A SURVEY OF ENVIRONMENTAL AWARENESS
AMONGST STANDARD SEVEN PUPILS IN
SOME PRIMARY SCHOOLS IN LARI DIVISION,
KIAMBU DISTRICT

By

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THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF EDUCATION (P.T.E.) OF
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Keiru, Felicita
A survey of
environmental
DECLARATION

This Research Project is my original work and has not been presented for a degree in any other university.

FELICITA WANGECI KEIRU

The Research Project has been presented for examination with my approval as the University Supervisor.

DR. RICHARD KERICH
LECTURER,
FACULTY OF ENVIRONMENTAL STUDIES
KENYATTA UNIVERSITY
DEDICATION

This project is dedicated to my dear husband Francis Keiru and our children, Keiru, Wanjohi, Muthoni, Nyambura, Migui and Njeri, all whose physical and moral support helped me accomplish the work on time.
ACKNOWLEDGEMENTS

This research project has been made possible with the cooperation of many individuals to whom the researcher is greatly indebted.

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Last but not the least, my gratitude goes to the District Education Officer, Kiambu who gave the researcher the introductory letter to the schools, the headmasters of these schools and the pupils who participated in this research and helped the researcher make it what it is.
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The knowledge we get in school about the environment is only necessary for us to pass the examination.
The aim of this project was to survey the Environmental awareness amongst standard seven pupils in primary schools.

The objectives of the survey were to find out:

(a) Whether the pupils know the importance of soil, causes of soil erosion, types of soil erosion and the measures that can be used to prevent soil erosion.

(b) Whether the pupils know the sources of water, uses of water, causes of water pollution and some ways of conserving water.

(c) Whether the pupils know the causes and dangers of overpopulation and the implications it can have on other resources.

(d) Whether the pupils know the importance of wildlife and the need to protect them.
(e) How the pupils would respond when faced with some of the problems mentioned above.

(f) Whether they are able to make the correct value judgement on environmental issues.

Piloting was carried out in Kirenga Primary School in the Education Zone under survey. The questionnaire was adjusted accordingly after piloting.

The sample was drawn from seven primary schools randomly selected in Lari Division, Upland Education Zone. The sample consisted of standard seven pupils regardless of their sex and age from the schools of Githirioni, Kibagare, Nyamweru, Gitithia, Kimende, Mukeu and Bathi. The total respondents were 367. The researcher selected randomly a single standard seven class in each of the schools except for Mukeu which had only one standard seven stream.

**Design**

A questionnaire was used to collect the required data. It was in three sections, each section soliciting different information from the pupils.
Section A, had twenty questions relating to knowledge, Section B with fifteen questions relating to application of knowledge and Section C had ten questions relating to attitude. Each section was marked differently and the data analysed accordingly as shown in Chapter IV.

Findings

The survey found out:

(a) 82.6% of the respondents scored 60% and above on questions relating to knowledge.

(b) Only 40.9% of the respondents scored 55% and above on questions relating to application of knowledge.

(c) (i) 88.8% of the respondents had the correct view about a river passing near a factory as compared to a river passing through a forest.

(ii) 69.8% observed correctly on the position of a well in relation to a pit latrine.
(iii) 86.2% made correct judgement on the location of a pit latrine in relation to a river.

(iv) 47.1% observed correctly on the characteristics of clean water.

(v) 74.9% observed correctly the use of organic manure as compared to chemical fertilizers.

(vi) 55.3% observed correctly the timing as to when soil conservation should start.

(vii) 40.3% made correct observation on preservation of forests.

(viii) Only 37.6% observed correctly on the issue of family size and its relation to population growth.

(ix) 65.7% observed correctly regarding the preservation of wildlife.
56.4% observed correctly on the importance of environmental knowledge acquired during the school years.

On the basis of the findings, the researcher made the following observations:

* The pupils have gained a lot of knowledge about the environment.

* Most of the pupils cannot apply the gained knowledge to solve practical environmental problems.

* There seem to be little relationship between what is learnt in school and real life situations.

The researcher therefore made the following recommendations:

* more emphasis be put on applying the acquired Environmental knowledge both by the teacher and pupils in the classroom.
practical participation by pupils on environmental issues outside the classroom be encouraged.

* teachers be encouraged to use other materials other than the text book to help pupils update their environmental knowledge especially with issues that affect their country.

* teachers should help pupils identify environmental problems in their immediate environment and guide them in formulating simple solutions.

* the Ministry of Environment ought to be more involved in schools by providing current information about the Environment at all levels of primary school.

* other relevant organisations that deal with environmental issues such as KENGO, CARE, wildlife Society of Kenya should be encouraged in providing materials and talks at all levels of the primary school.
CHAPTER I

1.0 INTRODUCTION

1.1 BACKGROUND OF THE PROBLEM

The environment is the base upon which the future and the present lie. From times immemorial, man has depended on the environment for survival. He hunted wildlife, gathered fruits and dug roots; tilled the land and has since then cultivated edible crops and established industries that have expanded exploiting the land resources like minerals. These activities of man have continually improved the life of man but at the same time, it has caused problems in the environment that are threatening his very survival.

Until the 1970's, the international community was indifferent about the problems in the environment. Any quest for their solutions was on individual national basis. It was the ecologists in the technologically and scientifically advanced nations who raised danger signals and persuaded different countries that environmental problems were not confined to any one nation. They were
international problems that needed multinational approach. It was realised that you cannot fence your environment against the influence of other nations. Polluted air will move from source to other areas, water polluted upstream will affect people living downstream; while soils eroded upstream will cause siltation of dams down the river.

Nations suffering soil erosion will lose their productive land and will not be able to feed their populations. Instead they will require relief foods from other countries. Such donor countries will continue to use their land intensively, using heavy machinery, chemical fertilizers and pesticides to ensure and sustain high yields, but at the same time, endangering the soil structure and polluting the soil and the ground water.

Nobody can have his own environment as "everybody is in the environment of the other".
According to Tolba, 1990

......the world community is acknowledging a neighbours ecological problems inevitably also become their own. Collective pluralism, based on the concept of shared responsibility, is the only avenue open towards global environmental protection.

UNEP, Nairobi, 1990:3

It was in this light that the 1972 Stockholm Conference, organized by the United Nations was held in Stockholm, Sweden.

In this conference, it was agreed that there was need for immediate action based on international understanding and co-operation. The aim of the action would have to be the raising of the standard of the "ecological health of the planet" by improving the "physical and the spiritual qualities of our relations to the earth".

In 1975, following the Stockholm Conference, the International Environmental Education Programme was set up by UNESCO and UNEP in response to recommendation 96 of the conference. In part, the Secretary General of the UN recommended that all UN organisations, especially UNESCO and all
international agencies should through consultation and agreements, take steps to establish an international programme in Environmental Education. According to the conference, the programme was to be;

...... interdisciplinary in approach, in school and out of school, encompassing all levels of education and directed towards the general public, in particular the ordinary citizen living in rural and urban areas, youth and adults alike with a view to educating him as to the simple steps he might take within his means to manage and control his environment.


According to Tolba, 1989, Environmentally sound and sustainable development is realistic and can work depending;

...... upon the unrelenting support of the young .... tomorrows leaders ..... to ensure our planetary resources are protected, and our planets future is secured.

