ENVIRONMENTAL EDUCATION AWARENESS AND IMPLEMENTATION IN SECONDARY SCHOOLS IN TANZANIA*:* A CASE OF SUMBAWANGA MUNICIPALITY

ALBERT CYPRIAN

A DISSERTATION SUBMMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION IN ADMINISTRATION, PLANNING AND POLICY STUDIES

DEPARTMENT OF EDUCATIONAL POLICY, PLANNING AND ADMINISTRATION

THE OPEN UNIVERSITY OF TANZANIA

2022

CERTIFICATION

The undersigned certifies that he has read and hereby and recommends for the acceptance by the Open University of Tanzania dissertation entitled: ***"Environmental Education Awareness and Implementation in Secondary Schools in Tanzania: A Case of Sumbawanga Municipality"*** in partial fulfilment of the requirements for the Degree of Master of Education in Administration, Planning and Policy Studies (MED-APPS) of the Open University of Tanzania.

……

Dr. Adam Namamba

(Supervisor)

……

Date

COPYRIGHT

DECLARATION

I, **Albert Cyprian**, declare that, the work presented in this dissertation is original. It has never been presented to any other university or institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirement for the Degree of Master of Education in Administration, Planning and Policy Studies (MED-APPS).

……

Signature

……..

Date

DEDICATION

This work is dedicated to my beloved mother, Vestina Fidel and my lovely father, Cyprian Simon and my family friends Dr. Elna Lyamuya, and Mr. George Lengeju who tirelessly spent much of their resources to invest in my education. Truly, this work is an outcome of their early efforts.

The work is also dedicated to my beloved wife, Jesca Wiston, my children, my sisters and my brothers for their patience during my studies.

ACKNOWLEDGEMENT

The preparation of dissertation is remarkably hard task by a single person. This dissertation therefore is a product of the support and inputs from different people who contributed both materially and academically towards the success of this work.

First, I thank the Almighty God, for his blessings bestowed upon me during the whole period of undertaking this research. Second, I am heavily indebted to my supervisor, Dr. Adam Namamba for his professional expertise and guidance, patience, inspiration, encouragement and great assistance, which he gave me in shaping this study. His tolerance and industriousness profoundly stimulated my interest in accomplishing the study.

Third my thanks are also due to RAS Rukwa for allowing me to do research in secondary schools in Sunbawanga as a case study found in Rukwa region. I would also like to acknowledge the cooperation shown at district level and all the respondents from seven sampled schools, two wards and all who took part in the study.

Last but not least, my special and heartfelt thanks are due to my lovely father, Mr. Cyprian Simon, my beloved mother Vestina Fidel and my wife Jesca Wiston for the remarkable support and love they showed to me during the period of my studies. Our children Agnes and Anisia also deserve special thanks for their patience that enabled me to concentrate on my studies.

Finally, since it is very difficult to mention by names all people who contributed to the success of this work, suffice it to say "*thank you"* to all of them. I recognize that their comments, advice and ideas were highly appreciated in this study.

ABSTRACT

The main focus of this study was to examine Environmental education (EE) awareness and implementation in secondary schools in Tanzania. Specifically the study aimed at identifying students' and teachers' conceptions on Environmental Education, evaluation of the ways employed for implementation and the challenges for the EE implementation. This study employed survey research design to assess the awareness EE in secondary schools in Tanzania. The study used a random sample of 133 respondents so as to attain the intended goals. The instruments for data collection were questionnaire, interviews, observation, and documentary review. The findings revealed different conceptions of teachers and students on EE. According to the Tanzania education and training policy EE has to be integrated into all subjects. Although EE is integrated in secondary school curriculum, its implementation is not well achieved. Respondents claimed that what is taught as EE in the subjects contents do not influence behavioral, and attitudinal change towards EE for sustainable development. Respondents suggested that EE should be taught as independent subject so as to give much time of concentration and its implementation. The government is advised to make intensive follow-up to make sure what intended in EE is achieved, and make sure the schools establishes common guiding policy towards EE implementation to avoid disparity in EE implementation. Through proper implementation of EE, awareness rising is expected, hence the budget allocated in secondary schools should take into considerations the EE in order to make sure enough facilities and all resources are available at the right time. Less consideration of EE will lead the environment not to be a safe place for living.

Keywords: Nature study, Secondary Education and Community

TABLE OF CONTENTS

CERTIFICATION ..... **ii**

COPYRIGHT ..... **iii**

DECLARATION ..... **iv**

DEDICATION ..... **v**

ACKNOWLEDGEMENT ..... **vi**

ABSTRACT ..... **vii**

LIST OF TABLES ..... **xiv**

LIST OF FIGURES ..... **xv**

LIST OF ABBREVIATIONS ..... **xvi**

CHAPTER ONE **1**

INTRODUCTION AND BACKGROUND OF THE STUDY **1**

1.1 Introduction 1

1.2 Background of the Study 2

1.3 Statement of the Problem 5

1.4 Objectives of the Study 6

1.4.1 General Objective 6

1.4.2 Specific objectives 6

15 Research Questions 6

1.6 Significances of the Study 7

1.7 Limitations of the Study 8

1.8 Definition of Some Terms 8

1.8.1 Nature Study 8

1.8.2 Ecosystem 8

1.8.3 Secondary Education 9
1.8.4 Community 9
1.8.5 Government 9
1.8.6 Interdependence 9
1.8.7 Environmental Problems 9
1.8.8 Environmental Education 10
1.8.9 Environmental Education Awareness 10
1.8.10 Conceptions of Environmental Education 10
1.9 Organization of the Study 10
CHAPTER TWO 12
LITERATURE REVIEW 12
2.1 Introduction 12
2.2 Historical Background of Environmental Education 12
2.3 Definition of Environmental Education 14
2.4 Environmental Education Methods 16
2.5 Theoretical Literature on Environmental Education 19
2.6 Approaches to the Implementation and Awareness of EE in Secondary Schools 20
2.6.1 EE as a Separate Subject 20
2.6.2 EE as a Cross-Cutting Issue 21
2.6.3 EE as a Theme in Major Issues (Thematically Oriented Approach) 22
2.7 The Global Driving Force behind EE 23
2.8 Development of Environmental Education (EE) in Tanzania 25
2.9 EE in Practice 27

2.10 Environmental Education in Secondary Schools in Tanzania 28
2.11 Importance, Objectives and Attributes of Environmental Education 30
2.11.1 Importance 30
2.11.2 Objectives 31
2.11.3 Attributes 32
2.12 Status of EE in Secondary Schools 32
2.13 Contribution of TIE and NECTA on the Implementation and Awareness of EE in Secondary Schools 34
2.14 The School Community Involvement in EE 35
2.15 Challenges of Implementing EE in Tanzania Schools 36
2.16 Research Gap 37
2.17 Conceptual Framework 38
CHAPTER THREE 40
RESEARCH METHODOLOGY 40
3.1 Introduction 40
3.2 Study Area Description 40
3.3 Research Design 41
3.4 Population 42
3.5 Sampling Technique 43
3.5.1 Sample Size 43
3.6 Validity and Reliability of the Instruments 44
3.6.1 Validity of Instruments 44
3.6.2 Reliability of the Instruments 44
3.7 Tools of Data Collection 45

3.7.1 Questionnaire 45
3.7.2 Document Review 46
3.7.3 Interview 46
3.7.4 Observation 46
3.8 Data Processing and Analysis 47
3.9 Ethical Issues and Consideration 48
CHAPTER FOUR 49
FINDINGS AND DISCUSSION 49
4.1 Introduction 49
4.2 Demographic Data 49
4.3 Age, Sex and Occupation Participation Level 50
4.4 Students' and Teachers' Conceptions of Environmental Education 50
4.4.1 Meaning of Environmental Education 51
4.4.2 Importance of EE in Secondary Schools 52
4.4.3 Suggestions of the Proper Way of EE Approach in Secondary 53
4.3.4 Extent to which EE Enhanced Students' Knowledge, Attitudes and Skills on Environmental Matters in Secondary Schools 55
4.3.5 Extent to which EE has helped the Students to be Aware of the Surroundings and be able to Solve some Environmental Problems 55
4.4 Evaluation of the Ways or Strategies for EE implementation 57
4.4.1 Presence of Environmental Clubs and its Activeness 57
4.4.11 Assessment of Environmental Club Members having a Tendency to meet for Environmental Matters 60
4.4.2 Presence of Common Guiding Policy in Secondary Schools 61

4.4.3 Provision of Environmental Seminar in Secondary Schools 62
4.4.4 Incorporation of Environmental Activities in the School Daily Timetable 65
4.4.5 Attending and Arrangement of Field Trips on Environmental Matters For Investigation 66
4.3.6 Presence of Environmental Competition in Secondary Schools 67
4.4.7 Presence of Special School Environmental Day 68
4.4.8 Contribution of TIE and NECTA in EE Implementation in Secondary Schools 69
4.4.9 Students Involvement in Environmental Activities for Effective EE implementation 71
4.4.10 Challenges of EE Implementation 73
CHAPTER FIVE 81
CONCLUSION AND RECOMMENDATIONS 81
5.1 Introduction 81
5.2 Summary of the Findings 81
5.2.1 Students' and Teachers' Conceptions on EE 81
5.2.2 Strategies Employed in Secondary Schools for EE Implementation 85
5.2.3 Challenges of EE Implementation in Secondary Schools 87
5.3 Conclusion 88
5.3.1 To Assess Students' and Teachers Conceptions of Environmental Education 88
5.2.2 To Evaluate of the Ways of EE Implementation in Secondary Schools 89
5.2.3 To Find out the Challenges in Implementation of Environmental Education 89

5.3 Recommendations 90

5.3.1 Recommendations to Curriculum Developers and Policy Makers 90

5.3.2 Recommendations to the Secondary Schools in Tanzania 92

5.3.3 Recommendations for Further Studies 93

REFFERENCES 94

APPENDICES 98

LIST OF TABLES

Table 4.1: Education Level of the Respondents 49

Table 4.2: Age, Sex and Occupation Participation Level 50

Table 4.3: Therespondent's Definitions 51

Table 4.4: Importance of EE 53

Table 4.5: Suggested EE Approach 54

Table 4.6: Extent to which EE has Enhanced Students' Knowledge, Attitudes and Skills 55

Table 4.7: Extended to which an EE helped Students Aware of Surroundings and able to Solve Environmental Problems 56

Table 4.8: Presence and Activeness of EE Clubs in Secondary Schools 58

Table 4.9: Rate of EE Club having Meetings for Environmental Matters 60

Table 4.10: Presence of EE Policy in Secondary Schools 61

Table 4.11: Seminar Status in Secondary Schools 63

Table 4.12: Environmental Seminar to the Club Leaders 64

Table 4.13: Incorporation of Environmental Activities in Secondary Schools 65

Table 4.14: Presence of Environmental Trips In Secondary Schools 66

Table 4.15: Presence of Environmental Competitions in Secondary Schools 67

Table 4.16: Presence of Special Environmental Days in Secondary Schools 69

Table 4.17: Rate of Questions Constructed in Examinations 70

Table 4.18: Involvement of students in environmental activities 71

Table 4.19: Challenges of EE in Secondary Schools 73

Table 4.20: Status of Trees Planted Around the Schools 78

Table 4.21: Greatest Source of EE Awareness in Secondary Schools in Tanzania 80

LIST OF FIGURES

Figure 2.1: EE activities.....28

Figure 2.2: The Conceptual Framework.....39

Figure 3.1: A Map of Sumbawanga.....40

LIST OF ABBREVIATIONS

CIPP	Context-Input-Process-Product
E.A	Environmental Approach
EE	Environmental Education
EE/ESD	Environmental Education and Education for Sustainable Development
ES	Environmental Study
ESR	Education for Self-Reliance
ETP	Education and Training Policy
IUCN	International Union for Conservation of Nature
MoEC	Ministry of Education and Culture
MoEVT	Ministry of Education and Vocational Training
NAAEE	North American Association for Environmental Education
NECTA	National Examination Council of Tanzania
NEMC	National Environment Management Council
SEDP	Secondary Education Development Plan
TIE	Tanzania Institute of Education
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environmental Program
UNESCO	United Nations Education, Scientific and Culture Organization
URT	United Republic of Tanzania
VET	Vocational Education Training
WCT	World Conservation Society of Tanzania

CHAPTER ONE

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

All over the world efforts have been made to curb challenges caused by environmental problems such as climate change, increasing consumption of natural resources, land degradation, pollution, deforestation (URT 1997), social problems and development issues. The global, regional and national concern have desired for people to use environmental education (EE) as a tool to change their attitudes and practices as well as improve and adopt proper skills, decisions and environmentally sound practices to improve environment. Good areas where EE skills, decisions and practices would be rooted at are leaning institutions including schools and other educational established institutions like colleges such as teachers colleges and Vocational Education and Training (VET) institutes and universities.

Education institutions in general have the ability to enhance the growth of their students as environmentally and socially responsible and skilled citizens who are able to consider the aspects of EE in their daily lives. Since every one of us needs to live in a healthy and well-conserved environment, be it individually or in groups, we should participate in planning and following up the implementation of various environmental programs. EE therefore has been conventional as one of the significant tools for maintaining and preserving the environment we live in (Mtaita, 2007; Kimaryo, 2011). It is also a milestone for improving the quality of people's life since it provides knowledge, which contributes to change of attitudes and practice of individuals and the society at large. This study needed to investigate the awareness of environmental

education (EE) in secondary schools in Tanzania. This chapter contains background of the study, statement of the problem, objectives of the study, which are general and specific, research questions, study limitations and the significance of the study.

1.2 Background of the Study

Education is the process of learning, teaching, facilitates training and instructing which is designed to improve knowledge, skills and encourage development of competences (google, 2019). Education and environment cannot be separated since good learning take place in conducive environment. Each nation including Tanzania has its system of education depending on its aims, needs and its expectations. One of the aims of Tanzania's education in accordance to the 1995 education and training policy (ETP) is to promote and develop knowledge, ability and behavior for better utilization of natural resources and conservation of the environment.

In order to know and understand about EE it is better first to understand about the meaning of environment. Environment mean natural environment, cultural environment or built environment and social environment (Kiiskinen, 2001). Anything around us is termed as environment, hence we should have knowledge on how to utilize them efficiently and avoid wastage.

The meaning of environmental education is basically tied to the expectations of the customary education but the methodology differs slightly. On the whole the definition of environmental education has not been universally agreed upon due to differences in approaches and expectations. Nevertheless the most current meaning below has

between accepted by many circles of Environmental Education and Education for Sustainable Development (EE/ESD) practitioners as the process that leads to an environmentally informed and involved citizenry having the creative problem solving skills, scientific and social literacy. The initial definition was made during the UN conference on the human environment held in Stockholm Sweden in 1972 some more definitions have been proposed in attempts to localize EE/ESD concept within the same initial thinking. EE in Tanzania was emphasized in the Arusha declaration 1967 which had a strong bias on ESR. The ESR philosophy accentuates promotion of indigenous knowledge with strong focus on the environment by the way of creativity, critical thinking, problem solving skill and lifelong learning (MOEVT, 2007).

The evidence shows that there were components of EE in primary school syllabus from the 1960s. These components were in domestic science, agriculture, science and geography (Osaki, 1995). The subjects were considered to be environmentally oriented subjects and therefore it was believed that they could make a significant contribution to the implementation of environmental education (Chi Chung KO & Chi – Kin Lee 2003; Bolscho, 2008). The government of Tanzania made various initiatives through Arusha declaration to integrate EE into the school curricular, because the country's economy depended largely on the natural resources, which are parts of the environment (URT, 2004).

Apart from the efforts made by the government of Tanzania through Arusha declaration to integrate EE in school curricular but EE was not effectively implemented. The evidence of the present natural and made environmental disasters like drought, flood, lack of clean and safe water, bare land degradation due to poor

agricultural practices, poor methods of harvesting natural resources like forestry, minerals, fishing shows the presence of ineffective implementation of EE in Tanzania (URT, 2004; MOEVT, 2007). The 2005 curriculum and its 17 learning areas have integrated EE/ESD issues in all subjects as a response to the Tanzania Institute of Education (TIE, 2004) study on secondary education improvement and SEDP requirement on quality education.

SEDP targeted at developing and disseminating guidelines for integrating environmental issues and concepts in the teaching of all subjects in secondary schools by 2008, and incorporating environmental aspects in all secondary school rules and regulations by 2007, providing for out of class activities in the school timetable aiming at inculcating values, attitudes and skills for conservation of the environment by 2008. All these efforts made in order to create awareness and hence proper implementation of EE in secondary schools in Tanzania and community at large but the evidences show that still the objectives are not efficiently achieved.

Recent studies on EE found that the implementation of EE has not been successful (Lindhe 1999, Jambiya 2003, Mtaita 2007). Evidence of environmental degradation in the form of soil erosion, poor waste management, water pollution and many other problems can still be observed in many secondary schools and the surrounding community, since schools are part of community. It is expected that what the students learn in schools should be reflected in the society (Kimaryo, 2011). It is from this ground, which influenced this study to be conducted in order to examine EE awareness and implementation in secondary schools in Tanzania. In general EE is a process that allows individuals to explore environmental issues, engage in problem

solving, and take actions to improve the environment. As a result, individuals develop deeper understanding of environmental issues and have the skills to make informed and responsible decisions.

1.3 Statement of the Problem

Like many other developing countries, Tanzania is currently working towards management and utilization of her natural resources, which is the backbone of country's economy. All the efforts performed through different education sector development programs like Secondary Education Development Plan (SEDP 2004). SEDP insisted the integration of environmental issues and concepts in the teaching of all subjects in secondary schools by 2008 in order students to get environmental knowledge from EE.

This could help them to be current on environmental problems like soil erosion and poor waste management also deforestation, destruction of wild life and animal habitats and loss of land biodiversity which also in turn could make the whole society up-to-date on the environmental issues, but the highest percent of these efforts are not yet achieved. It is noted that only 22 percent of the whole Tanzanian land has medium to high fertility (United Nations secretariat 1993). The studies made by Lindhe (1999) and Jambya(2003) about environmental management around Lake Victoria revealed that peoples' awareness on environmental conservation was low despite that they have attended schools.

