement is seen as a two-way interaction, in reality stakeholders only inform or consult their fellow stakeholders at times and not truly involving them in decision-making. Griffins (2011), argues that collaborative processes cannot succeed when there is no room for negotiation. This assertion is also supported by (WWF, 2000) who also argue that stakeholder collaboration is a process that requires the opportunity, willingness and space for participants to listen to and learn from each other in order to achieve both individual and shared goals. Hence, the need for collaboration among key stakeholders towards the integration of EE in the Zambian school curriculum. Having discussed the third objective, the next item discussed the findings of the fourth objective.

5.7 Suggested best practices

The fourth objective in this study was to suggest best practices for integrating EE in formal school curriculum. The themes that emerged were advocacy/ massive awareness raising on EE, utilizing training, engage in quality communication and engaging in sustainable actions. These were discussed below;

5.7.1 Advocacy and massive awareness raising on EE

As indicated in section 4.7.1 of the study, it was suggested that there should be advocacy and massive awareness raising on EE. This was also recommended by the World Commission on Environment and Development (WCED) in the document Agenda 21 where the need to increase environmental awareness through convention education systems and in this context schools was emphasized and recommended. This is important because even though awareness is not an end in itself, it is a basic building block needed in the successful integration of EE in the school curriculum. According to Mwanza (2007), awareness can help change attitude and attitude can transform into behaviour. Therefore, in order to change behaviour, facilitate informed decisions and engage stakeholders and learners to take action, generating awareness of EE is a must.

In addition, awareness would help to clear misunderstandings and misconceptions that existed on EE which would consequently affect its integration in a positive way since it will be easy for stakeholders to understand what it is and their role towards it. Therefore, the MoGE must work with other key stakeholders to ensure that there is advocacy and massive awareness raising on EE.

5.7.2 Utilization of training opportunities and improving skills

Another suggestive practice was the utilization of training opportunities and improving skills. In this regard, respondents suggested short course training and orientation programmes in EE. The other suggestion was to employ EE graduates in schools so that they can help in implementing EE and also share EE knowledge with other implementers. Training will help educators know how to differentiate EE from other subject areas and how to deliver it effectively thereby helping in the successful implementation of EE in the curriculum. This is because implementers would be well equipped for EE. This is in agreement with Mwendwa (2017), who asserts that teachers not only have to be committed but also need a good knowledge base in environmental education for it to be implemented effectively. This suggestion is strengthened by Thornton (2001) assertion that teachers must not only know the subject matter that they teach, but also the appropriate methods to transform it for the purpose of instruction. In this way, training will also enable implementers to improve their skills in delivering EE to learners and this will consequently help the learners to also improve their skills in solving environmental challenges of the 21st century. This is in agreement

with Monroe, Andrews and Biedenweg (2007) who assert that in order to improve learners' skills, an educator must provide various skills building activities.

5.7.3 Engaging in more quality communication

Engaging in more quality communication was another suggested practice. The respondents indicated that quality communication would help key stakeholders to share information and reach consensus on EE as well as work together more closely to ensure the successful integration of EE in the *Zambian school curriculum*. Adequate, frequent and quality communication is important because it builds a better understanding of issues. This is in line Turner *et al.* (2000), who argue that communication is the most central factor in ensuring the successful implementation of a project. Quality communication is also important because according to Griffiths (2011), communication is at the heart of stakeholder engagement.

Stakeholder engagement is a highly regarded concept perceived by several authors such as Burroughs (1999), Michner (1998) and Reed (2008), as the key to the successful integration of environmental policies. This is because it generates stakeholder commitment to the project success, through involving stakeholders in the decision-making process (Burroughs 1999, Michener 1998). Quality communication ensures that stakeholders are given the opportunity to provide input to the decision before it is made thereby making the process transparent, efficient and consistent. In this way, key stakeholders will be committed as they will feel part of the process thereby leading to better outcomes, strengthened relationships, trust and a more positive view of EE in the formal school curriculum. Therefore, quality communication is not just an end in itself but an essential and mutually beneficial strategic function that results in better-informed and more effective policies, projects, programs and services (Griffiths, 2011).