UNEP, Nairobi, 1989:10

Without educating the masses, especially at the early years of schooling, they will continue to mismanage and destroy the environment.
Kenya has been in the forefront in trying to address herself to the environmental question through her education curriculum. Long before the Stockholm Conference, which was the single most important turning point in the history of the growth of environmental awareness, Kenya had already incorporated in the Primary Curriculum, topics on Environmental Education in such subjects as Geography, Nature Study, Hygiene and General Science.

In 1974, the Kenya Government established the National Environmental Secretariat in the office of the President with the aim of co-ordinating the environmental issues.

According to a paper presented by Kenya's delegation in Tbilisi USSR at an Intergovernmental Conference on Environmental Education in October 1977, the role of Education in Kenya had been realised to be very vital in imparting the Environmental awareness. The delegates report had in part this to say;
The Kenya Government is also aware that education is the most important tool for the effective preservation and enhancement of the quality of the environment.

Kenya Delegation Report, Nairobi, 1977: 3

As a result, national attention has been directed at the formulation of a policy with respect to education in the United Nations Conference on the Human Environment. The importance of environmental education has been recognized.

Up to date, there is still no subject by the name Environmental Education at Primary level but the curriculum has continued to lay more and more emphasis on Environmental Education through the multidisciplinary approach in the subjects of Science and Agriculture, GHC and Home Science.

In one of the Education Objectives, it is clearly stated that the education aims that a child should:

•.... develop awareness and understanding of his immediate environment, and to foster positive attitudes towards the environment. Jomo Kenyatta Foundation, Nairobi: xiii

Kenyans of all ages have therefore every reason of taking greater concern on conservation of soil, water, forests and wildlife.

Soil erosion has been going on alarmingly in many parts of the country, water catchment areas have been
ruined through cultivation, deforestation or over-grazing. The existence of such animals like the elephant and the rhino have been threatened by the indiscriminate killing by poachers.

As a result, national leaders have shown a lot of concern regarding the environment. They have been aware of the consequences of environmental degradation to mankind, and they have consistently warned Kenyans of the dangers posed by a deteriorating environment. They have encouraged utilization of natural resources in an improved manner. In one occasion, the late President Kenyatta had this to say:

...... Now the preservation of forests is essential for the conservation of water and the maintenance of climatic and physical conditions of our country... And as the demand for timber, fuel, paper and other goods increase, great care should be taken to plant more trees relatively to those that have been cut.

NES, Nairobi, 1987: iv

President Moi has continued to emphasize the same need of "development without destruction" of our environment. He has many times personally participated
in practical environmental conservation as well as in afforestation programmes in many parts of the country.

In March 1982, accompanied by the entire Parliament, he spearheaded rehabilitation work at Mwanyani Village in Machakos District, which has been continuing ever since, to other parts of the District and into Kitui. Effects of these projects are visible as big stretches of land have been turned green.

The President has also formed the Presidential Committees of soil conservation, water conservation, Afforestation and has also established the National Tree Fund. These establishments are all in quest for improving our environment. He has continually reminded people not to "regard the earth as a playground to use, to spoil and to destroy". He has made several declarations which strengthen the concern he has over the rate at which vital resources of soil, water and trees are diminishing.

On February 19th 1985, he had this to say;
...... Over the last six years, my Government has been at the head of a crusade to increase the country's vegetation cover through expansion and protection of forests. I have myself continually reminded Kenyans that our prospects for future progress are ominously linked to the way we protect and exploit the land and its fauna.

NES, Nairobi 1987: iv

In 1986, while the President overflew the Narok Forest he noticed untold destruction of the forest caused by indiscriminate felling and burning of trees for charcoal and illegal settlement and by ranching. There were permanent houses roofed with corrugated iron sheets, pit sawyers and other intensive human activities were going on unchecked regardless of the fact that this was a Government gazetted area. There was evidence of dry river beds and he described the whole thing as 'shameful' and called on the Government officers to 'educate' the people that forests as well as water catchment areas have a direct bearing on their survival. (Nairobi 1986).

Other Kenyan personalities have also been recognised among others in the global arena, in their contribution
to the improvement of the environment.

Mathai, the originator of Kenya's Green Belt Movement is amongst the seven winners of the 1991 Goldman Environmental Prize for their role in the fight to protect and preserve the World Environment. According to Richard Goldman, the co-founder of the award, Mathai is among:

Ordinary people doing extraordinary things.


Since the establishment of this movement in 1977, with the aim of combating deforestation and desertification, there has been 50,000 women involved who have planted about ten million trees.

While great efforts are being made towards restoration of the deforested land to productivity, it is disturbing to see thousands of acres of indigenous trees being destroyed through uncontrolled charcoal burning, illegal settlement and grazing.

It was in the light of the above reflection that the researcher went to find out whether by the time
a pupil is in standard seven, and is just about to complete his primary curriculum, if he has gained the basic environmental awareness through the recommended multidisciplinary approach of Environmental Education. Has the pupil at this level acquired the basic understanding of the environment and its associated problems? Is he sensitized to the total environment and its allied problems? Has he acquired skills for identifying and solving environmental problems? Are the pupils at this age and level of education involved in working towards resolving environmental problems?

1.2 STATEMENT OF THE PROBLEM

In order to enhance the efforts towards equality of economic opportunities and national unity in the country, the Kenya Government has provided free primary education to all citizens of school going age. This is to enable every citizen to contribute fully to social and economic development of the country. For most of these children, it is the only formal education they will ever get since the greater percentage will not continue with formal education afterwards.
For the majority, it is terminal and they will inevitably have to survive on means related to that education. They will join in the informal sector of employment in agriculture and other forms of self employment after completing KCPE at standard eight.

At standard seven the pupils can be considered to have gone through the basic spheres of Environmental Education. They have passed through home training, community and good part of their primary education. At home, a child has developed patterns of behaviour that will lead to such values as marked savings of food, water, energy consumption etc. It is at home a child learns to help in water collection, turn off running taps after use, learn to put off lights when not in use and avoid unnecessary burning of wood or other forms of energy.

In the community, the child develops certain values pertaining to the elements of the environment. He learns various uses of trees, importance and uses of land and water etc.
In the school, the teacher's role should not only be to pass the book knowledge. He must play part in instilling true environmental appreciation in the child.

According to Education Psychologists, mental alertness towards the natural environment and other educational imprints seem to develop at the age of nine or ten. At this age, the child is in primary school and the teacher should take advantage of this age to introduce the children to environmental knowledge which is crucial. A child must be made aware of trees protective functions. Without trees and vegetation cover to hold the soil, man has no chance of survival. Exposing the soil to agents of erosion by clearing the soil cover means poverty and death for all forms of life. Teachers should therefore encourage constant interaction of pupils with nature with the aim of creating in the learner, an attitude which will remain useful even after school years are over.
When these three spheres of home, community and school are well linked, they create an appropriate perception of the nature of the environment and environmental problems as well as solutions based on environmental awareness (UNEP, 1990).

Practical participation by pupils in tree planting, nature conservation, wildlife protection through community work in the school neighbourhood and through youth clubs such as 4K clubs, wildlife, scouts, girl guides and young farmers clubs, go far in creating environmental awareness amongst the youth.

This study was therefore carried to find out how much of environmental consciousness standard seven pupils have already acquired and are likely, at the completion of standard eight, to take with them into the world of work.