Also Mtaita (2007) found out that although EE had been integrated into all subjects in the school curriculum as directed by the education policy, the teaching of EE is not

being implemented effectively. This is witnessed by a number of things including mismanagement of garbage, bare land to the surrounding community and poor waste management. It is through good implementation, which may lead to high awareness of environmental issues. Through this study, the researcher intended to observe on the EE awareness and implementations in Secondary schools in Tanzania by notifying for the strategies employed to implement environmental education, which enhances awareness to students and the whole community.

1.4 Objectives of the Study

Research objectives describe concisely what the research is trying to achieve and summarize accomplishment a researcher wishes to achieve through the project and provides direction to the study. I wished to have general and specific objectives as identified below:

1.4.1 General Objective

The study aimed at assessing environmental education awareness and implementation in secondary schools in Tanzania.

1.4.2 Specific objectives

(i) To assess students' and teachers' conceptions of environmental education.

(ii) To evaluate of the ways of environmental education implementation in secondary schools.

(iii) To find out the challenges in implementation of environmental education.

15 Research Questions

(i) What are student and teachers' conceptions on environmental education?

(ii) In which ways is environmental education implemented in secondary schools?

(iii) What are the challenges of environmental education implementation in secondary schools?

1.6 Significances of the Study

The findings of this study will be useful because of the urgent need to encourage change in behavior and attitude in regard to the environment. It will also help people to appreciate and enjoy the world around them (Palmer, 1997). Policy makers would also benefit from the findings by acquiring the knowledge to help them adopt necessary environmentally friendly policies and approaches.

Also the findings of this study in general are expected to be useful socially, politically and economically in regional, national and global areas as follows:

The study will be helpful to build a sense of developing policy which might be uniform throughout each district or region so as to let each schools have conducive environment and friendly for better life.

This study is helpful to the community by providing them knowledge on available environmental problems and hence lead them to establish strategies on how to conserve environment and tackle different environmental problems like poor wastage, pollution, deforestation, casual burning so as to make it safe for people's daily life and enhance good ecosystem for better interdependence.

This study is useful for the government by helping to establish policies and strategies towards sustainable and healthy environmental conservation. Also will support the government to innovate means on how to make EE effective in learning institutions hence high awareness of environmental knowledge to the society at large.

1.7 Limitations of the Study

The researcher encountered some limitations in the course of data collection; some of them are respondents reluctance in filling in the questionnaire on time, the researcher had to go to some schools more than once to pick up the questionnaires. In the interview sessions some respondents were not willing to be interviewed, so the researcher had to use much time convincing the respondents to accept the interview. However the interview was finally well done. Some respondents were not confident enough to accept being recorded in interview sessions, therefore, the researcher had to use much of his time to write down the conversations. Despite these challenges or rather limitations, the researcher managed to collect sufficient and reliable data for this study.

1.8 Definition of Some Terms

In this study key terms are defined in order to avoid misunderstanding to the reader and all stakeholders of the environmental issues.

1.8.1 Nature Study

It is the practical study of plants, animals, and natural phenomena as a school subject. Nature study as a process refer to the things that one looks at, and the drawing of proper conclusions from what one sees. Its purpose is to educate the child in terms of his environment, to the end that his life may be fuller and richer.

1.8.2 Ecosystem

Is a community made up of living organisms and nonliving components such as air, water and mineral soil. Ecosystem can be studied in two different ways. They can be

thought of as interdependent collections of plants and animals or as structured systems and communities governed by general rules.

1.8.3 Secondary Education

Secondary education in Tanzania is an education acquired by primary school leavers. It has two levels which are O' level four years of schooling which involves students with 14-17 years old (form 1to 4) and A' level two years of schooling which involves students with 18-19 years old (form 5 and 6).

1.8.4 Community

A community is a small or large social unit (a group of living things) who has something in common such as norms, religion, values or identity. For example environmental communities like Malihai clubs.

1.8.5 Government

A government is the system or group of people governing an organized community often a state. In the case of its broad associative definition, government normally consists of legislature, executive and judiciary.

1.8.6 Interdependence

Means the situation of depending on each other. In the environment interdependence refer to the situation where plants and animals of a specific environmental system depend on each other for survival.

1.8.7 Environmental Problems

An environmental problem is that disturbance of the natural balance found in nature. Environmental problems are like global warming, acid rain, pollution, waste disposal,

ozone layer depletion, climate change, and many more affect every human, animal and nation on this planet and there are many sources of environmental problems like smokes from industries as shown above and poor waste disposal.

1.8.8 Environmental Education

EE is a learning process that increases people's knowledge and awareness about the environment and associated challenges, develops the necessary skills and expertise to address the challenges, fosters attitudes, motivations and commitments to make informed decisions and take responsible actions (UNESCO, Tbilis Declaration, 1978).

1.8.9 Environmental Education Awareness

EE awareness refers to the quality or state of being aware on how to practice EE in real life situations, and how the skills acquired theoretically changed attitudes and behavior in preserving environment for sustainable development, and the way EE is being implemented.

1.8.10 Conceptions of Environmental Education

Conceptions come from the word concept. For this study, conceptions on EE means the ideas, thoughts, notions the respondents had about Environmental education. Issues considered were the meaning of EE, its importance, best teaching methods, and environmental problems, which were known by respondents.

1.9 Organization of the Study

This study is organized into five main sections. Those sections are chapter one which considered introduction background, statement of the problem, objectives of the study,

significance and limitations of the study, definition of key terms. Chapter two with literature review, chapter three with methodologies used for the study, chapter four findings and discussion, and chapter five with conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides literature review in relation to the study. The literature was reviewed under the following subtopics; historical background of EE, theoretical literature, definition of EE, environmental Education (EE) methods, approaches to the implementation and awareness of EE in secondary schools, the global driving force behind EE, development of Environmental Education (EE) in Tanzania, EE in practice, environmental education (EE) in secondary schools in Tanzania, importance, objectives and attributes of EE, status of EE in secondary schools, contribution of TIE and NECTA on the implementation and awareness of EE in secondary schools, the school community involvement in EE, challenges of implementing EE in Tanzania schools, research gap and conceptual framework.

2.2 Historical Background of Environmental Education

The history of EE gives an overview of whom, when and where different scholars study the terms and definition of EE. They try to provide different arguments, theories or models, which hold up a particular concept or view.

Following international, national and local initiatives towards environmental problems in the world, EE has been largely used as a strategy of addressing such problems. The pressure for EE around the earth has evolved as a result of growing concern over the environment and its associated problems in the 1960's (Palmer, 1998; Tilbury, 1995). The current generation has witnessed unprecedented economic growth and

technological progress which, while being profitable to many people has brought extreme social and environmental impacts. Inequality between the poor and the rich among nations and within nations is growing and there is evidence of increasing destruction of physical environment in some forms on a worldwide scale.

This condition although primarily caused by relatively small number of nations affects humanity (UNESCO, 1976). Although EE has a rich heritage sometimes dates very far back, its renewal and unprecedented importance in the educational field result mainly from awakening of public consciousness in the face of such serious problems as overpopulation, pollution, the use and availability of natural resources and the general degradation of certain natural sites (Sytnik et al, 1985). For example, Disinger (1983) cited in Bartosh (2003) contends that the term “Environmental Education” appeared for the first time in 1948 at the meeting of the International Union for the Conservation of Nature and Natural Resources.

Palmer (1998) further elucidates that, about the term of EE, it is internationally claimed that Thomas Prichad first used it in Paris by 1948 at a meeting of the International Union for the Conservation of Natural Resources (IUCN), while Wheeler argues that this term first appeared in 1947 in the book Communities by Parl and Parcival Goodman. Environmental Education also entails practice in decision - making and self -formulation of a code of behavior about issues concerning environmental quality (IUCN, 1970). The essential prerequisite of Environmental Education is practically oriented and is thus integrated into learning the environmental problems associated with rapidly changing world to be solved. This requires a coordination of Education courses and the corresponding organizations like schools,

colleges and other learning institutes and implementation of the various factors of the education process in education institutes, curriculum, teaching and learning materials.

2.3 Definition of Environmental Education

Various combinations of words such as Environmental Education (E.E.). Environmental study (E.S.) and Environmental Approach (E.A.) are being used in the literature in the context of environment and education. Although, according to semantics of the words, E.E., E.S and E.A. have different meanings in the strict sense of the terms, but one finds that these are being used many a time synonymously and interchangeably.

Defining 'environmental education' is not an easy task. Unlike other curriculum areas, the specific content of E.E. has never been well defined. It is universally agreed, however, that environmental education should be interdisciplinary, drawing from biological, sociological, anthropological, economic, political and human resources.

By considering the historical background and development of EE through different scholars, EE can be described and defined in a variety ways (Desinger, 1993, NAAEE, 1999).

Wal et al. (1990) and Le Roux (2001; 56) define EE as the process that enables students and teachers to participate more fully in planning, implementation and evaluation of education activities aimed at resolving environmental issues that learners have identified. The UNESCO conference report interpreted environmental education as follows; it should be viewed as the result of the reorientation and dovetailing of different disciplines and educational experiences which facilitate an

integral perception of the problems of the environment, enabling more rational action (UNESCO report 1979). After acknowledgement of the term, organization concerned moved towards the definition and meaning of EE and it is until 1970s during the IUCN working meeting in Nevada of USA, this influential definition above was formulated and adopted (Palmer 1998). Environmental education is aimed at producing citizenry that is knowledgeable concerning with biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution (Stapp et al 1969).

Stapp et al (1969) named the development of knowledge and understanding of biophysical environment and interrelations of all its components and awareness and concerns for environment quality as well as the development of responsible behavior patterns. McGregor, 2003 cited in Bartosh 2003 points out that one of the most widely accepted definition of EE were given in the Tbilisi Declaration which was developed in the international conference of environmental educators, sponsored by UNESCO in 1977.

There UNESCO – Tbilisi Conference defines EE; *as a process aimed at developing the world population that is aware and concerned about the total environment and its associated problems and which have the knowledge, attitudes, motivations, commitments and skills to work individually and also to work collectively towards solutions of current problems and preventing the new ones.*

According to Tbilisi Declaration EE is seen as a life – long process that is interdisciplinary and holistic in nature and application. It concerns the relationship

between human and natural systems and encourages the development of an environmental ethic awareness and understanding of environmental problems and development of critical thinking and problem solving skills.

Environmental Education (EE) involves a structured and planned process seeking implementation of an environmental curriculum at all levels our educational system. The urgent need to educate humankind on conservation and sustainable uses of natural resources through E.E. is today agreed upon as a worldwide necessity. EE gained momentum at the UN conference in Stockholm in 1972 and at the first UN earth summit in Rio de Janeiro on environment and development agenda 21. This obliged all the signatory countries to incorporate EE in their educational curriculum at all levels given that environmental hazards do not respect national boundaries and cross frontier pollution is a reality.

According to the UNESCO goal, all learners should receive EE to help them gain knowledge, attitude, capability and behavior towards conservation (Talero, 2004). Many countries and states have taken this initiative best examples being countries in Latin America, central Florida, Australia, Canada, and Spain among others.

2.4 Environmental Education (EE) Methods

There are a number of methods employed in implementing EE, and therefore no common methods for the teaching of EE (Lee & Williamson, 2001). There are *about, through* and *for* as some of proposed views of EE methods. The view of environmental education as education about the environment is a traditional view, which is sometimes referred to as the objective view. It considers the environment as a

subject for investigation and includes the development of knowledge about the environment, environmental issues and problems, and the development of appropriate technical and intellectual skills to address environmental problems. This view was developed at the beginning of environmental education movements, when the main focus was on developing knowledge and understanding about the environment and creating environmental awareness among the people (Tilbury, 1995, Gough, 1997).

On the second view of environmental education, which is education through the environment developed when the public became aware and realized that transmitting knowledge about the environment is not enough because people did not take action on environmental degradation as had been assumed. It was an indication that environmental education entails more than learning about the environment. It also entails a wider interpretation of the environmental crisis that need to be learnt about (Palmer & Neal, 1994, Palmer, 1998). The interpretation of the environment is facilitated by the use of real life situations as a basis for developing knowledge through inquiry (Lee & Williams, 2001); hence, the focus on experiences of the environment.

In addition, it was realized that learning about environmental education involves hands-on activities like making observations of their surroundings and learning through field studies. The stage or context for learning about the environment is the environment itself. In this case, the environment is used as a learning resource, a medium for enquiry and discovery, which may enhance deep learning.

Environmental Education as education for the environment advocates the learning of environmental education which aims at the preservation and improvement of the

environment by making individuals develop attitudes or concern for the environment so that they can take action to address various environmental problems or promote environmental quality (Lee & Williams, 2001). It further express that pupils learn environmental education through action taking like awareness raising, negotiation, persuasion campaigns and rehabilitation of degraded areas (Tilbury, 1995). Similarly, Jensen and Schnack (1997) point out that environmental education should aim at building student's ability to act with reference to environmental concern and assume responsibility for their actions.

Fien (1993) elucidates that *"about* and" *through"* the environment are valuable only in so far as they are used to provide skills and knowledge to support the transformative intentions of "*for*" the environment. However, much debate in EE has paid attention on discussing the methods that support EE *for* the environment. Most EE teaching text and manuals advocate for experiential and participative pedagogy. With this background, it is education *for* the environment that seems to have the potential of contributing most to the general well-being of environment and the teaching methods tend to be linked to education *for* the environment. Furthermore, Sytnik et al. (1985) observe that EE should be oriented towards the solution of problems (problem-solving approach) and be concerned with opportunities for action (action-oriented approach). EE teaching/learning is meaningful only when the acquired knowledge and skills are helpful in dealing with real life situations.

"A suitable mix of methods would seem useful together with a better understanding of the ideas which inform and influence our use of these methods in different situations (Le Roux, 2001: 85).

2.5 Theoretical Literature on Environmental Education

Current thinking in environmental education has shifted from educating learners about the environment i.e. giving them knowledge about the natural environment and educating learners in the environment (experiential learning in the natural environment) to a new approach: education for the environment (Fien, 1993) based on socially critical and constructivist paradigms oriented towards action for social change. This understanding further emphasizes those different notions of environmental education are associated with different educational traditions and approaches:

The humanist approach one of the precursors of constructivism, focuses on learners constructing their own meanings and integrating theory and practice as a base for social action. Environmental education within this tradition is interpreted as the extent to which learners translate learning into social action. The behaviorist approach is seeking to change behavior and making people aware. Heading in another direction, it assumes that, environmental education is measured in precise incremental learning terms.

Critical approach on the other hand focuses in inequality in access to and outcomes of education and on role in legitimizing and reproducing existing social structures. EE within this tradition is considered as a prompting social change, encouraging critical analysis of social power relations, and ensuring that learners participate actively in the design of their learning experience.

Indigenous approaches to EE reject mainstream education imported from the centers of power, assure relevance to local content, and include the knowledge of the whole

community (UNESCO, 2004, pp. 32–35). Constructivist perspective require the learners to create or construct meaning for them, thus the learners can learn about their environment and construct their own view about the environment. Critical approaches, on the other hand, focus on inequality in access to and

2.6 Approaches to the Implementation and Awareness of EE in Secondary Schools

Professionals in the field of EE devote extensive attention to describing EE because they recognize that its definitions and goals influence its development and continuance (Ham, Langseth, & Fazio, 1985). There is no common approach on how EE can be implemented in schools. It can be implemented by integrating it into the school curriculum. EE can be fixed as a separate (independent) course, or it can be embedded in specific subject of the curriculum (treated as a cross-curricular issue), or can be taught as a theme in major issues (thematically oriented approach).

2.6.1 EE as a Separate Subject

This is an approach for implementing EE in school curriculum. There is a debate among scholars of EE on establishing EE as a separate subject. It has been widely accredited that EE is not a subject, a body of knowledge or skills like other disciplines. It is a situation in which the learner may be involved or in which others may be involved. It should be a new orientation or emphasis permeating the whole curriculum, (UNESCO, 1976; UNESCO, 1978), yet in practice this may not be so. The teaching of EE as environmental studies or environmental science is seen as a new thing among the other established subjects of the curriculum (Gough, 1997).

Gough (1997) further elucidates that, in order to maintain relationship between man and environment, there is a need to consider other approaches apart from that of instituting EE in school curriculum as independent course/discipline.

2.6.2 EE as a Cross-Cutting Issue

Another approach to integrating EE into the school curriculum is to integrate content of environment into all related courses. The approach has been termed in various ways according to various scholars and literature. For instance, Jackson (1992), names it as correlated – subject design whereas Klein (1985) refers to it as multidisciplinary, and sometimes is known as a whole curriculum approach to EE. It is important to note that in many other areas of the curriculum, EE is not necessarily taught as a separate subject and indeed it has been recommended that it should not be taught on this basis (UNESCO 1985; European Commission, 2009; Mtaita, 2007; Gough, 2009, Lukonde, 2011).

However, the implication of this approach is that curriculum documents do not necessarily prescribe the EE content and there is flexibility in terms of the extent to which it is covered (European Commission, 2009). The Tbilisi Declaration states EE should be provided at all ages and grade levels and be interdisciplinary in its approach (UNESCO 1977). In other words, rather than isolating EE to one course or discipline, it should be taught in multiple disciplines. This direction is further supported by professional environmental educators such as Simmons (1989) who writes: by incorporating EE throughout the total curriculum at every grade level, a more comprehensive treatment of environmental concerns can be accomplished.

2.6.3 EE as a Theme in Major Issues (Thematically Oriented Approach)

In this approach, important issues are identified disregards of the demarcation between subject areas. The core of the unit is based on issues of concern rather than on topics (Fraser, 2000). Teachers become facilitators and support learners by providing them with guidance and learning resources. When curriculum is organized around these major issues, it facilitates relevant and holistic learning. This is also supported by contemporary literature in EE, which insists holistic approach in viewing environmental education (Bolstad et al., 2004; McClaren & Hammond, 2005).

