AWARENESS OF THE NEED FOR ENVIRONMENTAL CONSERVATION AMONG PRIMARY SCHOOL GHC TEACHERS IN SOME SCHOOLS OF NDANAI DIVISION; KERICHO DISTRICT, KENYA.

BY:

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E55/7507/89

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF MASTER OF EDUCATION (PRIMARY TEACHER EDUCATION) DEGREE OF KENYATTA UNIVERSITY 1991
DECLARATION

This project report is my original work and has not been presented in any other University for the award of a degree.

ARON MISOY

This project report has been submitted for examination with my approval as University Supervisor.

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DEDICATION

This book is dedicated to my dear wife Catherine, whose hard work, encouragement and most of all prayers; were of great illuminations to me and this work.

It is also dedicated to our children namely; Rita, Gilbert, Lawrence, Faith and Betsy who were patient and tolerant during my absence.
ACKNOWLEDGEMENTS

I am very grateful to all the people who helped in the preparation of this research project.

I am particularly indebted to my supervisor Dr. Kerich for his guidance and assistance towards the fulfilment of this work.

I must also acknowledge the insights of Prof. M.M. Patel and Dr. Gitau into the research world.

My last but not least appreciations go to Taplelei Rotich for her tireless efforts in the typing of this book.
The purpose of this study was to find out the extent of environmental awareness among GHC teachers in some primary schools of Ndanai Division of Kericho District.

The method of the survey involved the use of a questionnaire and attitude items which were administered by the researcher personally to GHC teachers in some schools of Ndanai Division. The sample size of schools was ten out of fifty one and four teachers per school giving me a total of forty teachers. The researcher fortunately collected all the forty responses.

The data collected was analysed and reported statistically with the use of tables and percentages. It was mainly descriptive statistics.

The researcher found out that the GHC teachers in the primary schools studied were mostly aware of environmental problems and solutions. It was also realised that the teachers discuss environmental problems with their pupils. It was not clear however, whether teachers actually take their pupils outside classroom to do project work which could actually help to curb the environmental problems. It was personally observed by the researcher that a majority of the schools did not have tree nurseries or gardens; indicative of the fact that awareness does not necessarily mean action. Further studies should find out why teachers do not encourage work outside classroom: is it lack of time or resources or both?
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1.1 **Background to the Study**

In his quest for higher standards of living, man has become a leading cause of environmental degradation. Through various activities on land such as agriculture, development of infrastructure, search of fuel etc., man has effected the depletion of natural resources so much because of lack of knowledge and information which would assist in prediction of the consequences. It is not only the higher standards of living which man seeks but in order to meet his basic needs; he must tap the natural resources within his immediate environment. But human beings must come to terms with reality of resource limitations and the carrying capacities of ecosystems, and must take account of the needs of future generations. This is the message of Conservation. For if the object of development is to provide for social and economic welfare, the object of conservation is to ensure earth's capacity to sustain development and to support all life.

In Kenya it is important that in order to protect and conserve the environment, every citizen must have a good understanding of his environment
because if public awareness is translated into effective action, the deterioration of the environment can be alleviated. According to United Nations Environmental Programmes (UNEP's) *Annual Review* (1976):

> Man does not deliberately damage his own environment any more than a rational person would purposely destroy his own house. But when man takes action to satisfy his needs - when he grows his own food, rears cattle, builds roads, establishes industries - his activities involve side effects which are environmental. These side effects may make it difficult or even impossible for man to sustain his original activities. (UNEP, 1976:6).

Kenya like any other country whether developed or developing, is presently facing a number of environmental problems which require remedial measures. These measures can only come in the form of conservational practices among every individual citizen of the Republic.

Approximately 75% of land in Kenya is arid or semi-arid. The remainder is medium to high potential land on which the bulk of the population resides. However, there is increasing sub-divisions of land in the medium and high potential land as well as emigration of people from there to marginal farming areas. There is also rural to urban migration. The Government, therefore is concerned about these trends of events and the deterioration of the environment.
and the need for its conservation and improvement. The Government, therefore, established a Ministry of Environment and Natural Resources and the Permanent Presidential Commission on Soil Conservation, Water and Afforestation (1981). In addition, there are other organizations such as U.N.E.P., United Nation Centre for Human Settlements (Habitat) and the Greed Belt Movement whose efforts are directed towards the conservation and improvement of the environment.

Environmental Education is taught as a separate course in Diploma Colleges and at Moi and Kenyatta Universities, while Primary Teacher Colleges, Secondary Schools and Primary Schools, teach it as part of some subjects in the Curriculum for example; in science, agriculture and GHC. However, there is an urgent need to intensify environmental studies in educational and training institutions in order to educate young people about the importance of conservation and enhancement of the environment. Concerted efforts should also be made by all leaders and organisations to educate the public on the importance of the environment and their specific roles in enhancing its protection and conservation.
The Working Party of Kamunge Report, realizing the contribution of the environment to national development and the role of education and training in its preservation and enhancement recommends that:

(a) Environmental Studies be made part and parcel of the education and training Curriculum and be taught at all levels of the education system;

(b) Concerted efforts be made to educate members of the public on methods of and their specific role in the conservation and enhancement of the environment


After the Stockholm Conference of 1972; which was specifically convened internationally to discuss environmental problems; the Kenya Government set up the National Environmental Secretariat (NES) in 1974 which is now under the Ministry of Energy and Natural Resources. One of its (NES) functions include planning and developing environmental education programmes as well as assisting the Director on the establishment and servicing of the National Research Centre for materials on Environmental Education.

On the basis of these environmentally based developments, the researcher has decided to undertake
a research on the awareness of teachers on this vital area of environmental conservation. Land is our mainstay and on land there exist the natural resources such as fertile soils, water, air, wildlife, forests, minerals etc; which man enhances on his endeavours to meet his basic needs and raise his living standards. Lack of foresightedness and awareness on the limited and finite supply of these resources, man has almost extaminated some of them almost to the detriment of his survival on earth. There is an urgent need for conservation to ensure development without destruction.

1.2 **Statement of the Problem**

Educators have a responsibility to arm our pupils with skills necessary to comprehend critical environmental problems. They also have to change attitudes and in general to establish new ethics and behaviours that are consistent with the necessary change in societal needs and goals. What is needed, therefore is to convey the immediate and importance of environmental conservation through various means such as afforestation, reafforestation, soil conservation measures, water conservation, land use management, reduction of fuel wastes, utilization of other renewable sources of energy eg. solar energy etc.

The researcher based his study on the premise that: Most of the GHC teachers of Ndanai Division
in Kericho District have a low awareness on environmental conservation and this has to be established or proved otherwise after the research. The problem hence reads "Awareness of the need for environmental conservation among GHC Teachers of some primary schools in Ndanai Division, Kericho District.

1.3 Research Questions

The researcher attempted to answer the following questions:

(a) Are GHC teachers aware of the need for environmental conservation?
(b) Do the teachers discuss environmental problems with their pupils?
(c) Are the teachers aware of the measures to be taken to safeguard the natural environment?

1.4 Objectives of the Study

(a) To find out whether GHC teachers are aware of the need for environmental conservation.
(b) To find out whether teachers involve pupils in discussion of environmental problems and measures of resource conservation.
(c) To find out whether teachers take their pupils outside to see and actively involve them in positive manual work on the environment.

1.5 Significance of the Study

Needless to say; environment sustains man. We need to educate our people right from the lower levels of education about the need for awareness and conservational strategies for present and future
generations.

Conservation of our natural environment leads to better human health and higher standards of living. There will be a general reduction of environmental degradation.

Research in this area, therefore, forms the foundation for other researchers in this important aspect of our environment. Teachers and consequently, pupils will benefit and incorporate the topics on environment more seriously in their discussion.

The research will also form a team with others already done to drive home the message that environmental education should be taught as a separate subject at all levels of education.