The objectives of the study were to find out:

The question here is whether at this level, the pupils have been motivated enough to bring about any change to the environmental issues in question. After all, and as said earlier, it is one avenue where it is most ideal to reach most of the future generations.
The problem here is:

(a) Whether the standard seven pupils know the importance and uses of the elements of the environment such as soil, water, fauna and flora.

(b) Whether the standard seven pupils are aware of the causes of environmental problems.

(c) Do these standard seven pupils know the measures that can be taken to curb these problems?

(d) Can they formulate solutions to some of the problems mentioned above?

1.3 OBJECTIVES OF THE STUDY

The objectives of the study were to find out whether;

(a) the pupils know the importance of soils, causes of soil erosion, types of soil erosion and some measures of preventing soil erosion.
(b) the pupils know the sources of water, causes of water pollution and some ways of conserving water.

(c) the pupils know the causes and dangers of overpopulation, and some of the ways that can be used to control population.

(d) the pupils know the importance of wildlife and the need to protect them.

(e) the pupils would respond when faced with some environmental problems mentioned earlier.

1.4 SIGNIFICANCE OF THE STUDY

As stated earlier, primary school is the most appropriate venue to meet a great percentage of the youth population in our country. It is therefore the most appropriate venue to pass and instil true environmental appreciation. This is with the hope that this pupil population will develop a commitment through a close personal contact with the knowledge of their surroundings.
Children unlike adults have a lot of energy and open minds. They can be powerful forces of change in the field of environmental reclamation and enhancement (UNEP, 1990).

The Kenyan children should at this level of education be expected to make some impact on the community in which they live, if at school they have been motivated enough regarding environmental appreciation.

Should the research results show a positive indication, the researcher will be able to conclude that the multidisciplinary approach to Environmental Education is effective and should be encouraged. As more and more pupils complete their primary school, their environmental gained knowledge should be expected to bring positive changes in the communities where they will live and work.

Should the results be otherwise, there would be need in part of curriculum designers to think of introducing Environmental Education as a subject on its own in the primary school to
ensure that the pupils will be taught the right information on the environment. The teaching of Environmental Education through the multidisciplinary approach can also be strengthened by encouraging the teachers of the relevant subjects to work together and make environmental work more practical.

This study is therefore expected to be of interest to teachers in primary schools, the Ministry of Education, Kenya Institute of Education, National Environmental Secretariat, Ministry of Environment and the relevant organisations like Wildlife of Kenya, Scouts and guides, KENGO and CARE.

Although the physical environmental characteristics of the whole country are not uniform and therefore not similar to the area of study, the researcher expects the results could be generalized to other areas. This is because the sample used has covered the same amount of content in the primary syllabus. They are therefore likely to have acquired the same environmental knowledge, ability to apply
it to life situations and have developed a certain attitude towards the environment.

1.5 BASIC ASSUMPTIONS OF THE STUDY

In this study, it was assumed that

(a) the respondents are of the same age and where it differed, it was not going to have any significant effect on the response to the questionnaire.

(b) the sex of the pupils was not going to have any significant effect on the responses.

(c) the respondents have gone through the primary school curriculum from standard one through seven.

(d) the respondents were not affected by the presence of the researcher as not to give a free response to the questionnaire.

1.6 LIMITATIONS OF THE STUDY

Considering the magnitude of the primary school population, the sample chosen might not be a sufficient representative of the whole population.
The time limit and cost could not allow for a bigger sample.

1.7 DEFINITION OF SIGNIFICANT TERMS

Environmental Education

According to the international working meeting that was held in Nevada in 1970 by the International Union for the Conservation of Nature and Natural Resources (IUCN), Environmental Education was defined as

..... the process of recognizing values and clarifying concepts inorder to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture and his bio-physical surroundings. Environmental Education also entails practices in decision making and self formulation of a code of behaviour about issues concerning environmental quality.

Keith Wheeler and George C 1975: 21

Environmental Awareness:

will be used to mean knowledge and understanding about the environment and allied problems, how to use such knowledge and the attitude towards environmental conservation.
Soil - the thin surface layer on the earth comprising mineral particles formed by the breakdown of rocks, decayed organic material, living organisms, soil water and soil atmosphere. It has a physical structure and various chemical constituents.

Soil erosion - the removal of soil by the forces of nature like wind and water more rapidly than the various soil forming processes can replace it, particularly as a result of man's ill judged activities such as overgrazing, burning, clearance of vegetation cover etc.

Pollution: Any direct or indirect alteration of the physical, thermal, biological properties of any part of the environment by discharging, emitting or depositing wastes or substances so as to affect any beneficial use adversely, to cause a condition which is hazardous to public health, welfare to animals, birds, fish and plants.
Population Explosion - Rapid expansion of population in a particular area, usually as a result of marked decrease in death rate and an increase in the birth rate.

Deforestation - Complete felling and clearance of trees.

Afforestation - Deliberate planting of trees usually where some have been cleared or none grew previously or recently.

He - the male gender will be used to refer to all sexes.
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Environmental Activities for Schools

Sunday Nation, Nairobi 5th May 1991


UNESCO 1986 Environmental Education. Module For Pre-Service Training of Teachers and Supervisors for Primary Schools.
CHAPTER II

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

As discussed in chapter one, restoring the quality of the environment is of utmost importance. People have been seen to have taken a long time to see the need to conserve the natural environment. It was not until the problem was manifested in form of "air that choked and burned, drinking water that was foul to taste", was the conscience of many nations awakened.

From the literature review to be discussed below, it will be observed that ecology is international as well as local and national in dimension. Individual initiation in the home, community and cooperation with state, national and international agencies is called for if this endangered planet is to be protected.

2.2 PRIMARY SCHOOL SYLLABUS

The end objective in Environmental Education should be to develop in pupils, an awareness
of environmental problems, a desire to set about the task of correcting them and a continuing commitment to protect the environment.

The primary school syllabus in the subjects of Science and Agriculture, GHC and Home Science have noble objectives that which if well accomplished would go far in producing youths who are well prepared to participate in environmental conservation.

In Agriculture, the pupil is required to learn important facts and skills concerning the environment under the following topics and aims;

(i) Water Sources:

Learner should be able to:

- identify sources of water, methods of supplying water and uses of water in the community.

Under water conservation, the learner is required to:
- describe methods of conserving water.
- practice methods of conserving water.
- describe various methods of irrigation.
- practice various methods of irrigation.
- construct usable water containers.

(ii) Under Trees
The learner should be able to identify common trees grown in the community, state uses of trees, plant and care for trees.

(iii) Under erosion, the learner should be able to describe the damages caused by soil erosion, identify soil erosion agents and describe factors that influence soil erosion. He should also be able to describe soil conservation methods and practice those methods.

Under Science, one of the general objectives is to enable children to acquire and preserve certain useful attitudes about themselves and their relationship with the environment. This is then put under specific objectives in the various topics.
Under water utilization in the environment, the learner should be able to observe and record different sources of water, demonstrate an understanding of the value of water to animal and plant life, practice methods of conserving water, practice methods of treating water for drinking, domestic and other uses and be able to construct a variety of containers for storing and using water.

Under the topic energy, the learner should be able to record how plant, animals, minerals and human resources are used in their community, devise other methods of utilizing the above resources, observe and record various sources and uses of energy, observe and analyse methods of conserving energy in the community and adopt practices that will conserve energy.