McClaren and Hammond (2005) further claim that holistic approach in dealing with environmental issues creates a room for exchanges or collaborations among different subjects and disciplines, for example, concepts from more than one discipline may be integrated by a central theme, issue, problem, topic or experience. The complexity and totality of EE thus suggests a holistic approach to teaching and learning. The Tbilisi Declaration stated that EE should consider the environment in its totality, natural and built, technology, cultural, historical, moral, aesthetic (UNESCO, 1978). The holistic nature of EE underpins participation in all aspects of life.

Learning becomes significant if learners experience what is happening in real life situations. Also, learning will be holistic because it will involve knowledge from different disciplines and also will expose the learners to the ways people interact with their environment. By learners being part of the community, they will observe what is going on in the real life situations and therefore, be able to engage in solving different problems including those related to environment (Kimaryo, 2011).

From the statements above, it can be concluded that most of the literature favor the integration of EE into existing curricular of different subjects (i.e., multidisciplinary and relates to concepts in many subject areas).

2.7 The Global Driving Force behind EE

The United Nations Education, Scientific and Cultural Organization (UNESCO) and United Nations Environmental Program (UNEP) created three major declarations that have guided the course of environmental education.

Stockholm Declaration (Sweden) June 5-16, 1972: This Conference may have set the stage for greater awareness of the need to advance EE internationally. The United Nations Conference on Human and Environment held in Stockholm in 1972 in which it endorsed EE in its recommendation 96, the results of which led to the EE being included in school curriculum was noteworthy step in redefining and re-establishment of EE (UNESCO, 1972). The conference declared that EE must be used as a tool to address global environmental problems.

The Belgrade Charter (Serbia) October 13-22, 1975: In 1975, participants of the International Workshop on Environment, conducted in Belgrade, Yugoslavia, developed and adopted the Belgrade Charter (UNESCO, 1975). This Charter provided goals, objectives and guiding principles of environmental education programs that were further defined during the world's first Intergovernmental Conference on Environmental Education (Stockholm Declaration) hosted by UNESCO in cooperation with the UNEP. It further defines an audience for EE, which includes the

general public. The conference proposed what has become the most widely accepted definition of Environmental Education.

“Environmental Education is a process aimed at developing world population that is aware of and concerned about the total environment and its associated problems, and which has the knowledge, attitudes, motivations, commitments, and skills to work individually and collectively toward solutions of current problems and the prevention of new ones” (UNESCO-UNEP, 1976, p.2).

In October 14-26, 1977, participants of the Intergovernmental Conference on environmental education held in Tbilisi, Georgia (USSR) adopted the Tbilisi Declaration that outlined EE objectives as well as its goals (UNESCO-UNEP, 1978). The conference noted the important role of EE in the preservation and improvement of the world’s environment, as well as in the sound and balanced development of the world’s communities. It updated and clarified the Stockholm Declaration and the Belgrade Charter by including new goals, objectives and principles of EE. As such it has international legitimacy and stands as a blue print for EE in many countries (Palmer, 1998).

Other Conferences

In 1987, there was an Intergovernmental Conference on environmental education by UNESCO and UNEP held in Moscow. This was a review of the progress of the set priority for environmental education in the 90‟s during the Tbilisi Declaration. United Nations Conference on Environment and Development (UNCED) held another Intergovernmental forum on environmental education in Rio de Janeiro (Brazil) from

3-14 June 1992. This was then known as Earth Summit. This Summit focused on three broad concepts, which are: First, an “Earth Charter” covering a number of principles aiming at development and protection of the environment. Second, “Agenda 21” was intended to be a global action plan for sustainable development in the 21st century.

Third, developing countries demanded a considerable increase in new funding from developed countries to contribute to sustainable development. One repercussion of the Rio de Janeiro conference on EE is the recommendation that, environment and education should be incorporated as crucial part of learning. Also, another Intergovernmental meeting was on environmental education in Commonwealth held in 1990 in Bradford in which there was a debate on the present state of discussion of environmental education in the Commonwealth. In 1995 there was Intergovernmental Convention on environmental education in Bradford in which the main issue was to review and plan for future development of environmental education in the 90s.

2.8 Development of Environmental Education (EE) in Tanzania

The government of Tanzania has been struggling to provide education as a tool for promoting development in the country (URT, 1995). It has also recognized the need for EE and Communication to promote improved management of natural resources, which is a pre-requisite for sustainable development (Allen &Downie, 1999). Tanzania participated in the United Nations Conference on Environment and Development (UNCED) in 1992 and officially endorsed Agenda 21, the key policy output of the conference: Agenda 21‟s Chapter 4 encourages countries to promote sustainable consumption and production pattern. The decision to include EE has also emanated from the enthusiasm to translate and implement some deliberations made in

the Agenda 21 document about the environment and sustainable development (URT, 1997). Following this endorsement, the Government of Tanzania advocated for environmental education (EE) and education for sustainable development (ESD) in its education systems, enacted legislation pertaining to conservation and advocated for cleaner production methods across key sectors of economy (UNEP, 2012).

EE in its broad sense was carried out for many years through sector-oriented programs including agriculture, forestry and community development outreach or extension programs. The current EE initiatives began in early 1990s through the programme launched by National Environmental Management Council (NEMC), Ministry of Education and Culture (MoEC), Ministry of Natural Resources and Tourism (MNRT) and the World Wide Fund for Nature (WWF)- Tanzania thereafter EE programme expands to include other players (NBI, 2004). The overall goal of these programmes was to use education to bring about attitudinal change and environmental stewardship and rational utilization of natural resources for eradicating poverty and bringing about sustainable development.

Although the problem of formal EE is a worldwide phenomenon, it is more pronounced in third world countries as Tanzania also included. Tanzania's national Environment Action Plan, launched in 1994, called for a National EE and Public Awareness Program, which would utilize a combination of measures to improve public environmental awareness and would promote both formal and non-formal EE. The EE in the non-formal education is not the main focus of the paper, but some Non-Government Organizations (NGOs), environment clubs as well as the media have played very important role in enhancing the public's environmental consciousness.

In the context of Tanzania, education policy statements define EE as a process and it signifies the problem-solving view. In the National Environmental Education Strategy document (2005-2009), EE is defined as:

----- *a life-long process aimed to equip individuals and the whole Tanzanian society to acquire knowledge and develop ethics and become environmentally aware or conscious, responsive and have relevant skills in identifying, managing, monitoring, evaluating and solving environmental issues and problems (URT, 2004, p.9).*

Tanzania formal environmental education is increasingly a prominent problem part of primary, secondary, and tertiary education (UNESCO-PROAP, 1996). The problem of formal EE is experienced in education policy, curricula, subjects, syllabi, contents and, environmental education trained experts.

2.9 EE in Practice

EE has been practiced since long time ago and therefore it is not new thing to most of the societies. It was part of informal education inherited from generation to generation (NBI 2004). Most societies were able to know that human beings and environment cannot be separated. For example, children were brought up by their parents to know what plants and animals could be eaten and how to collect them. Land has always been cultivated in various manners and the concept of carrying capacity has been known from a practical point of view around the world (Lindhe, 1999). Even the early practice of EE in the formal education can be traced to the 20th c. It is not until 1960s with the worldwide explosion of environmental problems that EE has really entered the empirical stage. In Tanzania for example EE was introduced during the Arusha declaration in 1967.

2.10 Environmental Education (EE) in Secondary Schools in Tanzania

Like other countries in the world Tanzania has responded through international conferences, forums, global conventions, and international declarations concerning the environment. In 1990s the country through the ministry of education formulated environmental education courses and incorporated them officially in secondary school curriculum at all levels as integrated subjects, not stand alone subject.

Figure 2.1: EE activities
Source: Google (2020)

Also government concerns about environmental management and conservation were added and now clarified in the objectives of education in Tanzania. The Tanzania Education and Training policy (URT, 2005) shows the emphasis on environmental education and one of its major objective is *to enable a rational use, management and conservation of the environment (URT 2005).* This was and it is done at the right time due to the reality that the largest part of Tanzanian economy depends on agricultural activities which is the most influential on environmental challenges such

as deforestation, loss of wildlife habitats and biodiversity, land degradation, drought, deterioration of the aquatic system, lack of accessibility to good quality water, and environmental pollution (URT, 1997). Tanzania considers education an important means of tackling these environmental problems, both in terms of involving school children in these matters, and in terms of promoting environmental awareness among the public, that's why initiatives of EE in secondary school curriculum was made (Tanzania Institute of Education, 1997).

The aim was to give young people opportunities to learn about environmental issues in order to develop their understanding and awareness of and concern for Tanzania's ecological richness, and to participate in solving the problems so that the country can exercise sustainable conservation of natural resources and national development (URT, 2004). EE replaced the topics of ecology in biology and soil in geography and chemistry, subjects offered in both the O-level (students of 15 years) and A-level (students of 17 years) syllabuses (MoEC, 1997). The government also required EE to be emphasized in topics such as population and growth, environmental management, globalization, and natural environment in geography and general studies (MoEC, 1997).

By appreciating and supporting the government efforts on rising awareness of environmental issues through the use of EE in education institutions including secondary schools, small number of local organizations have also taken the responsibility for EE initiatives, working with communities including children, to heighten their awareness of environmental issues and conservation measures (Johnson-Pynn & Johnson, 2005). These organizations include, amongst others, the

Malihai Club of Tanzania established in 1985, the World Conservation Society of Tanzania (WCST), set up in 1988, and Roots and Shoots, which began in1990.

2.11 Importance, Objectives and Attributes of Environmental Education

There are some analyzed importance, objectives and features of EE by different authors as follows:

2.11.1 Importance

Education involves the process of imparting knowledge and development of skills for self-realization. The main focus of education process is to develop the child's personality and to create conducive environment for a child in education institutions. The teacher has the duty of imparting knowledge to the children, and this knowledge is reflected in affecting changes in values, behavior and attitudes of the learner.

Environment refers to some total of conditions, which surround man at a given point in a space and time. Knowledge of basic environmental concepts equips students with the skills required for active and informed participation in managing the environment. EE is a long run learning process. It seeks to provide understanding of natural resources including the characteristics, distributions, presents and potential uses and how these resources are used by man. Not only natural environment, but also understanding man made environments, its qualities, statutes and influences for society.

According to Clayton and Myers (2009, 181-182) EE seeks to affect worldviews, attitudes and behavior. They also describe variety of methods that may be used in EE

such as traditional courses, institutional units, supplement materials, field trips to community investigations. (Volk & MacBeth 1998 cited in Clayton and Myers 2009). Students at secondary school level should gain knowledge about ecosystem, green house, gas emission, and biodiversity.

EE is essential for developing a healthy sustainable society. Many current environmental problems are due to ignorance of basic ecological facts of life. To counteract this problem, a well-funded, scientifically, accurate and carefully designed education courses in schools are needed for an overall awareness of the students through learning basic natural resources so as to insure that they will understand the value and importance of pollution control, resource conservation and wildlife habitat protection.

2.11.2 Objectives

The objectives of E.E. programs are drawn on the basis of the objectives described in Belgrade charter. In practical terms the objectives of E.E. have been stated by Stapp et al. (1970 P.80) as follows:

A clear understanding that man is inseparable part of a system, consisting of man, cultural and biophysical environment and the man has ability to alter the interrelation of this system.

A broad understanding of the biophysical environment both natural and man-made, and its role in ' the contemporary society.

A fundamental understanding of the biophysical environmental problems confronting man, how these problems can be solved and the responsibilities of the citizens and government to work towards their solution.

Attitude of concern for the quality of biophysical environment that will motivate citizens to participate in biophysical environment problem solving.

The objectives also vary according to the needs of the society in question. For example, the problems of developing and developed countries are different.

2.11.3 Attributes

There is increasing literature on EE and some of it describes its characteristics. The commonly agreed characteristics are (UNESCO 1981):

(i) Environmental education should be integrated into the whole system of formal education at all levels

(ii) Environmental education should be interdisciplinary in nature

(iii) Environmental education should adopt a holistic perspective which will examine the ecological, social, cultural and other aspects of particular problems

(iv) EE should be centered on practical problems related to real life

(v) EE should aim of building up sense of values.

2.12 Status of EE in Secondary Schools

Although the problem of environmental education is a worldwide phenomenon, it is more pronounced in third world countries. In Tanzania formal environmental education is increasingly a prominent problem part of primary, secondary and tertiary education. (UNESCO-PROAP 1996) The problem of EE is experienced in education policy, curricular, subjects, syllabus, contents, and environmental education trained experts.

In trying to deal with the problem of not integrating environmental education into formal education system in Tanzania, Ministry of Education and Vocational Training (MoEVT) of Tanzania have carried out various efforts to address the problem. The 2005 curriculum and its 17 learning areas have integrated EE/ESD issues in all subjects as a response to the Tanzania Institute of Education (TIE 2004) study on secondary education improvement and SEDP requirements on quality education.

As per objective 2 of the SEDP document MoEVT aims at fostering practice of inculcating within the school community the appropriate values, attitudes and skills targeting for conservation of the environment by 2009. Thus SEDP targeted at developing and disseminating guidelines for integrating environmental issues and concepts in the teaching of all subjects in schools by 2008, also incorporating environmental aspects in all secondary schools rules and regulations by 2007.

It targeted also at providing for out of class activities in the school timetable aiming at inculcating values, attitudes and skills for conservation of environment by 2008.

All the listed target were to be achieved through the listed strategies like:

(i) Reviewing school rules and regulations to incorporate EE/ESD issues.

(ii) Establishing forums and opportunities for open debates and discussions on EE/ESD issues.

(iii) Carrying out pertinent practical activities including solutions to challenges posed by the immediate environment (SEDP, 2005).

The initiatives made by the Tanzanian government to integrate environmental education into the school curriculum is commendable. This is due to the fact that Tanzania's economy is largely dependent on the country's environment and natural resources (URT, 2004). But natural and human-made environmental issues and problems, like drought, floods, poor sanitation, lack of clean and safe water, land degradation due to poor agricultural practices, unsustainable ways of harvesting natural resources like mining, forests and fishing, environmental pollution, loss of biodiversity are threatening the life support system of the environment (MoEVT, 2005; MoEVT, 2007; URT, 2004).

These problems are a result of various factors like population pressure, poor agricultural practices and high rate of urbanization (Johnson-Pynn & Johnson, 2005; Sheridan, 2004; URT, 1997). Therefore, education for awareness-raising and finding solutions for these issues and problems is considered necessary. To affect this, the Environmental Management Act no. 20 (URT, 2004), spells out explicitly that EE is a statutory requirement for bringing about sound environmental and natural resources utilization in Tanzania and also to attain quality life we need to live in a healthy and well-conserved environment.

2.13 Contribution of TIE and NECTA on the Implementation and Awareness of EE in Secondary Schools

EE topics have been integrated in the school curricular and other education institutes curricular since 1996/1997. The institution that has the mandate to formulate and incorporate EE/ESD in the teaching/learning curricular is the Tanzania Institute of Education (TIE). The curricular at all levels has relevant topics on management and

conservation of environment. All subjects have integrated EE/ESD to help learners understand and appreciate nature. Also the National Examination Council of Tanzania (NECTA) has been examining what learners have achieved by setting examination questions on environmental aspects, which facilitate learners to concentrate on environmental issues so as to perform their exams.

Different questions are being set on EE areas such that in Biology questions come from the topics of Soil and Ecology, in Geography Questions come from the topics on Environmental management. For example in the year 2007 NECTA set the question in Geography that concentrated on the factors for the loss of land biodiversity.

Other subjects like Economics also use to examine questions from the topics of Environment. In Chemistry NECTA examines questions from soil and pollution, where all aim at implementing EE, which in turn influence the EE awareness among secondary school students and the society at large.

2.14 The School Community Involvement in EE

Community refers to the number of families residing in a relatively small area within which they have developed a more or less complete socio-cultural definitions imbued with collective identifications and by means of which they resolve problems arising from the sharing of an area (Sutton and Kolaja, in Bell and Newby, p. 34).

Within communities there is high social interaction between communities members, and as clearly known that schools are not islands but serve as centers of change for the surrounding communities.

The community is expected to copy and implement effectively and successfully schools' programs and activities in the local context.

In an ideal situation, the community is expected to put into practice EE in their respective areas, manage natural resources and in fun contribute information and knowledge.

Likewise the community is the custodian of indigenous knowledge, they are expected to manage, understand and demonstrate the best practices. Also the community is expected to monitor and evaluate EE activities in their localities, formulate and enforce environmental related by-laws in their areas and then lastly network with other players in EE.

The situation is different in the real context, one finds green and attractive environment in schools or religious compounds while the neighboring community experience bare and dusty land. There is no program that aims at copying successful practice from the school to the community.

2.15 Challenges of Implementing EE in Tanzania Schools

Despite that EE has been implemented in the school curricular MoEVT (1996/1997) various studies have identified some barriers in the implementation of EE like shortage of time since teachers insist the students to struggle for the examinations, lack of resources, lack of support from the surrounding community, lack of knowledge of EE among facilitators of school programs (Tomlin& Froud 1994, Lee 2000).

Also Lindhe 1999 identified some difficulties like large class size, which is an obstacle in using active teaching methods. Another is lack of or shortage of teaching/learning resources, lack of motivation among students.

Also the rigidities of the formal system in the prescription of the curricula in the school institutions, which prevent the inclusion of environmental education into the school programs.

Also the implementation of environmental education in Tanzania like other countries is faced by the impacts of globalization (Stevenson, 2007). Globalization, have made many countries to re-orient education to focus on the preparation for workers to compete in the new global knowledge-based economy. This has resulted in curriculum centralization, with more emphasis on subjects like mathematics, science and technology, and also reliance on examinations to measure students' performance.

As a consequence, subjects which are outside the emphasis are marginalized including EE. This has made EE to be less emphasized which then lead to low awareness of environmental knowledge among the society members.