1.6 Assumption of the Study

The Researcher assumed that:

(a) Sex and Age have no effect on the results.

(b) Teachers' academic qualifications have no effect on the results.

(c) Teachers are at least aware of environmental conservation.

(d) The respondents gave genuine answers in the questionnaire.

1.7 Scope and Limitations of the Study

(a) The sample of 10 schools out of 51 may not be a representative sample.
(b) The instrument used for the study was not standardised, therefore results should be treated bearing this in mind.
(c) The time allocated to the research and financial problems were some of the constraints in the study.

1.8 Definition of Some Terms

Awareness

The state of being conscious about environmental problems and the need for conservation. According to Gatshalk (1969); awareness as an aim has a directional or vector structure. There is movement towards a goal, which springs from impulse directed towards an outcome. It may also be described as the organising principle of domain of knowledge.

Environment

According to UNEP - The State of the Environment (1988:1); environment is defined as the total outer physical and biological system within which human beings and other organisms live - is a whole albeit a complicated system with many interacting components.

Pamela Mays summarises by saying that the environment is everything that is outside ourselves, including, in a subtle way, individuals
themselves. It includes not only physical phenomenon but people, culture and ideas as well.

**Conservation**

The term conservation means the rational use of the environment to provide the highest sustainable quality of living for humanity. Rational use implies both the protection and management of the environment and its natural resources with a view to maintain a suitable habitat for humanity and for other living creatures for the longest foreseeable period of time.

According to Curry Lindah (1972); Conservation of nature in a modern sense is the wise use of renewable natural resources. Renewable natural resources include air, water, soils, plants and animals. These are the resources essential to man's survival.

**G.H.C.**

Geography, History and Civics taught as a combined course.
2.1 Introduction and Historical Perspective of Conservation

According to David Drew, (1983:3)

man and environment issue can be traced
back to the initial creation of the earth
by God.

God blessed them and God
said to them: Be fruitful
and multiply, and fill the
earth and subdue it, and
have dominion over the birds
of the air and over every
living thing that moves
upon the earth. (Genesis
Chapter 1 Verse 26,
Authorised Version).

The concept of a world designed
for the benefit of man was also articulated
by the Ancient Greeks.

Plants are created for the
sake of animals' and animals
for the sake of man. (Aristotle
Politics 350 BC)

In the theory of possibilism that
man is not passive, but is a geographical
agent, able to act on and change his environment
within natural limits of space and developmental
possibility; man has in essence overstretched
the finite nature of the earth. The theory
contrast with that of determinism that
natural conditions govern man's behaviour
and even aspects of his character.
According to World Conservation Strategy -

prepared by the International Union for
conservation of Nature and Natural Resources
(IUCN) in collaboration with UNEP; earth
is the only place in the universe known
to sustain life. Here, conservation is
defined as:

The Management of human use of the
biosphere so that it may yield
the greatest sustainable benefit
to present generations while
maintaining its potential to
meet the needs and aspirations
of future generations. Thus
conservation is positive, embracing
preservation, maintenance,
sustainable utilization,
restoration and enhancement of
the natural environment.

Living resource conservation has
three specific objectives:

(a) To maintain essential ecological
processes and life-support systems
(such as soil regeneration and protection,
the recycling of nutrients, and
the cleansing of waters) on which
human survival and development depends;

(b) To preserve genetic diversity (the
range of genetic material found
in the World's Organisms);

(c) To ensure the sustainable utilization
of species and ecosystems (notably
fish and other wildlife, forests and grazing lands), which support millions of rural communities as well as major industries.

According to UNEP - The State of the environment (1988); outlining the roots of environmental movement; Ancient Greeks and Roman Scholars wrote about soil husbandry and land management. Plato in "Critias" described deforestation and soil erosion as the negative side of power. In "The Laws" he wrote what can be considered as the earliest known enunciation of what we now describe as the "Polluter-pays" principle: "Water is easily polluted by the use of any kind of drug. It therefore needs the protection of a law, as follows:-- whoever purposely contaminates water shall be obliged in addition to paying an indemnity, to purify the spring or receptacle of water, using what ever method of purification as prescribed." (The Laws Book VIII:845)

There has always been a profound interaction between people and their environment. Early human beings lived by hunting and gathering. Due to technological advancement of Europeans in the 17th and 18th Century, environmental students expressed concern about the impacts of human transformation of the landscape. The first smoke abatement law was passed in England in 1273.
The destruction of natural areas stimulated the formation and growth of a "Conservation Movement". As early as the 1930's, George Catlin first proposed the idea of national parks in the United States of America and in 1955, Chief Seattle writing to the President of the United States, paid eloquent testimony to the Sacredness of the Earth to his people, and voiced their concern about the destructiveness of imported European technologies.

Early Conservationists (including U.S.A. President Theodore Roosevelt) started work in defence of natural reserves, ancient buildings and different habitats. The Sierra Club was established in US in 1892, followed by the National Audubon Society, the Wilderness Society and others. All were concerned with environmental protection. In the United Kingdom, the Royal Society for the Protection of Birds was founded in 1889. In the Netherlands, France, Sweden, Switzerland and Federal Republic of Germany a series of organizations were founded.

Public pressure led to the National Environmental Policy Act of 1969, requiring environmental analysis in technological and political decision-making. During the 1970's, environmental issues became established as a permanent feature of national and international policy. The United Nations Conference
on the Human Environment, proposed by Sweden in 1968 and convened in Stockholm in 1972, was a single most important turning point in the history of the growth of environmental awareness.

The UNESCO-UNEP International Environmental Education Programme (IEEP) was put into action at the UNESCO Secretariat in Paris in 1975. This programme was a direct outcome of recommendation 96 of the Stockholm Conference (1972).

The general objective of the IEEP is to promote implementation of the Recommendations of the Tbilisi Intergovernmental Conference on Environmental Education (1977). More particularly it is to encourage and assist governments, nations, regional and international institutions to incorporate environmental education into educational systems, programmes and procedures in order to:

: Make people aware of the nature of the relationship between man and the environment on which he depends;

: Impart knowledge and skills to solve environment and development related problems and

: Enables people to acquire attitudes, motivations and behaviour patterns like to contribute to the protection and improvement of the environment. (Environmental Education; UNESCO-INDIA, 1988).
The new approach of the 1980's - manifest in the World Conservation Strategy, launched in 1980, the 1985, Cairo Programme for African Cooperation of the African Ministerial Conference on the Environment and the recommendations made by the world Commission on Environment and Development in 1987 - have been to restore people, including indigenous and local communities; to a central place when environmental needs are considered.

Louis Haris and Associates, Inc (New York) are carrying out a multinational survey of public and leadership perception of environmental issues for UNEP. The surveys have included 14 Countries; Argentina, China, Kenya... The results obtained indicate that both the public and leadership in these countries are highly concerned about environmental degradation. Both demand stronger action by their governments and by international organisations to protect the environment. Furthermore, the public and leadership are willing to make material sacrifices to work with others in their communities to improve the environment there.

However, it was noted that public awareness of environmental issues and concern about the quality of the environment do not necessarily imply that the public is willing to participate actively in environmental protection or conservation of natural resources.
For example, a recent public opinion poll in Japan showed that 77% of the respondents indicated interest in nature and wildlife conservation, 61% pointed out that they have not participated in nature conservation activities, 31% participated in "clean-up efforts" and the rest made donations to projects for nature conservation. Awareness does not necessarily lead to a change in behaviour; the general altitude of the public is to leave things to the authorities to take care of.

Further calls about environmental protection can be cited from Journal-Science Teacher Vo. 87, 1970:28; which provides some highlights on the contributions during the UNESCO meeting in 1969, held in San Francisco. The Chairman H.D. Johnson, regional director of the Natural Conservancy, declared that the deterioration of man's environment is global and is the most critical issue facing man-kind today.