In GHC, the learner is required to understand and use the environment for the individual, national and international development. Some topics of soils, water and energy are also repeated in GHC.
The overlap of topics in the various subjects should help the teachers in the various subjects to work like a team to avoid repetition and ensure production of good teaching resources and methodologies. They should make the lessons more practical to allow the pupils participate physically in activities such as building of gabions, water filtering, tree planting etc. In so doing, they will have moulded a wholesome person who will grow and live viewing the environment with concern and care.

2.3 CHILDREN AND ENVIRONMENT

How early should a child start learning about the environment? Should the world wait until he is able to physically participate in the activities that deal with the environmental issues? Won't it be too late because according to United Nations publications, the environmental problems are affecting the children?

Environmental degradation is killing children. It is killing them in their millions, mostly the children of the poorest parents in the poorest countries - agricultural developing nations...... deforestation, desertification and
other forms of land degradation make farming and sustained uses of land more difficult, decrease productivity and raise levels of child malnutrition. Scarcity, waste and the pollution of water limit supplies for irrigation, as well as for washing and for drinking, all of which affect children's health and well being.

UNEP, 1990: 8

It is children who are more vulnerable than adults to environmental diseases, pollutants and environmental stresses. They are more easily killed by a harsh environment both before and after birth. Polluted environment for an expectant mother will harm the unborn baby while problems like malnutrition as a result of land degradation kill millions of children below age five. These environmental diseases according to Abidha have declared a "silent emergency" on the children as stated below;
By far the greatest emergency facing the world's children today is the "silent emergency of frequent infection and widespread under nutrition. No "loud emergency", no famine, no draught, no flood, has ever killed 280,000 children a week. Yet that is what this silent emergency is now doing - EVERY WEEK.

BERC, 1987: 8

It is important therefore that children should be engaged in the matters of environment as early as possible. The challenge for the protection and enhancement of our environment in future lies with them. It is therefore the duty of every country's institutions of which the primary school is one, to make their members aware, understand and get concerned with environmental problems and conservation in their localities. In so doing, the society members as they grow up will be in a position to suggest actions to arrest these problems. This view would agree with Patrick Geddes (1854 - 1933) who argued that:
a child brought into contact with the profound realities of his environment would not only be more likely to learn better, but also develop a creative attitude towards his surroundings.

Keith Wheeler and George C 1975: 4

According to Langat in his project, a primary school pupil is the basis of environmental education because;

...... when he is aware of preserving the environment, he is going to live longer. Live longer even to teach other generations of the importance of preserving it.

Langat J K
Kenyatta University 1990: 2

The same view has been expressed by Mutunga (1987) in his article in the BERC Bulletin;

I am asking the youth of the world to help us work on the side of the future, to see to it that when the older generation passes on the inheritance of the earth, they will hand it over to a young generation which knows how to preserve the long natural chain of resources that sustain us all.

BERC Bulletin, Kenyatta University 1987: 17
Since the formal form of education has taken over from the traditional form, it should be its responsibility to instil in the youth, the importance and need to care for the environment. Classroom work is not enough. These young people need to participate in tree planting, nature conservation, wildlife protection etc. There is not a single primary school in the region where there are no environmental issues which children could not be sensitized on. Some of these activities are small and involve negligible cost, but they go quite far in improving the environment.

According to Mathai,

\[\ldots\] you don't have to do big things. You start very small at home by simple things like planting trees.


Primary schools have already been good participants in environmental activities with little guidance as can be observed from some parts of the country.
On April 22nd 1991, when the Global Earth Day celebrations were organized at Kekopey Primary School (Nakuru District) by Inter Aid Kenya, more than 1,000 tree seedlings were planted in the school compound by the children, parents and teachers.

On this particular day, the international community comes together to express its concern for "mother earth", through information on environmental protection and through practical participation.

In Turkana District, the forestry department has made a scheme of work in draft form and is already in use for teaching forestry in Turkana primary schools. This draft manual could be adopted for other primary schools in the arid and semi-arid areas of Kenya which form 75% of the Republic.

The Turkana forestry department also gives seminars to primary school teachers in the district. Sound suggestions are put forward in such venues and the teachers are expected
to carry them out. One such suggestion is to have a school pupil plant a tree when he enters standard one and look after it until he leaves in standard eight. The school should make arrangements on how such trees should be watered and protected during the holidays. (Forestry Department, Turkana District 1987).

2.4 SOILS

Soil formation takes a long time and therefore its management is an integral part of the management of terrestrial systems.

Without soil, there can be no plants and without plants there is nothing to capture the sun's energy, which is the basis of life on the planet.

UNEP, Nairobi 1990: 10

Soil is one of the basic resource on which agriculture depends on. Soil degradation in many parts of the world is reducing the capacity of the land to support the rapidly growing populations. It is one of the most fearsome threats that is confronting mankind, "but it is a threat that can be confronted and defeated".
This is more on the African Continent where many refugees are fleeing "hunger and draught" more than conflict. Every year, the world has 80 million more mouths to feed and over 20 billion tonnes less top soil on which to grow food. (UNEP 1990).

It is estimated that soil loss exceeds soil formation tenfold and every year, cultivable land is being lost to erosion and is on the increase as more agricultural land get opened up. According to UN statistics, some six million hectares of once productive land are reduced to desert like conditions and 21 million hectares have become economically unproductive. Such loss and damage is a reflection of inadequate land use policies. (UNEP, Nairobi 1989).

Elsewhere like in Aswan Dam and Kilindini Harbour etc, soil erosion is shortening the life of dams and irrigation projects, filling in canals and harbours.

Kenya being a predominantly an agricultural country and its economy being agriculturally
based, there is every reason to nurture the soil and teach every Kenya young and old to do the same. Otherwise, "if soil on which all agriculture and human life depend on is washed away, then the battle to free mankind from want cannot be won".

Taking care of land is not a new idea. Jomo Kenyatta in his book Facing Mount Kenya expressed the strong relationship that existed between the Kikuyu people and the land. He had this to say;

A man is the owner of his land.... But insofar as there are other people of his own flesh and blood who depend on the land for their daily bread, he is not the owner, but the partner, or at the most a trustee for the others. Since the land is held in trust for the unborn as well as for the living, and since it represents his partnership, he will not lightly take it upon himself to dispose of it.

UNEP, Nairobi, 1982: 2

The Kenya government acknowledges that land is a vital national resource and attaches much importance to its wise utilization. Since Kenya is an agricultural country, most people are
dependent on this resource and it is therefore important that the youth is educated on how to take care of it as they grow to take their place in society.

Many places and areas have already suffered irreparable damage. In Kilifi District, there is an area where gullies are so deep that the place is referred to as the "devils kitchen".

Elsewhere, people have welcomed soil conservation measures such as building gabions, "fanya juu" terraces, contour ploughing, cut off dishes but a lot still remains in educating the public on the importance of soil conservation and especially when there is an increasing pressure on the land with the rapidly rising population.

2.5 WATER

There are still large numbers of people all over the world especially in rural areas of developing countries who have no access to safe drinking water. According to UN statistics, 25,000 people die each day for lack of clean water. In 1980, the UN had launched the International Drinking Water Supply and Sanitation Decade. The aim was to provide everyone with clean water supplies and
adequate sanitation facilities by 1990. In the developing countries, the progress has been slow towards achieving the Decade's goals because of various factors.

These include rapid population growth, unfavourable world economic situation and the debt burden of developing countries which have made it almost impossible for these countries to invest in infra-structure projects.