2.16 Research Gap

Many of studies on education in Tanzania associated with EE have been done (Mtaita, 2005, Makundi, 2000, Jmbiya 2003, Lindhe 1999, Beatus, M. 2017, Mwasonya, 2013). None of them made in Sumbawanga, rather they concentrated on the other parts of Tanzania like Mwanza, Dar es Salaam, Arusha and Mara. This study intends to bridge such gap of the studies, which concentrated on the Northern, Eastern parts of

Tanzania by conducting the study on EE awareness in secondary schools in Tanzania a case of Sumbawanga municipality, which is located to the southern part of Tanzania. Also most of the studies concentrated on assessing EE in terms of its implementation only, but this study will go further by assessing EE awareness so as to note if there is a common guiding policy towards EE achievement in secondary schools in Tanzania.

2.17 Conceptual Framework

Conceptual framework articulates the pathways by which an intervention is expected to cause the desired outcomes (Bertrand, 2006). Therefore, conceptual framework guides in findings, analysis and interpretation of data. The conceptual framework, which guided the study, is adapted from Stafflebeams (1971) Context-Inputs-Process-Product (CIPP) model then modified by the researcher.

The conceptual framework looks at the following four components namely:

(i) Situational analysis (CONTEXT)

(ii) Resources needed for implementation (INPUTS)

(iii) Implementation strategies (PROCESS) and 4. Expectations (PRODUCTS).

The first step involved exploring the respondents' views on EE, and other environmental related issues. The study expected to assess EE awareness in secondary schools, hence ideas on environmental issues from respondents was corrected by the help of different tools such as questionnaire, interview and observation. Other steps include resources for EE implementation, implementation of EE and lastly expectations of the study.

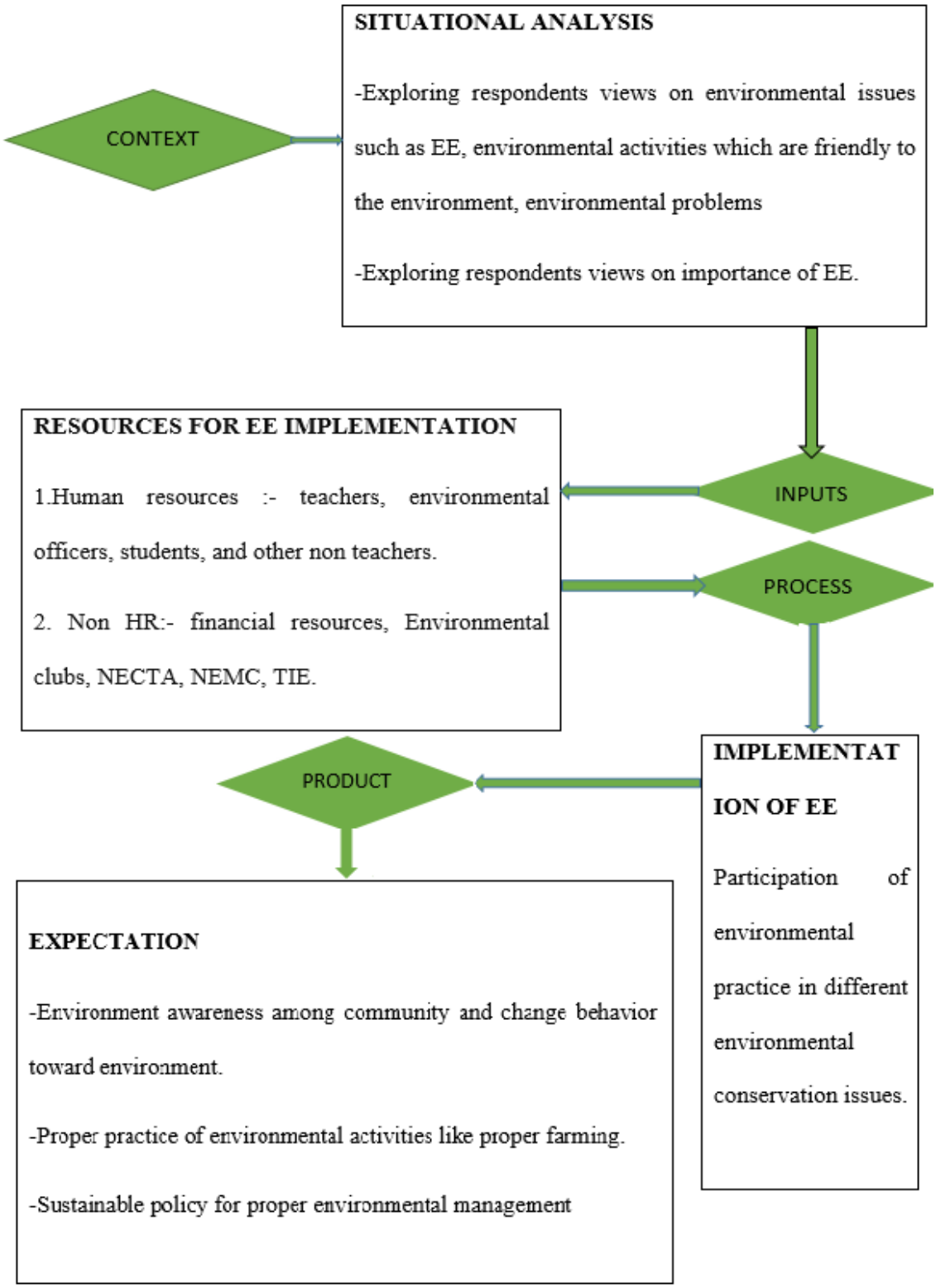


Figure 2.2: The Conceptual Framework

Source: Modified from Stufflebeams (1971) Context, Inputs, Process, Product (CIPP)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This part provides detailed explanations on methodologies, which have been used in the process of data collection. It includes research design, population of the study, study area description, sample and sampling technique, sources of data collection and instruments, ethical issues, and data processing and analysis.

3.2 Study Area Description

Study area refers to the place where the resesrcher collects the relevant information about the study.

Figure 3.1: A Map of Sumbawanga

The study was conducted in Sumbawanga municipality in Rukwa region. Sumbawanga is a capital city of Rukwa region located in the southern highland of Tanzania. According to 2012 census the popoulation of Sumbawanga municipal is 209,793 people where 100,734 are males and 109,059 are females, and it has an area of 1374km^2.

The Sumbawanga economy largely depends on agricultural activities, which mostly considered being the source of environmental destruction. Hence this study expect to come up with some recommendations on how to make EE efficient so as to improve environmental conservation programs hence safe area for human and animals daily life.

Sumbawanga municipality has many secondary schools, which include private and public schools. Some are Kantalamba Boys, St. Theresia Girls, Kizwite, Kanda, Itwelele, Mazwi, FPCT Ushindi, Neno, African Rainbow and others, and the data was collected from schools, which was sampled.

3.3 Research Design

This study employed survey research design to elaborate and assess for the awareness EE in secondary schools in Tanzania. This design of research helped the researcher to get high understanding of realities on the knowledge, which students and other secondary schools stakeholders have, about EE and its strength in environmental conservation. Through this design of research in-depth data got gathered relative to a single individual, program or event, for the purpose of learning more about an unknown or poorly understood situation (Creswell, 2003; Leedy & Ormrod, 2005).

The data was collected from students, teachers and other school stakeholders who were selected randomly from the selected schools and wards in Sumbawanga municipality to get their opinions on EE awareness. The study also expected to make consultancy on environmental club members an education officer and an environmental officer to get their opinions about EE.

In this study, interview, observation, documentary review and questionnaire methods was employed to gather all required information. Both, primary and secondary data was gathered from the respondents of the study.

3.4 Population

According to Borg et al (1989), population means all number of the real or hypothetical of people, events and objects to which researcher wishes to generalize the result of the body. Mzezele & Kibuka (2011, p.4) define population as the people that a researcher has in mind from whom he/she can obtain information. John (1977, p. 267) consider population as any group of individuals that have one or more characteristics in common that are of interest to the researcher. The population may be all the individuals of particular type or more restricted parts of the group. For example all, public or private schools teachers, all secondary school students may be a population.

The researcher expected to use the population, which would give the required findings in Sumbawanga municipality, and used sampling technique to collect the required information due to geographical condition and vastness of the area and other limitations like financial problem.

3.5 Sampling Technique

Kothari (2004) defines sampling as the process of selecting sample from a population. I employed sampling as a technique to help in saving time, lower costs, accuracy of data, presence of limited resources, better rapport. Sampling technique involves systematic sampling, random sampling, cluster sampling, accidental sampling, stratified sampling and probability sampling.

This study employed random sampling but simple and not systematic one which is the basic sampling technique where we select a group of subjects (sample) for study from larger group (population). Each individual has equal chance of being included in the sample. This method is better since may be applied even in small or large group of people.

3.5.1 Sample Size

Sample size is a small portion of a population selected for analysis. By observing the sample, certain inference may be made about the population; sample is not selected haphazardly, but deliberately, so that the influence of chance or probability can be estimated (John 1977, 268). This study employed a total of 2 ward environmental/education officers from 2 ward and7 secondary schools as a sample from a total of 20 secondary schools in Sumbawanga municipality. About 14 environmental teachers from seven sampled secondary schools and 115 students from more than 15000 students expected to be involved.

Also the study employed 1 district education officer dealing with health and school environments, and one district environmental officer. Therefore sample can be

generalized as a small portion selected from population to represent the whole target population of the study. In this study, sample size was considered due to the expectation of the study.

3.6 Validity and Reliability of the Instruments

In order to make the efficiency and effectiveness of data collection through the help of research tools validity and reliability was observed. According to Cohen, Manion and Marrison (2000) validity and reliability refers to the quality of data gathering procedures, which measure what is supposed to be measured.

3.6.1 Validity of Instruments

Validity Refers to how well the measured indicators really measured what they were supposed to measure (Mugenda and Mugenda, 1999). In essence, it is the degree a test usually measures variables. The questionnaires were checked comprehensively to ensure that they collected all the information needed to address the objectives of the research. The accuracy, meaningfulness and technical soundness of research, was ensured through the checking of data collection tools by the researcher in consultation with the supervisor.

3.6.2 Reliability of the Instruments

Reliability is the measure of the degree to which research instruments give similar results over a number of related trials producing similar results consistently. A pilot study was carried out and the split half method was used to test the correlation of the responses for consistency and hence reliability. The results indicated reliability of the instruments. To free the data collection tools from unreliability and misinterpretation,

test-retest was used when applying the research tools in order to test reliability. Initial responses to the questionnaires helped in rewording the questions to avoid inconsistency. Any items missing in the questionnaire were added and the unsuitable ones eliminated.

3.7 Tools of Data Collection

Data collection tools refers to the instruments used for gathering required data for the study. The researcher used questionnaire, interview, document schedule and observation as tools for data collection under the study.

3.7.1 Questionnaire

Questionnaire refers to the carefully designed instrument (written, printed or typed) for collecting data directly from people (Ogula, 1998) while Enon (1998, p. 17) states that questionnaire involves the use of written down items to which respondents individually respond in writing.

Kothari (2004, p. 101) explains that questionnaire as among of research tool that can reach the large group of respondents within a short time with low cost even a universe (population) is large and widely spread geographically, interview is avoided, also reduces respondents to have enough time to reflect on before answering questions and since respondents do not indicate the name they tend to give honest without fear. Through this tool open ended and closed questionnaire was used. The researcher applied this tool of data collection since it is easy for the researcher to analyze the large sample of a given population and was also easy to administer. Questionnaire is simple and quick for respondents to complete their given task. The questionnaire

under the study employed about 115 students within which 15 of them were environmental club leaders from 7 schools, which were sampled.

3.7.2 Document Review

This tool involves delivering information by carefully studying the written documents or visual information from various sources such as textbooks, newspapers, articles, journals, and other documentary sources related to the study. The researcher employed this tool due to the fact that it expected provide correct and relevant information about the study, and also expected to provide an extra knowledge related to the study.

3.7.3 Interview

Interview is a purposeful converse action usually between two people or more. An interview is directed by one person or individual in order to obtain information from the other person. The researcher used this method governed by prepared structured and semi structured form. About 18 respondents from 2 sampled wards and7 secondary schools in Sumbawanga interviewed to help the study to have relevant data and easily collected.

3.7.4 Observation

This study used observation technique as among the tools for collecting data through recording information from the field without asking respondents. Non – participant observation was used to see EE awareness to the students and the school community as whole. Also the researcher visited various places around the schools campuses and observed how EE is practiced. The researcher expected to see, take pictures and note relevant phenomenon that portray clear picture of the problem under study. This

technique helped the researcher to observe by his own eyes what is really done in secondary schools in Sumbawanga pertaining to EE instead of relying on the verbal or written information given to him. This method was also used to complement data collected through questionnaire and interview technique.

3.8 Data Processing and Analysis

Data entry was done, coded and recorded. Also editing was made so as to clear mistakes committed in the process of entering data through the use of Microsoft word system in a computer. Both quantitative and qualitative data analysis was approached and analyzed in this study. The data, which was collected from different tools like questionnaire was analyzed using descriptive statistics including mean, mode and frequencies (Wiersma & Jurs, 2005).

Qualitative data, which was collected through observation, interviews was subjected to content analysis. According to Cohen et al, (2007) content analysis is a research technique for making replicable and valid inferences from the meaningful matter to the contexts of their use. Therefore, its use enabled the researcher to summarize data from the field and report them as findings on the awareness of EE in secondary schools in Tanzania. This was done by coding the obtained data and categorizing them into themes for the purpose of creating meaningful units of analysis that might appear in terms of words, phrases and sentences.

Quantitative data was derived from documents and questionnaires, and first it was summarized in tabular form showing frequencies, sums, percentages and rank orders. In the second stage the summarized data from tables, then analyzed was used to be

interpreted as findings on awareness and implementation of EE in secondary schools in Tanzania.

3.9 Ethical Issues and Consideration

Any research needs to consider ethical aspects. All our lives are totally circumscribed and submerged in research fields, therefore what most important that research should be conducted with highly moral and ethical consideration (Omari, 2011). A researcher should behave in manner that does not compromise his image before the people. Prior information should be provided about the intention of the study, where also the researcher of this study provided such information so as to let respondents be with free will during the study and provide relevant information to the study.

No one was forced to participate in this study. The information, which was provided during the study treated with privacy and confidentiality. The purpose was to make respondents feel at easy to provide the required information without fear of being held accountable for the information they provide. Also consultancy was made in order to follow procedures in all areas where the researcher visited so as to obtain the information relevant to the study.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the findings of the study on assessing Environmental Education awareness in secondary schools in Tanzania. The study took place in Sumbawanga municipality. The assessment was done through gathering of information from selected respondents in Sumbawanga Municipality whereby questionnaires, interviews and observations were applied. In achieving the objectives, 133 respondents were selected to participate in the study.

Among 133 respondents selected 115 of them were provided with questionnaire of whom 100 being normal students, and 15 club leaders, and other 18 were interviewed of whom 14 environmental teachers, 2 ward education officers, 1 environmental officer and one education officer dealing with health and school environments. Observation was conducted to the study areas focusing on the actual situation as regards to Environmental Education awareness. Consequently, age, sex, education status of the respondents was highly considered in gathering the required information.

4.2 Demographic Data

Table 4.1: Education Level of the Respondents

Education level	Form (F) I	F II	F III	F IV	F V	F VI	Diploma	Degree	Master	Total
Frequency	18	22	17	23	16	19	03	14	01	133
Percentage (%)	13.5	16.5	12.8	17.3	12	14.3	2.3	10.5	0.8	100

Source: Field data (2020)

4.3 Age, Sex and Occupation Participation Level

Table 4.2: Age, Sex and Occupation Participation Level

AGE	Years	Frequency	Percentage (%)
	Less than 30	123	92.5
	Above 30	10	7.5
	Total	133	100
SEX	Male	67	50.4
	Female	66	49.6
	Total	133	100
OCCUPATION	Student	115	86.4
	Teacher	17	12.8
	Environmental officer	01	0.8
	Total	**133**	**100**

Source: Field Data, (2020)

The researcher intended to know characteristics according to age, sex and occupation where by the dominant population were the students who are the ones occupies less than 30 years age.

4.4 Students' and Teachers' Conceptions of Environmental Education

The first objective in this study sought to determine students' and teachers' conceptions on environmental education (EE). Through questionnaires to students and environmental club leaders and interview to teachers, they were asked if they knew the meaning of EE, its importance or application of introducing EE in secondary schools, also best EE teaching method, and on their views to mention environmental problems they used to experience several times and suggest solutions on the mentioned problems.

4.4.1 Meaning of Environmental Education

All 133 respondents were free to provide the definition of EE according to their understanding. McGregor, 2003 cited in Bartosh 2003 points out that one of the most widely accepted definition of EE were given in the Tbilisi Declaration which was developed in the international conference of environmental educators, sponsored by UNESCO in 1977.

There UNESCO – Tbilisi Conference defines EE;

> ---*as a process aimed at developing the world population that is aware and concerned about the total environment and its associated problems and which have the knowledge, attitudes, motivations, commitments and skills to work individually and also to work collectively towards solutions of current problems and preventing the new ones.* Basing on the given definition the following results were collected.

Table 4.3: Therespondent's Definitions

Definition of EE	No of respondents	Percentage
EE as education about the environment.	62	46.6%
The kind of education and skills that is given to the students and the society aiming at maintaining and conserving environments.	38	28.6%
Education that aims at rising awareness, on environmental issues and facilitate changing behavior and attitudes towards the environment for sustainable development.	10	7.5%
Education that deals with environmental issues like pollution and population.	16	12%
Is the education about the surroundings	07	5.3%
Total	133	100%

Source: Field Data (2020)

The Table 4.3 shows that most of respondents cited EE in term of education about the environment. Sixty respondents, seven respondents, and sixteen respondents all, may

have included in the definition that defines EE as the knowledge acquired in relation to environmental matters.

Thirty eight respondents which is equivalent to 28.6% provided their views on EE relying on the education given to people aiming at maintaining and conserving the environment. The other 10 respondents which is equivalent to 7.5% defined EE relying on the knowledge acquired to raise awareness, and changing behavior and attitudes towards environment for sustainable development.

The results of the study show that there are similarities and variations in the way teachers, students and other environmental stakeholders perceive environmental education (EE). Some of the respondents perceive environmental education in terms of knowledge acquisition and skills development. Some associated it with obtaining knowledge in order to understand the environment, while others considered it to be about getting knowledge on rising awareness and change behavior and attitudes to achieve sustainable environmental management. However, education about the environment was the dominant conception among the respondents.