If the environ goes—we go with it. We are not here to write the epitaph for the loss of our environment. We are here to underwrite a programme of environment repair ... to chart a course to salvage our habitat ... The beginning of a new age of environmental renaissance.

Barry Commner of Washington University also contributing in the San Francisco Conference as a spokesman for environmental awareness said:
... modern technologies act on the ecosystem which supports us in ways that threaten its stability, with tragic perversity we have linked much of our productive economy to precisely those features of technology which are ecologically destructive ...

R.F. Dasmani; contributing in his paper on "Ecological Diversity", also presents an important concept that underlies much of the knowledge needed to understand and act upon environmental questions.

The part that education has to play begins with changing the view of the environment held by our culture, according to Sterling Bunnett who said:

Since the survival of all humans is at stake, environmental education should become a Community goal rather than being just another subject taught in school systems .... This goal is essentially two fold: 1) to instill a genuine appreciation of natural environments and processes in children ..., 2) to allow the development of those few highly motivated individuals who will be the field-oriented life scientists, the sense organs of our society as it moves into an uncertain future.

Aslo speaking to the subject of educational arrangements, Paul Hurd, predicted that little progress will be made on man's environmental problems unless we can reduce the present polarity within the Curriculum and establish interdisciplinary courses and programmes. The opportunities are now limited by
an education that is too specialized and moreover, meaningless for contemporary times. Some progress along these lines is evident. Environmental studies are becoming more conspicuous in University Catalogues; he noted.

2.2 What To Conserve: Kenya Situation

The high rate of population growth in Kenya has forced man to over use the land resources and extended his activities into the fragile marginal zones of semi-arid lands. The clearing of natural forests exposes the vulnerable soils to the ravages of weather leading to desertification. A consequence of man's increasing ability to create his own environment has been the ability to support an ever-increasing population, a phenomenon that distinguishes man from the rest of the living World.

The Minister for Environment and Natural Resources, Dr. Mungai, speaking at the United Nation Conference on Environment and Development (UNCED) in Geneva, Switzerland (Standard 8th April 1991:10); said that the high rates of population growth in the developing countries hindered proper environmental management by putting pressure on land, forests and water resources thus destroying the resource base for sustainable development.
The Permanent Presidential Commission on Soil Conservation and Afforestation has followed the President footsteps in mobilizing support and action in ensuring that trees, water and soil, being such important resources, are managed in such a manner that both land and water resources of the nation are sustained for the present and future generations.

President sets a major example in conservation. One of Kanu's firm commitments since its inception 30 years ago is to encourage wananchi to create an awareness of the importance of preserving the environment. Due to party's campaigns and with the assistance of the various ecologists groups in the country, every Kanu branch has established a tree nursery through the initiatives of President Moi. (Kenya Times 7th July, 1990:14).

There is a need for a new outlook on environment awareness by reforming society's attitude towards environmental health; these were comments made by an assistant minister during the World Health Organization (WHO) Health Week in Nairobi. He further noted that training institutions had a key role to play in bringing about this reform. (Kenya Times, 3rd April 1990:2).
The National Environment Secretariat (NES) has decried the absence of a legal framework to counter the rampant abuse of the environment by organisations during their normal operations. Speaking at the Conference "Environment 2000" at the United Nations Complex in Nairobi, the Assistant Director of NES, Mr. K'Ombudho, said that the role of his organisation was to generate public awareness. There is need to educate the public on the importance of environment protection, especially as it relates to sustainable development. This is a subject the public should not only emotionally relate to. The public must be ready to forgo certain things to ensure the environment is kept intact for future generations. (Standard, 29th October 1990:5).

Soil

Soil is broadly defined as the most outer cover of the earth's crust which support plant life.

The importance of soils to man as the basis of agriculture is obvious; this is particularly so in agro-based economies such as that of Kenya.

Soils are in dynamic equilibrium with the factors that determine their characteristics: climate, parent material, topography, biota and time (D. Drews, 1983) Drews also contended that human actions should be
added to the list of the above factors, as they are at least locally, of more significance than all of the natural factors combined.

Through his agricultural practices, man has created an artificial intrazonal soils as opposed to the naturally and climatically formed soils - the zonal soils.

Removal of forests for pasture and cultivation has physically caused the deterioration of soil structure hence creating conditions that allow partial or total erosion to occur.

Chemical changes occur in the soil with the application of artificial fertilizers and over use of these fertilizers changes the structure of the soil. Leaching of other elements results and the soil loses its fertility. For example, continued use of ammonium sulphate fertilizer acidifies the soil.

Prolonged irrigation of farms over many years eventually results in soil salination. The destruction of the farmland of the Fertile Crescent in Mesopotamia by Salination resulted in the collapse of this and other ancient civilizations of the semi-arid World (Drews, 1983).
The public should therefore, be made aware of the land use practices which are detrimental to the soils and ways of protecting and improving soil structure.

Water

Water is the most abundant liquid on earth. Ninety seven percent of water on earth is salty and 3% is fresh. Out of the 3% fresh water 2% is in the frozen state of ice caps, glaciers and ice bergs and the remaining 1% is available for use by man. The 1% is distributed as follows: 70% in lakes and rivers, 30% is underground.

According to Drews (1983) fresh water is mankind's single most important resource. On a global scale the expansion of agriculture and settlement into vast areas of land is inhibited by insufficient water. Locally, water resources may determine the location of specific industries such as power stations and in one way or another settlement patterns show a close relationship to surface water supplies and springs.

From the human viewpoint the constraints imposed by water are that there may be too little water available (desert, droughts) or too much (marshes, floods). The civilizations of ancient Egypt and
China, India and Mesopotamia have been termed 'hydraulic civilizations'. Their rise and subsequent fall was intimately related to their use and misuse of water.

Tampering with the hydrological cycle has continued to the present day. Through his agricultural activities man has interfered with water catchment areas and increased surface run off through deforestation and other associated activities such as overgrazing.

Water resources of our nation is not only a vital life support factor but bears many interrelations with other sectors of national development. As can be seen, water, perhaps to a greater extent, than any other resource, should therefore be given the greatest attention by every Kenyan, since our dealings with soil, forests, wildlife, recreation, community betterment and industrial development, have come to be viewed in terms of their interrelationship with water. (Kenya's Efforts to Conserve Soil, Water and Forests, 1985:8).

His excellency the President has pointed the way and constantly informed Kenyans about environmental protection and in particular the conservation and rational utilization of the nation's water resources.

Due to increased run-off from rains, domestic and industrial effluents; water has become the most polluted and affected natural resource on earth.
It is imperative therefore, that water conservation is taken seriously by all and an awareness developed among the general populace about its vulnerability.

Plants and Animals

The need for simple technical information on tree planting in Kenya prompted the Kenya Energy and Environment Organization (KENGO) in 1983 to initiate a research and public education programme on our indigenous trees, which in most cases are more ecologically suitable than the popular exotic trees.

The programme promotes and facilitates food production, tree planting and environment conservation at the community level through training workshop at the district level on tree planting, soil conservation, agroforestry land use systems and woodfuel conservation (Standard, 21st Dec., 1990:24).

The forest of developing countries are being consumed at a rate of 10 - 15 million hectares per year. In the 1970's in Kenya, some 40,000 hectares of gazetted forest - mainly climax communities for example, is Mau-Narok and Cherangani areas were excised for conversion to human settlements. Apart from the loss of indigenous trees, this conversion has led to soil erosion and decreased water protection. (Kenya's National report to the United Nations Conference on
The crucial change in the relationship between man and the rest of the World occurred with the transition from a Mesolithic (hunting and gathering) society to a neolithic (agriculture, domestication) economy.

The safeguarding of human interests has led to the virtual elimination of animal predators and to the virtual winning of the fight against diseases borne by organism. The diffusion of life-forms beyond their natural area of occurrence is a further significant aspect of interference.

