IDENTIFYING THE BARRIERS TO IMPLEMENTING EDUCATION FOR SUSTAINABLE DEVELOPMENT IN KENYAN SECONDARY SCHOOLS: A CASE OF SOUTHLANDS OF NAIROBI

By

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Declaration

This thesis is my original work, and has not been presented for a degree or any other award in any other university.

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This thesis has been submitted for examination with our approval as university supervisors

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Dedication

In grateful and loving memory of my late, loving and adorable dad (Douglas); your soul shall live on forever, on through this little heart of mine, and in the fields of time. I hold you high up on a pedestal, for there will never be another to me, like that wonderful dad of mine.

For my beloved mom Juster; a true friend, one who I have clung to in times of adversity, to counsel me and dissipate the clouds of darkness, always causing peace to return to my heart. Mama; Thanks, I'll carry on your legacy to the depths of the universe. I love you Mama.

To you all, this work is proudly dedicated.

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Abstract

Despite the declaration of the Decade of Education for Sustainable Development and its accompanying global awareness of the need for sustainable development, the entire concept of ESD has not been wholly integrated in the curriculum. As such most people including teachers and students have limited understanding of ESD. This has led to increased unsustainable lifestyles, development patterns and environmental problems. This research therefore sought to identify the barriers to implementing Education for Sustainable Development in Kenyan secondary schools in Nairobi's southlands. Both quantitative and qualitative data were collected using questionnaires, Interview schedules and content analysis of secondary data. Descriptive statistics which included percentages and frequency distributions were used for data analysis. Results obtained showed that while schools acknowledged the importance of ESD and the undisputed need to have it embraced wholly in the school curricula as well as their desire to fully understand its concept, they had limited knowledge of ESD and observed that it was poorly implemented in the curricula. As a result, most respondents in the different categories interviewed did not recognize the vital role that ESD can play in addressing issues of national and societal importance like tribalism, marginalization, insecurity and good governance. They instead perceived ESD as mainly building on environmental Education, addressing issues of environmental conservation and pollution control, as well as HIV/AIDS. It was also noted that the teachers' and students' understanding of ESD was inadequate and only knew its basics or just some of its aspects, as compared to the key informants who were mainly advocates of the sustainability concept embedded in ESD. Barriers to implementing ESD in schools included inadequate access to teaching, financial and other material resources, the increase in profit driven private schools, insufficient time allocation for in-service training for secondary teachers, and the poor implementation of Government policies. The Students interviewed observed that ESD should be introduced in the curriculum as a distinct subject on its own, and have an accompanying trained teacher to teach it, while the teachers only hoped that their students would comprehensively learn about ESD in higher institutions of learning. There was a unanimous agreement among all the respondent categories that the Government, Civil society and development partners had an important role to play in implementing ESD in schools. This was in contrast to their rating of the private sector as an important player in implementing ESD, whereby only the key informants rated this sector as very important (95%) in information dissemination and public sensitization on development issues, compared to only 5% of both teachers and students rating it as such. There fore, to overcome the barriers to implementing ESD in schools, there is the undisputed need to partner and build on the necessary identified strategies and opportunities. As such, there is need to teach EE in schools as a means of introducing ESD, facilitate and encourage the involvement of students in extra curricula activities, emphasize on the organization of more environmental lectures and seminars as well as source for additional funding and support from the Government and Development partners. A participatory in and out of the classroom ESD implementation programme between teachers and students should also be emphasized, given the inclination of the global ESD initiative towards practical skills development.

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Abbreviations and Acronyms

DESD: Decade for Education for Sustainable Development

EE: Environmental Education

ESD: Education for Sustainable Development

KDHS: Kenya Demographic and Health Survey

KEBS: Kenya Bureau of Standard

KFS: Kenya Forest Service

KIE: Kenya Institute of Education

KWS: Kenya Wildlife Service

NEMA: National Environment Management Authority

NGOs: Non Governmental Organizations

OFSTED: Office for Standards in Education

SADC: South African Development Community

SD: Sustainable Development

SPSS: Statistical Package for Social Scientists

UNCED: United Nations Conference on Environment and Development

UNEP: United Nations Environment Programme

UNSCO: United Nations Scientific and Cultural Organisation

WECD: World Commission on Environment and Development

CHAPTER ONE: INTRODUCTION

1.1 Background

Education for Sustainable Development (ESD) was first described in Chapter 36 of Agenda 21of the Rio conference as a dynamic concept that seeks to empower people of all ages to assume responsibility for creating, maintaining and enjoying a sustainable future (UNCED, 1992). This was out of the realization that industrial and economic development had had considerable negative impact on the environment. For instance, land degradation caused by unsustainable use of natural resources has accelerated the deterioration of the environment. Arid and semi-arid lands (ASALs) are increasing due to deforestation, overpopulation, overstocking etc, which impacts negatively on social and economic development. Beside issues of industrial and economic development, widespread impact of HIV and AIDS, increased incidences of malaria, tuberculosis and other infectious and communicable diseases have lowered the quality of life, as do drug and substance abuse. Other socio-economic issues such as violence, corruption, crime and unemployment are on the increase leading to increased rate of insecurity, which threatens development. Likewise, in December 2002, the United Nations (UN) General Assembly adopted Resolution 57/254 proclaiming the United Nations Decade (2005 –2014) the decade for Education for Sustainable development (DESD). This declaration called on member states to integrate ESD into their education plans at all levels and across all sectors of education (Rosalyn, 2002).

The Kenyan Government has also advocated for Environmental Education in various Policy statements, Sessional papers and Development plans. For instance, the Economic Recovery

Strategy for Wealth and Employment Creation (ERSWEC) 2003-2007 recommends the restoration and preservation of the environment and the introduction in schools a curriculum on Environmental Education (GoK, 2003). The Sessional paper No. 1 of 2005 on Policy Framework for Education, Training and Research points out that Kenya needed an education that aimed at enhancing the ability of its people to preserve and utilize the environment for productive gain and sustainable livelihoods (Mugo, 2006). Likewise the Sessional paper No. 6 of 1999 on Environment and Development shows poor and inadequate awareness and information dissemination as a major constraint in proper environmental management (GoK, 1999). It is also against this background that the Vision 2030 was launched aiming to create a just and cohesive society enjoying equitable social development in a clean and secure environment (GoK, 2007). This was to be achieved through the provision of a globally competitive, quality and relevant education.

These national initiatives are geared towards achieving sustainable development. However, despite all these measures, environmental problems still persist. This can be attributed to the low levels of awareness among local population on sustainable environmental management and conservation emanating from inadequate education on sustainable development. Most people still have limited understanding of the environment they live in and only have rudimentary skills and technology to exploit it. In many cases, people are aware of environmental issues but have a bad attitude or don't put their knowledge into practice. The resultant scenario is a significant barrier to the realization of sustainable development. To overcome the above shortcomings and achieve the Millennium Development Goals

(MDGs), ESD needs to be implemented in all sectors in the country. This research therefore seeks to identify the barriers and assess opportunities of implementing ESD in Kenya.

1.2 Problem Statement and Justification

Kenya has experienced severe environmental challenges due to climate change including droughts, natural disasters, acute water shortage, desertification, loss of biodiversity and forest cover alongside poor waste management systems. These negative impacts on the environment have occurred as a result of robust industrial development, population explosion, rapid urbanization, rural urban migration, and massive agricultural expansion among others experienced in the country over the last four decades (GoK and NEMA, 2007). Lack of awareness on environmental conservation and protection has aggravated this situation and these environmental challenges. This is despite the adoption of the principles of sustainable development by the Kenyan education system.

Although the current education system in Kenya has infused aspects of environmental education (EE) in most subjects taught in schools, the entire concept of ESD has not been wholly integrated in the curriculum. The environmental education taught is just but a subset of ESD that addresses issues on environment and leaves out the other two pillars, namely society and economy. As such, EE in Kenya has not focused much on inter-linkages between the environment and Sustainable Development (SD). Furthermore, the environment has been looked at in great detail from the biophysical view but with less emphasis on economic and social perspectives, and as such environmental problems still persist in Kenya (Otieno, 2005). This means that in formal learning institutions in Kenya ESD is not well

articulated in the education policy framework. For instance the primary and secondary school curriculum does not have a provision for teaching of either EE or ESD as distinct subjects on their own, while in some tertiary institutions, ESD is taught as a topic under the main units. Likewise, according to Kinyua et al (2004) both primary and secondary teachers are not trained to deal with ESD issues in class and as such, environmental awareness is not instilled at the tender ages of learning. In the informal sectors, ESD is either unknown or is taken as a new concept to many and this has led to increased unsustainable lifestyles and development patterns. As such, new educational approaches are required to motivate people to work towards new environmental initiatives that will compliment the existing EE and foster a new ecological vision (UNESCO, 2005).

It is against this background that this study seeks to establish the barriers to the implementation of ESD in schools in Nairobi's Southlands. The adoption of ESD is expected to lead to increased environmental awareness at all levels of both formal and informal education as well as in all other sectors. This educational effort will encourage changes in behaviour and perception that will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for present and future generations. ESD is also expected to compliment and capacitate traditional knowledge and technology hence enabling communities a stable co- existence with their immediate environment and thus maintaining the ecological equilibrium. If fully embraced, ESD is expected to contribute in reducing the prevailing challenges manifested in a non-performing economy, environmental degradation and social injustices, which are major impediments to the realization of sustainable development. This would contribute to the achievement of

National Policy Frameworks like the Economic Recovery Strategy and the Vision 2030.This focus is also in line with the UN's agenda of achievement of the MDGs, notably the reduction of poverty and ensuring environmental sustainability.