4.4.2 Importance of EE in Secondary Schools

According to Clayton and Myers (2009, 181-182) Environmental Education (EE) seeks to affect worldviews, attitudes and behavior. The study included only 129 respondents on assessing their opinions on EE importance of who were 100 students, 15 environmental club leaders and 14 environmental teachers. No any limitations were given on the number of importance to be mentioned by respondents, and some of the importance were being mentioned more than once by different respondents, and

the total number may exceed 129 and more than 100%. The findings tabulated as follows:

Table 4.4: Importance of EE

Respondents' opinion	No. of Respondents	Percentages
Help to acquire knowledge on planning issues like construction issues, population and development planning	50	38.8
Rising awareness on environmental issues.	86	66.7
Enable the society to change attitudes towards environment for sustainable development	37	30.2
Help in establishing EE programs at schools and the society	24	18.6
Help students to understand about environmental problems and how to solve them	118	88.7
No any importance	00	00

Source: Field Data (2020)

From the findings in the Table, EE seem to help students to understand about environmental problems and how to solve them. It was cited out by about 118 respondents. The other mostly mentioned importance is the rising of awareness on environmental issues with about 86 respondents. The other importance was mentioned with less than 40%.

4.4.3 Suggestions of the Proper Way of EE Approach in Secondary

Professionals in the field of EE devote extensive attention to describing EE because they recognize that its definitions and goals influence its development and continuance (Ham, Langseth, & Fazio, 1985). There is no common approach on how EE can be implemented in schools. It can be implemented by integrating it into the school curriculum. EE can be fixed as a separate (independent) course, or it can be embedded in specific subject of the curriculum (treated as a cross-curricular issue), or can be taught as a theme in major issues (thematically oriented approach).

All the respondents who were given questionnaire, and who were approached though interview method were asked on their opinion to suggest an approach towards teaching of EE in secondary schools so as to rise its awareness and development to the society. The findings were tabulated as follows:

Table 4.5: Suggested EE Approach

EE approach	No. of respondents	Percentages
Independent teaching approach	63	47.4
Thematically oriented approach	07	5.2
Cross curricular oriented approach	63	47.4
Total	**133**	**100**

Source: Field Data (2020)

From the findings of the respondents in the study, 63 respondents which is equivalent to 47.4% suggested that EE should be taught as independent subject. Some reasons provided here were wide chance of concentrating on EE issues theoretically and practically and others said that if it could be taught as independent subject even independent exam could be made which may force students to study hard and become aware on its practice. The same percentage 47.4% equivalent to 63 students relied on teaching EE as cross curricular oriented approach. The approach has been termed in various ways according to various scholars and literature. For instance, Jackson (1992), names it as correlated – subject design whereas Klein (1985) refers to it as multidisciplinary. The respondents said that this approach may promote effectiveness and efficiency of EE implementation and reduce a burden of so many subjects to students. This may promote a wide knowledge on EE to all teachers for them to practice the contents in their subjects.

Other 7% relied on the teaching of EE by using thematically oriented approach as shown in the Table 4.5.

4.3.4 Extent to which EE Enhanced Students' Knowledge, Attitudes and Skills on Environmental Matters in Secondary Schools

Only 115 respondents were involved so as to capture their opinions towards the level to which EE has enhanced their attitude, skills and knowledge towards environmental matters. The following results were obtained and tabulated as follows:

Table 4.6: Extent to which EE has Enhanced Students' Knowledge, Attitudes and Skills

Respondents Views	No. of Respondents	Percentage
High	80	69.6
Moderate	20	17.4
Low	09	7.8
None	06	5.2
Total	**115**	**100**

Source: field data 2020

The highest percent of about 69.6 of all 115 respondents shows the high contribution of EE in enhancing students' skills, attitudes and knowledge on environmental matters.

4.3.5 Extent to which EE has helped the Students to be Aware of the Surroundings and be able to Solve some Environmental Problems

The respondents who were included here were only students. 115 students were sampled in the collection of the reality to which level the awareness of the

surrounding was enhanced by EE and how they can use the knowledge acquired in solving some environmental problems. The following findings were obtained.

Table 4.7: Extended to which an EE helped Students Aware of Surroundings and able to Solve Environmental Problems

Respondents Views	No. of Respondents	Percentage
High	92	80
Moderate	15	13
Low	06	5.2
None	02	1.8
Total	**115**	**100**

Source: Field Data (2020)

The findings above verify how necessity is EE to the students and the society at large. By having 92% of 115 respondents means that many of them appreciates how the big role is EE towards raising awareness on environmental matters and solving so many arising environmental problems in the society.

In order to support the above findings, the study requested the respondents to mention any problems that may have been experienced before getting aware of EE. The mentioned problems were poor waste disposal, poor toilet uses, and unnecessary cutting down of plant species including natural grown trees, flowers, and poor cleanliness made at homes and in the classes.

By having mentioned the above problems, respondents were required to mention how they have managed to solve such problems. Respondents said that they can now be able to handle wastes property in the respective areas like use of incinerators, dustbins

and rubbish pits. They also said that they can properly use toilets like flashing using water and they can properly clean their classes and their homes. From the point that they could not care natural plantations, respondents said they can now manage to educate even their fellow on the importance of plantations, and avoid cutting down trees unnecessarily.

4.4 Evaluation of the Ways or Strategies for EE implementation

The researcher intended to observe on the strategies employed in secondary schools in Tanzania to implement environmental education, which enhance awareness to students and the whole community. It also bring about attitudinal change and environmental stewardship and rational utilization of natural resources for eradicating poverty and bringing about sustainable development. The strategies which were highly concentrated included presence of active environmental clubs in secondary schools, presence of common guiding environmental policy, availability of environmental seminar and environmental trips, incorporation of environmental activities in the school daily routine, presence of environmental competitions in secondary schools in the school, ward and district levels, presence of special school environmental day and presence of examinations incorporated questions on environmental issues. All these strategies if properly are maintained by each school in EE implementation might raise awareness, and people's behavior, attitudes, and skills may change with positive perspective on sustainable environmental development.

4.4.1 Presence of Environmental Clubs and its Activeness

By appreciating and supporting the government efforts on rising awareness of environmental issues through the use of EE in education institutions including

secondary schools, small number of local organizations have also taken the responsibility for EE initiatives, working with communities including children, to heighten their awareness of environmental issues and conservation measures (Johnson-Pynn & Johnson, 2005). These organizations include, amongst others, the Malihai Club of Tanzania established in 1985, the World Conservation Society of Tanzania (WCST), set up in 1988, and Roots and Shoots, which began in1990.

Table 4.8: Presence and Activeness of EE Clubs in Secondary Schools

School	Presence of the club	Activeness
A	Not Present	
B	Present	Active
C	Present	Not active
D	Present	Not active
E	Present	Not active
F	Present	Not active
G	Present	Not active

Source: Field Data (2020)

Environmental clubs are the organized groups either at school or any other institutions that deal with environmental issues. From the data collected by the researcher, respondents proposed some activities which environmental clubs get involved such as rising awareness to the society on environmental issues and insisting proper implementation of Environmental Education at schools and the society at large. Also they highly get involved in providing of seminar on conserving the environment and proper utilization of natural resources including keeping of forests, encourage afforestation and discouraging of casual burning, use of alternative source of energy like solar energy, gas, and avoid the use of charcoal which highly influence forest

destruction and ozone layer depletion through concentration of poison gases produced from burning. Respondents also said that environmental clubs deal with planting trees and all other activities that accelerates greenish environment.

Something wonderful in one of the school an environmental teacher was interviewed and said that she was not aware of the presence of an environmental club. This was obtained from school F and the teacher provided the reason that she was new in the position, and then she was not aware properly on the school programs. This shows how environmental issues in most of the schools are even not considered or less taken into account.

From the environmental teachers at school A with no environmental club, the teachers interviewed and said that they met a certain challenge which accelerated environmental education efforts to decline and made the break of the club in their school. “We had a certain challenge which made this year not to have any environmental club at our school”.

By having found that in so many schools, environmental clubs are not active while one of seven schools had no environmental club totally, I made an interview with two ward education officers, one district education officer who deals with health and environment and one environmental officer and asked them if they use to visit the schools’ environmental clubs and they said no, but from the district education officer who deals with health and environment said that:

> “*all the time when we visit schools, we do insist head of schools and environmental teachers to have environmental clubs, and if a school has no club, it’s a school’s poor plans”*

By considering the activities raised by the respondents, Environmental clubs are the pillars of EE implementation. By having the results from the table above, many schools do not insist the environmental clubs existence. Only one school among the seven schools visited has an active environmental club, something which is terrible towards EE implementation which will promote to the future generation which has no positive attitudes, and less aware on environmental education and hence increase less environmentally motivated society. Also this situation shows less attention of secondary schools towards the efforts made by the government on implementing EE in education sector.

4.4.11 Assessment of Environmental Club Members having a Tendency to meet for Environmental Matters

The study wanted to identify if the club members use to meet several times. The result was tabulated considering 15 club leaders.

Table 4.9: Rate of EE Club having Meetings for Environmental Matters

Respondents' views	No. of Respondents	Percentage
Yes	3	20
No	12	80
Total	**15**	**100**

Source: Field Data (2020)

From the findings above, most of the respondents said that they have no tendency of meeting several times so as to discuss environmental matters. Only 3 club leaders, which is equivalent to 20% witnessed to have environmental meetings several times. Those who said to have meetings said they use to meet at least more than two times a

month. Those who said to have no several meetings, said that they have meetings for no specific time. Some said that they use to meet only when they are having some special events that may require environmental clubs to be actively involved.

Teachers were consulted and interviewed on the presence of meetings with environmental club members. Many of them said that no meetings used to be hold due to different school programs that does not favor environmental activities.

4.4.2 Presence of Common Guiding Policy in Secondary Schools

The study wanted to observe if there is a leading EE policy in secondary schools in Tanzania. Seven schools were visited and the results tabulated.

Table 4.10: Presence of EE Policy in Secondary Schools

School	Presence of environmental policy
A	Absent
B	Present
C	Absent
D	Absent
E	Absent
F	Present
G	Absent

Source: Field Data (2020)

From the findings above, only two schools found to have an environmental education guiding policy. Not that the policies found in those two schools are common but they have different polices. This influences each school to have its own strategies towards EE implementation and that's why some schools may have conducive environment

while others are to the worse condition of environmental status. Even though those policies are available in those two schools but no any student could state them. This shows less consideration taken towards insisting the majority to have awareness on environmental matters, which may result onto less environmental consideration, poor attitudes on environmental issues and low environmental motives.

By having only two schools with environmental guiding policies among seven schools, reveals the presence of weak environmental supportive team to guide secondary schools in Tanzania. Also by having the environmental policies, which are not uniform between the two schools, also imply less effectiveness taken to implement EE in secondary schools.

This also is witnessed by ward education officers, district environmental officer, and district education officer who deals with health and environment. During an interview they were asked about common guiding policy on environmental education implementation in secondary schools, and they said no policy they have, but they have only other strategies towards making conducive learning environment like making sure, each school has enough and good toilets and not pit toilets, having enough dustbins, washing areas and areas suitable for physical disabled students.

4.4.3 Provision of Environmental Seminar in Secondary Schools

Environmental seminar refers to the seminars prepared to rise environmental matters to the society like environmental protection and management, impacts related with environmental destruction like casual burning, deforestation, problems related with

environments. The findings were collected from seven schools and the results obtained represented as follows:

Table 4.11: Seminar Status in Secondary Schools

Seminar status	No. of students	Percentage
Several times	0	0
Rarely	28	28
No seminar at all	72	72
Total	**100**	**100**

Source: Field Data (2020)

From the findings above, the result shows that many students do not get environmental seminar. About 72 students which is equivalent to 72% said that do not get environmental seminar, 28 students which is equivalent to 28% get seminar but not several time, and no any student found to have been getting environmental seminar several times.

The researcher wanted to know about an organization that prepares such environmental seminar, and the results from the questionnaire showed 28 students to have been getting seminar from only environmental club.

An assessment shifted from observing environmental seminar to students to the environmental club leaders. The aim was to know if clubs get updated on environmental issues especially on how to make proper EE implementation and practice properly on rising awareness in their respective areas of practice. The findings were as follows:

Table 4.12: Environmental Seminar to the Club Leaders

School	No. of club leaders	Status of environmental seminar
A		Not given
B	3	Not given
C	3	Not given
D	3	Not given
E	3	Not given
F	3	Not given
G		Not given
Total	**15**	

Source: Field Data, (2020)

In all schools with which only 15 club leaders were consulted due to two schools not having environmental club leaders, no any reported to have environmental seminar. This is too terrible for the environmentally growing generation, and implies less attention given to the EE implementation in secondary schools, and less preference on environmental matters from environmental stakeholders.

This also got witnessed by environmental officers and education officers who were interviewed. They were asked if they have any special programs on seminars provision and they said that they had no such tendency.

A certain club leader said that the most reason for them to lack seminar comes from less scheduled time for environmental matters and lack of commitment from different environmental organizations to offer seminar in secondary schools.

He ended by saying that:

> "we *wish we could do but how to do them, because most of the time we get insisted by our teachers to study hard the examined subjects so as to improve class and school performance, and this decelerates club leaders to concentrate on EE implementation".*

An interview also was conducted to the environmental teachers and ward education officers. Most of them said that despite the efforts made on EE implementation through environmental protection and conservation in schools, they lack enough time of arranging and providing seminar to students. Most of the time seem to be fixed on other activities especially class activities in order to cover the syllabus too early and start revision immediately after syllabus coverage. This consumes all the time including time scheduled for other extracurricular activities of environmental conservation and protection.

4.4.4 Incorporation of Environmental Activities in the School Daily Timetable

According to UNESCO, (2005) environmental education and education should be incorporated into educational activities whereby curricula have to be re-oriented for all educational levels from preschool to university level. From this statement, the study wanted to know if there are environmental activities included in the school daily routine. The aim was to note if schools play their big roles in implementing theories of EE practically. The results were as follows:

Table 4.13: Incorporation of Environmental Activities in Secondary Schools

Response.	**No. of Students**	**Percentage**
Yes	115	100
No	00	00
Total	**115**	**100**

Source: Field Data (2020)

From the findings above all agreed to have environmental activities incorporated in their daily routine. He the researcher asked the respondents to mention them. The

mentioned activities were like, sweeping, planting flowers and trees in the school gardens and all the school surroundings, watering gardens, mopping classes and toilets and picking rubbishes and maintain dustbins and rubbish pits.

4.4.5 Attending and Arrangement of Field Trips on Environmental Matters For Investigation

According to Clayton and Myers (2009, p. 181-182) EE seeks to affect worldviews, attitudes and behavior. They also describe variety of methods that may be used in EE such as traditional courses, institutional units, supplement materials, field trips to community investigations. (Volk & MacBeth, 1998 cited in Clayton and Myers, 2009). The study on this area involved 130 participants involving 100 students, 21 club leaders and 9 environmental teachers and the results were as follows:

Table 4.14: Presence of Environmental Trips In Secondary Schools

Number of trips	School A	School B	School C	School D	School E	School F	School G
None	v	v	v	v	V	V	v
Twice in a year	-	-	-	-	-	-	-
More than twice	-	-	-	-	-	-	-

Source: Field Data (2020)

The study considered seven schools in Sumbawanga municipality. By asking the respondents if they arrange and attend environmental trips, the researcher wanted to have experience on how schools mobilize and encourage students on EE implementation and awareness. The results reveals that no any school among the seven schools consulted have the record of visiting for the sake of rising EE awareness.

Through making interview with environmental teachers and other environmental stakeholders one teacher said:

> *"We like and we want to have trips on environmental matters but we get discouraged by lacking support from school management, where by trips need financial support but if we request for, no any positive response, rather we get told that no finance allocated for".*

He then said that even time allocated for environmental matters like school general cleanliness is not effectively utilized. He said that in some cases teachers use the time located for environmental matters to make teaching compensation or teaching so as to complete the syllabus early.

Then the teacher advised that:

> *"If possible let EE be taught as an independent subject so as to rise its utilization, and get examined. This may promote proper EE utilization and implementation"*

4.3.6 Presence of Environmental Competition in Secondary Schools

Environmental competition highly expected to influence all schools to strive so as to be in a good position. This is due to the fact that as awards are expected to be given to the winner and punishment or warnings to the worse competitor. The findings were tabulated considering first the students who were given the questionnaire with whom 100 are normal students and 15 being the environment club leaders. Expectations were to have a total of 118 students but two schools had no environmental club leaders.

Table 4.15: Presence of Environmental Competitions in Secondary Schools

	No. of students	Percentage	Response	Competition rate
	28	24.3	Yes	rarely
	87	75.7	No	No competition
Total	**115**	**100**		

Source: Field data (2020)

By asking only students I wanted to know if there are competitions at the school level in secondary schools. The findings shows that many students didn't get involved in environmental competitions and those who said yes, revealed that it is not several times.

I wanted to know the reason for this not to be actively done in our schools and through making interview with environmental teachers, some said that the school programs do not favor environmental issues and one of the teacher said that they lack support from the school management. He said that he once introduced competitions at his school but the obstacle came when he expected to have financial support, something, which became impossible to him.

I also made an interview with the ward education officers who witnessed not to have environmental competitions at their wards. They said that they do have only completions that arranged district wise but at the ward level no competitions they have. District competitions takes place only once in the year and in some years they may have not to take place due to some interruption of different programs. This puts EE into danger of being properly implemented.

4.4.7 Presence of Special School Environmental Day

Environmental day is a special day, which may have stipulated in the school routine to discuss only environmental issues, where different initiatives, success and failure on environmental issues may be discussed. Worldwide the day is celebrated on 5th June each year where the United Nation takes the day as the principal vehicle for encouraging awareness and action for the protection of the environment.