Man has commonly upset the natural ecological balance for example, by increasing the number of herbivores (stock) has resulted in the lowering of the vegetational status; encouraged the spread of Xerophytes (drought-resistant plants) and fire resistant species. The actual vegetation is now pastureland, scrub and isolated stands of the original forests; a global phenomena.

Eradication of animal species and selective breeding of others has increased the number of herbivores at the expense of carnivores (poached or hunted). Species have also been sharply reduced in numbers or eliminated altogether by inhabitant destruction.
At least 200 species of mammals and birds have become extinct as a result of man's activities over the past 300 years. The rate has been one species per year in this century, and a further 250 species are on the verge of disappearing. (Drews 1983:46).

In connection to plants as source of food, man also has a need for fuel to cook the food. The primary source of energy in developing countries in fuelwood. Approximately 2,250 million people in the World depend on it. Population pressure in many areas has made the demand for firewood consistently exceed the supply. The "Cost" of gathering firewood in India for example, has been found to be between 200 and 300 persons-days per family per year. (E.El-Hinnawi & BISWASS, 1981). Firewood can cost as much as one-quarter of the family income in areas where it is purchased. As timber resources are depleted for fuel, the soil deteriorates and retains less water, again desertification encroaches.

The rural population in Kenya depend largely on fuelwood for cooking and even lighting. Kerosine is used occasionally because of its scarcity. Women especially have a task of collecting wood which has become scarcer and they resort to destruction of fences for the poor quality twigs or buy wood from those who have planted trees. Firewood gathering has become a kind of scavenging habit and time consuming.
There is a need for conservation through afforestation, reafforestation, reduction of fuel wastes, use of efficient stoves and enhancement of other renewable sources of energy eg. solar energy. Our rich fauna and flora should be conserved also to maintain the tourist industry in the country.

2.3 Environment and Related Subjects of the Study

A person's attitude to the environment is shaped throughout life - and throughout life education should have a positive influence to bear upon this.

According to "Environmental Council of the government of CZech Socialist Republic, 1977", the activity of the pupils should be stimulated to the greatest possible extent; the problem method should be made use of; meetings with specialists should be held; practical work or publically useful work carried out, excursions organised, study trips, the environmental problems in the place of domicile should be brought up, etc. The main aim is to lead pupils to an active positive attitude to the environment.

The following points were also noted by IEEP about education; that: teaching as a way and/or a means for imparting knowledge, skills attitudes and actions is as old as man himself; curriculum is the
dynamic life supporting system of teaching and education. It is through curriculum that educational goals are translated into practice; teacher is the backbone of an educational system. He/she fosters the interaction of the student with the curriculum and teaching materials in the process of teaching and learning.

A brief outline will be given to illustrate the link between GHC subjects and environment.

**Geography**

Geography is one of the main subjects in environmental education. It deals with the surface of the earth ..., and with the effect of human activities in these areas. It investigates the relations within landforms and clarifies their basic natural, demographic, social and technical causes, the contingency of economic activity in territorial units and their effects on the environment and it suggests possibilities of dealing with the rational protection and creation of the environment.

According to P. Mays, 1985, geography, of all the disciplines, is most closely linked to the human senses and to survival. Geography, as its grass roots, bears witness to the human environment and the ingenuity necessary to survive there.
History

History orders the environment in terms of time. Time is all around us, for our lives are lived within it. We use history in our everyday lives, whether as a means of arranging the common place details of earning our livings and shaping the day, or whether we use it on a much grander scale in order to glean information from the past that might help us solve problems of our present day society (Mays, 1985).

According to CZech Environmental Council; environmental education in history can be characterised as giving a historical view of human society and how it was consistently formed by the work of preceding generations. History can deal with the active protection and creation of the environment especially when discussing the historical heritage of past eras.

A further aim of environmental education in history teaching is to encourage an active, historically based and conscious attitude of each individual to all that forms part of the present-day environment. This refers to the protection of monuments and to the sensitive treatment of all that is valuable in the entire complex of the environment.
Civics

Civics teaching aims at stressing the fact that the problem of the environment is linked with the social conditions of life in human society. Man changes and adapts his environment and is to a considerable degree the product of its feed-back effect.

The pupils should acquire a conviction of the importance of social (political, economic, ideological, legal, cultural etc.) approaches to the problem of the environment.

Civics aim at giving the children a complex, integrated view of the environment. Protection and conservation of the environment forms part of the overall policy of the state: laws, their implementation, the responsibility of the state and administration bodies, activities of the National Committees and other organs of state.

The teacher has a long-term programme for this work. In the elementary school it is chiefly a matter of forming basic norms of social behaviour which influence the quality of the social environment. In teaching about the care for the common property and equipment in the school we discuss the need and responsibility of the pupils' active share in keeping
the school tidy, looking after floral decorations, establishing "Nature Corners" attending to the lawns around the school etc.

Establishing good relations with fellow citizens and acquaints the pupils with the rules and norms of social behaviour. Teaching that discusses how young people can contribute to the development of their school, the village, town and region activities and involves the pupils.

Appendix B shows the syllabus for social studies (GHC) in Kenya Primary Schools. This has been deliberately included to illustrate the relevance and content of what is to be covered in GHC. It also assists the researcher in the formulation of the questionnaire and attitude items.
CHAPTER 3

RESEARCH METHODOLOGY

3.1 Sampling

The researcher used a sample of ten schools which were randomly selected from fifty one schools in Ndanai Division of Kericho District. The Schools involved are listed in Appendix C.

A sample of 4 teachers in each school were requested to participate in filling the questionnaire and the attitude items. Therefore, the total number of respondents were 40. The headmaster of each school requested any four teachers who teach GHC in any Class ranging from Std 1 to Std 8.

3.2 Research Instruments

The research instruments were of two forms:-

(a) Questionnaire

(b) Attitude items

(a) Questionnaire

The questionnaire was made up of two parts: Part 1 and Part II. Part 1 only sought background information from the respondents and were not necessarily useful in the research problem. Part II consisted of open-ended questions which required short answers. These open-ended questions were
relevant in the research problem and covered some basic environmental issues. For example, item number 1 tried to find out whether teachers have ever prepared any lesson on environmental conservation and item 4 involved listing down in order of importance the natural resources which have been adversely affected by man.

(b) Attitude Items

There were 20 items in this part. The respondents were required to show their opinions by marking any of the 5 options namely: strongly Agree (SA), Agree (A); Undecided (U); Disagree (D); or Strongly Disagree (SD).

The researcher considered 10 items positive and the rest negative hence positive items are items no's 1, 3, 5, 7, 10, 11, 13, 15, 17 and 18. Item no's 2, 4, 6, 8, 9, 12, 14, 16, 19 and 20 are negative.

Small boxes are drawn below the 5 options SA, A, U, D and SD and respondents put a tick in the box his/her choice.

A sample of the research tools is illustrated in Appendix A.

3.3 Data Collection

The researcher having been granted permission by the District Commissioner and District Education Officer,
went personally to the chosen schools. I introduced myself to the headmaster and explained to him the purpose of my visit.

Four copies of the questionnaire and attitude items were given to the headmaster who then handed them over to the GHC teachers whom he has identified. I covered two schools per day since I had to wait until the respondents have completed answering the questions.

Analysis based on the questions and answers was done in Chapter 4. It was also presented in appropriate methods and finally in Chapter 5; recommendations and conclusions made.
CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

The researcher was able to collect all the 40 responses and data analysis was based on this figure. The data from each of the two instruments were considered item by item and presented in percentages and frequency tables.

For the attitude items three-point scale was used instead of five in order to get clear results. This means that strongly Agree and Agree are reduced to Agree and Disagree and strongly Disagree become Disagree. Undecided remains the same. This implies that a respondent with positive attitude can score a maximum of 60 points in the twenty items. Items which are positive score as follows: Agree - 3 points, Undecided - 2 points and Disagree - 1 point. The reverse is true for the negative items, i.e Agree - 1 point, Undecided - 2 points and Disagree - 3 points. The respondents who score over 40 points are considered to be of positive attitude.