5.7.4 Engaging in sustainable actions

In addition to engaging in sustainable actions, partnerships were also suggested as best practices for integrating EE in the formal school curriculum. In this regard, respondents suggested that both schools should be able to engage in sustainable actions. Developing environmentally friendly technologies and recycling were among the examples given. Policy makers can support this cause in many ways including offering financial support/ funding for EE activities, projects and initiatives in schools and providing adequate information on funding such as procedure for

applying for funds so that implementers and learners can be able to apply for such funds. On the other hand, trainers and implementers can encourage and continue offering guidance to students and learners respectively to come up with environmental projects, environmental friendly technologies and other initiatives that promote sustainable development. In this way, the integration of EE in the Zambian school curriculum will not only have meaning in academia but also in society as a whole as it will help to solve and address the environmental challenges faced by the society.

In addition, it was also suggested that the MoGE partners with key stakeholders and other interested organizations such as the United Nations Environmental Programme, clubs for Climate change and bird watch Zambia among others towards the integration of EE in the Zambian school curriculum. This is important as it will help in ensuring that there are consented efforts towards EE integration in the formal school curriculum

5.8 How the theory guided the study

As a concept and academic theory, social systems provided an important basis for identifying key stakeholders and the relationships that connected them to the integration of Environmental Education in the Zambian school curriculum.

Instead of just focusing on one group of stakeholders for the success of environmental education in the formal school curriculum, the theory enabled the researcher to view EE in a more holistic manner. In this way, the researcher was able to group stakeholders who were considered key towards the integration of EE in the Zambian school curriculum. Since failure in one subsystem jeopardized the whole system, all key stakeholders' actions and their collaboration were considered important in the successful integration of EE in the Zambian school curriculum. This is because the theory enable the researcher to view the integration of EE in the school curriculum as a whole in which various stakeholders must each play a part and work together with other key stakeholders in order for it to achieve its set goals. Stakeholders were thought of as subsystems that work together to make EE integration a success. This helped in understanding how their interactions combine to make EE integration in the Zambian school curriculum more meaningful.

Nonetheless, although the strength of systems theory is that systems are both interrelated and interdependent, the theory fails to specify the nature of relationship and interdependences between

stakeholders. As such, the engagement of trainers, policy makers and implementers through their active involvement in curriculum integration must be investigated. The systems theory was therefore useful in conceptualizing the key stakeholders engaged to achieve the goals of EE in the formal school curriculum and it also provided the basis for this study.

5.9 Extent to which research questions have been addressed in the study

The general research question tackled in this study was: “How were key stakeholders of Environmental Education (EE) engaged towards the integration of EE in the Zambian school curriculum?” This question was addressed through three specific research questions. All the three research questions in this study were fully addressed. In addition to these, the fourth objective sought to suggest best practices in integrating EE in the Zambian curriculum in order to enhance its performance.

The first research question asked: “In what way(s) do such actions are key stakeholders engaged in towards the integration of Environmental Education in the Zambian school curriculum?” This question was addressed under section 4.4

Research question number two which asked: “In what way(s) do such actions contribute towards the integration of Environmental Education in the Zambian school curriculum?” was addressed under sections 4.5.1 to 4.5.3.

The third research question asked: “Whether key stakeholders collaborated towards the integration of Environmental Education in the Zambian school curriculum?” This question was answered by items in sections 4.6.1 to 4.6.3.

The fourth research question asked: “What best practices can used to integrate EE in the school curriculum?” this question was addressed under item 4.7.1 to 4.7.4

5.10 Summary

This chapter presented the discussion on stakeholders’ engagement with the integration of EE in the Zambian school curriculum. It also included a reflection on the extent to which research questions were addressed in the study.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1 Overview

This chapter gives the conclusion and recommendations derived from the major findings in this study on stakeholders' engagement towards the integration of EE in the Zambian school curriculum. It also presents areas of future research.