An environmental day was first held in 1974 and it has been a flagship campaign for raising awareness on environmental issues emerging from marine pollution, human overpopulation, and global warming to sustainable consumption and wildlife crime. The findings on where environmental day is celebrated in each school was collected through questionnaire with 115 students, and an interview made with 14 environmental teachers from seven schools, 2 ward education officers, one environmental officer and one education officer who deals with environment and health in primary and secondary schools. From the students the findings were as follows:

Table 4.16: Presence of Special Environmental Days in Secondary Schools

Response	No. of Students	Percentage
Yes	0	0
No	115	100
Total	**115**	**100**

Source: Field Data (2020)

From the findings above all 115 students, which is equivalent to 100% said no special school environment day at their schools.

From the interview made with teachers and ward education officers, they said that they have no special environmental day in their areas rather than a national cleanliness special day held on each last Saturday of each month.

4.4.8 Contribution of TIE and NECTA in EE Implementation in Secondary Schools

The researcher wanted to know how efforts on EE implementation are considered by the central government. The area, which was sited observed if there are examination

questions constructed on environmental matters, and if were several times, and where constructed questions were many or few. The respondents involved here were 115 students and the findings were tabulated as follows:

Table 4.17: Rate of Questions Constructed in Examinations

Presence of EE questions in exams	Number of students	Rate of EE questions appearance	No of students	Number of questions	Number of students and percentage
Yes	115 = 100%	All the time	100 =87%	Many questions	03 = 2.6%
		Several times	11 =9.6%		
No	000 = 000%	rarely	04 = 3.4%	Few questions	112 = 97.4%
		No question	00 = 00%		
Total	**115 = 100%**		**115 = 100%**		**115 =100%**

Source: Field Data (2020)

The finding shows that all students agree to have EE questions being examined. When it came to the rate of EE questions appearance in the exams, 100 students which is equivalent to 87% said the questions appears all the times of exams, 11 students said several times and 4 students said it is rarely to find EE questions in the examinations. The study also sited on the number of questions examined. The results obtained were that only 3 students said that they meet many examinations on EE matters while 112 students said few questions are being examined.

Through the questionnaire given to all 115 students wanted to capture their views if they used to meet EE questions in all the subjects. This method was adopted in this study because one of the ways used to measure the value of the subject is by identifying the number of questions appearing in the examination, Kimaryo (2011). The results showed that not all the subjects examined environment questions. They said that the main subjects for EE are Geography, Civics, Economics, Chemistry,

General studies, Biology and History. This may also discourage the efforts on EE implementation in secondary for being not examined in all the subjects.

Through interview which was made with a certain teacher, she said that, a student cannot concentrate much on the areas which has no more questions in the final exam, rather will highly study much the areas which has high impact in the examination especially national exams.

4.4.9 Students Involvement in Environmental Activities for Effective EE implementation

The study wanted to identify if all students are actively involved in the implementation of EE practically. This was getting involved in different environmental activities, and only 115 respondents were consulted and the findings were tabulated as follows:

Table 4.18: Involvement of students in environmental activities

Response	No of respondents	Percentages
Yes	91	79.1
No	24	20.9
Total	**115**	**100**

Source: Field Data (2020)

The findings collected from the questionnaire and tabulated as shown above shows high involvement of students in environmental activities. About 79.1%, which is equal to 91 students, implies the rate of students' involvement in environmental activities at schools. By having agreed that they were involved in environmental activities they

were then required to state the activities, which they are actively involved. The mentioned activities included sweeping of all school compounds, picking rubbishes, mopping of toilets and classes, slashing of glasses, planting trees and flowers, watering school gardens and burning of papers and other rubbishes after being collected.

For example one student from a certain school said that

> *"From my own views, I think student involvement in the implementation of EE can be traced well through the activities done by students which favor the environment. These activities are like planting trees, creation of trees seed bed, flowers, and taking the measures against the soil erosion"* (Field Data, 2020).

It is well known that skills and attitudes always become developed by doing (Kolsto, 2005) hence through student involvement and participation they become more aware of EE and with positive attitudes towards environmental management for sustainable development.

20.9% of all students, which is equivalent to 24 students refused strongly that they were not actively involved in environmental activities. They were required to state on how they were not actively getting involved in environmental activities. They said that, the time located for environmental education to be implemented practically is too small compared to other subjects. This makes poor commitment and implementation of EE in schools. They said that for the effectiveness of EE, a strong environmental policy should be established in their schools and district if possible so as to make proper involvement of all students in all schools. Others said that EE cannot actively be implemented while is taught as a topic in the other subjects.

One student from one of the respondents said that

> *"I believe that effective participation in everything is a result of learning from others. Therefore, since students do not learn environmental education in classes, and do not attend environmental seminars and workshops, they lack environmental skills which lead ineffective implementation of EE"*(Field Data, 2020). This implies that the students were not comfortable on the way EE is implemented.

4.4.10 Challenges of EE Implementation

Despite that EE have been implemented in secondary schools, the challenges for its implementation are so many. This is verified by many scholars as stated in the literature review by Lindhe (1999), and Lee (2000). Proper implementation promote and accelerate high EE awareness. The respondents were asked with no limit to state the challenges towards its implementation and all 133 respondents were included under this area. The challenges stated were tabulated as follows:

Table 4.19: Challenges of EE in Secondary Schools

Respondents views	No. of respondents	Percentage
Less time located for EE implementation	122	91.7
Employment based learning.	22	16.5
Lack of fund to purchase EE tools, facilitate seminar and environmental trips	89	66.9
Less morale, motivation, readiness and attitudes on EE.	76	57.1
Low awareness the society have on EE including school neighbors.	39	29.3
Lack of skills among the facilitators like teachers	53	39.8
Lack of common policy towards EE implementation	48	36.1
Challenge of EE implementation facilities like dustbin, slashes, incinerators, even books for teaching and learning.	102	76.7
Less campaign on EE implementation from other environmental stakeholders like parents, radios and televisions	113	85

Source: Field Data (2020)

The respondents identified different challenges for EE implementation. Most of the respondents recognized that EE education is not given enough time in school programs or education curriculum. Those who were interviewed like environmental teachers said that they lack time for environmental practice due to many programs in schools that does not favor EE. Most of schools insist students to concentrate in the contents that mostly appear in their final exams. 122 respondents stated the challenge of time as an obstacle, which means more than 91% stated the same challenge, and it was dominant to all respondents who were given the questionnaire and those who were interviewed.

One teacher said that,

> "*school and education programs in Tanzania does not favor proper EE implementation for the awareness of environmental issues*"

Another challenge that was posed out by respondents were the notion each student have to study so as to acquire employment. About 22 respondents that is equivalent to 16.5% stated that many students and most of education institutions insist students to study so as to perform so as to win employment market. This is influenced by globally changing world as supported by Stevenson, 2007. Less number of respondents stated so but seem to be the strong reason and nowadays many students do use to criticize that:

> "*education is better than money and say that money is better than education*".

They use to say that

> "*we study so as to acquire money, because an educated man with no money is not respected by the whole society and is nothing at all*".

These are the poor notions that can never favor EE implementation for environmental conservation, attitude and behavioral change for sustainable development. Stevenson 2007 said that globalization, have made many countries to re-orient education to focus on the preparation for workers to compete in the new global knowledge-based economy. This has resulted in curriculum centralization, with more emphasis on subjects like mathematics, science and technology, and also reliance on examinations to measure students' performance. As a consequence, subjects, which are outside the emphasis are marginalized including EE. This has made EE to be less emphasized which then lead to low awareness of environmental knowledge among the society members.

Lack of fund to facilitate seminar and environmental trips seemed to the challenge for EE implementation. Many schools seem not to have arranged budgets for environmental issues as stated. 89 respondents which is equivalent to 66.9% stated so by saying that trips and environmental are less facilitated due to the lack of financial support. During an interview, some teachers used to say that any arrangement on EE implementation that may need money did not get succeeded. Some teachers were given some discouraging answers that no school funds that was prepared for the EE programs.

Environmental trips and seminar are the most effective way of EE implementation for rising awareness on environmental issues, but an obstacle comes on funding of the programs. Teaching environmental education goes hand in hand with planning to take the learners to places where they can see real life situations. In some cases these places are situated far distance from the schools, so they need transport. The issue of

transport has been one of the burning problems because schools do not have transportation facilities and funds to hire vehicles for field trips. This prevents the learners from visiting places where they can learn from actual situations like farms to learn good agricultural practices or see some initiatives of good environmental practices.

Less morale, motivation, readiness and attitudes on EE was also stated by respondents of about 76 that is equivalent to 57.1%. This also is the large number of respondents who shown their interest on it. This challenge highly decelerates the efforts towards EE implementation in secondary schools in Tanzania. If the morale or motivation or readiness is low towards any issue cannot actively attended or in implemented. Many students, teachers and other EE stakeholders have no interest towards EE issues for the reason that it has no impact in learning situations and no impact in student's performance.

Apart from the above mentioned challenges, low awareness the society have on EE was also cited by a number of some respondents. No one who can practice what he or she is not aware with. The society seem not to be aware with EE hence the application or practice of EE practically among the society becomes difficult. This was mentioned by about 39 respondents, which is equivalent to 29.3%. Among the respondents were interviewed and cited such challenge as the burning issue towards EE implementation in secondary schools. Some respondents said that schools may have established their tree plantation around the school compounds, but the security becomes difficult. This becomes when you find that during the absence of teachers and students at schools,

some people may herd their cattle that leads environmental destruction. This decelerates the secondary schools efforts in the environmental education implementation.

Also lack of skills among the facilitators like teachers is a challenge towards EE implementation in secondary schools. This was mentioned by 53 respondents, which equates to 39.8% of all 133 respondents. Due to some circumstances and less preference from teachers and other facilitators on EE less implementation is made.

Also this was witnessed by environmental researches done by Tomlin& Froud (1994) and Lee (2000). Due to many teachers lack specialization on EE as independent subjects, it makes them to have difficulties in the facilitation of EE practically which decelerates the efforts of rising awareness to the students and the society at large.

Lack of common policy towards EE implementation. It was another challenge that was raised by about 48 respondents which is equivalent to 36.1% of all respondents. If all schools could have the same policy both could have conducive environments since EE in all schools could have the same EE implementation strategies. Some schools have conducive environments, while others do not, and this may have been influenced by lack of common policy towards EE implementation.

Through my observation on the status of trees planted around the schools revealed the necessity of having a common guiding policy for EE implementation. The result of my observation were tabulated as follows:

Table 4.20: Status of Trees Planted Around the Schools

School		A	B	C	D	E	F	G
Status of trees planted around the schools.	Enough							
	Satisfactory		v				v	
	Unsatisfactory	v		v	v	v		v
	Poor							

Source: Field Data (2020)

According to the table above, no any school which has enough trees, only 2 schools has satisfactory number of trees, 5 schools has unsatisfactory number of trees. From researcher's observation, the schools do not invest their time in planting trees, which make the surrounding environment into danger.

Challenge of EE implementation facilities like dustbin, slashes, incinerators, even books for teaching and learning. This is the most sensitive challenge towards EE implementation in secondary schools in Tanzania. It is a challenge that is accelerated by lack of enough fund located for EE activities in secondary schools. Some schools lack even fund for trees seedling and hence make them to have bare lands around the schools.

Also many schools lack enough dustbins, incinerators, washing facilities, and less tools for environmental cleanliness. By interviewing the education officer who deal with health and environment in schools, she said that they are trying now to avoid having pit toilets in all schools and have new modernized toilets but the challenge is on how to keep the toilets clean. Many students have no education on how to keep the toilets but even tools for maintaining cleanliness are not enough in the schools including less detergents and other chemicals for keeping toilets and other sensitive

areas safe, and also some schools lack enough water that may have to flow for all 24 hours.

Also an observation was made on the availability of tools and facilities for EE implementation. Most of the schools had the instruments for collecting rubbishes even if seems not to be enough. Dustbin and rubbish pits were available in each school, which I visited, but what observed is that, some papers and other rubbishes were scattered outside the rubbish pits which implies low attitude and less commitment among the school members or less awareness. This may put the surrounding society into danger of being affected when the disease erupts.

Also some schools had no incinerators, whereby only 3 out of 7 had incinerators, which makes difficult in EE implementation. Less campaign on EE implementation from other environmental stakeholders like parents, radios and televisions. This was mentioned by 113 respondents which is equivalent to 85% who shown their interest on this challenge by saying that, most of other environmental stakeholders has forgotten their responsibility of making EE aware to all the generations and the whole society in general. Such stakeholders include mass media, the parents, the society and other NGOs, which seem to be initiated for the sake of implementing environmental education but rely on their personal interests. This is a big challenge on the environment for sustainable development.

This was witnessed by number of students who were asked on the greatest source for their awareness and knowledge on EE. The result collected from 100 students and tabulated as shown below in the Table 4.21.

Table 4.21: Greatest Source of EE Awareness in Secondary Schools in Tanzania

Source of EE	Television	Radio	Newspaper	Internet	Teachers	Parents
No. of students	2	3	0	0	80	15
Percentages	2	3	0	0	80	15

Source: Field Data (2020)

100 respondents were asked the question on the greatest source of EE. The students involved were non-environmental club leaders in order to capture their awareness on EE with its source.

From the Table 4.21 shows how other EE stakeholders has forgotten their responsibility by being not insisting on the necessity of EE to the students and society at large. This may result to the generation with low motives and attitudes on environmental issues.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter contains summary of findings, conclusions and recommendations. The purpose of the study was to examine EE awareness and implementation in secondary schools in Tanzania, by taking Sumbawanga as a case study. We believe that through proper implementation of EE, awareness could be high and positive attitude of the society towards environmental issues could be achieved. This chapter expected to be organized depending on research objectives which are conceptions of students and teachers in secondary schools, ways through which EE is implemented and challenges of EE implementation in secondary schools in Tanzania.

5.2 Summary of the Findings

The study expected to assess the awareness of EE in secondary schools in Tanzania, where the findings collected depending the three objectives of the study. The first objective was to assess the students' and teachers' conceptions of EE, and others were to observe different strategies employed for the implementation of EE in secondary schools and the challenges in its implementation.

5.2.1 Students' and Teachers' Conceptions on EE

Through questionnaires to students and environmental club leaders and interview to teachers, they were asked if they knew the meaning of EE, its importance or application of introducing EE in secondary schools, also best EE teaching method, and on their views to mention environmental problems they used to experience several times and suggest solutions on the mentioned problems.

(i) Different meanings of EE was grasped from different respondents with a total of 133. Each respondent were free to define on his/her own perception and as shown from the table for respondents' definitions of EE they varied in the understanding of what EE meant. Daudi and Heimlich (2002) elucidate that, the different meanings for people depends on their continuum of understanding and their school of thought which may have been influenced by their experiences, professional and social backgrounds, academic level, and learning achievements. The responses demonstrate that EE was understood differently by the respondents.

However, the results of the study from all seven schools reveal that some students and teachers had almost similar way of understanding EE as well as some seemed to differ. It is fascinating that, the majority of the respondents placed their description of EE in some of the Tbilisi conference EE goals, which are creating awareness about the environment as well as acquisition of knowledge and understanding of the environment, which is education *about* the environment.

Since EE was mostly understood as creating awareness and/or acquisition of knowledge (education about the environment), even the way it was trained reflected merely imparting knowledge into students. In this aspect therefore, policy makers, curriculum developers as well as other stakeholders have the task to provide EE to students through creating consciousness and awareness on taking care of the environment. Both students and teachers were concerned with getting knowledge about the environment and knowledge of how to take care of the environment.

Besides, some teachers who were interviewed appeared to be more focused on describing EE with regards to developing EE skills (education *in* the environment) such as problem-solving skills. This is because teachers with this orientation expect (that as one lives in the environment one will encounter various problems.

In order to overcome the problems one encountered, one needs to have skills to solve them). Teachers with this orientation argued that, since we live in the environment, it is likely possible to confront with environmental problems, thus, in order to go about these problems we need EE skills. Equally, government officials (ward education officers, district education officer, and an environmental officer) pointed out that if students in these institutes are inculcated with attitudes to praise environment especially after getting to know that man's survival depends on environment, they would not think of polluting or destroying it in anyhow.

The results of this study concur with those found in studies conducted formerly in Tanzania, by researchers like Lindhe (1999), Mtaita (2007) and Kimaryo (2011), who produced similar findings on how EE is understood by different EE practitioners including teachers. For example, a study done by Mtaita (2007) revealed that teachers understood EE as education *about* the environment. Also, the one conducted by Lindhe (1999) recommended that such findings are anticipated in a society where people's survival is dependent on the environment.

The first objective also wanted to know from respondents who were given questionnaire, or interviewed if they knew the importance of EE. The respondents were also free to provide their views without being limited, and the results tabulated

as shown in the Table 4.4 where most of them stated that EE Help students to understand about environmental problems and how to solve them. The other respondents stated other importance and no any respondent who failed to rise any of the stated importance.

On the other hand the respondents were requested to state the best method for EE implementation for better awareness of the society. The two methods, which are independent approach and cross cutting issues seemed to be ones which could be more relevance for EE implementation. Only 5.2% of all respondents who were included stated the different approach, which is thematically oriented approach. This can be revealed from the Table 4.5.

Respondents were also asked to identify the level to which EE has enhanced their attitude, skills and knowledge towards environmental matters. No any respondent among 115 who were included who identified not to have being enhanced either by knowledge, attitude and/ skills.

Also both of the respondents said that EE has enhanced their awareness of the surroundings and be able to solve environmental problems. About 80% of the respondents who were concerned on this question said that the extent to which EE has helped them to be aware of the surroundings and be able to solve environmental problems is high. The rest 20% of all 115 respondents said that it was moderate and low extent. Also the study asked the students to identify the problems, which they used to experience before the EE knowledge and the way they have solved them. Different problems were mentioned and ways on how they have solved them.

5.2.2 Strategies Employed in Secondary Schools for EE Implementation

Basing on the second objective, different strategies for EE implementation in secondary schools in Tanzania are being established but are not effectively achieved. The study relied on different strategies and the following were identified:

(i) Presence of Active Environmental Clubs

Most of the schools have environmental clubs. During the collection of data, one school among the seven schools found not to have any environmental club. By observing the effectiveness of environmental clubs, only one school was observed to have an effective environmental club. Also most of the clubs seemed to have a tendency of not having meetings to discuss environmental matters.