Table VI:1 and IV:2 shows the respondents background information about their gender and their marital status respectively.
The second instrument was made up of structural type of items and required the respondents to fill in the blank spaces. The respondents could list down the answers in the given spaces and may even add other necessary informations.

**TABLE IV:1 Gender of the respondents**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
<td>85</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Table IV:1 shows that there were fewer females who teach GHC than males. Females represented 15% and males 85% of the 40 respondents.

**TABLE IV:2 - Marital status of the respondents**

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Number</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>Single</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100</td>
</tr>
</tbody>
</table>

Table IV:2 illustrates the marital status of the 40 respondents. There were 32 married ones representing 80% and only 8 singles i.e 20%.
### 4.2 Analysis of Attitude Items

#### Table 4.3 Distribution of Responses on Attitude Items

<table>
<thead>
<tr>
<th>Item</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The GHC syllabus is relevant to the needs of society</td>
<td>25</td>
<td>10</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>2. Environmental problems can be dealt with by teaching geography alone and not History and Civics</td>
<td>13</td>
<td>9</td>
<td>0</td>
<td>5</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td>3. Children learn better when they are taken outside classroom</td>
<td>21</td>
<td>17</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>4. Most of the teaching aids in GHC cannot be improvised</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>13</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>5. Enough time has been allocated to GHC</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>12</td>
<td>21</td>
<td>40</td>
</tr>
<tr>
<td>6. Topics in Conservation are not well covered in GHC syllabus</td>
<td>13</td>
<td>16</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>7. Pupils develop a positive attitude towards work through GHC lessons</td>
<td>10</td>
<td>25</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>8. There is no problem of erosion in our environment</td>
<td>14</td>
<td>7</td>
<td>1</td>
<td>12</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>9. There is hardly any time to take pupils outside for field work</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>10. Plants and animals species of our environment are decreasing in number at an alarming rate</td>
<td>22</td>
<td>8</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>Item</td>
<td>SA</td>
<td>A</td>
<td>U</td>
<td>D</td>
<td>SD</td>
<td>TOTAL</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>----</td>
<td>-------</td>
</tr>
<tr>
<td>11 Lessons on Conservation should be practical as possible</td>
<td>28</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>12 Fuelwood is abundant all over</td>
<td>8</td>
<td>4</td>
<td>2</td>
<td>13</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td>13 Use of artificial Fertilizers is not always the answer to farm improvement</td>
<td>11</td>
<td>18</td>
<td>0</td>
<td>6</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>14 There is an urgent need for mechanisation in peasants farms</td>
<td>5</td>
<td>8</td>
<td>5</td>
<td>15</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>15 Projects in GHC should also be used for evaluation in National Examinations</td>
<td>12</td>
<td>6</td>
<td>3</td>
<td>8</td>
<td>11</td>
<td>40</td>
</tr>
<tr>
<td>16 National Parks should be converted to agricultural and settlement area</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>9</td>
<td>24</td>
<td>40</td>
</tr>
<tr>
<td>17 Farming on slopes should be banned immediately</td>
<td>17</td>
<td>10</td>
<td>0</td>
<td>5</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>18 Dissatisfaction with the local environment increases with population density.</td>
<td>19</td>
<td>16</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>19 The quality of the environment has improved over the last 10 years.</td>
<td>4</td>
<td>22</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>20 There is no significant change in the environment over the last 10 years</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>21</td>
<td>14</td>
<td>40</td>
</tr>
</tbody>
</table>

Table IV:3 shows the distribution of responses on all the 20 attitude items. All the 40 respondents answered the 20 items. The table shows a five point scale of SA (Strongly Agree), A (Agree) U (Undecided)
D (disagree) and SD (strongly disagree) Table IV:3 was reduced to 3 point scale and is represented in Table IV:4. Strongly Agree and Agree became Agree only, strongly Disagree and Disagree became Disagree and Undecided remained the same. The Column of P/N in Table IV:4 stands for positive and negative respectively.

Some items stands out of the rest as they elicit most responses and as such, they are singled out for analysis.

The following are positive items which were agreed with by most respondents:

a) Item No 1 - The GHC syllabus is relevant to the needs of society. This item attracted or was agreed with by 87.5% of the total responses and only 12.5% of the total responses disagreed.

b) Item No 3 - Children learn better when they are taken outside classroom. This item was agreed with by 95% and only 5% disagreed.

c) Item No 7 - Pupils develop positive attitude towards work through GHC lessons. Eighty seven point five (87.5%) percent agreed with this item and only 5% disagreed, whereas 7.5% were undecided.

d) Item No 10 - Plants and animal species of our environment are decreasing in number at an alarming rate. Responses were as follows: 75% agreed and only 25% disagreed with this item.
### TABLE IV.4 Distribution of Responses on 3 point - Scale Only

<table>
<thead>
<tr>
<th>STATEMENT</th>
<th>P/N</th>
<th>AGREE</th>
<th>UNDECIDED</th>
<th>DISAGREE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The GHC syllabus is relevant to the needs of society</td>
<td>P</td>
<td>35</td>
<td>0</td>
<td>5</td>
<td>40</td>
</tr>
<tr>
<td>2. Environmental problems can be dealt with by teaching geography alone and not History and Civics.</td>
<td>N</td>
<td>22</td>
<td>0</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>3. Children learn better when they are taken outside classroom</td>
<td>P</td>
<td>38</td>
<td>0</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>4. Most of the teaching aids in GHC cannot be improvised</td>
<td>N</td>
<td>10</td>
<td>1</td>
<td>29</td>
<td>40</td>
</tr>
<tr>
<td>5. Enough time has been allocated to GHC</td>
<td>P</td>
<td>6</td>
<td>1</td>
<td>33</td>
<td>40</td>
</tr>
<tr>
<td>6. Topics in Conservation are not well covered in GHC syllabus</td>
<td>N</td>
<td>29</td>
<td>2</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>7. Pupils develop a positive attitude towards work through GHC lessons</td>
<td>P</td>
<td>35</td>
<td>3</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>8. There is no problem of erosion in our environment</td>
<td>N</td>
<td>21</td>
<td>1</td>
<td>18</td>
<td>40</td>
</tr>
<tr>
<td>9. There is hardly any time to take pupils outside for field work</td>
<td>N</td>
<td>1</td>
<td>0</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>10. Plants and animals species of our environment are decreasing in number at an alarming rate</td>
<td>P</td>
<td>30</td>
<td>0</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>STATEMENT</td>
<td>P/N</td>
<td>AGREE</td>
<td>UNDECIDED</td>
<td>DISAGREE</td>
<td>TOTAL</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-----</td>
<td>-------</td>
<td>-----------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>11. Lessons on Conservation should be practical as possible</td>
<td>P</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>12. Fuelwood is abundant all over</td>
<td>N</td>
<td>12</td>
<td>2</td>
<td>26</td>
<td>40</td>
</tr>
<tr>
<td>13. Use of artificial Fertilizers is not always the answer to farm improve-</td>
<td>P</td>
<td>29</td>
<td>0</td>
<td>11</td>
<td>40</td>
</tr>
<tr>
<td>ment</td>
<td>N</td>
<td>13</td>
<td>5</td>
<td>22</td>
<td>40</td>
</tr>
<tr>
<td>14. There is an urgent need for mechanisation in peasants farms</td>
<td>N</td>
<td>13</td>
<td>5</td>
<td>22</td>
<td>40</td>
</tr>
<tr>
<td>15. Projects in GHC should also be used for evaluation in National Examina-</td>
<td>P</td>
<td>18</td>
<td>3</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>tions</td>
<td>N</td>
<td>5</td>
<td>2</td>
<td>33</td>
<td>40</td>
</tr>
<tr>
<td>16. National Parks should be converted to agricultural and settlement area</td>
<td>N</td>
<td>5</td>
<td>2</td>
<td>33</td>
<td>40</td>
</tr>
<tr>
<td>17. Farming on slopes should be banned immediately</td>
<td>P</td>
<td>27</td>
<td>0</td>
<td>13</td>
<td>40</td>
</tr>
<tr>
<td>18. Dissatisfaction with the local environment increases with population density</td>
<td>P</td>
<td>35</td>
<td>1</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>19. The quality of the environment has improved over the last 10 years.</td>
<td>N</td>
<td>26</td>
<td>7</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>20. There is no significant change in the environment over the last 10 years</td>
<td>N</td>
<td>4</td>
<td>1</td>
<td>35</td>
<td>40</td>
</tr>
</tbody>
</table>
e) Item No 18 - Dissatisfaction with the local environment increases with population density. There were 87.5% who agreed and only 10% who disagreed. One respondent was undecided and this represented the remaining percentage.

f) Item No 11 - Lessons on Conservation should be practical as possible. Hundred percent (100%) agreed with this item.