1.3 Research Questions

The key research questions that guided the study were as follows;

i. What is the current status of ESD implementation in Kenyan Secondary schools?

ii. What are the barriers to the implementation of ESD in secondary schools' curriculum in Kenya?

iii. Who are the key stakeholders and what are their roles in the implementation of ESD in secondary schools?

iv. What are the opportunities and strategies for the implementation of ESD in secondary schools?

1.4 Objectives of the Study

The main objective of this study was to identify the barriers to implementing Education for Sustainable Development in South lands of Nairobi. The specific objectives of this study were to;

i. Establish the current status of ESD implementation in Kenyan Secondary schools

ii. Establish the barriers to the implementation of ESD in schools

iii. Identify the key stakeholders and their roles in the implementation of ESD in secondary schools

iv. Recommend the opportunities and strategies for the implementation of ESD in secondary schools

1.5 Significance of the Study

This study examines the barriers to implementation of ESD in Kenyan schools. Its findings will help to promote basic education, strengthening institutional and operational capacities for a consistent and systematic incorporation of ESD in policies and programmes and its implementation in learning activities. The findings will further help teachers, students and other stakeholders in the education sector to adapt teaching syllabus, curricular and tools which favour implementation of ESD. The findings will also lead to informing and sensitizing the public on the need for and application of ESD in their daily activities.

1.6 Conceptual Framework

It has been noted that the distinction between Environmental Education (EE) and Education for Sustainable Development (ESD) is blurred to many people (Scoullos et al, 2004). Likewise, the role that education can play in sensitizing communities, more so learners at all levels of learning has for long been taken as simply theoretical, whereby it equips those involved with the abstract knowledge to envision sustainable development as merely an academic concept, leaving its actualization to someone else. However, reality and experience shows that if ESD is to be an effective tool for engaging people in negotiating a sustainable future, making decisions and acting on them, it must first address the way we think about sustainable development and about education in general. This has been echoed by Cloudie (2005) who observes that ESD is actually about values, attitudes and beliefs.

This means that to depart from the current mindset and move towards a proper understanding and actualization of ESD, we need to evolve mechanisms and skills that would guide us to partnering and hence working together to attain sustainable development using ESD approaches. This kind of a perspective then calls for present- future scenario analysis (Figure 1).

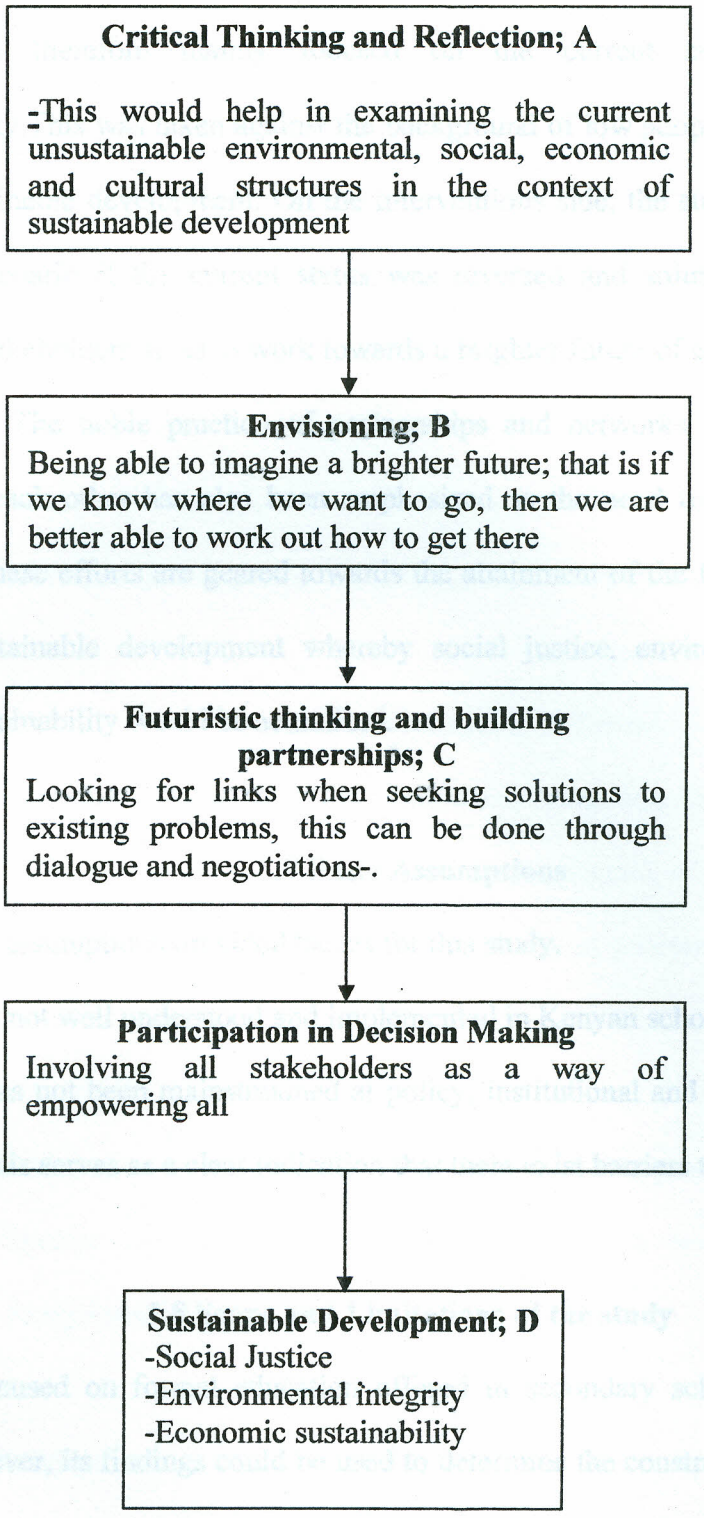

Fig.1: ESD Approaches- Sustainability Conceptual Framework

(Where: A is the scenario on the ground; B: Anticipated destination; C: Approaches to B; D: Preferred scenario)

Source: Conceptualized from the synthesis of literature and field study (2007)

The research therefore mainly focused on the current state of environmental unsustainability.This was taken against the background of low adoption of ESD as a tool to enhance sustainable development. On the interventions side, the study also focused on the envisioned scenario if the current status was reversed and solutions sought by all the responsible stakeholders so as to work towards a brighter future of environmental and social sustainability. The noble practice of partnerships and networks in working together in empowering each other has also been emphasized as the need for participatory decision making. All these efforts are geared towards the attainment of the future targeted scenario, which is Sustainable development whereby social justice, environmental integrity and economic sustainability would be actualized.

1.7 Basic Assumptions

The following assumptions provided basics for this study.

i. ESD is not well understood and implemented in Kenyan schools.

ii. ESD has not been mainstreamed at policy, institutional and learners' levels, and as such, this serves as a clear indication that there exist barriers to its implementation.

1.8 Scope and Limitations of the study

This study focused on formal education offered in secondary schools in Southlands of Nairobi. However, its findings could be used to determine the constraints to implementation of ESD in secondary schools in similar urban slum and non slum zones. The study was limited by lack of adequate financial resources, and the fact that ESD is a new concept that was not well understood by most of the respondents.

Administratively, the study area falls under Nairobi Province and consists of Kibera slums, Lang'ata and South C estates and is predominantly residential. It lies at 1680m above sea level, and lies in a highland zone, with temperatures ranging from a minimum of 12°C to a maximum of 23°C. The rainfall patterns are double maxima with long rains from March to May, and the short ones from October to December. It has a population of over two million people with Kibera alone having over a million residents. The area is served by twenty four secondary schools with Kibera having the fewest, despite its population and area size.

1.9 Operational Definition of Terms.

Education; Education is development of intellectual, moral and social skills and values to learners for a particular purpose. Whether formal or non-formal, education is a key process by which human beings and societies can reach their fullest potential. As such, it is pivotal in sustainable development.

Environmental Education; This refers to organized efforts to promote awareness on how natural environments function and particularly how human beings can manage their behaviour and ecosystems in order to live sustainably.

Sustainable Development; It is the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. It is the type of development built on three interdependent and mutually reinforcing pillars namely social development, economic development and environmental protection.

Education for Sustainable Development; It is an emerging but dynamic concept that seeks to empower people of all ages to assume responsibility for creating, maintaining and enjoying a sustainable future. It is not education about sustainable development but education for sustainable development, which makes the concept more participatory and comprehensive.

CHAPTER TWO: LITERATURE REVIEW

2.1 Kenya's Socio-Economic Status

Kenya's economy and the livelihoods of her people are dependent on natural resources, which are increasingly under pressure from unsustainable use resulting in environmental degradation. The country's population is on the increase, having risen from 28.7 million in 1999 and being projected to be 36.5 million in 2010. High population growth rate of 2.9 % (NEMA, 2004) and increased poverty index of 46% (GoK, 2003) have forced communities to engage in land use practices like settlement and agriculture, that have degraded water catchment areas and depleted natural forests. These practices are compounded by poverty and ignorance, which are major challenges to sustainable development (GoK, 2005). Likewise, industrial and economic development in the last four decades has had considerable negative impacts on the environment.