Lack of clean drinking water and appropriate sanitation foster the spread of various diseases among older children. Children of between the ages of six and fourteen are more vulnerable to some diseases than younger children because they spend more of their time outside and therefore are exposed to air and water pollution and dirt in the streets and playgrounds. These are the children in primary schools and need to be informed about these hazards.

Washing and bathing in dirty waters are behind the incidence of many communicable diseases among children. The disease schistosomiasis
caused by a water borne parasite transmitted by snails is an example of an environmental danger especially to older children.

In Kenya situation, the Government aims at supplying clean water to every home. But like at the global scale, various factors of rapid population growth and economic factors also apply. Kenya is therefore beset by water borne diseases. A case at hand is the Makuyu Division in Murang'a District where most of the population is suffering from Bilhazia. Dams in the area, which are the main sources of drinking water are invested by snails which are the disease's carriers. (Daily Nation May 24th 1991).

According to the Development Plan 1989 - 1993, only 26% of Kenya's rural population enjoy access to reliable clean water supplies as compared to 75% in urban areas. The aim of the government is to reach 50% target by 1993. This is expected to be reached by encouraging the private sector to upgrade its role in water conservation and Harambee fund-raising to supplant
government allocations for future water projects so that consumers meet a reasonable portion of expenses covering both the capital development and maintenance cost.

Since most of Kenya's population now live in houses with corrugated iron roofs, water collected can be conserved during the rainy season using simple technology in constructing of storage tanks.

Educating the youth on methods of water conservation and purifying processes will go a long way in educating the community to which they belong.

2.6 POPULATION

World population was 5.3 billion in 1990 and it is expected to hit the 6 billion mark by the year 2,000. 93% of the increase will be in developing countries. (UNEP, 1990).

Rapid population growth, combined with poverty, insufficient resources of production and inadequate resources play a role in most of
the environmental degradation. People are the "problem". The causes of environmental degradation are deeply embedded in human activities such as forest clearings, increased levels of air and water pollutions and over use of agricultural land etc.

Moves have been made in many parts of the world to make family planning facilities more accessible, more effective and more attuned to individual community needs, cultural traditions and particular needs of women.

The need to educate the youth of the need for a small family is a must. This will ensure that when they come to raise their own families, they are familiar with the implications that many people will have on the environment.

In Kenyan situation, the population is expected to reach 35 million by the year 2,000 if the growth rate of 4% continues. This growth calls for intensification of land use in the high potential areas and a planned expansion of cropped land in arid and semi-arid areas.
High population should therefore be seen to pressurize on land, water and forest resources, causing inappropriate cultivation of steep slopes, river banks and encroachment of forests and water catchment areas, migration to low potential areas in search for more cultivable land in areas with little or no conservation measures and thus leading to rapid land deterioration.

2.7 FORESTS AND WILDLIFE

Forests are the home of many plants and animal species. It is a great resource both to the developed and developing world as a source of wood for industry and as energy for cooking and for heating.

When a tree as a living organism is treated with understanding of its vital functions, it is only then that it will be a constant source of pleasure and profit to man.

Recent studies from a number of countries have shown that the rate of deforestation is higher than previously estimated. Tropical forests
are disappearing at 14 - 20 million hectares per year. (UNEP 1991). These forests cover only 7% of the earth's surface, but contain more than half of all living species. According to UN findings, 100 acres of tropical forest disappear each minute and in less than 90 years, half of the tropical forests have already disappeared. (UNEP 1989). In many parts of the world, people have not yet understood that the "earth dies with the tree", for;

when man assaults nature, the results are often catastrophic. Hasty felling of forests to clear new land for crops; burning as an aid to hunting and to improve pastures; pollution of air and water; destruction and erosion of the soil - all these, and more, are the mortal dangers that threaten the biosphere, that thin layer of our terrestrial globe where life can exist.

UNEP, Nairobi, 1990: 5

Glaring examples of assaulted forests can already be observed. The Mahogany of Haiti has long disappeared and that of Honduras is nearly gone. Common clearing methods like burning is destroying fragile plant species some
of which are still unidentified and of which man may never know what he has lost. Others are reknown sources of important medicines. Around half of all medicines are derived from plants. Substances found in the rosy periwinkle from Madagascar's tropical forest have transformed children's chances of surviving leukemia. (UNEP 1990).

This is frightening revelation, when we consider that some of the species destroyed have taken more than a century to mature. Replanting will not be a solution especially on harvested large tracts as in some cases it may lead to soil erosion and flooding. The replacement of trees is usually with inferior soft wood meant to ensure quick maturation and therefore quick availability to the wood demands. There will also be large stretches of land planted with the same tree species which is likely to encourage concentration of similar pests and thus risking great loss if such a specie is attacked by any virus. The cypress-aphid attack on Kenyan cypress plantations since early 1990 is a case at hand.

It is therefore man's duty to sustain a living vibrant environment in which nature's greatest
gifts and wildlife can live. This can be done by ensuring replacement of cut down trees, planting new ones, balanced harvesting and legal protection of the species that are faced with extinction.

While the solutions are good and feasible, Africa and South America, which are the homes of the world's tropical forests are in dilemma. They see their forests as an earner of foreign exchange. These regions also have fast growing populations and therefore need to clear much of these forests for agricultural purposes. Wood consumption in less developed countries also goes to cooking and heating. Chances of Kerosene replacing firewood is limited because of the rising prices and therefore demand for fuelwood many continue rising.

Other problems associated with deforestation is also thought to contribute 10% to the dreaded threat of global warming. Forests are;
Our Earth's natural lungs....
tropical forest that convert
carbon dioxide to oxygen....

UNEP 1989: 6

The understanding that afforestation
constitute one of the major programmes in land
conservation, as they influence climate, soil-
productivity and protect water catchment areas
is an essential content in Education.

The Kenya Government as stated in the KANU
Manifesto 1988, aims at intensifying its
efforts in afforestation through practical
measures and education. There is already a
wide commitment to afforestation, fostered by
grassroot efforts. This is a viable strategy
to help contain deforestation in this country.
Another attempt to reduce wood consumption is by
designing efficient wood stoves for domestic
use and training craftsmen in Ruiru to build
them. This is a joint programme by UNEP and
Bellerive Foundation. Such stoves will mostly
be useful to institutions which are great
consumers of wood. About ½ million tonnes of
fuelwood are burned by Kenya schools, hospitals,
prisons and barracks every year. It is hoped this consumption will be cut by \( \frac{3}{4} \). (UNEP 1990).

On wildlife, Kenya has been a good example and has set in motion, innovative and effective action.

Its national parks and reserves are an example to the world. Its stance against poaching has been unwavering. UNEP, 1989: 5

The Ministry of Tourism and Wildlife has also been set up to deal with this section of the environment. Concern has already been shown especially about the animal species like the Rhino and elephant which are faced with extinction. Save the Rhino fund has been established and Kenya has already boycotted the world trade in ivory. In 1989 (Nairobi), President Moi set into flames, ivory worth millions of Kenya shillings as a sign that Kenya would not participate in this trade any more. Burning of ivory was again done in 1991, but this time by the Minister of Tourism and Wildlife, Mr Katana Ngala.
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CHAPTER III

3.0 METHODOLOGY AND DATA COLLECTION

3.1 INTRODUCTION

The research was conducted in a rural setting. It included seven standard seven classes from seven primary schools in Lari Division, Uplands Education Zone.