(ii) Presence of Common Guiding Policy in Secondary Schools in Tanzanian Towards EE Implementation

Only one school observed to have a policy guiding the implementation of EE in their area. This means all other 6 schools had no policy towards EE implementation. This implies less attention towards EE implementation in Tanzania, and lack of policy that guide the implementation of EE in secondary schools makes some schools to have conducive environments while others do not have.

(iii) Provision of Environmental Seminar in Secondary Schools

Only 28 students out of 100 who were concerned said to get environmental seminar in rare times. In most of the schools, respondents said that they don’t use to get environmental seminar. The research wanted to know the organizations that prepares such seminar and found that only environmental clubs prepares the seminars. Other

environmental organizations seemed not to be responsible which implies that other environmental organizations including NGOS being available for serving their personal interests or are taking less consideration in rising awareness' of EE in secondary schools and the society at large.

(iv) Incorporation of Environmental Activities in the School Daily Timetable

All the respondents said that different environmental activities have been included in the school routine. Different activities were mentioned by respondents, but the challenge comes on the implementation time that the time located for EE implementation was not enough.

(v) Attending and arrangement of Field Trips on Environmental Matters for Investigation

This was one of the strategy that was cited for EE implementation. From the respondents' views, respondents seemed not to have environmental trips for environmental issues. With all seven schools visited, no any school witnessed to have a tendency of environmental trips for widening and placing awareness on environmental matters.

(vi) Presence of Environmental Competition in Secondary Schools

The competitions of EE was found to be present at the district level only and involves all the secondary schools which happens only once a year. In the case of the schools, which were the target of the study, only 28 in only one school students seemed to have environmental competitions and it is a rare extent. As one of the strategy for EE implementation through environmental competitions, the attitudes and knowledge of

students in schools expected to change and accelerate efforts of EE implementation which further could result to the increasing of awareness of EE in the secondary schools and the society at large.

(vii) Presence of Special School Environmental Day

No any response "*yes*" found in all the schools visited that could witness the presence of special environmental day in all the secondary schools. All the schools used the only one day arranged country wise as the special day for general schools cleanliness. No any special day arranged in schools apart from that so as to discuss general environmental issues, and stimulate the attitudes, behavior of students in secondary schools.

(viii) Also the researcher wanted to observe if the exams were constructed with the questions of EE. The results were obtained from respondents that questions were constructed but not many questions to the extent of stimulating students to concentrate on EE issues during their school life time.

5.2.3 Challenges of EE Implementation in Secondary Schools

Considering the third objective of the study, the study revealed that the implementation of EE is too much challenged by a lot of factors. Many respondents revealed to have a challenge of insufficient time located for EE matters. They said that less time located for EE matters puts the EE implementation in secondary schools into danger.

5.3 Conclusion

On the basis of the research findings the study concluded on the Environmental Education awareness and implementation in secondary schools in Tanzania a case of Sumbawanga municipality whereby the findings show that there is a need of EE in secondary schools considering specific objectives as follows:

5.3.1 To Assess Students' and Teachers Conceptions of Environmental Education

From their own views and concepts, respondents posed out the value and importance of EE through the questionnaire given to them. For example some respondents said that EE help the students to understand about environmental problems and how to solve them.

According to the findings reveal that the perception of EE as attached to equipping learners with skill on how to handle the environment corresponded to what is asserted by Stapp, (1969) who firstly conceptualized the term environmental education. Because it is meant to address environmental problems and therefore the schools had to plan sound implementation strategies to ensure that the target is met.

Also other findings reveal that EE is important for preparing future citizens to work with the resources for socioeconomic development. This was revealed by 50 respondents who said that EE help to acquire knowledge on planning issues like construction issues, population and development planning. This finding agreed with the importance of EE as pointed out by UNESCO (2005) report on EE. The report in its introduction, states that EE is a lifelong process with the objective of imparting to its category groups in formal and non formal education sectors environmental

awareness, ecological knowledge, attitudes, values, commitments for actions and ethical responsibilities for the rational use of resources and of the sound and sustainable development.

5.2.2 To Evaluate of the Ways of EE Implementation in Secondary Schools

The findings revealed that there is a high need of making proper implementation of EE in secondary schools so as to promote to awareness of environmental issues for sustainable future development. Different strategies, which seemed to be employed for environmental sustainability, include the inclusion of environmental issues in the school timetable.

Another finding proposed the teaching of EE as independent subject so as to widen the chance of concentrating on environmental issues theoretically and practically. From the base of the given findings, this study has laid a solid foundation of relationship between the effective implementation of EE and sustainable environmental management because the result has confirmed the fact that effective implementation of environmental education result into sustainable implementation of environmental education.

5.2.3 To Find out the Challenges in Implementation of Environmental Education

Findings revealed challenges encountered in implementation of environmental education in secondary schools in Tanzania. The challenges which were highlighted include inadequate time and limited EE contents integrated in the respective syllabi, lack of special environmental days arranged specifically for each school, inadequate teaching and learning materials, inappropriate teaching and learning materials, lack of

environmental seminar and less environmental education workshops. The study also revealed and suggested long term measures so as to make EE give a better contribution in addressing environmental problems.

Furthermore, the findings revealed that the schools lack local common guiding policies, which could promote to the uniformity in environmental education implementation in all secondary schools in Tanzania. In all the schools, which were visited, only one school was found to have EE guiding policy.

The other remaining schools had no policy, which promotes to the disparity in EE implementation in secondary schools in Tanzania. The findings suggest for more means to work on noticeable challenges to allow smooth environmental management practices and EE teaching and learning in secondary schools so as to promote to the informed generation on environmental issues.

5.3 Recommendations

Basing on the findings of this study, the following are put forward. These touch curriculum developers and policy makers, recommendations to the secondary schools, and recommendation for further study.

5.3.1 Recommendations to Curriculum Developers and Policy Makers

Curriculum developers and policy makers play a greater role in influencing the curriculum and monitoring its implementation. This presents the need to consider the following factors:

(i) Since the education policy has clearly stipulated the inclusion of EE in secondary schools in Tanzania as a cross cutting issues in the secondary school curriculum, a call to the Tanzania authority for curriculum development is to devise guidelines on teaching and learning EE for sustainable development. Different follow-up strategies should be made so as to make sure proper implementation of EE in secondary schools is made in order to rise its awareness to the majority of the society.

(ii) As observed from the findings as the suggestion by the majority that EE should be taught as independent subject, I would like to recommend it so as to widen a chance of its utilization. This may influence EE to have enough time and even concentration of students may have to rise. This is the view of the research results that EE was only taught as cross cutting issue.

(iii) There should be a common established policy towards EE implementation in secondary schools. This recommendation is generated relying on the result that there is high disparity of EE implementation due to lack of common guiding policy. This may influence all secondary schools to have the same strategy and avoid the situation of some schools being having good environments while others do not.

(iv) Due to lack of EE seminars in secondary schools, which the researcher visited, then I would recommend that agencies dealing with environments such as NEMC should provide regular seminars, workshops for students and short courses for teachers on EE so as to improve their efficiency and performance in

the implementation of EE in secondary schools. Through these arenas teachers may exchange views and provide their challenges towards the course and therefore device the appropriate ways to mitigate such problem.

(v) There should be a bottom up approach in monitoring and evaluation of EE to make sure it is learner centered and involving all stakeholders.

5.3.2 Recommendations to the Secondary Schools in Tanzania

(i) Introduction of EE sensitization and teaching specific competencies in environmentally sound techniques to the students. This is possible through seminars, workshops and introducing of EE clubs.

(ii) It was observed that, some schools had no environmental clubs and those with environmental clubs are not effective. This has influenced to recommend that, EE clubs should be re-introduced in secondary schools. This will help to create environmental awareness to the large number of people within and outside the secondary schools (surrounding community).

(iii) More resources including time and finance should be allocated so as to facilitate proper EE implementation in secondary schools.

(iv) Each school to establish special environmental days for EE matters and discuss the issues for rising awareness in the society as it was observed that no any school which has a special day for their own to discuss environmental matters and make environmental competitions.

5.3.3 Recommendations for Further Studies

Based on findings, suggestions for further studies are given below:

(i) The same study may be conducted in the higher training institutes so as to observe if EE is effectively implemented to the extent of accelerating teachers to impart EE knowledge properly to students in secondary schools with high environmental attitude.

(ii) Other studies may be conducted on the disparity of EE implementation in secondary schools in Tanzania.

(iii) Investigation of the challenges, which environmental clubs meet in implementation of EE in secondary schools in Tanzania since this study observed that most of EE clubs are ineffective.

REFFERENCES

Adkins, C., & Simmons, B. (2002). Outdoor, Experimental and Environmental Education. Converging or Diverging approaches? Charlestone, WV: Eric Educational Reports.

Auer, R. (2010). Sense of place and the physical senses in outdoor environmental learning: In teaching environmental literacy. Indian University Press. USA.

Bolstad, R., Cowie, B., & Eames, C. (2004). *Environmental Education in New Zealand Schools: Research into Current Practice and future possibilities.* Volume 1, Summary of the research findings. Wellington: Ministry of Education.

Bartosh, O. (2003). Environmental Education: Improving Student Achievement. A Thesis Submitted in Partial fulfilment of the requirements for the degree Master of Environmental Studies. The Evergreen State College.

Beatus, M. (2017). *Learning for sustainable development*: *Integrating EE in the curriculum of ordinary secondary schools in Tanzania*. Dar es Salaam, Tanzania

Brayman, A. (2004). *Social research methodology*. Oxford: Oxford University Press.

Cohen, L., Manion, L., & Keith, M. (2007). *Research Methods in Education.* London Routledge Tailor & Francis Group.

Dawson, C. (2002). *Practical Research Methods*. New Delhi: UBS Publishers‟ Distributors.

Daudi, S. S., & Heimlich, J. E. (2002). Environmental education: Can it be defined? In Joe. E. Heimlich, *Environmental Education: A resource Handbook.* USA, (pp 5-8): Phi Delta Kappa Educational Foundation.

Disinger, J. (1983). *Environmental Education's definitional problem*. ERIC/SMEAC information Bulletin z. Columbus, ERIC/SMEAC. In Environmental education for the 21st Century: international and interdisciplinary perspectives, ed. P.J. Thompson, 3-11 New York: Peter Lang.

Fien, J. (1993). *For the environment critical*: *Critical curriculum theorizing and environmental education.* Geelong: Deakin University.

Gay, R. L., Mills, E. G., & Airasian, P. (2009). *Educational Research*: *Competencies for Analysis and Applications*, Ninth Edition, New Jersey: Pearson Education, Inc.

Gough, A. (1997). *Education and the environmen*t: *Policy, trends, and the problems of marginalization.* Melbourne: The Australian Council for Educational Research.

Gough, A. (2009). Not for want of trying: strategies for reorienting teacher education for ESD. Retrieved August 23, 2015 from: www.esdteachereducation.org

Ham, S., Langseth, R., Fazio, J. (1985). Back to definitions in environmental education: The case of inland northwest camps. *Journal of Environmental Education.*16, 11-15.

Henegar, E. (2005). *Environmental Education: A Look at its Purpose, Methods, and Effectiveness*. ENS Capstone Project.

Hogan, A. R. (2007). *Education in the Wetlands and Wetlands in the education*-a case of contextualizing primary/basic education in Tanzania. Master‟s Thesis in Environmental Education. Rhodes University. South Africa.

Isaac, S., & Michael, W. B. (1990). *Handbook in Research and Evaluation.* San Diego, California: Edits Publishers.

Jambiya, G. (2003). *A baseline study of six villages in Musoma in Mara Region for the WWF Eastern Africa region*

Jerath, N. (2003). Environmental Education in Secondary Vocational Education*: A Comparison of Five Asian Countries.* Punjab State Council for Science and Technology. Chandigarh. Retrieved August 29, 2015 from: http://www.ceeindia.org/esf/download/paper21.pdf.

Jeronen, E., Jeronen, J. & Raustia, H. (2009). Environmental Education in Finland- A Case Study of Environmental Education in Nature Schools. *International Journal of Environmental & Science Education.* 4(1), 1-23.

Johnson-Pynn, J. S., & Johnson, L. R. (2005). Success and Challenges in East African Conservation Education. *Journal of Environmental Education,* 36 (2), 25 – 39.

Kimaryo, A. L. (2011). Integrating Environmental Education in Primary School Education in Tanzania. Teachers Perceptions and Teaching Practices. PHD Thesis, Abo Akademi University: Abo Akademi University Press.

Kothari, C. R. (1985). *Research Methodology*: *Methods and Techniques.* New Delhi: Wiley Eastern Limited.

Lindhe, V. (1999). Greening Education, Prospects and Conditions in Tanzania. Doctoral Thesis, Uppsala University

Ministry of education and culture (MoEC), (2001). URT, *Education sector development program, primary education development plan (2002 – 2006).* Basic education development committee, Tanzania

Mwasonya Lenin (2013). The impacts of NEMC of educational program upon EE in Nyamagana district. SAUT, Mwanza.

MoEVT, (2007). *Environmental Education Strategy for Schools and Colleges in Tanzania (2008-2012)*. Dar es Salaam.

Omary, I. M. (2011). *Concepts and methods in educational research*. Dar es Salaam: Oxford University Press.

NBI, (2004). *Networking environmental education and awareness practitioners in Tanzania*. Nile Trans- Boundary Environmental Action Plan. Formation of national environmental education and awareness, Group Workshop Proceedings, Hotel Travertine, Dar es Salaam, Tanzania

Nyerere. J. K, (1976a). *Education for self-reliance*. In J.K Nyerere freedom and socialism. Uhuru na Ujamaa. A selection from writings and speeches 1965 – 1967pp. 267 – 290. Oxford University Press. Dar es Salaam.

Palmer, J. (1998). *Environmental education in the 21st century*. Theory, practice, progress and promise. London: Routledge.

Rauch, F., & Steiner, R. (2005). *University course: education for Sustainable Development–Innovation in Teacher Education (BINE): Reasons, concept and First experiences.* Conference Paper, International Conference "Committing Universities to Sustainable Development" April 20 – 23, 2005, Graz.

Sheridan M. (2004). The Environmental Consequences of Independence and Socialism in North.

Pare, Tanzania, (1961). The Environmental Consequences of Independence and Socialism in North Pare, Tanzania. *Journal of African History,* 45, 81 – 102.

URT, (2004). *National Environmental Education and Communication Strategy (2005 –2009).* Dares- Salaam: Tanzania

APPENDICES

Appendix 1: Questionnaire for Students

This questionnaire is a part of the study that seeks to find out Environmental Education (EE) awareness in secondary schools in Tanzania. You are kindly requested to tick or choose or give a short answer to the question concern. *Confidentiality will be maintained and adhered.*

Name of the school…….……

District……

Region ……

1. Which is your gender?

Male ( ) female ( )

2. How old are you?

10 – 15 ( ) 16 – 21 ( ) 22 – 27 ( )

3. Which form are you?

Form one ( ) Form two ( ) Form three ( ) Form four ( ) Form five ( )

Form six ( )

4. How do you understand about environmental education? ----------

---

---

5. Which place did you come across the concept of EE?

At home, school or in the streets? ----------

6. Which is the greatest source of EE knowledge to you?

TV ( ) Radio ( ) Newspapers ( ) Internet ( ) Teachers ( ) Parents ( ) others ( )

7. Have you ever met any question concerning EE throughout your exams? Yes or no

If yes, are the questions on EE many or few of the questions are only examined? ------

---

8. What are the objectives of EE?

---

9. What do you think is the best approach towards EE teaching method among the following and why?

Independent approach ( ), Why ----------

Thematically oriented approach ( ), Why ----------

Cross curricular issue ( ), Why ----------

10. What is the applicability/importance of EE in your real life? Mention at least three

---

11. Mention any environmental problems that you experience several times in daily life.

---

12. Suggest any solutions on each problem mentioned

---

13. What are the importance or applicability of EE? ----------

---

---

14. To what extent do you think EE in secondary level has enhanced your knowledge, attitudes and skills on environmental matters?

High ( ) Moderate ( ) Low ( ) None ( )

15. To what extent do you think EE has helped you to be aware of your surroundings and be able to solve some environmental problems?

High ( ) Moderate ( ) Low ( ) None ( )

16. Mention the environmental problem which you used to experience before the knowledge of EE but now you have solved it----------

How did you solve such problem?----------

---

17. Do you think EE has prepared you enough to solve environmental problems like soil erosion, poor waste disposal? Yes or No

If yes show how ----------

---

18. What are the challenges of EE implementation?

---

19. What does environmental clubs mean? ----------

---

20. How many environmental clubs do you have at your school?

Are those environmental clubs active? ----------

21. Which activities do environmental clubs get involved? ----------

---

---

22 do you have environmental competition at your school? Yes/No

If yes, is it several times or rarely? ----------

23 How many times a year do you get EE seminars?

Several times ( ) Rarely ( ) No seminar at all ( )

24. Which organization prepares such seminar if you get involved?

25. Have you ever received any award or certificate on environmental matters? --------

26. Mention any instruments used to store some wastes at your school.

---

27. Are there any changes you would like to suggest to be made on EE in secondary schools?

---

28. Are there any environmental issues incorporated in your daily school routine?

If yes, mention them.

_____

_____

29. Do you have any special program for EE implementation in your daily timetable?

If yes what is it?----------

30. Do you have any EE policy at your school?----------

If yes, state it. ----------

31. How many times a year do you arrange the trips on environmental matters to rise EE awareness?

None ( ) twice in a year ( ) more than twice a year ( )

32 Do you have EE day at your school? Yes/no

If yes, which activities conducted on the day, which is so special for EE implementation and awareness?

---

33. Are you currently actively involved in environmental conservation activities? Yes/No

If yes, mention five of the activities ----------

If No, why? ----------

THANK YOU VERY MUCH FOR YOUR COOPERATION

Appendix 2: Questionnaire for Secondary School Environmental Club Leaders

This questionnaire is a part of the study that seeks to find out EE awareness in secondary schools in Tanzania. You are kindly requested to tick or choose or give a short answer to the question concern. *Confidentiality will be maintained and adhered*.