Land degradation caused by unsustainable use of natural resources has also accelerated the deterioration of the environment. Arid and semi-arid lands (ASALs) are suffering increased rate of desertification, which impacts negatively on social and economic development. Beside issues of industrial and economic development, widespread impact of HIV and AIDS, increased incidences of malaria, tuberculosis and other infectious and communicable diseases have lowered the quality of life, as do drug and substance abuse. Other socio-economic issues such as violence, corruption, crime and unemployment are on the increase leading to increased rate of insecurity, which greatly threatens Sustainable development (World Bank, 2002) and (Otieno, 2005)

2.2 The Concept of Sustainable Development

Globally, the concept of sustainable development emerged in the 1980s to address the emerging environmental problems. This was in response to a growing realization that economic and social activities have potential to compromise environmental quality as well as lower the productive potential of natural resources. The landmark 1972 UN Conference on the Human Environment held in Stockholm, Sweden, focused on environmental concerns and led to the establishment of the United Nations Environment Programme (Rosalyn, 2002). In 1987, the World Commission on Environment and Development defined Sustainable Development (SD) in Our Common Future as 'development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs' (WCED, 1987). This very general definition is then expanded into three broad aims:

- a healthy economy should be maintained to promote quality of life while at the same time protecting human health and the environment;
- non-renewable resources should be used optimally;
- renewable resources should be used sustainably;

All these aims point to the fact that damage to the carrying capacity of the environment and the risk to human health and biodiversity from the effects of economic activity should be minimized. It also shows SD takes into account society, environment and economic factors in order to ensure a more balanced form of development. This was a key agenda at the Earth Summit, held in Rio de Janeiro in 1992 at which a comprehensive set of principles were agreed upon to assist governments and other institutions in implementing sustainable

development polices and programmes. It was also agreed that social, economic, and environmental considerations were intertwined with issues of poverty, equity, quality of life and global environmental protection (UNCED, 1992). At this conference, it was noted that no single country was an exception to the fragility of the global environment since environmental problems at the global level have severe local level ramification e.g. global warming and climate change affect agricultural productivity locally leading to poverty, hunger, famine and resource use conflicts (Okello, 2005). As such, economic development though essential in satisfying human needs and improving their quality of life, its achievement must not compromise the capacity of the natural environment to meet present and future needs.

UNESCO (2005) notes that regionally, SD is a complex undertaking encompassing among others, social issues such as peace and security, human rights, gender equality, cultural diversity and intercultural understanding, poor governance and corruption, increased incidences of diseases, and erosion of cultural values and morals. Its economic concerns include corporate social responsibility and accountability, marketing, increasing levels of poverty, widening gap between rich and poor; trends of unsustainable production and consumption leading to inefficiency, wastefulness, and poor enforcement of policies and regulations governing production and marketing. Waswa et al (2006) observed that the environmental challenges of SD are also vast, comprising an expanding population, unsustainable use of natural resources, rural/urban migration, climate change, rural development, urbanization, disaster prevention and mitigation concerns.

Further, a new paradigm of SD was endorsed at the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, where it was declared that SD is built on three interdependent and mutually reinforcing pillars, namely social development, economic development and environmental protection. This was based on the premise that pressure on the environment and natural resources has kept the state of the world's environment fragile thereby resulting in increased poverty, unsustainable production and consumption patterns (World Bank, 2002; NEMA, 2003).

The society pillar provides space for people to understand social institutions and their role in change and development. It aims to uphold peaceful co-existence among communities, equitable access and sharing of resources and respect for the rights and dignity of others. The environment pillar evokes awareness on resources and fragility of the physical environment and the effects on it arising from human activities and decisions with a commitment to factoring environmental concerns into social and economic policy development. The economic pillar revolves around the potential and limits of economic growth, and their impact on the society and the quality of the environment. It calls for a commitment to assess personal societal levels of consumption out of concern for the environment and social well-being.

Consequently, various scholars have conceptualized Sustainable Development and elaborated different models. Hatting (2005) has developed a three-sphere model (Figure 2). The three pillars represented as spheres, are inter-twined thereby embracing a holistic approach in the process of sustainable development. This illustration further implies that

activities in one sphere may have a negative or positive impact on the other. The most important implication of the relationship between the three embedded spheres is that economic, social and environmental considerations do not each have own logic and values separate from the other spheres. The main understanding being that the three spheres should and must work together in unison and harmony like the cogs of a gear system. This school of thought has been adopted and elaborated by other scholars who have also exhibited their own models as shown in figures 3 and 4.

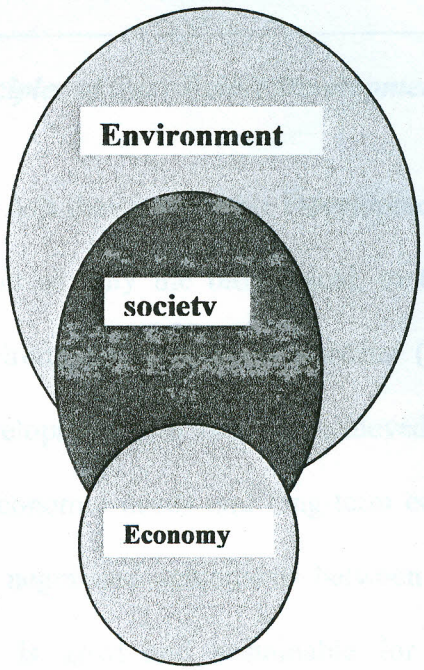

Fig.2: Graphical representation of sustainable development (Hatting, 2005)

The three main principles of Sustainable Development have also been captured in the following model (Figure 3). In this particular model, sustainability (the central point) is seen as a process of a development of all aspects of human life affecting sustenance. It means resolving the conflict between the various competing goals, and involves the simultaneous pursuit of economic prosperity, environmental quality and social equity.

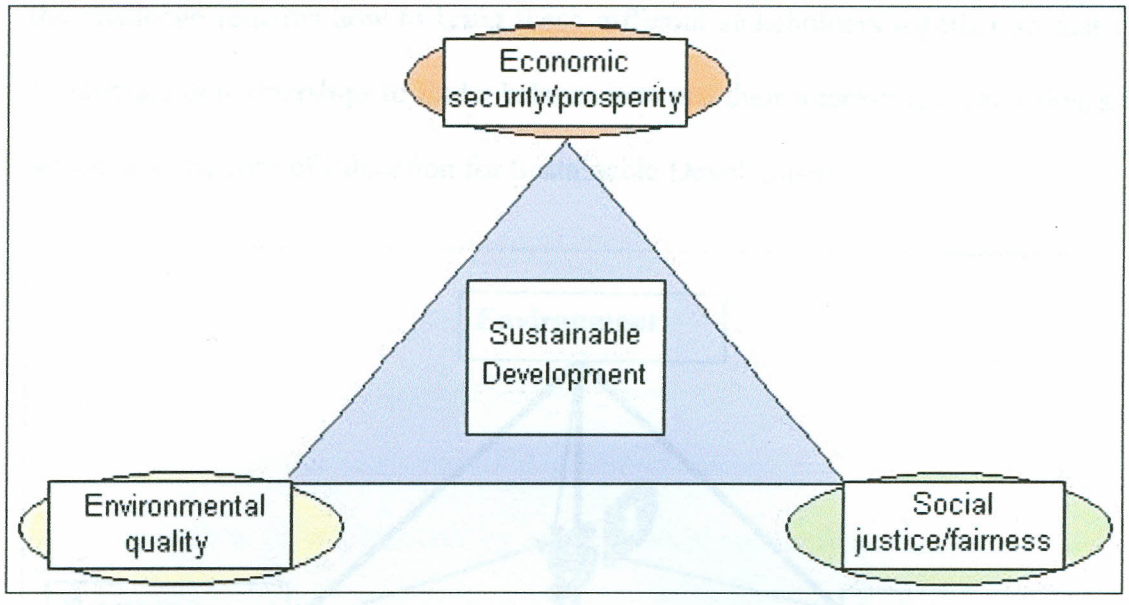

Fig.3: The three main Principles of Sustainable Development (Marvinah, 2004)

This model also places emphasis that Sustainable Development as a concept displays a shift of focus on the environment as only the biophysical, to the interdependence of human welfare and a healthy environment. Likewise, Hopkins (1996) observes that globally, sustainable growth and development will only be achieved through balancing short-term human socio-cultural and economic needs and long-term ecological needs. This basically calls for tradeoffs and also negotiated agreements between individual and societal needs, sharply focusing on what is good and sustainable for the growing economies and environmental needs. This then leads to the creation of a central meeting point for the four competing parties (as shown in Figure 4). This point of convergence then becomes the Sustainable Development point. Marvinah (2004) observes that although critics have dismissed this kind of a pyramid as utopic and too imaginary, the principle behind it, if achieved, forms an excellent departure from the wanton environmental destruction witnessed in recent times. It also slows down on excessive capitalism, consumerism and throw away mentality that is so rampant and characteristic of modern societies. However,

the challenge remains how to bring these different stakeholders together so that they may collaborate in partnerships to find a balance between their interests and priorities, a dilemma which is at the core of Education for Sustainable Development.