Lari Division is one of the divisions in Kiambu District. It lies in a high altitude area of above 1,500 metres above sea level. The soils are well drained, red clays associated with volcanic rocks. People's main occupation is agriculture. Most of the people here are small holders who keep cattle using stall feeding techniques. The land is intensively used and people mainly grow horticultural crops like carrots, cabbages, "sukuma wiki", potatoes and fruits like pears, plums and apples. In some areas, tea is grown as a cash crop.

The farmers use compost manure from the animal stalls or they buy some from outside districts like Narok. They also use a lot of chemical fertilizers and pesticides both in solid and liquid form especially on vegetables.
3.2 **SAMPLE COLLECTION**

The researcher obtained the list of schools in Upland Education Zone, Lari Division from Kiambu District Education Office. The zone has twenty seven schools in total. (App. B).

An introductory letter addressed to all the headmasters was given to the researcher from the office (App. C). From the list of schools, the researcher randomly selected seven schools. On arrival at each of the schools, the researcher randomly selected a single class to work with. In Mukeu Primary School, there was only one standard seven class and the researcher used this class. The headmaster in each school provided a teacher to assist the researcher in administering the questionnaire. In total, there were 367 respondent pupils.

3.3 **INSTRUMENT AND PROCEDURES**

A questionnaire had been constructed by the researcher. Piloting was done in Kirenga Primary School to facilitate for changes and modification.
The questionnaire had three sections. Section A had twenty open ended questions testing on knowledge of the pupils on five environmental issues namely soils, water, forests, population and wildlife.

Section B had fifteen open ended questions testing the application of knowledge on the same environmental issues mentioned above.

Section C had ten statements which required the respondents to answer on the positive or the negative. They were attitude items on the same environmental issues stated in Section A.

The respondents took between one and a half to two hours to complete the three sections. It took the researcher two weeks to collect this data.

Time was the major limiting factor as it involved a lot of walking from one school to the other as the schools were quite a distance apart.

Marking was done by the researcher using the marking scheme prepared by the same.
3.4 DATA ANALYSIS

The information collected was analysed on the basis of each section. Section A was marked out of 100%, Section B out of 100% and each item in section C was looked at on its own.

The data was presented in percentages and frequencies and reported in Chapter IV of this study.

After the data analysis, discussions, interpretations, recommendations and suggestions for further research was given in Chapter V.
CHAPTER IV

4.0 DATA ANALYSIS

4.1 INTRODUCTION

The main objective of this study was to survey the environmental awareness amongst standard seven pupils. To gather the relevant information, the researcher had constructed a questionnaire in three sections namely A, B and C. Each section dealt with a different aspect of the environment as follows:

Section A - Knowledge
Section B - Application
Section C - Attitude

The survey involved 367 standard seven pupils from seven primary schools. These pupils were given the questionnaire by the researcher with the assistance of a school teacher in each school. The respondents were allowed enough time to complete their work and the completed questionnaires were collected for marking purposes. Each of the three sections was separately marked and awarded the score.
Items in the three sections where the respondents chose not to respond were treated as wrong answers by the researcher.

This chapter presents an analysis of each section. The researcher has utilized tables to depict frequencies and percentages in the data presentation.

From the results obtained in the analysis, the researcher has discussed and made her own observations.

4.2 THE RESULTS OF THE QUESTIONNAIRE

The researcher has discussed the results in three parts according to the questionnaire.

4.2.1 RESULTS ON KNOWLEDGE QUESTIONS

The aim of this section was to find out whether the standard seven pupils have acquired the basic knowledge on common environmental issues of soil, water, trees, population and wildlife.
The table above shows that 82.6% of the respondents scored 60% and above on the knowledge questions. Only 17.4% of the respondents scored below 60%. The questions in this section required recall of facts as learnt by the pupils in their subject content in the subjects of Science and Agriculture, GHC and in Home Science. The high score by majority of pupils was an indication that the majority of standard seven pupils have acquired basic environmental knowledge through the multidisciplinary approach that is used to teach Environmental Education at primary school level. The majority of the pupils were able to identify the various components of the environment, their characteristics and the problems facing those environmental elements such as soil erosion, water pollution, deforestation and over-population. They could also state with ease the possible solutions of such problems.
4.2.2 RESULTS ON APPLICATION QUESTIONS

The aim of this section was to find out whether the standard seven pupils are able to apply the learnt knowledge to life situations. While they could state in section A the types of soil erosion, are they able to identify the appropriate method of curbing a particular type of erosion? Similar questions on the other issues of water, trees, population and wildlife were given (see appendix A).

<table>
<thead>
<tr>
<th>Scores in Percentage</th>
<th>Number of Pupils</th>
<th>Percentage of Pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td>55% and above</td>
<td>150</td>
<td>40.9</td>
</tr>
<tr>
<td>Below 55%</td>
<td>217</td>
<td>59.1</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

The table above shows that only 40.9% of the respondents scored 55% and above on the questions dealing with the application of environmental knowledge.
Most of these questions required the respondents to explain how to and why there is need to deal with the environmental issues and problems soil, water, trees and wildlife conservation.

The majority of the respondents (59.1%) scored below 55%. This reflects that although in Section A, the respondents scored quite high on knowledge questions, they are not able to apply this basic knowledge to solve basic environmental problems.

4.2.3 RESULTS ON ATTITUDE QUESTIONS

The aim of this section was to find the attitude the standard seven pupils have regarding the various environmental issues and problems referred to in the other two sections. The response on each question here was looked at separately as shown on the tables that follow.
Table IV. 3. (i) A river passing near a factory is cleaner than a river passing through a forest.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>41</td>
<td>11.2</td>
</tr>
<tr>
<td>Disagree</td>
<td>326</td>
<td>88.8</td>
</tr>
<tr>
<td>Total</td>
<td>327</td>
<td>100</td>
</tr>
</tbody>
</table>

The table above shows that 88.8% of the pupils were correct in their identification that a river passing through a forest is cleaner than one passing near a factory. This was an indication that the majority of the standard seven pupils recognize the polluting effects of a factory into a river. Only 11.2% did not make the correct observation.
Table IV. 3. (ii)  

A well and a pit latrine can be dug near each other provided there is a fence around each of them.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>111</td>
<td>30.5</td>
</tr>
<tr>
<td>Disagree</td>
<td>256</td>
<td>69.5</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

On the positioning of a well in relation to a pit latrine, 69.5% of the respondents responded correctly. Majority of the pupils realized that a fence cannot create a barrier between a latrine and a well. They realized that seepage from the latrine to the well can occur and the vise versa. 30.5% observed incorrectly.
Pit latrines are best dug near a river because the ground is soft.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>49</td>
<td>13.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>318</td>
<td>86.6</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

The above table deals with a question with similar implications as question two above. A majority of 86.6% observed correctly on the position of a pit latrine in relation to a river. Again, it can be concluded that the pupils realise the polluting and contaminating effects the latrine can have to water sources.
Table IV. 3. (iv) Any water that shows no suspended impurities in a clean glass is pure.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>194</td>
<td>52.9%</td>
</tr>
<tr>
<td>Disagree</td>
<td>173</td>
<td>47.1%</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100%</td>
</tr>
</tbody>
</table>