The following negative attitude items also warrants attention as they elicited most positive responses i.e. they were disagreed with by most of the respondents:

a) Item No 4 - Most of the teaching aids in GHC cannot be improvised. The responses were as follows: 72.5% disagreed, 25% agreed and 2.5% were undecided.

b) Item No 9 - There is no problem of erosion in our environment. All but one of the respondents disagreed with this statement i.e. 97.5% disagreed and 2.5% only agreed.

c) Item NO 12 - Fuelwood is abundant all over. A good percentage (65%) disagreed, 30% agreed and 5% were undecided.

d) Item No 16 - National Parks should be converted to agricultural and settlement areas. Eighty two point five percent (82.5%)
disagreed, 12.5% agreed and 5% undecided on this item.

e) Item No 20 - There is no significant change in the environment over the last 10 years. Those who disagreed represented 87.5%, 10% agreed and only 2.5% was undecided.

The following items elicited unexpected responses:

a) Item No 2 - Environmental problems can be dealt with by teaching geography alone and not history and Civics.

The responses here were as follows: It was almost fifty-fifty with 55% agree and 45% disagree. This implies that 55% of the respondents were not sure of the importance of the other subjects i.e. History and Civics on environmental care.

b) Item No 6 - Topics in Conservation are not well covered in GHC syllabus. Quite a large number of respondents agreed with this item. Seventy two point five percent (72.5%) agreed and 22.5% disagreed.

c) Item No. 19 - The quality of the environment has improved over the last 10 years.

The responses were as follows: 65% agreed, 17.5% undecided and 17.5% disagreed. This was an interesting item because it is surprising that most of the respondents think that the quality of the environment has improved.
d) Item No 5 - Enough time has been allocated to GHC. Majority of the teachers disagreed with this statement. There were 82.5% who agreed and only 15% disagreed.

e) Item No 15 - Projects in GHC should also be used for evaluation in National Examination.

Nearly half of the respondents disagreed with this statement. Forty seven point five percent (47.5%) disagreed and 45% agreed; almost an equal number. They were equally divided on this issue of projects and evaluation.

All the above item by item analysis were based on table IV:4.

Table IV:5 shows how the attitude items were scored. The positive (p) items scored 3 points for A (agree), 2 points for U (undecided) and 1 point for D (disagree). For the negative it is reversed: 3 points for D, 2 points for U and 1 point for A.
TABLE IV: 5 SCORING KEY

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>P/N</th>
<th>A</th>
<th>U</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The GHC syllabus is relevant to the needs of society</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2. Environmental problems can be dealt with by teaching geography alone and not History and Civics</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Children learn better when they are taken outside classroom</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4. Most of the teaching aids in GHC cannot be improvised</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Enough time has been allocated to GHC</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>6. Topics in conservation are not well covered in GHC syllabus</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Pupils develop a positive attitude towards work through GHC lessons</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>8. There is no problem of erosion in our environment</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. There is hardly any time to take pupils outside for field work</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ITEM NO</td>
<td>P/N</td>
<td>A</td>
<td>U</td>
<td>D</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>10. Plants and animals species of our environment are decreasing in number at an alarming rate</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>11. Lessons on Conservation should be practical as possible</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>12. Fuelwood is abundant all over</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>13. Use of artificial Fertilizers is not always the answer to farm improvement</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14. There is an urgent need for mechanisation in peasants farms</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15. Projects in GHC should also be used for evaluation in National Examinations</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>16. National Parks should be converted to agricultural and settlement area.</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>17. Farming on slopes should be banned immediately</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>18. Dissatisfaction with the local environment increases with population density.</td>
<td>P</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>19. The quality of the environment has improved over the last 10 years</td>
<td>N</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
There is no significant change in the environment over the last 10 years.

Table IV:6 represents the number of teachers and points they attained after scoring items 1-20 using the scoring key of table IV:5. It shows that 82.5% of the teachers scored between 41-60 and only 17.5% scored between 20-40. It can therefore be concluded that the teachers involved in the research had positive attitude towards environmental conservation.

4.3 Analysis of open-ended items

There were four open-ended items in this part and the researcher has analysed the items by one yet again. The items involved free response
and were not restrictive.

Table 7 shows the responses to item no. 1 which tried to find out about lesson preparation on any topic of environmental conservation.

From this table, it can be seen that most of the teachers who participated in the research taught Std 8, this represented 27.5%. There was none who teach Std 1 and 5 did not fill in this item.

**TABLE 7 Item No. 1. Responses per class**

<table>
<thead>
<tr>
<th>STANDARD</th>
<th>NUMBER OF TEACHERS</th>
<th>PERCENTAGE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>7.5</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>17.5</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>12.5</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>27.5</td>
</tr>
<tr>
<td>Nil Response</td>
<td>35</td>
<td>12.5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>40</td>
<td>100.0</td>
</tr>
<tr>
<td>Sub-topic</td>
<td>Project work</td>
<td>Classroom work</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>1. Forests</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>2. Soils</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>3. Air</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Wildlife</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5. Water</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Nil response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

Table IV:8 was also drawn from item No.1 and important findings could be realised in this particular part of the item. The teachers chose conservation of the following natural resources as the sub-topics in their lesson. Conservation of: forests, soils, air, wildlife and water. The sub-topic on forests Conservation was chosen most and represented 40% whereas air was not taught.

Twelve teachers out of 16 used project method e.g. planting of trees in their lessons on forests. Soil conservation was second in the sub-topics chosen and represented 27.5%. Six out of 11 used project method in soil conservation.
This item should be treated with care because it required observation during actual lesson. This was not possible due to time pressure. It is hoped that the respondents were actually involving their pupil in project work.

**TABLE IV:9** Item No 2. Responses on Environmental problems

<table>
<thead>
<tr>
<th>Environmental Problem</th>
<th>Order of Importance</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Deforestation</td>
<td>16 7 1 3 1 0</td>
<td>28</td>
<td>70.0</td>
</tr>
<tr>
<td>2. Pollution</td>
<td>6 3 7 2 5 2</td>
<td>25</td>
<td>62.5</td>
</tr>
<tr>
<td>3. Soil erosion</td>
<td>6 4 2 4 0 0</td>
<td>16</td>
<td>40.0</td>
</tr>
<tr>
<td>4. Overgrazing</td>
<td>2 4 2 3 2 0</td>
<td>11</td>
<td>27.5</td>
</tr>
<tr>
<td>5. Population Pressure</td>
<td>1 3 3 3 2 0</td>
<td>12</td>
<td>30.0</td>
</tr>
<tr>
<td>6. Pests/Diseases</td>
<td>1 1 0 1 1 0</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>7. Poor Farming Methods</td>
<td>0 2 2 0 1 2</td>
<td>7</td>
<td>17.5</td>
</tr>
</tbody>
</table>

Table IV:9 represents information about item No.2 of the open-ended items (part 11).