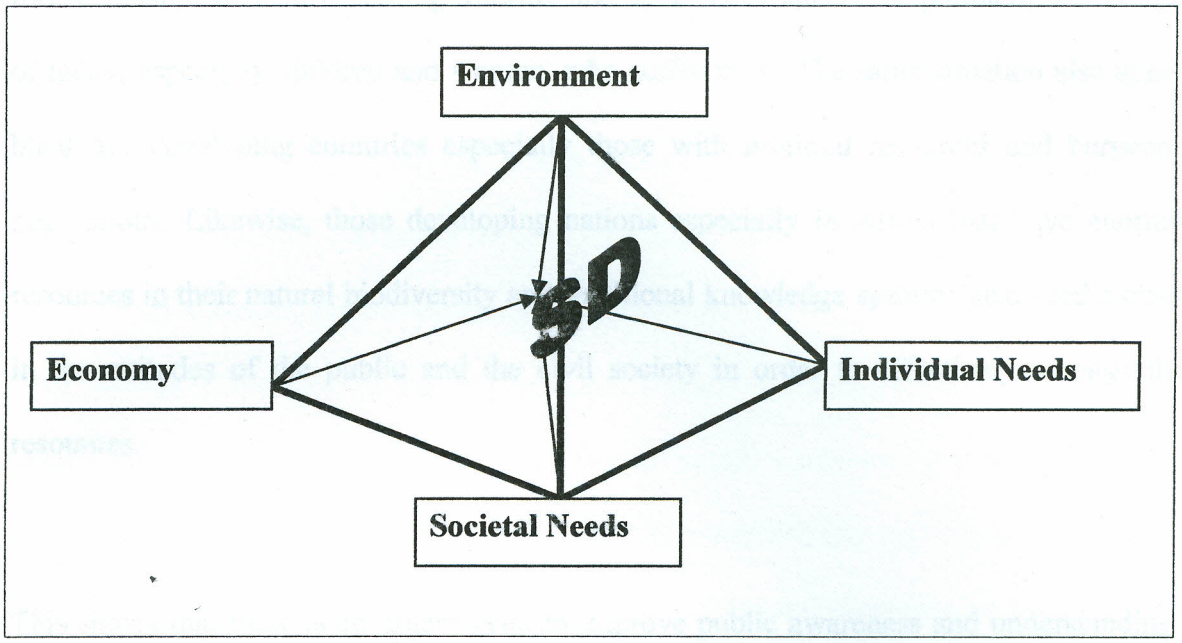

Fig. 4: The Sustainability Pyramid (Hopkins, 1996).

In a nut shell, sustainable development is an idea that is about ensuring a better quality of life for everyone, now and for future generations to come. It entails recognizing that economic, social and environmental goals cannot be pursued independently. Focus on just one area can lead to negative impacts on the others, or at very least missed opportunities. It means meeting development that takes into consideration:

- Social progress which recognizes the needs of everyone
- Effective protection of the environment
- Prudent use of natural resources, especially the conservation and wise use of natural resources at the community level.

This shows that there is the undisputed need to promote environmental education and awareness to educate and inform all stakeholders and the public that irrational depletion of natural resources is destroying the basis of prosperity for future generations and that as forests disappear, land becoming infertile and water is exhausted or polluted, it is the poor of today, especially children and women, who suffer most. The same situation also appears bleak for developing countries especially those with minimal resources and burgeoning populations. Likewise, those developing nations especially in Africa that have enormous resources in their natural biodiversity and traditional knowledge systems also need a change in the attitudes of the public and the civil society in order to effectively manage these resources.

This shows that there is an urgent need to improve public awareness and understanding of environmental issues with a view to promoting sustainable livelihoods. UNESCO (2005) notes that the various approaches to ESD encourage people to understand the complexities of, and synergies between, the issues threatening planetary sustainability and understand and assess their own values and those of the society in which they live in the context of sustainability. This is a pivotal focus of ESD as laid down in the International Decade of Education for Sustainable Development.

2.3 International Decade of Education for Sustainable Development (2005 – 2015)

ESD grew out of EE; as such EE encompasses many of the characteristics of ESD. However, the vision and scope of ESD is broader, and hence, more complex than that of EE. Hopkins (1996) observed that Environmental education has traditionally focused on

changing individual behaviour in order to develop mechanisms to collectively protect the natural environment. Education for Sustainable Development goes beyond environmental education in that it tries to also address other priorities of development such as peace, health, economic growth, consumption patterns, political structures, indigenous rights, gender equity and other critical issues. In effect, ESD attempts to provide a learning framework through which individuals may address community issues in a systemic and holistic problem-solving context (Palmer, 1998). Environmental education may therefore be said to be an essential, indeed foundational component of ESD. Therefore, to globalize this much broader ESD concept, the International Decade for Sustainable Development was adopted by the UN general assembly. This decade assumes a historical timeline (Figure 5), basically emerging from a world concerned about sustainability and the capability of its citizens to speak with one voice on matters of Environmental conservation and sustainable living. As such the decade has to be considered in both local and global terms to give a rounded perspective and proper understanding of the issues involved.

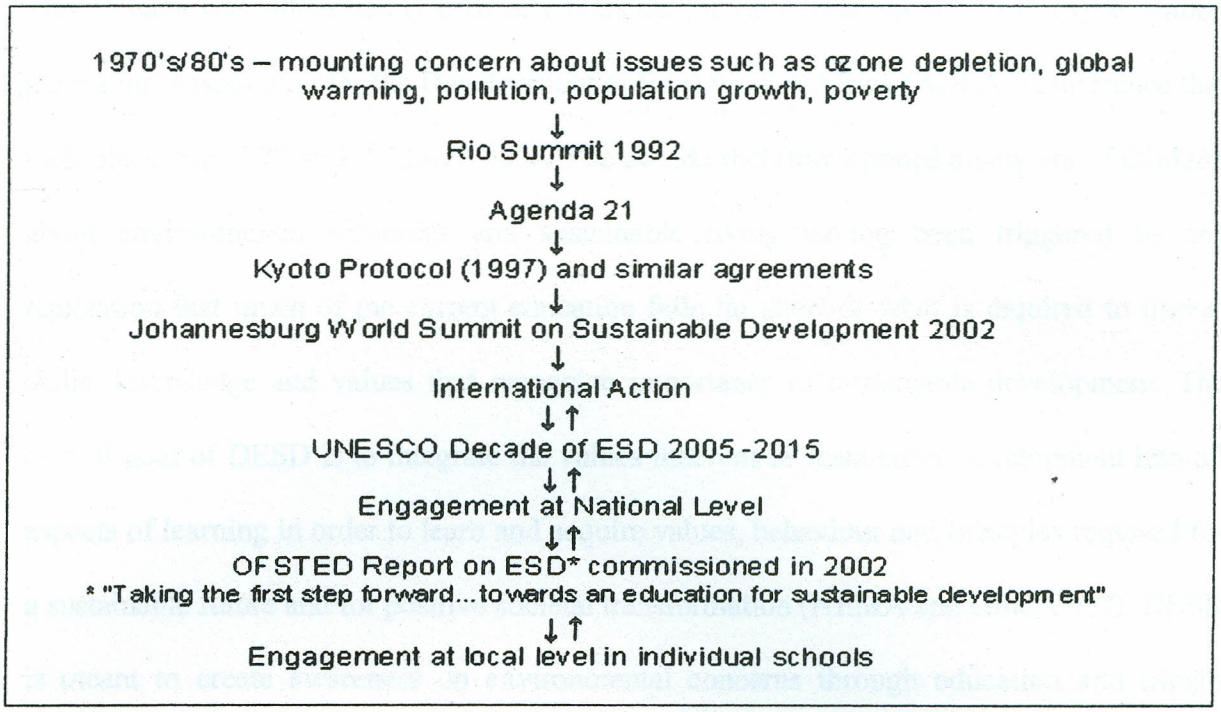

Fig. 5; Historical timeline of the Emergence of DESD
Source: UNESCO (2005)

From the diagram, it can be noted that ESD grew from earlier concerns in the 1980s that witnessed an upsurge in environmental problems, this was despite the existence of EE in school curricula. To address the fore mentioned environmental problems, the Rio Summit recommended the need to reorient the existing education towards Sustainable Development. According to Chapter 36 of Agenda 21, both formal and non-formal education is indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns (UNCED, 1992; Tilbury, 2002). This was reiterated in 2002, when the United Nations (UN) General Assembly adopted Resolution 57/254 proclaiming the United Nations Decade (2005 –2014), the Decade of Education for Sustainable development (DESD). The declaration calls on member states to integrate ESD into their education plans at all levels and sectors of education as well as in development plans (Rosalyn, 2002).