The question shown on the above table was dealing with characteristics of pure or clean water. The majority (52.9%) of the pupils had wrong judgement on the qualities of clean water. Only 47.1% had the notion that clean water cannot be judged by its clearness. The view expressed here by the pupils could be the community's view on how they judge the purity of water.
Table IV. 3. Chemical fertilizers are better to use in our shambas than compost manure because they are clean to handle.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>92</td>
<td>25.1</td>
</tr>
<tr>
<td>Disagree</td>
<td>275</td>
<td>74.9</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

In the above table, the majority of pupils (74.9%) agreed on the use of compost manure as compared with chemical fertilizers. The judgement of the pupil here could have been that the pupil recognizes that the organic fertilizers on the soil are better as compared to inorganic or chemical fertilizers. The cost element could also have influenced the answer. Organic fertilizer is less expensive.
Table IV. 3. (vi) We should only start conserving soils when we realize the crop yields are going low.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>164</td>
<td>44.7</td>
</tr>
<tr>
<td>Disagree</td>
<td>203</td>
<td>55.3</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

The above table shows the timing as to when soil conservation should start. The majority responded correctly, giving an indication that soil conservation is an all time process but not only when the crop yields start going low. 44.7% had incorrect response.
Table IV. 3. (vii) Preserved forests should be subdivided and the land given to the landless.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>219</td>
<td>59.7</td>
</tr>
<tr>
<td>Disagree</td>
<td>148</td>
<td>40.3</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

On the preservation of reserved forests, 40.3% were of the opinion that they should continue being preserved while a majority of 59.7% were of the opinion that they should be subdivided and given to the poor. This shows that the standard seven pupils are not fully aware of the importance of the forests as important water catchment areas. It could also be a reflection of the land pressure existing in the area of study where most families own less than an acre of land and yet surrounded by stretches of reserved forests like Kinale, Lari, and Kereita forests.
Table IV. 3. (viii)  

One should have as many children as possible provided you can get enough food for them.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>229</td>
<td>62.4</td>
</tr>
<tr>
<td>Disagree</td>
<td>138</td>
<td>37.6</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

The above question was trying to reflect on family size as related to population growth and control. Only 37.6% of the respondents seem to note the relation between family sizes and the total national population. The majority of 62.4% had the view that one should have as many children as one has ability to feed.
Table IV. 3. (ix) The Kenya Government would earn more money by selling elephant ivory and Rhino horn than by preserving these animals for the tourism Industry.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>126</td>
<td>34.3</td>
</tr>
<tr>
<td>Disagree</td>
<td>241</td>
<td>65.7</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

The above table indicate that a majority of 65.7% responded correctly on preservation of the elephants and rhinos other than killing them for immediate gain. Only 34.3% thought that selling the ivory and the horn would be more profitable.
Table IV. 3. (x) The knowledge we get in school about the environment is only necessary for us to pass the examination.

<table>
<thead>
<tr>
<th>Responses</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>160</td>
<td>43.6</td>
</tr>
<tr>
<td>Disagree</td>
<td>207</td>
<td>56.4</td>
</tr>
<tr>
<td>Total</td>
<td>367</td>
<td>100</td>
</tr>
</tbody>
</table>

The table above shows that a majority of 56.4% realize that environmental knowledge gained in school is useful for life and not only for examination purposes.

4.3 CONCLUSION

In conclusion, the data analysis has revealed quite interesting and important points pertaining to the knowledge the standard seven pupils have about the environment, how they can apply it to life situations and how they view it. Their ability to apply this knowledge and their attitude to the environment is discussed in Chapter V.
CHAPTER V

5.0 DISCUSSION OF THE FINDINGS, RECOMMENDATIONS AND SUGGESTIONS

5.1 INTRODUCTION

The researcher carried out the survey on Environmental awareness amongst standard seven pupils because she considers children to be an integral part in the preservation of the environment world over now, and in near future as adults.

The researcher agrees with the NES Director that:

These children, for whom we have merely borrowed the earth's natural resources so that they may live by and from them, and pass them over to their next, progeny, these children need to benefit now from what we know about the environment. They need for their own good to understand God, man, life and environment. They must not be allowed to take things for granted. Unless forests are protected, they will not always be there, likewise the rivers will not always be there. So much else will not be there and since these things are interdependent, eventually nothing will be there including human life.

NES, Nairobi 1991.
5.2 DISCUSSIONS OF THE FINDINGS

The findings reveal that the pupils at standard seven level have acquired a lot of facts about the environment. They can state various environmental components and their uses with ease. This was evidenced by the high score by the majority of the respondents in section A of the questionnaire. This could be attributed to the repetition of various environmental topics in different subjects and also the demands laid on pupils by our examination system where pupils learn a lot of facts with little chance to apply them.

Majority of the respondents had problems in applying the acquired knowledge as observed in the results in section B of the questionnaire. For example, while many could state the sources and uses of water in section A, they had problems in telling the simplest way of purifying water at home or the best way of purifying water that had passed through a farm among others.
There was also evidence that the pupils were not familiar with current National Environmental issues. Majority of the respondents could not tell why the President burnt the ivory or what it means to say an animal is extinct. Although these items were not looked separately to determine the percentage that answered them correctly, the researcher noted that majority of the pupils did not know the correct answer.

This is an indication that, other than may be the text requirements, most teachers do not go out of their way to bring to the attention of their pupils, environmental issues from other sources other than the pupils text books.

It is surprising that while animals like the rhino and elephant in Kenya are faced with extinction, most pupils in class seven do not know what it means for an animal to be extinct.
5.3 **IMPLICATIONS**

The findings of this survey confirm that:

(a) The multidisciplinary approach on Environmental Education enables the learner to acquire a substantial body of knowledge regarding the environment.

(b) The approach does not stress the practical or application aspect of the environmental knowledge gained. Since most of the topics the researcher dealt with are repeated in more than in one subject, one would have expected that the pupils have had the chance to apply the knowledge on life situations.

(c) Teachers do not seem to use other sources of environmental knowledge other than the set text. Newspapers, posters, magazines are rich sources of environmental information.

(d) The primary school teachers are not well prepared in their training on how to teach Environmental Education when embedded in the various other subjects of Science and Agriculture, GHC and Home Science.
(e) There is not enough time allocated for the practical aspect as required by Environmental Education.

5.4 RECOMMENDATIONS OF THE SURVEY

From the findings, the researcher recommends that;

(a) The pupils throughout their primary education should be encouraged and guided to participate more in community practical environmental projects such as soil conservation measures, tree planting, water purification etc.

(b) Pupils attention should be drawn to the existence of some of the environmental problems that exist in their school neighbourhood and be guided in formulating simple solutions to such problems.

(c) The Ministry of Education, Environment and other relevant organizations dealing with environmental issues should provide current environmental information through pamphlets, bronchures and posters for all levels in primary school. These materials should be
at minimal cost or free of charge to make them available to all schools.

(d) Teachers from the various subjects of Science and Agriculture, GHC and Home Science should be encouraged to work as a team to avoid repetition on Environmental issues and thus leave more time for practical purposes.

5.5 SUGGESTIONS FOR AREAS OF FURTHER RESEARCH

The following are suggestions for further research.

(a) A detailed study on the Environmental Awareness of primary school pupils in the whole country.

(b) Available materials for teaching and learning Environmental Education in primary schools.