Name---------- Sex ---------- Age ---------

School----------

Form----------

Position----------

1. What is EE? ----------

---

2. Who should get EE? ----------

3. Do you have an EE day?----------

If yes, which special activities do you get involved on that day at your school? ---------

---

---

4. Do you get an update on EE through environmental seminar?

---

5. What do you think is the best approach towards EE teaching method among the following and why?

Independent approach ( ), Why ----------

Thematically oriented approach ( ), Why ----------

Cross curricular issue ( ), Why ----------

---

6. What are the importance or applicability of EE? ----------

---

---

7. Do you get a special visit on the environmental institutions like weather stations or other environmental NGO's? ----------

If yes what did you learn on the last visit? ----------

---

8. Do you have environmental education competitions in your district?

If yes, which activities do you get involved?----------

---

9. Are the resources for EE implementation at your school enough? ----------

---

---

10. Which environmental policy do you have at your school?

---

11. How many times a year do you arrange the trips on environmental matters to rise EE awareness?None ( ) twice in a year ( ) more than twice a year ( ).

12. Which challenges do you think are the obstacles of EE implementation?

---

13 Do you have EE day at your school? Yes/no

If yes, which activities conducted on the day which is so special for EE implementation and awareness?

---

14. Do you have environmental competition at your school? If yes is it several times or rare cases?

15. To what extent do you think EE in secondary level has enhanced your knowledge, attitudes and skills on environmental matters?

High ( ) Moderate ( ) Low ( ) None ( )

16. To what extent do you think EE has helped you to be aware of your surroundings and be able to solve some environmental problems?

High ( ) Moderate ( ) Low ( ) None ( )

17. Mention the environmental problem which you used to experience before the knowledge of EE but now you have solved it----------

---

How did you solve such problem? ----------

---

18. Are you currently actively involved in environmental conservation activities? Yes/No

If yes, mention five of the activities ----------

If No, why? ----------

---

19. How many times do you meet in a week or a month at your school or outside your school?

---.

20. Do you have a tendency of meeting with other members several times?

If yes, how many times a week/month? Once ( ) twice ( ) more than twice ( ) none ( ) no specific schedule ( )

THANKS FOR YOUR COOPERATION

Appendix 3: Interview guide for teachers on EE awareness in secondary school.

Name of a teacher----------

School's name----------

Teaching subjects ----------

1. What do you understand about EE?----------

---

2. What are the activities do you get involved in implementing EE at your school?

---

3. What are the importance or applicability of EE? ----------

---

---

4. Which policy do lead your school towards EE awareness?

---

5. Do you prepare environmental seminar for your students and environmental clubs?

---

6 Do you have EE day at your school? Yes/no

If yes, which activities conducted on the day which is so special for EE

implementation and awareness?

---

7. What do you think is the best approach towards EE teaching method among the following and why?

Independent approach ( ), Why ----------

Thematically oriented approach ( ), Why ----------

Cross curricular issue ( ), Why ----------

8. How many times a year do you arrange the trips on environmental matters to rise EE awareness?

None ( ) twice in a year ( ) more than twice a year ( )

9. What are the objectives of EE?

---

10. How many times a year do you arrange trips on environmental matters at your school?

a) None ( ) b) once ( ) c) twice ( ) more than two times ( )

11. Which challenges do you think are the obstacles of EE implementation?

---

12. Do you organize environmental competitions at your school?

13. How many times a week/month do the environmental club members meet?

THANKS FOR YOUR COOPERATION

Appendix 4: Interview guide for ward environmental and or education officers

Name……Position……

……Sex…….....

Ward……

…….

1. What do you understand about EE?

---

2. How did you get aware about EE? ----------

3. Do you have any policy that guide EE in your ward especially secondary schools?

If yes, what is it? ----------

4. Do you have environmental officers at the village levels?

If yes, how do they get involved in Environmental activities in secondary schools?

---

5. How do you make EE aware in secondary schools in your ward and the whole society?

---

6. How many times a year do you issue EE seminars to the students in your ward?

---

7. Do you have a routine of meeting secondary school environmental club leaders?

If yes what do you insist them about EE?

8. Mention the areas, which you visited in the recent days giving seminar on EE.

---

9. Do you encourage citizens in your to get involved in environmental activities especially planting trees?

10. What are the objectives of EE in secondary schools?

11. Do you organize environmental competitions in your ward?

12. Which day do you celebrate environmental day in your ward apart from the one organized worldwide or country wise?

13. What do you think is the best approach towards EE teaching method among the following and why?

Independent approach ( ), Why ----------

Thematically oriented approach ( ), Why ----------

Cross curricular issue ( ), Why ----------

14. Are you currently actively involved in environmental conservation activities? Yes/No

If yes, mention five of the activities ----------

If No, why? ----------

Appendix 5:Interview guide for district environmental/ education officers

Name……..

Sex…….....

Position……

District……....

1. What do you understand about EE?

---

2. How did you get aware about EE? ----------

3. Do you have any policy that guide EE in your district especially secondary schools?

If yes, what is it?----------

---

4. Do you have environmental officers at the ward or village levels?

If yes, how do they get involved in Environmental activities in secondary schools at large?

---

5. How do you make EE aware in secondary schools in your district and the whole society?

---

6. How many times a year do you issue EE seminars to the students in your district?

---

7. Do you have a routine of meeting secondary school environmental club leaders?

8. What do you think is the best approach towards EE teaching method among the following and why?

Independent approach ( ), Why ----------

Thematically oriented approach ( ), Why ----------

Cross curricular issue ( ), Why ----------

---

9. Do you encourage citizens in your district to get involved in environmental activities especially planting trees?

If yes why many of the areas seem to be with no trees? ----------

---

---

10 Do you have EE day organized in your district? Yes/no

If yes, which activities conducted on the day which is so special for EE implementation and awareness?

---

11. Are there environmental competitions organized in your district?

Appendix 6: Observation checklist

1. Presence of instruments for collecting rubbishes and tools for waste disposal like:-

   Dustbin

   Incinerators

   Rubbish pits

2. Presence of sewage system friendly to the environment
3. Availability of school gardens with enough plantations of different species, attractive and enough planted trees around the school.
4. Observation of the school schedule, which may have incorporated EE activities.
5. Request on the recent implemented plans on EE activities like planting of trees, seminar to the students on EE, maintain of soil erosion
6. Presence of water sources enough for other environmental activities like irrigation of trees and flowers.

Appendix 7. Research budget

S/N	Cost category	Cost in Tshs
1	Research proposal equipment, materials and stationary	200000
2	Accommodation and precaution	250000
3	Surfing internet, secretarial service, photocopy, binding	250000
4	Data collection	150000
5	Data entry, analysis and interpretation	300000
6	Report writing, interpretation, and editing	200000
7	Report submission	200000
8	Transport fee	400000
	Total	**1,950,000**

Appendix 8. Study timetable

Research component	Starting date	Completion date
Topic selection and concept note generation	28th Oct. 2019	23rd Nov. 2019
Concept note submission	23rd Nov. 2019	30th Nov. 2019
Research proposal preparation	01st Dec. 2019	20th Jan. 2020
Proposal submission and incorporating comments from supervisors	20th Jan. 2020	10th Feb. 2020
Actual data collection	11th Feb. 2020	11th Mar. 2020
Data entry and analysis	11th Mar. 2020	24th Mar. 2020
Report writing and presentation	24th Mar. 2020	12th April. 2020
Incorporating comments from the supervisor and submitting report for publication	13th April. 2020	15th May. 2020

Appendix 9: Research Clearance Letter

THE OPEN UNIVERSITY OF TANZANIA
DIRECTORATE OF POSTGRADUATE STUDIES

Kawawa Road, Kinondoni Municipality,
P.O. Box 23409
Dar es Salaam, Tanzania
http://www.out.ac.tz

Tel: 255-22-2666752/2668445
Ext.2101
Fax: 255-22-2668759,
E-mail:drps@out.ac.tz

Date: 24th August 2020.

Our Ref: PG201702917

Regional Administrative Secretary (RAS),
Rukwa Region,
P. O. Box 128,
Sumbawanga.

RE: RESEARCH CLEARANCE

The Open University of Tanzania was established by an act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No. 55 in the official Gazette. The act was however replaced by the Open University of Tanzania charter of 2005, which became operational on 1st January 2007. In line with the later, the Open University mission is to generate and apply knowledge through research. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Mr. Albert Cyprian, PG201702917** pursuing **Masters of Education in Administration, Planning and Policy Studies (M.ED APPS).** We hereby grant this clearance to conduct a research titled ***"Assessment of Environmental Education Awareness in Secondary Schools in Tanzania: A Case of Sumbawanga Municipality"***. He will collect data at Sumbawanga Municipal Council in Rukwa Region from 01st September 2020 to 16th October 2020.

Incase you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O. Box 23409, Dar es Salaam. Tel: 022-2-2668820. We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

Prof Hossea Rwegoshora
For: VICE CHANCELLOR
THE OPEN UNIVERSITY OF TANZANIA

APPENDIX III: DECLARATION OF CONFIDENTIALITY

THE OPEN UNIVERSITY OF TANZANIA
DIRECTORATE OF RESEARCH, PUBLICATIONS AND POSTGRADUATE STUDIES

P.O. Box 23409,
Dar es Salaam, Tanzania
http://www.out.ac.tz

Tel: 255-22-2668992; E-mail: drpc@out.ac.tz

DECLARATION OF CONFIDENTIALITY

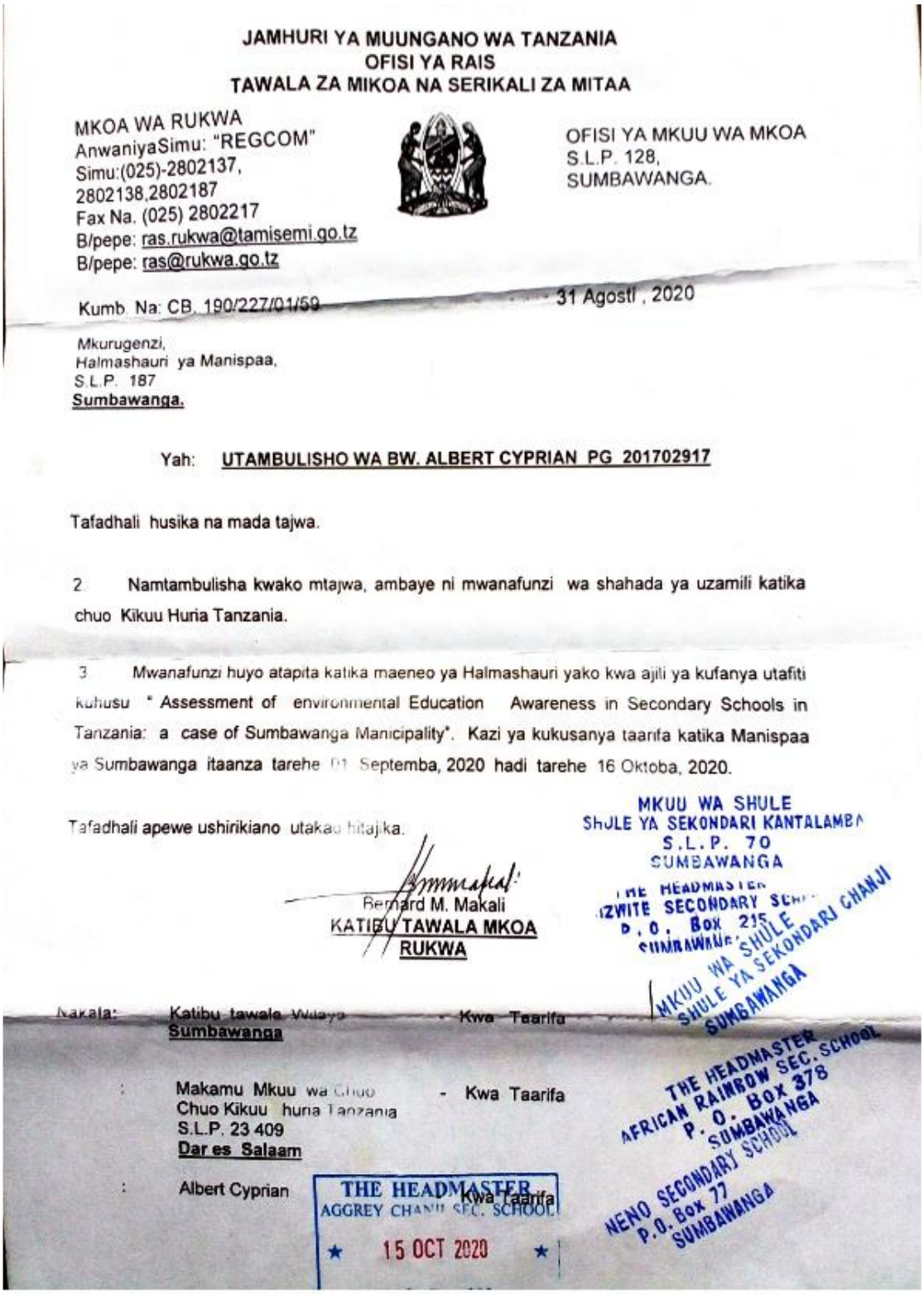
To: The Chief Executive Officer of **Sumbawanga Municipal Council** (give the title of the Chief Executive Officer of the institution/firm/organization etc visiting)
I, **Albert Cyprian, reg. no: pg201702917** (Name and Reg. no.), of the Department of **Education, Policy, and Administration**, Faculty of **Education,** Open University of Tanzania, declare that, I will maintain secrecy and confidentiality, and will not use any data and information obtained from your organization in the course of my research for any purpose other than for my academic endeavors.

Signature,.....(student) Date 16th July 2020

Countersigned by:

Name : Dr. Adam Namamba (Supervisor)

Signature : .....(Supervisor) Date 17th July 2020



JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA RUKWA
AnwaniyaSimu: "REGCOM"
Simu:(025)-2802137,
2802138,2802187
Fax Na. (025) 2802217
B/pepe: ras.rukwa@tamisemi.go.tz
B/pepe: ras@rukwa.go.tz

OFISI YA MKUU WA MKOA
S.L.P. 128,
SUMBAWANGA.

Kumb. Na: CB. 190/227/01/59 — 31 Agosti, 2020

Mkurugenzi,
Halmashauri ya Manispaa,
S.L.P. 187
Sumbawanga.

Yah: **UTAMBULISHO WA BW. ALBERT CYPRIAN PG 201702917**

Tafadhali husika na mada tajwa.

2 Namtambulisha kwako mtajwa, ambaye ni mwanafunzi wa shahada ya uzamili katika chuo Kikuu Huria Tanzania.

3 Mwanafunzi huyo atapita katika maeneo ya Halmashauri yako kwa ajili ya kufanya utafiti kuhusu " Assessment of environmental Education Awareness in Secondary Schools in Tanzania: a case of Sumbawanga Manicipality". Kazi ya kukusanya taarifa katika Manispaa ya Sumbawanga itaanza tarehe 01 Septemba, 2020 hadi tarehe 16 Oktoba, 2020.

Tafadhali apewe ushirikiano utakao hitajika.

Bernard M. Makali
KATIBU TAWALA MKOA
RUKWA

MKUU WA SHULE
SHULE YA SEKONDARI KANTALAMBA
S.L.P. 70
SUMBAWANGA

THE HEADMASTER
IZWITE SECONDARY SCH...
P. O. Box 215
SUMBAWANGA

MKUU WA SHULE
SHULE YA SEKONDARI CHANJI
SUMBAWANGA

Nakala: Katibu tawala Wilaya - Kwa Taarifa
Sumbawanga

: Makamu Mkuu wa Chuo - Kwa Taarifa
Chuo Kikuu huria Tanzania
S.L.P. 23 409
Dar es Salaam

: Albert Cyprian - Kwa Taarifa

THE HEADMASTER
AGGREY CHANJI SEC. SCHOOL
★ 15 OCT 2020 ★

THE HEADMASTER
AFRICAN RAINBOW SEC. SCHOOL
P. O. Box 378
SUMBAWANGA

NENO SECONDARY SCHOOL
P.O.Box 77
SUMBAWANGA

HALMASHAURI YA MANISPAA YA SUMBAWANGA

(Barua zote zipelekwe ofisi ya Mkurugenzi Manispaa)

Simu: 2525 - 0255 25-2802163
Nukushi: 0255 25-2802163
Baruapepe: md@sumbawangamc.gotz
Tovuti. www.sumbawangamc.go.tz

Ofisi ya Mkurugenzi Manispaa
S.L.P. 187,
SUMBAWANGA

Kumb. Na. SMC/D.50/23/28/195 **15.10.2020**

MAKAMU MKUU WA CHUO,
CHUO KIKUU HURIA TANZANIA,
S.L.P 23409,
SUMBAWANGA.

YAH: KUMTAMBULISHA NDUGU. ALBERT CYPRIAN PG. 201702917

Mada tajwa hapo juu yahusika.

Namtambulisha kwako mtajwa hapo juu, ambaye ni mwanafunzi wa Shahada ya Uzamili katika Chuo Kikuu Huria Tanzania anayefanya utafiti kuhusiana na "**Assessment of environmental Education Awareness in Secondary Schools in Tanzania: a case of Sumbawanga Municipality**". Utafiti huo unalenga katika Idara ya Elimu na Mazingira katika Manispaa ya Sumbawanga aidha Kazi ya kukusanya taarifa ilianza tarehe 01/09/2020 mpaka tarehe 16/10/2020.

Tafadhali apewe ushirikiano utakao hitajika.

Shaphat S. Kaponela
KNY: MKURUGENZI WA MANISPAA
SUMBAWANGA

K.N.Y. MKURUGENZI
HALMASHAURI YA MANISPAA
SUMBAWANGA

NAKALA:
Mkuu wa Idara,
Idara ya Elimu,
S.L.P 187,
SUMBAWANGA.

Mkuu wa Idara,

Idara ya Mazingira,
S.L.P 187,
SUMBAWANGA.