This Decade was subsequently officially launched in the Africa region in Libreville, Gabon during the Association for the Development of Education in Africa (ADEA) Conference that took place from 27th to 31st March 2006. The decade therefore opened a new era of thinking about environmental resources and sustainable living having been triggered by the realization that much of the current education falls far short of what is required to import skills, knowledge and values that recognize importance of sustainable development. The overall goal of DESD is to integrate the values inherent in sustainable development into all aspects of learning in order to learn and acquire values, behaviour and lifestyles required for a sustainable future and for positive societal transformation (NEMA and GoK, 2007). DESD is meant to create awareness on environmental concerns through education and trigger actions aimed at promoting sustainable living at all levels and in all sectors (Absalom, 2004). The vision of the DESD is a world where everyone has the opportunity to benefit from quality education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation. As such it also seeks to achieve the following objectives;

- To promote and improve basic education, including literacy and lifelong learning for sustainable livelihoods, with emphasis on access, opportunity and quality outcomes for children and youth in and out-of-school, and adult literacy.
- To orient existing education programmes at all levels (content and processes) to promote the social, environmental cultural and economic knowledge, skills, perspective and values inherent to sustainability.
- To create public awareness and build understanding of, the principles of sustainable development, with emphasis on the roles of the media and civil society

- To develop training programmes for imparting skills to promote sustainability practices
- To develop strategies at every level to enhance capacity for ESD

In order to realize the above objectives, the Decade has proposed seven strategies. These are advocacy and vision-building; consultation and ownership; partnership and networks; capacity-building and training; consultation and ownership; partnership and networks; capacity-building and training; research and innovation; use of information and communication technologies; and monitoring and evaluation (Rosalyn, 2002). Generally, the decade offers an opportunity to build education and communication more strongly into national sustainable development strategies and make education an integral component of sustainable development at the national level. For instance Kenya in particular has the 2007 final draft on the ESD Implementation Strategy. However there is the urgent need to incorporate ESD in existing curricula at the local school levels and emphasis also laid on the need for practical learning skills to actualize ESD. This would be in relation to the Office for Standards in Education (OFSTED) report (2002) on ESD which among other issues pointed out that "Successful learning occurs best where there is a comprehensive, whole-school approach to chosen activities which reinforces the sustainability message. For instance pupils, together with the wider school community, can try to come up with practical solutions to waste management in their community, such as carrying out a waste audit or asking the local authority to provide recycling bins" (OFSTED,2008)

2.4 Education for Sustainable Development (ESD)

ESD was first described in Chapter 36 of Agenda 21 whereby education was cited as an essential tool for achieving sustainable development and subsequently four areas of action for education highlighted (UNCED, 1992) and (Keating,1993). These were to:

- Improve the quality of basic education;
- Reorient existing education programmes to address sustainable development;
- Develop public awareness and understanding; and
- Provide training for all sectors of private and civil society

The concepts of information, integration, and participation were identified as key building blocks to help countries achieve development that recognizes the three interdependent pillars of environment, economy and society. Otieno (2005) observed that this Agenda also emphasized that broad public participation in decision making was a fundamental prerequisite for achieving sustainable development whereby both the educator and the learner needed to understand the issues of sustainable development and cope with and act upon the interdisciplinary of the issue.

Marvinah (2004) observes that despite these noble ideas achieved in Rio and other forums, reports prepared by countries for the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002, the ten-year review of Agenda 21, revealed that the goals laid out in Rio were still a long way from becoming reality. This showed that there was clearly a need to rethink education and hence Education for Sustainable Development which paves the way for this "rethinking". ESD therefore, is hereby seen as a process of achieving sustainable development as it encompasses the three aforementioned pillars. The overall aim

of ESD is to empower citizens to act for positive environmental and social change by giving people knowledge and skills to help them find new solutions to their social, economic and environmental issues (Rosalyn, 2002). As such, it provides the skills, perspectives, values and knowledge to live sustainably. It must be interdisciplinary, that is integrating concepts and analytical tools from a variety of disciplines and reoriented to include the changes needed to promote sustainable development (Otieno, 2002).

2.4.1 Mission, Vision and Goals of ESD in Kenya

ESD's vision in Kenya is to strengthen the national goals of education and contribute towards the achievement of sustainable development and a better quality of life for all (NEMA, 2006). Likewise, in its mission, it seeks to provide an enabling environment and capacity for all sectors and stakeholders to effectively contribute towards the achievement of sustainable development. It is aimed at the following goals;

- Enhancing the role of education and learning for equitable, efficient and sustainable utilization of the country's resources.
- Promoting quality education through diverse learning and public awareness for improved quality of life and productive livelihoods.
- Promoting teaching and learning that includes appropriate values, behaviour and lifestyles for good governance and sustainability.

ESD therefore, targets every one in the community by providing lifelong learning and engaging all possible spaces of learning (formal, non-formal and informal). It has also embraced culture as an underlying dimension in addressing key areas of sustainable

development, in its three main areas of focus; society, environment and economy. Culture, being peoples' way of life, is learnt socially, and also through formal and informal education. In this sense, culture is a way of being, relating, behaving, believing and acting. As such, it predetermines the way issues of ESD are dealt with in specific national contexts since ESD is about values including respect for present and future generations, respect for the environment, and the promotion and adoption of positive behaviour and practices, which enable all to live a full life without being deprived of basics (Absalom, 2004).

2.5 The Status of ESD in Kenya

Generally, education in the modern world is key to addressing Sustainable Development concerns, and to a greater extent the Millennium Development Goals (MDGs) (UNESCO, 2005). Education shapes a society's future by providing knowledge, skills, perspective and values for sustainable living (Huckle, 1996; Mc Lean et al 2000). Consequently, it should be provided at all levels from early childhood to adult and continuing education, and can be taught formally or informally. The informal way of learning was quite evident in traditional Kenyan communities and was greatly evident in the way local communities learnt their culture and interacted with the environment. This traditional knowledge and technology was generally environment friendly (Otieno, 2002). However, with the coming of Europeans and industrialization this traditional method of environmental protection was broken, presenting new challenges in the sustainable utilization of natural resources. As a result of these new challenges, the Kenyan Government continues to establish and strengthen the legal and institutional framework for managing the environment for example National Environment Management Authority (NEMA), Kenya Bureau of Standards (KEBS), Kenya Wild Life

Service (KWS), and Kenya Forest Service (KFS) etc. Similarly, there has been phenomenal growth in the number and sizes of civil society organizations dealing with environmental issues including The Green Belt Movement, Mazingira Institute, and Forest Action Network among others (Gatundu, 2003; William, 1999).

In addition to these initiatives the Kenyan Government has been at the forefront to initiate the process of implementing the objectives of the DESD (2005-2014). In this regard, several activities have been undertaken since the year 2003 which include several multi-sectoral consultative fora involving the government, civil society, the private sector and development partners. This also included the undertaking of a baseline survey on existing policies and ESD- related initiatives whose findings informed the development of an ESD implementation strategy (NEMA, 2007; GoK, 2007). A national ESD steering committee with membership drawn from government, civil society and private sector has since been formed to spearhead the process with UNESCO-Nairobi, providing leadership and technical support. This strategy is meant to guide the implementation of ESD programmes, projects and activities within the decade by all stakeholders.

The stakeholders are expected to mainstream ESD concerns into their respective plans and activities. This comes against the background that the existing education in schools does not adequately and wholly address environmental and sustainable living issues, and in most cases where these issues are addressed, they are treated as distinct issues not complimentary to and with each other. As such, a need arose to improve the quality of education in Kenya, and in many other countries which are in the process of implementing the objectives of the

UN Decade (2004-2015). Chege *et al* (2006) notes that towards this end, the current Kenyan education system needs to be restructured in such a way that it;

- Includes the values of sustainable development;
- Creates public awareness and understanding on sustainability; and
- Builds capacity on sustainable development

Likewise, according to GoK and NEMA (2007), the draft paper on ESD stipulates that the restructuring of the current Kenyan education system can be achieved through;

- Reorientation of teaching and learning processes so as to make them locally relevant, culturally appropriate as well as inclusive of all learners. In regard to teaching and learning, ESD should extensively address needs in the three pillars of society, economy and environment, as earlier discussed. The interdisciplinary and holistic nature and contents of ESD should be adequately embedded in the curriculum so as to create room for critical and creative thinking.
- Development of different teaching and learning methods, which promote problem solving learning and participatory techniques and research aimed at improving teaching and learning to address sustainability.
- Continuous professional development for educators both in expertise and content from pre-service to continuing education which should redefine the role of the educators towards sustainability goals.
- Development of relevant teaching and learning resources and materials reflecting issues and perspectives under the three ESD pillars and for use in the different educational settings both formal and non-formal learning processes. All these efforts

appropriate, relevant and timely and are geared towards capacity building all stakeholders by providing opportunities for knowledge and skills development for all.

The effective implementation of these stipulated issues in Kenya is expected to crystallize in the attainment of the Millennium Development Goals (MDGs). In line with this, this study will offer an opportunity for educating and influencing the attitudes and views of teachers and students towards Sustainable Development.