6.2 Conclusion

The study found that real stakeholder engagement towards the integration of EE in the Zambian school curriculum was poor although all key stakeholders were all involved in actions towards its integration. Furthermore, the majority of actions towards EE integration in the Zambian school curriculum were found to be either poorly utilized or in some instances actions such as funding were not utilized. This was attributed to a number of factors including lack of awareness and information and lack of coordination among the key stakeholders. Collaboration among was also found to be lacking. Stakeholders mainly only informed each other at times and not really involving and engaging each other towards the integration of EE in the Zambia school curriculum. Two-way communication flows were generally lacking among stakeholders. As a result, most actions were conducted in isolation of other key stakeholders which made most actions to be ineffective towards EE integration in the formal school curriculum. For instance, it was found that most of the trained human resource in EE was not been employed by those at the MoGE. This had consequently affected EE implementation in schools negatively since EE content and capacity were inadequate.

6.3 Recommendations

Based on the above findings of the study and in addition to the suggestions made in section 5.7.1 to 5.7.4, the following recommendations are made; frequent monitoring and evaluation of key stakeholders' actions towards the integration of EE, Development of a an effective communication strategy towards EE integration and more research into the performance of EE in the Zambian school curriculum.

6.3.1 Monitoring and Evaluation

Having found that stakeholders' actions were poorly utilized which was negatively affecting the integration of EE in the Zambian school curriculum, the researcher recommends monitoring and evaluation of EE in the curriculum as well as actions both within and among stakeholders. A defined programme for EE monitoring and evaluation in the education sector which is well planned, defined, put into practice on a regular basis and documented will help to ensure that actions of stakeholders are fully utilized and where improvements need to be made, they are done in good time. It is also important to monitor and evaluate the quality of actions in relation to set objectives. This is because the already existing practices of monitoring which emerged as an action were found to be inadequate and absent in most cases especially with regard to the implementation of EE in schools. There was no clear procedure on how EE was been monitored and evaluated and no specific reports which made it very difficult to know the current status of EE.

6.3.2 Development of an effective communication strategy

Furthermore, having found that collaboration among stakeholders was poor mainly due to lack of adequate and quality communication had led to difference in ideologies and lack of consented efforts towards EE, the researcher recommends development of an effective communication strategy among stakeholders specially tailored towards the integration of EE in the Zambian school curriculum. This will enable key stakeholders to engage in more adequate, frequent and quality communication and eventually lead to enhanced engagement towards EE integration in the formal school curriculum. This is because effective communication may lead to consensus on EE and stakeholder expectations, mutual respect, understanding and consented efforts towards EE. The hope is that such a strategy coupled with an adequate flows of information and resources would eventually lead to high level collaboration among key stakeholders. This is also crucial in concretizing the quality of actions and their effect on EE in the Zambian school curriculum. For instance, trained human resource in EE when employed by policy makers and utilized in schools would help to implement EE more effectively which will in turn help learners respond to environmental challenges. In this way, stakeholder collaboration can in the right circumstances, provide a powerful approach to responding to complex problems such as environmental issues that isolated efforts cannot solve. Therefore, all stakeholders need to be involved in a more collaborative process if EE integration in the Zambian curriculum is to be effective. Therefore,

stakeholder positions, interests and needs must also be understood because they are fundamental to successful integration and the best route to this understanding is through communication.

6.3.3 Suggestions for future studies

Furthermore, following the finding that there were no specific reports on the current status of EE implementation in the *Zambian school curriculum*, the study recommends that a comprehensive study of the performance of EE in the *Zambian School curriculum* is done. This may help identify areas that still need attention, ascertain the necessary support to be rendered to such areas and make necessary adjustments and improvements where need be.

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APPENDICES

APPENDIX A: CONSENT LETTER

TO WHOM IT MAY CONCERN

Dear respondent,

RE: RESEARCH ON STAKEHOLDERS' ENGAGEMENT TOWARDS THE INTEGRATION OF ENVIRONMENTAL EDUCATION (EE) IN THE ZAMBIAN CURRICULUM.

The subject matter above refers.