(c) Available opportunities in the local communities for the primary school pupils to participate practically on promoting Environmental Education.
(d) Preparation of the Teacher Trainee on how to teach Environmental Education in the primary school.
REFERENCE


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Freeman W. H. (Edit) and Company. San Francisco 1969 Resources and Man. A Study and Recommendations by the Committee of Resources and Man of the Division of Earths Sciences.


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APPENDIX A

Questionnaire

The questionnaire consists of three sections. At the beginning there is space for you to fill in your name and the name of your school.

Answer as accurately as you can.

Name of the School ________________________________

Pupil's Name __________________________ Age ________

Section A - Answer all the questions

1. Name two uses of soil

   (i) ____________________ (ii) ____________________

2. Name two types of soils

   (i) ____________________ (ii) ____________________

3. Name two of man's activities that cause soil erosion

   (i) ____________________ (ii) ____________________

4. Name two types of soil erosion

   (i) ____________________ (ii) ____________________

5. What is the main source of water?
6. Name four uses of water.

(i) (ii) (iii) (iv)

7. Name two sources of water pollution.

(i) (ii)

8. Name two diseases that come about because of using dirty water.

(i) (ii)

9. Where are tree seedlings grown before they are transplanted?

   -----------------------------------

10. What is the name given to areas where many trees grow naturally or have been planted?

   -----------------------------------

11. Name three uses of trees.

   (i) (ii) (iii)

12. Name two classes of wood.

   (i) (ii)

13. Name two forest reserves in Kenya.

   (i) (ii)
14. What is the approximate population of Kenya?

15. Name two provinces with high population in Kenya.
   (i)  
   (ii) 

16. What occupation are most people in Kenya dependent on?

17. Name two tribes in Kenya
   (i)  
   (ii) 

18. Name four wild animals found in Kenya.
   (i)  
   (ii)  
   (iii)  
   (iv) 

19. Name two National Parks in Kenya.
   (i)  
   (ii) 

20. What do we call people who kill wild animals for profit?
Section B - Answer all questions on the space provided.

1. What can be added to the soil to make it more productive?

2. What is the best method to prevent gully erosion?

3. How can a person make his own fertilizer at home?

4. How can you conserve rain water?

5. Which is the simplest way of purifying water at home?

6. Which is the best way of purifying water that has passed through a farm?

7. Why should we always use clean water for drinking?
8. What must be done to make sure there are always trees left even when some are cut?

9. How does vegetation cover help conserve the soil?

10. What is the difference between hard wood and soft wood?

11. State two problems that occur because of high population.
   (i) ________________________________
   (ii) ________________________________

12. What is the greatest problem faced by people living in arid and semi-arid areas?

13. Why do we need to protect wildlife today than in the past?

14. Why do you think President Moi burnt the ivory instead of having it sold?
15. What do we mean when we say an animal is extinct?

Section C

Respond with the word agree or disagree at the end of each statement.

1. A river passing near a factory is cleaner than a river passing through a forest.
   - disagree

2. A well and a pit latrine can be dug near each other provided there is a fence around each of them.
   - agree

3. Pit latrines are best dug near a river because the ground is soft.
   - disagree

4. Any water that shows no suspended impurities in a clean glass is pure.
   - agree

5. Chemical fertilizers are better to use in our shambas than compost manure because they are easy to handle.
   - disagree
6. We should only start conserving soils when we realize that crop yields are going low.

7. Preserved forests should be subdivided and the land given to the landless.

8. One should have as many children as possible provided you can get enough food for them.

9. The Kenya Government would earn more money by selling elephant ivory and rhino horn than by preserving these animals for the tourism industry.

10. The knowledge we get in school about the environment is only necessary for us to pass the examination.
List of Primary Schools in Upland Education Zone

Gitithia
Kago
Gathaithi
Kibagare
Gituamba
Nyamweru
Kirenga
Escarption
Githirioni
Kereita
Githogoioyo
Kimende
Kambaa
Kingatua
Mukeu
Kijabe
Mbau-ini
Matathia
Kiambogo
Bathi
Magina
Kinale
Kamae
Ragia
Raini Njeke
Kwaregi
Mugiko
INTRODUCTORY NOTE FOR THE RESEARCH PROJECT.

M.ED. (PTE) II COURSE - 1991

STUDENT'S NAME KEIRU FELICITA WANGeci REG. NO E55/7529/89

The above named is our post-graduate student undertaking a Master's programme at this university. In the final year of the programme, it is the practice of this University for Masters Students to produce a piece of research project work as a partial fulfilment of the degree.

It is in this regard that I request you to assist and encourage this student in carrying out project work of the title:

A SURVEY OF ENVIRONMENTAL AWARENESS AMONGST STANDARD SEVEN PUPILS IN SOME PRIMARY SCHOOLS IN LAHI DIVISION, KIAMBU DISTRICT

Thanking you in advance,

Yours faithfully,

Dr. Twoli N.W.
COURSE CO-ORDINATOR, DEPARTMENT OF EDUCATIONAL COMMUNICATION & TECHNOLOGY

TNW/enk.
CONDITIONS

1. You must report to the District Commissioner of the area before embarking on your research. Failure to do so may lead to the cancellation of your permit.

2. Government Officers will not be interviewed without prior appointment.

3. No questionnaire will be used unless it has been approved.

4. Excavation, filming and collection of biological specimens are subject to further permission from the relevant Government Ministries.

5. You are required to submit at least four bound copies of your final report.

6. The Government of Kenya reserves the right to modify the conditions of this permit including its cancellation without notice.
To certify that:

Dr./Mrs./Ms. KEIRU

LUCIA FILICITA

Address) P.O. BOX 12532

NAIROBI

has been permitted to conduct research in

Location

AMBU

District

VITAL

Province

The topic: "A Survey of Menstrual Awareness Amongst

Primary School Pupils in Some Primary Schools in Lari Division


Research permit No. OP. 13/001/21C 246/4

Date of issue: 17th September, 1991

Fee received: Kshs. 100.00

Applicant's for: Permanent Secretary, Office of the President

Signature

Official of the President
The above named has been authorised to conduct on: "Environmental Awareness Amongst Standard Seven Pupils in Some Primary Schools in Lari Division of Kiambu District."

As indicated on the application form, this research will be conducted in Lari Division of Kiambu District for a period ending January, 1992.

I enclose copies of her documents for record purpose. She has been advised to submit a minimum of two copies of her research at the expiry of the project.

J.A. Mecoloo (Mrs)

for: PERMANENT SECRETARY/ADMINISTRATION

CC. Chairman,
Dept. of Communication and Technology,
Kenyatta University,
P.O. Box 42844,
NAIROBI.

The D.C. Kiambu

Mrs. F.W. Keiru
MINISTRY OF EDUCATION

District Education Office
P.O. Box 9
KIAMBU

20th September, 1991

REF: KBU/78/VII/150

To
All headmasters
Lari Division

RE: RESEARCH AUTHORIZATION: MRS. F.W. KEIRU

Please the above named has been authorised to conduct research on:
"Environmental Awareness Amongst standard seven pupils in your schools
in Lari Division".

The research will start from 20/9/91 to the end of January 1992.
Will you please give all possible help and co-operation.

J. Asumani
For: DISTRICT EDUCATION OFFICER
KIAMBU

c.c.

The Assistant Education Officer
Lari Division.

All Assistant Primary Schools Inspectors
Lari Division

All TAC/ Tutors
Lari Division