2.6 Challenges to ESD

UNESCO (2006) observes that the concept of ESD challenges the way most people, (not just in Kenya but the world over), think about the world today. Economic growth and increased consumption patterns tend to characterize the aspirations of a large proportion of the planet's society. ESD aims to challenge these aspirations by encouraging us to imagine a different future and reflect on how our values, beliefs and current behaviour might affect our collective ability to realize such a future. To do this requires that we also change our view of the purpose of education. This transformative aspect of ESD makes the concept difficult for many to grasp. According to UNESCO (2007) this concept, in most cases is not even well understood even by its advocates. Thus, there is a need for proponents of ESD to establish for themselves an understanding of the concept and decide how they will communicate this to those in higher positions of responsibility. This will take planning, good communication strategies and a willingness to be open to the ideas of those who may not be seen as traditional partners in ESD.

2.7 Implementing ESD in Kenya; Opportunities and Strategies

Several stakeholders have been involved in the provision of formal, non-formal as well as informal education in Kenya. The key players have been the Government, Civil Society Organizations (CSOs), the private sector, Development partners and the media. Although in all these forms of education offered ESD has not been taught or offered as a distinct subject on its own, some of its major components have been passed on to learners and all other parties involved. For instance, Environmental Conservation and Sustainable Development have been taught as components of the major discipline of Environmental Education. On formal education as offered in Kenya, the Government has involved several stakeholders in its policy formulation. For example, the Government has involved CSOs and the private sector in the formulation and development of national policy documents touching on Education, Environment and Sustainable Development. These include the Sessional **Paper** No. 6 of 1988 on Education and Manpower Training for the Next Decade and Beyond with a call to make environmental studies part and parcel of every training facility and to be integrated at all levels of education (GoK, 1988); Sessional **Paper** No. 1 of 2005; **A policy framework** for Educational, Training and Research (GoK, 2005); Economic Recovery Strategy for Wealth and Employment Creation (GoK, 2003), EMCA (1999) and the Vision 2030.

NEMA has also recognized the need to develop a national framework: *ESD: Strategy for Kenya 2005-2010,* to mainstream ESD in Kenya's education system. The strategy focuses on key domains of ESD namely Basic Education, Reorienting Existing Education Programs, developing Public Awareness and understanding of Sustainability and Training in achieving

SD (Otieno, 2005). Although Kenya has not entirely launched the ESD strategy, its eventual implementation will create awareness and capacity by all stakeholders in enhancing SD. It is also anticipated that students will be agents of change in the various sectors of the economy that they eventually would be assimilated upon leaving institutions of learning.

Civil society organizations have been in the frontline of public awareness and advocacy campaigns for social justice, environmental management, economic recovery and development. In this regard, several programmes have been initiated and community participation enhanced. Government ministries/departments and the private sector have also been involved in public awareness and advocacy. The government and CSOs have developed several resource materials for public awareness as well as education on sustainable development themes such as anti-corruption, gender equity, HIV/AIDS, governance, poverty reduction, environmental management, among others. The materials developed are in form of posters, banners, brochures, badges, booklets, fliers, books, symbols and audiovisuals among others. Some private sector players have also supported in material development process.

Institutions of higher learning, Civil Society Organisations (CSOs) and governments have undertaken research aimed at identifying sustainable development issues and risks (UNESCO, 2006). They have also been actively involved in developing new and better approaches and models for environmental sustainability, economic development and social justice. Government, institutions of higher learning, CSOs and the private sector have established partnerships and networks to enhance social justice, environmental protection

and economic recovery e.g. holding joined awareness creation seminars. Vision and strategies for sustainable development have also been developed to direct sustainable development programmes and activities. Despite all these efforts, the entrenchment of ESD as a pivotal discipline in the school curricula and institutions of higher learning has not yet been fully realized, and as such most learners and educators have a limited knowledge of ESD. This shows that a gap exists between policy formulation and the actual implementation of these policies, especially in ensuring that beneficiaries are targeted (GOK and NEMA, 2007)

2.7.1 Roles of Specific Stakeholders in Implementing ESD

NEMA (2006) notes that there is need for the participation of all key stakeholders in the implementation of ESD as a means of ensuring high acceptability and ownership. Likewise, Dorcas (2005) observed that the Government, NGOs, CBOs, Private sector and individual initiatives can collectively achieve the goals of ESD with NEMA as the coordinating body. The draft paper stipulates that the Government will play a vital role in the infusion of ESD concerns into the existing sectoral policies so as to aid in the development of knowledge, skills, attitudes and behaviour related to the sustainable development (NEMA 2007; GoK, 2007). Thus, the role of the government is to:

- Facilitate development of a national policy framework for ESD
- Avail and mobilize resources
- Support ESD interventions in all sectors
- Foster public awareness, participation and capacity building on ESD at all levels

- Mainstream/integrate ESD into the Curriculum
- Monitor and evaluate ESD implementation
- Domesticate relevant international agreements that relate to ESD

Civil society will play a central role in advocacy and lobbying for ESD by linking communities with existing policies. In particular, civil society shall play a catalytic role in promoting ESD through:

- Facilitating community involvement at all levels through awareness and education programmes as a means of sharing information relating to ESD
- Capacity building by providing training, materials and information at both the national and local levels.
- Research activities to improve the understanding of the relationship between society and sustainable development.
- Networking and partnerships to enhance sharing of information and good practices on ESD.

To promote ESD, the private sector should provide opportunities for practical demonstrations of sustainable development and also impart knowledge, both through its advertisements and their capacity building programmes. The industrial and service sectors will also design and facilitate the development and testing of intervention measures. The Media shall integrate ESD and sustainable development awareness building in communication strategies. The media can run programmes that promote, inform and entertain in line with ESD. Private and public sectors, civil society or individuals shall be

encouraged to sponsor such programmes and hence play a pivotal role in shaping change of attitudes towards sustainable development. Consequently, in liaison with other stakeholders, development partners will foster partnership in the spirit of enhancing the decade in Kenya.

2.8 Gaps Identified

From the foregoing literature review, emphasis has been placed on the "one size fits all" approach to ESD. According to Ogunyemi (2005) and Marvinah (2004), it is generally agreed that each societal group will choose to address ESD in the context of its own understanding and means for sustainable development. The challenges in formal education, for example, will be quite different from the challenges in informal education, or those facing the private sector or Civil society. Likewise how a rural school chooses to address its ESD initiatives would be different from how an urban one does. Secondly, there is need for more emphasis to be laid on how ESD aims at harmonizing the various initiatives geared towards its achievement, especially in formal learning. For instance, drama and comedy as a means of encouraging and empowering students to take action and interact with government bodies and non-governmental organizations in eliciting change in areas such as health and environmental protection is seen as simply an extra curricular activity separate from the mainstream classroom learning. As a result, as OFSTED (2008) rightly observed, the opportunity to build on the strengths inherent in each initiative is lost when these individual initiatives are seen as, or tend to occur in isolation from each other. Lastly, there is the undisputed need to clearly exhibit how ESD approaches help to engage communities in decision-making about their own lives. For instance what are the interlinkages between art and drama as ESD approaches in enhancing sustainable livelihoods?

CHAPTER THREE: RESEARCH METHODOLODY

3.1 Target Population

The target population for this study consisted of all the 24 secondary schools in the study area from which 12 schools were randomly sampled to participate in the study. Students and teachers, community leaders from the study area, civil society organizations, the private sector and curriculum developers from Kenya Institute of Education were purposively sampled to participate in this study (Table 1).

Table 1: Key Respondents

Respondent Title	**Number of Respondents.**
Students	72
Teachers	48
Civil Society Organizations	5
Private sector groups	5
Community Leaders	5
Curriculum Developers.	5
TOTAL	**140**

3.2 Sampling Procedure

The Southlands area of Nairobi was purposively selected as the study site due to the diverse nature of residents, ranging from low income earners in Kibera slums to middle and high income earners in Lang'ata and south C estates in Nairobi. The relatively large size of Kibera as the biggest and most populated slum in Kenya justified its selection for comparison with neighbouring non slum zone. The study area is also highly populated with close to 2 million people, with Kibera alone having slightly over one million people (UN

HABITAT, 2004). As earlier noted, the education sector was selected due to the pivotal role it plays in instilling the ESD concept to learners at al levels of learning to be agents of change in all sectors of the economy. The unit of analysis was the individual school, while the unit of observation was the respondent teacher and student. Purposive sampling was used to obtain a sample (n) of 50% that is 12 schools from a sampling frame of all the 24 schools (N) in the study area. The schools were further stratified into two strata of private and public schools from which 120 respondents were picked randomly. At each individual school which participated, 4 teachers and 6 students were picked. The teachers were purposively picked depending on the subject taught while form 1 and 2 classes produced a student each and form 3 and 4 classes produced two students each. The private and public secondary schools strata were used because facilities in the two categories are different and this has a direct bearing on education quality and curricula / syllabus delivery.

All the subjects studied in secondary schools in the study area were used for content analysis. Curriculum developers and other education stakeholders were sampled purposively to elicit professional information regarding the integration of ESD into the existing school curriculum. Community leaders, private and civil society sectors were also sampled purposively to elicit information on components of ESD, which could be incorporated in the existing school curriculum.

3.3 Data Sources

Secondary data sources used included published and unpublished reports from libraries, institutions, the Internet and other relevant materials in line with the study objectives. Primary data sources included selected school surveys and key informants comprising

community leaders, the private and civil society sectors and Curriculum Developers from the Kenya Institute of Education.