In this item, the respondents were required to list down in decreasing order of importance any problems affecting the environment. Column one of this table shows the problems and second to seventh show the order of importance.

One can see from the table that deforestation was regarded by most of the respondents as the leading problem. Seventy percent (70%) mentioned deforestation as a major
problem and 16 out of this (28) ranked it as number one problem. Deforestation was followed by pollution and soil erosion representing 62.5% and 40% respectively. Pests and diseases was the least with only 10%.

TABLE IV:10 Item No 3. Solutions to the three leading environmental problems as per table IV:9

<table>
<thead>
<tr>
<th>Environmental Problem</th>
<th>Solutions</th>
<th>No. of Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Deforestation</td>
<td>Afforestation</td>
<td>25</td>
<td>89.3</td>
</tr>
<tr>
<td>2. Pollution</td>
<td>Education on Pollutants</td>
<td>19</td>
<td>76</td>
</tr>
<tr>
<td>3. Soil Erosion</td>
<td>Use of modern farming methods</td>
<td>16</td>
<td>100</td>
</tr>
</tbody>
</table>

Table IV:10 represents findings in item No. 3 of the open-ended items (part 11).

The Researcher here has only considered the three leading environmental problems as per table IV:9 i.e. Deforestation, pollution and soil erosion. This item tried to find out whether respondents were aware of solutions to these problems.

Column 2 of table IV:10 shows the appropriate answers to the environmental problems listed in Column 1. Basing the totals on table IV:9, it can be concluded that the respondents are aware of the solutions to these problems.
For example, in deforestation there were 28 responses and 25 gave afforestation as the main solution to the problem thus representing a percentage of 89.3%. Similarly for pollution there were a total of 25 and 19 of this gave education on pollutants as the major way of curbing pollution; thus representing 76%. A hundred percent believed that the only way of curbing soil erosion is to use modern farming methods such as terracing and contour farming.

**TABLE IV: Item No.4 Responses to Natural Resources affected by man**

<table>
<thead>
<tr>
<th>Natural Resource</th>
<th>Order of Importance</th>
<th>Total</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1. Forests</td>
<td>20</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2. Water</td>
<td>3</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>3. Soil</td>
<td>5</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>4. Wildlife</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5. Mineral</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>6. Air</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table IV: Item No.4 shows the responses to item No.4 (Part II). The respondents were required to list down in order of importance the natural resources which have been adversely affected by man's interference.
Water represents the highest percentage (80%) of the mentioned natural resources. There were 32 who listed down water but only 3 out of this ranked it first. Forests came second representing 70%. Out of 28 who mentioned forests, 20 ranked it first. Wildlife attracted the least number and only 30% listed it. There was only one respondent who ranked wildlife first and none for minerals.

4.4 Research Findings

The researcher based his research on the following questions:

(a) Are GHC teachers aware of the need for environmental conservation?

(b) Do teachers discuss environmental problems with their pupils?

(c) Are the teachers aware of the measures to be taken to safeguard the natural environment?

The research items so far analysed seem to affirmatively answer the above questions. The following are some of the most relevant findings:

1. Majority of the teachers (95%) agreed that pupils learn better when they are taken outside classroom during GHC lessons. Eighty seven point five (87.5%) percent of the teachers also believed that pupils develop positive attitude towards work
through GHC lessons.

2. All the teachers who participated in the research agreed that lessons on conservation should be as practical as possible.

3. Most of the teachers also refuted that most of the teaching aids in GHC cannot be improvised and 72.5% disagreed with that.

4. A good percentage of the teachers reflected positive sentiments about the environment and is summarised as follows: 75% agreed that plants and animals species of our environment are decreasing at an alarming rate; 87.5% agreed that dissatisfaction with the local environment increases with population density; 97.5% disagreed that there is no erosion problem in environment; 65% did not agree that fuelwood is abundant all over. The teachers also had positive attitude about national Parks; and 82.5% disagreed that the parks should be converted to agricultural and settlement areas.

5. Eighty two point five (82.5%) percent of the teachers were negative about the time given to GHC. They disagreed that enough time has been allocated to GHC.
6. Some of the teachers agreed (65%) that the quality of the environment has improved over the last 10 years.

7. Forty seven point five percent (47.5%) of the teachers disagreed that projects in GHC should also be used for evaluation in National Examination. It appears there was lack of confidence in this area among the teachers.

8. Deforestation was considered by a majority (70%) of the teachers as a leading environmental problem. This was followed by pollution. In a rural setting I do not think pollution is actually a problem. The teachers appear too theoretical in this response.

9. Teachers are aware of solutions to the problem affecting the environment.

10. Water and forests were both implicated by the teachers as the most affected natural resource of the environment. The two represented 80% and 70% of the respondents respectively.
4.5 **Summary**

The data which has been analysed and presented in tables and percentages has so far attempted to answer the research questions concerning the awareness of GHC teachers on environmental conservation.

The responses to the instruments used have been scrutinized and important findings were forthcoming. The items covered the following areas:-

1. GHC as a subject concerning environment
2. The teaching of GHC
3. Conservation of natural resources e.g Forest, Water, Soil, Wildlife etc.
4. Environmental problems and solutions.

Chapter 5 which follows further discuss these findings and make any conclusions. In Chapter 5 also, recommendations for further research will also be made.
5.1 Summary of the Findings

1. Teachers who participated in the research had positive attitudes that GHC syllabus is relevant to the needs of the society. They also believed that pupils learn better when taken outside rather than stick to classroom teaching.

2. Majority of the teachers (87.5%) agreed that population increase can be hazardous to the environment.

3. All the teachers also believed that lessons on conservation should be practical as possible and a majority also know that teaching aids in GHC can easily be improvised.

4. The teachers were aware of environmental problems such as soil erosion, shortage of fuelwood, and the diminishing number of plants and animals species.

5. Eighty seven point five (87.5%) percent of the teachers who participated in the research were aware of the significant changes in the environment over the last ten years. But surprisingly 65% thought that the quality of the environment has improved over that period of time.
6. A good number of teachers (82.5%) were aware of the importance of National Parks and should be reserved.

7. Seventy two point five (72.5%) of the teachers thought that topics in conservation are not well covered in GHC syllabus. However, 55% did not see the importance of teaching history and civics when dealing with topics on environment.

8. Although a hundred percent of the teachers believed that the teaching of topics on conservation should be practical as possible; they were sceptical about the inclusion of projects in evaluation during examinations.

5.2 Discussion

Since the teachers are aware of the need for environmental conservation; they are the right people to convey the message of environmental protection, preservation and conservation to their pupil and the general populace.

The commonly used natural resources such as water and forests appeared most affected by man's interference. It should be noted that soils are also adversely affected since man must till the land for his food. Soil conservation is therefore very important and ways and means of doing it must be taught and done practically.
Pupils should be regularly taken out to visit places eg. farms, factories, river banks so that they see the actual processes which may lead to damage of the environment. These processes may be slope farming, effluents from factories which cause pollution, sitling of rivers etc. Pupils will therefore develop actual positive attitude for work. They should participate in community work for example cleaning the markets, planting trees, building gabions etc.

Teachers should teach all the three subjects as integrated as possible and see the connections in them. History involves the storage of Past events and things, for example in museums. It also involves building of monuments to commemorate historical and past happenings in the country; to mention but a few. Similarly civics make children know their rights in the society and be rightful members of that society who can protect their national heritage. They will learn the laws of the land and be governed by those laws so that they abide by the laws.

We should all team up in the protection of our environment for the benefit of future generations. Schools are the best vehicles and teachers are drivers to drive home the message of conservation.
5.3 Recommendations for further research

1. This research was conducted in a rural setting and the same may be conducted in an urban one.

2. Further research can be conducted using pupils instead of teachers as subjects of the study. This will investigate the awareness of pupils on environmental conservation.