My name is Loveness Nakwiza (computer number: 2015130866) and I am a postgraduate student of the University of Zambia. I am pursuing a Masters of Education in Environmental Education degree (M.ed.Env) programme.

Since the integration of Environmental Education in the Zambian formal curriculum, there has been insufficient information on stakeholders' engagement towards EE. The purpose of my research is, therefore to provide an insight into stakeholders' engagement towards the integration of EE in the Zambian Junior Secondary school curriculum.

You have been purposively selected to be part of the sample and, therefore your full participation as a respondent in this research is cardinal. This research is strictly for academic purposes. Thus, all information and data collected shall be handled with confidentiality and anonymity. No names will be used in this research. Additionally, feel free to ask any queries that you may have concerning your participation in this study. I will be glad to answer them and assist where need be.

Your assistance is highly appreciated.

Kind regards,

Loveness Nakwiza

APPENDIX B: INTERVIEW GUIDE A

Administered to Ministry of Water Development, Sanitation and Environmental Protection and Ministry of General Education Officials as well as Environmental Education lecturers at the University of Zambia.

SECTION A: PERSONAL INFORMATION

1. Date of interview:
2. Name of institution:
3. Gender:
4. Position Held:
5. How long have you been in this position?
6. Do you any previous training or orientation in Environmental Education?

SECTION B: PERCEPTION OF ENVIRONMENTAL EDUCATION

7. What do you understand by “Environmental Education?”

SECTION C: ACTIONS TOWARDS THE INTEGRATION OF ENVIRONMENTAL EDUCATION IN THE FORMAL CURRICULUM

8. What actions do you undertake towards the integration of EE in the formal curriculum?
9. Which materials/ resources do you use in carrying out your actions?

SECTION D: CONTRIBUTION(S) OF ACTIONS TOWARDS EE INTEGRATION IN THE CURRICULUM

10. Is each of the named actions in question (8) helping towards the integration of EE in the formal curriculum? (Please give a reason for your answer)
11. If yes to question (10) please describe the way(s) in which each of the named actions is contributing towards the integration of EE in the formal curriculum.

SECTION E: COLLABORATION

12. Do you collaborate with other stakeholders listed below?

- i. trainers (lecturers of Environmental Education from the University of Zambia)
- ii. policy makers (MoGE/MoWDSEP)
- iii. implementers (teachers in secondary schools) towards EE integration in the formal curriculum?

13. If yes to question (12), in what ways do you collaborate with each of the named the stakeholders referred to in question 12?

SECTION F: BEST PRACTICES

14. What best practices can be used to integrate EE in the *Zambian* school curriculum?

15. Is there any other information on the integration of Environmental Education in the *Zambian* school curriculum that has not been captured in this interview that may be vital to this research?

Thank you for your participation.

APPENDIX C: INTERVIEW GUIDE B

Administered to school managers.

SECTION A: PERSONAL INFORMATION

1. Date of interview:
2. Name of institution:
3. Gender:
4. Position Held:
5. How long have you been in this position?
6. Do you any previous training or orientation in Environmental Education?

SECTION B: PERCEPTION OF ENVIRONMENTAL EDUCATION

7. What do you understand by “Environmental Education?”
8. From the Ministry of Education’s point of view, EE is a cross cutting theme, what does this statement imply?

SECTION C: ACTIONS TOWARDS THE INTEGRATION OF ENVIRONMENTAL EDUCATION IN THE FORMAL CURRICULUM

9. How is Environmental Education offered at your school?
10. What actions do you undertake towards the integration of EE in the formal curriculum?
11. Which materials/ resources do you use in carrying out your actions?

SECTION D: CONTRIBUTION(S) OF ACTIONS TOWARDS EE INTEGRATION IN THE CURRICULUM

10. Is each of the named actions in question (10) helping towards the integration of EE in the formal curriculum? (Please give a reason for your answer)

11. If yes to question (11) please describe the way(s) in which each of the named actions is contributing towards the integration of EE in the formal curriculum.