3.4 Data Collection Methods and Instruments

Both qualitative and quantitative approaches were used for data collection. One hundred and twenty questionnaires (Appendix 1 and 2) were used to collect quantitative data and were administered by the researcher and a research assistant so as to ensure correct responses and maximum return rate. A questionnaire has considerable advantages in administration in that it offers an even stimulus to a large number of respondents simultaneously and provides the investigator with a relatively easy accumulation of data (Walker, 1985).The questionnaires used had both open ended and closed questions and they targeted the teachers and students. Open-ended questions presented the respondents with a free hand to respond to certain sets of questions, for example, in giving their opinion on whether they had the right understanding of ESD and their recommendations to the implementation of ESD in the teaching curriculum. Close ended questions on the other hand needed direct and precise answers on some issues, for instance, the status of ESD in the school curriculum, progress achieved and the challenges facing the incorporation of ESD in schools. There was also the content search and analysis that was used to identify components of ESD in the existing secondary school curriculum as well as the legal and policy framework for education in Kenya with the aim of relating it to what was actually being taught in class rooms.

After the questionnaires were filled and collected, key informants who included curriculum developers, community leaders, the Private and Civil Society education stakeholders were

interviewed in depth using a set of questions (Appendix 3) for specific information. These interviews allowed structured dialogue between the researcher and the key informants and they also provided answers on the integration of ESD into the curriculum, the interdisciplinary and multidisciplinary approach to teaching the subjects, constraints experienced or likely to be experienced in teaching ESD and finally the recommendations for implementation of ESD in schools. The interview schedules helped the researcher to clarify issues concerning the research, and as such most respondents gave accurate and honest information. For instance, organizations interviewed gave an in depth analysis of the need for the integration of ESD in the school curricula, this was necessitated by the personalized interaction that the interviews offered. According to Mugenda and Mugenda (1999), Interviews are more flexible than questionnaires because the interviewer can adapt to the situation and get as much information as possible. In total twenty interview schedules were used. The research instruments were pre tested at Ayany mixed secondary school, Nairobi Muslim Girls secondary school and Sunshine Boys' secondary school. This was necessitated by the need to achieve diversity of information from the different school categories.

3.5 Data Analysis

The collected quantitative data was coded and analyzed using Statistical Package for Social Scientists (SPSS) Computer Package. Descriptive statistics like frequency distribution, percentages and means were used to describe the variables of this study. Qualitative data were analyzed systematically in line with the study objectives, so as to arrive at viable

conclusions and make recommendations. Results were presented using tables, graphs and pie charts.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 General Characteristics of the Sampled Population

The sampled population consisted of 140 respondents. Out of these, 51% were students, while 34% were teachers, and the remaining 15% were stakeholders consisting of community leaders, the civil society, curriculum developers and the private sector (Table 2). Data obtained showed that 17% of the respondents were seventeen years and below, mostly students in forms one and two. About 76% of the respondents were in the most productive age bracket of between 17-45 years, while only 7% were above forty five years of age. It was further noted that 55% of the respondents had attained secondary school education, while 45% had been exposed to tertiary education. As such, all the respondents had some level of exposure to Environmental Education, majorly taught as part of the science subjects in the existing school curricula.

Table 2: General characteristics of the sampled population

Item	Frequency (%)	Total Frequency (%)
Respondents' gender		
Male	56	
Female	44	100
Age structure		
Under 17	17	
17-45	76	
Over 45	7	100
Respondents' Category		
Students	51	
Teachers	34	
Other stakeholders.	15	100
School Category		
Private	66	
Public	34	100
Nature of School		
Girls' secondary school.	17	
Boys' secondary school	25	
Mixed secondary school	58	100

Source: Field Study (2007)

Out of the studied schools, 66% were private schools while 34% were public schools. Approximately 17% of the schools sampled were girls' secondary schools; while 25% were boys' secondary schools and the remaining 58% were mixed secondary schools. A total of 44% of female respondents and 56% of male respondents were sampled. The different school categories (mixed secondary schools, girls and boys only secondary schools) were sampled so as to ensure diversity of responses and capture the different experiences inherent

in each school category. Consequently, the different teaching and recreation facilities available in public and private schools were taken into consideration hence the inclusion of the two school categories in the sample. Likewise, both day and boarding schools in the study area were also sampled and placed under study.

4.1.1 The Place and Perception of ESD among the Respondents

The UN has stipulated eight Millennium Development Goals (MDGs) all which have specified time target by which they should be achieved. Likewise the DESD was noted as a key decade that could contribute to actualization of these goals. ESD, according to UNESCO (2008) is a fundamental pre-requisite for achievement of the MDGs. It will not be possible to implement the MDGs without a population that for example, understands the principles and practices needed for achieving ecological sustainability, or without the knowledge and skills to avoid and address health risks. Consequently, this study sought to find out the respondents' perception of ESD as a key tool to addressing these goals. This was against the background that ESD equips learners with critical thinking and problem solving skills leading to confidence in addressing the dilemmas and challenges of sustainable development. As such, it was noted that 100% of all the three categories of respondents rated four goals out of the eight MDGs as the most extremely important development needs that should be addressed by the education system in Kenya. These needs were; eradicating extreme poverty and hunger, achieving universal primary education, Environmental Sustainability and combating HIV/AIDS, Malaria and other diseases (Table 3). South African Development Cooperation (SADC) (2006) notes that Africa is particularly

hard hit by these particular developmental challenges and this underlies the critical relevance of ESD.

Likewise, 83% of the teachers and 90% of the student respondents rated ensuring balance in trade as a least important development goal, compared to a sizeable percentage (89%) of the key informants who rated it as simply an important goal. The same scenario was also exhibited when analyzing the importance of ESD in ensuring balance in trade among and between countries of the world. While 93% of the key informants rated promoting good governance as an important goal to be addressed through the Kenyan education system in the area, 86% and 71% of the students and teachers respectively felt that it was a least important need. In fact only less than 10% of each of these two groups rated it as an extremely important goal. The high importance accorded to this development need by the key informants was attributed to the view that this group of respondents comprised of the civil society and policy makers who are majorly advocates of good and transparent governance. Likewise, most teachers and students were of the opinion that good governance and matters of trade were policy issues that were purely to be addressed by the government of the day, and as such had little to do with ESD.

There was general observation between these two groups of respondents that the lack of political will and enactment of sound policies would scuttle the achievement of these two development needs even with ESD in place. This was in contrast to the respondents' perception of the empowerment of the youth and the disadvantaged, which was rated as an extremely important development need by 97% and 94% of the students and key informants

respectively, while 4% of the teachers rated it as an extremely important and 96% of them rating it as simply important. This was found to be ironical considering that the teachers were at the centre stage when it came to empowering the youth primarily through imparting education, knowledge and awareness.

About 5% of the students rated reducing child mortality as having least importance, with the bulk (89%) rating it as only important. This was in contrast to the 97% and 92% of the teachers and key informants who accorded extreme importance to this development need. Most teachers and key informants were parents and as such had a wider knowledge of the impact of child mortality, and the key role that education could play in reducing infant deaths. On the other hand, most students were still teenagers and had not yet got into the family way, as such, the magnitude of infant mortality was lighter on their side.

Table 3: The Respondents' views of development needs

Development need	Respondent	Perception (%)			
		Extremely important	Important	Least important	Total
1a)Reduction in poverty and hunger b)Combating HIV/AIDS c)Achieving universal primary education d)Environmental sustainability	Students	100	0	0	100
	Teachers	100	0	0	100
	Key Informants	100	0	0	100
2.Promoting good governance	Students	3	11	86	100
	Teachers	8	21	71	100
	Key Informants	5	93	2	100
3.Empowerment of the Youth and the disadvantaged	Students	97	3	0	100
	Teachers	4	96	0	100
	Key Informants	94	6	0	100
4.Reducing child mortality	Students	6	89	5	100
	Teachers	97	2	1	100
	Key Informants	92	8	0	100
5. Ensuring balance in trade	Students	1	9	90	100
	Teachers	3	14	83	100
	Key Informants	11	89	0	100

Source: Field study (2007)

4.1.2 The Perception of ESD among Respondents

Education enables learners to understand themselves and others and their links with the wider natural and social environment, and this understanding serves as a durable basis for building respect (Marvinah, 2004). Consequently, Environmental information is a key element in achieving a good level of public involvement and participation in the process of sustainable development. Lack of community awareness and understanding has been rated as probably the most significant barrier to sustainable development by hampering local

sustainable initiatives. UNESCO (2005) notes that education and information dissemination is key if we are to learn to make the right decisions today and in the future. In relation to this, effort was made to find out the perception of ESD among the respondents (Table 4).