3. A research on environment and teaching resources can be done so that a survey of the provision and use of resources may be realised.

4. Environmental researchers may conduct a research regarding particular problems of environment such as pests, climatic hazards etc.

5. The same research I have conducted can be done in a different district of Kenya.
APPENDIX A

TEACHERS' QUESTIONNAIRE

PART ONE

Background information.

Fill in the following questionnaire.

1. Name of your School ..........................................

2. Sex
   a) Male □
   b) Female □

3. Marital Status
   a) Married □
   b) Single □

4. Subjects you teach and level.

   Subject ..........................................................
   Standard .........................................................

   a)
   b)
   c)

PART TWO

OPEN-ENDED QUESTIONS

1. Fill in the blanks as a guide on Lesson Plan preparation on the topic "CONSERVATION OF NATURAL RESOURCES".

   (a) (i) Subject .............................................
   (ii) Standard .............................................
   (iii) Sub-Topic ...........................................
   (iv) Objectives: 1 .................................
           2 .................................
(b) Name any teaching methods you used in (a) above.

(i) ........................................

(ii) ........................................

(iii) ........................................

(c) Name pupils' tasks involved in your lesson in (a) above.

(i) ........................................

(ii) ........................................

(iii) ........................................

(d) State any teaching aids you used.

(i) ........................................

(ii) ........................................

(e) How did you assess your pupils' work in (a)?

........................................

2. List down in decreasing order of importance any problems affecting the environment.

(i) ........................................

(ii) ........................................

(iii) ........................................

(iv) ........................................

(v) ........................................

Any Others ........................................

3. Fill in the following table.

<table>
<thead>
<tr>
<th>Environmental Problem</th>
<th>Solution (suggest)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i)</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td></td>
</tr>
<tr>
<td>(iv)</td>
<td></td>
</tr>
<tr>
<td>(v)</td>
<td></td>
</tr>
</tbody>
</table>
List down in order of importance the natural resources which you think have been adversely affected by man's interference.

(i) ..............................................................
(ii) ..............................................................
(iii) ..............................................................
(iv) ..............................................................
(v) ..............................................................

ATTITUDE ITEMS

This part contains statements on various aspects of the environment. If you strongly agree with the statement put a tick on SA box, for agree it is A, for disagree it is D, strongly disagree it is SD and undecided or neutral it is U box.

1. The GHC syllabus is relevant to the needs of society.

   SA   A   U   D   SD
   □   □   □   □   □

2. Environmental problems can be dealt with by teaching geography alone and not History and Civics.

   SA   A   U   D   SD
   □   □   □   □   □

3. Children learn better when they are taken outside classroom.

   SA   A   U   D   SD
   □   □   □   □   □
4. Most of the teaching aids in GHC cannot be improvised.

SA U D SD

5. Enough time has been allocated to GHC

SA U D SD

6. Topics in Conservation are not well covered in GHC syllabus

SA U D SD

7. Pupils develop a positive attitude towards work through GHC lessons

SA U D SD

8. There is hardly any time to take pupils outside for field work.

SA U D SD

9. There is no problem of erosion in our environment.

SA U D SD
10. Plants and animals species of our environment are decreasing in number at an alarming rate.

11. Lessons on Conservation should be practical as possible.

12. Fuelwood is abundant all over.

13. Use of artificial fertilizers is not always the answer to farm improvement.

14. There is an urgent need for mechanisation in peasants farms.

15. Projects in GHC should also be used for evaluation in National Examinations.
16. National Parks should be converted to agricultural and settlement areas.

SA  A  U  D  SD
   □  □  □  □  □

17. Farming on slopes should be banned immediately

SA  A  U  D  SD
   □  □  □  □  □

18. Dissatisfaction with the local environment increases with population density.

SA  A  U  D  SD
   □  □  □  □  □

19. The quality of the environment has improved over the last 10 years.

SA  A  U  D  SD
   □  □  □  □  □

20. There is no significant change in the environment over the last 10 years.

SA  A  U  D  SD
   □  □  □  □  □
APPENDIX B

SOURCE: SYLLABUS FOR KENYA SCHOOLS, VOL. 1 AND 11, JOMO KENYATTA FOUNDATIONS, NAIROBI, 1986

CONTENT OF SOCIAL STUDIES.

STANDARD 1

Unit 1: Our home
Unit 2: Our School

STANDARD 2

Unit 1: The School neighbourhood
Unit 2: Our Sub-Location
Unit 3: Our Location

STANDARD 3

Unit 1: Our Division
Unit 2: Our District

STANDARD 4

Unit 1: The Physical Environment
Unit 2: The People of our province
Unit 3: Resources and Economic activities
Unit 4: Social and Political Systems

STANDARD 5

Theme: Our Nation
Unit 1: The Physical Environment
Unit 2: The people of our Nation
Unit 3: Resources and Economic Activities
Unit 4: Social and Cultural Activities
Unit 5: Political Development
Unit 6: Urban Centres in Kenya
STANDARD 6

Theme: Kenya and her neighbours
Unit 1: The Physical Environment
Unit 2: The People of Eastern Africa
Unit 3: Economic Activities
Unit 4: Political Development
Unit 5: Social-economic issues
Unit 6: The role of the Citizen in Society

STANDARD 7

Theme: Kenya and the Rest of Africa
Unit 1: The Physical Environment
Unit 2: The People of Africa
Unit 3: Economic Activities
Unit 4: Political Development
Unit 5: Political and Economic Cooperation
Unit 6: Development and Moral attitudes and values

STANDARD 8

Theme: Kenya and the World
Unit 1: The Physical Environment
Unit 2: Origins of Man
Unit 3: Migration of people
Unit 4: Basic Human Needs
Unit 5: Resources
Unit 6: Social Institutions
Unit 7: Agriculture
Unit 8: Industrialization
APPENDIX C

LIST OF PRIMARY SCHOOLS STUDIED

1. Tarakwo
2. Kapkwen
3. Sachangwan
4. Muiwek
5. Leldaet
6. Chororoita
7. Chebole
8. Solyot
9. Oldabach
10. Kapmureito

2. Curry-Lindal:- Conservation for survival - An Ecological Strategy (1972)


4. Dasman R.F.:– The Conservation Alternative

5. Eckholm E:- The Losing Ground

6. El-Hinnaw and Biswass:- Renewable of Energy and Environment


17. Mays P - Teaching Children through environment (1985)


22. The Standard 29th October 1990
23. The Standard 8th April 1991
26. World Conservation Strategy: Prepared by the International Union for Conservation of Natural Resources (IUCN)
28. World Watch Series - Paper 4
INTRODUCTORY NOTE FOR THE RESEARCH PROJECT.

M.ED. (PTE) II COURSE - 1991

STUDENT'S NAME ARAO K. MISOGY REG. NO E55/7507/86

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:

Awareness of the need for Environmental Conservation Among Primary School GEC teachers in some schools of Nkengach Division, Kericho District, Kenya.

Thanking you in advance,

Yours faithfully,

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

TNW/enk.
TO WHOM IT MAY CONCERN.

RE: ARON K. MISOIY REG. NO. E 55/7507/89

The above mentioned post graduate student at Kenyatta University has permission to conduct a research on "AWARENESS OF THE NEED FOR ENVIRONMENTAL CONSERVATION AMONG PRIMARY SCHOOL GHC TEACHERS" in some schools of Chepalu Division in Kericho District.

The research will be carried for a period of three months from 23rd September, 1991.

Any assistance accorded him will be highly appreciated.

(MUTERO E.W.)
FOR DISTRICT COMMISSIONER
KERicho.

C.C.

The District Officer,
CHEPALUNGU.

The District Education Officer,
KERicho.

O.C.P.D.
KERicho.