12. What measures have you put in place to ensure EE is implemented effectively?

13. Are you aware of what the Zambia Education curriculum Framework (ZECF) of 2013 says about EE?

14. If you answered 'yes' to question (13), do you think the ZECF is helping towards the implementation of Environmental Education at your school?

SECTION E: COLLABORATION

15. Do you collaborate with other stakeholders such as those at the University of Zambia and the Ministry of general Education towards EE integration in the formal curriculum?

16. If yes to question (15), in what ways do you collaborate with the stakeholders referred to in question 15?

SECTION F: BEST PRACTICES

17. What best practices can be used to integrate EE in the Zambian school curriculum?

18. Is there any other information related to EE integration in the school curriculum that is not captured in this interview that you feel can be included?

Thank you for participating in this study.

APPENDIX D: INTERVIEW GUIDE C

Administered to junior secondary school teachers.

SECTION A: PERSONAL INFORMATION

1. Date of interview:
2. Name of institution:
3. Gender:
4. Professional qualification:
5. What is the combination of your teaching subjects?
6. How long have you served as a teacher?
7. Do you have any previous training or orientation in Environmental Education?

SECTION B: PERCEPTION OF ENVIRONMENTAL EDUCATION

8. What do you understand by “Environmental Education?”
9. From the Ministry of Education’s point of view, EE is a cross cutting theme, what does this statement imply?

SECTION C: ACTIONS TOWARDS THE INTEGRATION OF ENVIRONMENTAL EDUCATION IN THE FORMAL CURRICULUM

10. How is Environmental Education offered at your school?
11. What actions do you undertake towards the integration of EE in the formal curriculum?
12. Do you think there are any components of Environmental Education in the subject/s that you offer?
13. If yes, how do you teach these components?
14. Which resources and teaching aids do you use to teach the Environmental Education components found in the subject/s that you offer?

SECTION D: CONTRIBUTION(S) OF ACTIONS TOWARDS EE INTEGRATION IN THE CURRICULUM

15. In what way(s) is each of the named actions in question (11) contributing towards EE integration in the formal curriculum?

16. Are you aware of what the Zambia Education curriculum Framework (ZECF) of 2013 says about Environmental Education?

17. If you answered 'yes' to question (16), in what way(s) is it helping towards the implementation of Environmental Education at your school?

SECTION E: COLLABORATION

18. Do you collaborate with other stakeholders such as those at the University of Zambia and the Ministry of general Education towards EE integration in the formal curriculum?

19. If yes to question (18), in what way(s) do you collaborate with each of the stakeholders referred to in question 18?

SECTION F: BEST PRACTICES

20. What best practices can be used to integrate EE in the Zambian school curriculum?

21. Is there any other information related to EE integration in the school curriculum that is not captured in this interview that you feel can be included?

Thank you for your participation

APPENDIX E: FOCUS GROUP DISCUSSION GUIDE

SECTION A: GENERAL INFORMATION

1. Date;
2. Gender; Male..... Female.....

SECTION B: QUESTIONS FOR DISCUSSION

3. What do you understand by Environmental Education?
4. What actions do you undertake towards the integration of Environmental Education (EE) in the formal curriculum?
5. Describe way(s) in which each of the named actions is contributing towards the integration of EE in the formal curriculum?
6. Do you collaborate with other stakeholders such as those at the University of Zambia and the Ministry of general Education towards EE integration in the formal curriculum?
7. If yes to question (6), in what way(s) do you collaborate with the each of the stakeholders referred to in question 6?
8. What best practices can be used to integrate EE in the Zambian school curriculum?
9. Is there any other information related to EE integration in secondary schools that is not captured in this interview that you feel can be included?

Thank you for your participation.

APPENDIX F: OBSERVATION GUIDE

1. Observe actions
2. Observe posters, teaching and learning aids and any other materials used in the integration/ implementation of Environmental Education.
3. Observe attitude towards the topic/ question
4. Observe stakeholders' surroundings and natural environment
5. Check documents on EE (e.g. reports, publications, work and other related documents on EE in the school curriculum)