Table 4: The respondents' perception of ESD

Understanding of ESD	Respondent	Perception (%)			
		Agree	Undecided	Disagree	Total
New vision of education for a sustainable future	Students	89	2	7	100
	Teachers	83	2	15	100
	Key informants	96	2	2	100
Holistic approach to EE	Students	78	7	15	100
	Teachers	57	17	26	100
	Key informants	85	0	15	100
Synonymous to EE	Students	2	4	94	100
	Teachers	1	2	97	100
	Key informants	0	2	98	100
Knowledge that provides learners with skills for sustainability	Students	83	6	11	100
	Teachers	87	4	9	100
	Key informants	96	1	3	100
Lifelong process encompassing environment, society and economy	Students	79	3	18	100
	Teachers	67	6	27	100
	Key informants	92	6	2	100
An essential tool for profit making	Students	17	2	81	100
	Teachers	10	3	87	100
	Key informants	5	4	91	100
An essential tool to fight tribalism	Students	13	8	79	100
	Teachers	15	15	70	100
	Key informants	67	3	30	100

Source: Field study (2007)

Results showed that the greater percentage of all the respondent categories interviewed perceived ESD to be a new vision of Education for a sustainable future. For instance, 89% of the students, 83% of the teachers and 96% of the key informants interviewed perceived ESD to be a new vision of education for sustainable future, compared to 7%, 15% and 2%

of the students, teachers and key informants respectively who disagreed that ESD was a new vision for education for a sustainable future. Further, only 2% of all the respondent categories were undecided on this particular perception. This could be attributed to the fact that sustainability is and has been a global issue which has been advocated for the world over hence most people have been obliged to see the need for a sustainable futuristic society. Of particular interest were the key informants who had the highest rating (96%) of those who perceived ESD as edging towards sustainability. This was explained by the fact that most of these key stakeholders were NGOs, CBOs and Faith Based Organisations (FBOs) who are on the frontline in advocating for sustainable development. A near similar scenario was also exhibited when 78%, 57% and 85% of the interviewed students, teachers and key informants rating their perception of ESD as a holistic approach to environmental education (EE). This was in comparison to 15%, 26% and 15% of the interviewed students, teachers and key informants respectively who did not perceive it as such.

Field survey showed that the percentage of the teachers who agreed that ESD was a holistic approach to EE was lower than that of the students. This was attributed to the fact that the teachers were the ones charged with the responsibility of implementing the education curriculum and as such had a better understanding of EE than the students. Moreover, a majority of the teachers interviewed pointed out that ESD was a new concept and consequently felt that it was too early for them to conclude that it was a holistic approach to EE. This kind of a scenario heightens the need for teachers to be equipped fully with the capacities to understand and be able to teach the ESD concept to their students. Kaivolla (2001) noted that teachers are indispensable partners in the successful implementation of

ESD. Their empowerment in the knowledge, skills, values and methodology of sustainability principles is bound to have a multiplier effect on the learners in both the formal and informal education sectors. It was also noted that a great percentage of the key informants interviewed observed that they had been exposed or participated in designing the ESD strategic plan in one way or another and hence had better understanding of both EE and ESD. As such, majority of them (85%) perceived ESD as a holistic approach to EE. It was particularly notable that over 90% of all the respondents interviewed disagreed that ESD was synonymous with EE, with most key informants observing that ESD as a concept was actually an offshoot of both EE and Development Education. This was supported by a cross section of teachers who pointed out that some subject topics in the school curriculum, for instance food chains, global environments and human rights all had a bearing on ESD. As such, most of the respondents failed to see the synonymity between the two, preferring to take them as two dependable units, with one (Environmental Education) sourcing and enriching the other (Education for Sustainable Development).

Otieno (2002) notes that ESD helps individual communities and governments to promote sustainability measures, by encouraging people to participate, belong and contribute to collective decision-making on sustainability issues. It also helps socialize people and enhances a clear understanding of sustainable development. Likewise, UNESCO (2006) notes that ESD aims at moving society to adopting behaviours and practices which enable all to live a full life without being deprived of basics. In relation to this, data collected showed that 83%, 87% and 96% of the interviewed students, teachers and key informants respectively perceived ESD as knowledge that provides learners with skills to lead

sustainable livelihoods. It was worthy noting that there was a notable percentage of both students and teachers who disagreed that ESD provides learners with skills to lead sustainable livelihoods, that is 11% and 9% of both students and teachers respectively, while in comparison, only 3% of the other stakeholders in the same category disagreed. Field study showed that the reason for the teachers and students responses was that they regarded commercial and science subjects as the only key to leading sustainable livelihoods. It was also noted that their understanding of ESD was inadequate, as compared to the key informants who were mainly advocates of the sustainability concept embedded in ESD.

As observed earlier on, ESD is a three pronged concept, comprising the intertwined and mutually reinforcing pillars of environment, social development and economic transformation. Likewise, the field study sought to find out whether respondents viewed ESD as a lifelong process of education encompassing Environment, economy and society, the following varied responses were noted. While 92% and 79% of the key informants and students respectively answered in the affirmative, it was equally noted that a mere 67% of the teachers perceived ESD as such, while a significant 27% of them failed to see ESD as three pronged. A near similar scenario was exhibited when respondents were asked to rate their perceptions on whether or not ESD was an essential tool for profit making, whereby 81%, 87% and 91% of the students, teachers and key informants respectively did not perceive ESD as a profit making tool. This was in comparison to only 17%, 10% and 5% of the students, teachers and key informants who perceived ESD as a profit making tool. This overwhelming majority of respondents in the three categories perceived ESD as a tool to enhance sustainability as opposed to profitability. Teachers and students in this category felt

that commercial courses were the main advocates of capitalistic consumerism and resultant profit making as compared to 'soft and ethical' courses like ESD which aims at slowing down commercialization and the making of extreme profits. The key informants in particular pointed out that the quest for profit making called for massive resource utilization which in most instances had led to environmental degradation other than sustainable development, which was at the core of most of these key informants' agenda. The failure of a sizeable percentage of teachers to view ESD as three pronged displays that ESD is not well understood among the interviewed teaching fraternity, as such there is urgent need to equip the teachers with the knowledge necessary to be able to pass on the same to the students. This stems from the fact that ESD is a vision of education that seeks to balance human and economic well being with respect for the earth's natural resources, and should be perceived as such by both educators and learners alike (UNESCO, 2008).

UNESCO (2006) observes that the underlying values of ESD include: respect for the dignity and rights of all people, commitment to social and economic justice for all; respect for inter and intra-generational equity; respect and care for life in all its diversity and a commitment to a culture of tolerance, non-violence and peace. In relation to this, data collected sought to find out the respondents' perception of ESD as an education that addresses insecurity, marginalization and tribalism. On insecurity and marginalization, field data showed that 84%, 86% and 83% of the students, teachers and key informants respectively disagreed that ESD was capable of addressing the two. This also meant that less than 20% of all respondents in each category either agreed or were undecided on whether ESD could address matters of insecurity and marginalization. It was further observed that it was

universally agreed by all respondent categories that insecurity and marginalization were political issues, and as such they could only be addressed by both political good will and good governance, and that the only role that ESD could play, if any, would only be peripheral. On tribalism, there was a marked departure from the foregoing scenario. This was so because unlike the greater percentages of both teachers and students (79% and 70% respectively) who did not perceive ESD as an essential tool to fight tribalism, a significant 67% of the key informants perceived ESD as pivotal in fighting tribalism, while 30% disagreed. This was also in comparison to less than 30% and 21% of the teachers and students respectively who agreed or were undecided on whether ESD was a necessary tool to fight tribalism. Most teachers and students felt that Politics fuelled tribalism and that ESD could only play a role in creating awareness that tribalism as a vice existed, but was a weak tool in addressing its roots and how to curb it, and those only political solutions could address it. The Key informants on the other hand felt that tribalism was influenced by unequal resource allocation and utilization and that ESD was necessary to create awareness on coexistence, fairness and justice and hence initiate good governance.

4.2 Current Status of ESD Implementation in Kenyan Secondary Schools

UNESCO (2005) observes that ESD mirrors the concern for education of high quality, demonstrating an interdisciplinary and holistic nature, whereby learning for sustainable development should be embedded in the whole curriculum and not just as a separate subject. In relation to this, data collected showed that over 90% of all respondent categories rated the following aspects of ESD as effectively covered in the school curriculum; waste management, food security, afforestation, water, soil and biodiversity conservation,

environmental pollution control, health care and combating HIV/AIDS. This was explained by the fact that majority of these thematic areas of ESD are taught right from elementary levels of learning, whether formally or informally and that most of them were extensively covered in advanced levels of learning. As such most respondents identified with them.

A notable case was the issue of HIV/AIDS, which has, from the recent past, been extensively highlighted globally, and has been taken up by governments, the civil society, the media, schools, churches and homes. A similar percentage of all respondent categories rated both Good Governance and Economic development as fairly covered in the school curriculum. It was also notable that majority of teachers and students could not even define Good Governance comprehensively, hence the resultant rating. Most students felt that they only learn for the sake of passing exams and those issues of Good Governance and Economic Development were the reserves of civil society and the Government respectively. The teachers in particular observed that the present school curriculum needed to be reviewed so as to give room to wider topics on such issues of national and societal importance. The Key informants though, seemed to understand these two issues, more so because most were involved in advocating for the same.

Of great importance was the issue of conflict resolution, whereby field data collected showed that 88% of the Key informants rated conflict resolution as comprehensively covered in the school curriculum with only 12% citing as fairly covered. Likewise, 76% of teachers rated conflict resolution as fairly covered, with only 17% rating it as comprehensively covered and 7% as least covered. Of all the students interviewed, not a

single one rated conflict resolution as comprehensively covered, with an overwhelming majority of 91% of them rating it as least covered and 9% as not covered at all in the curriculum (Figure 6).

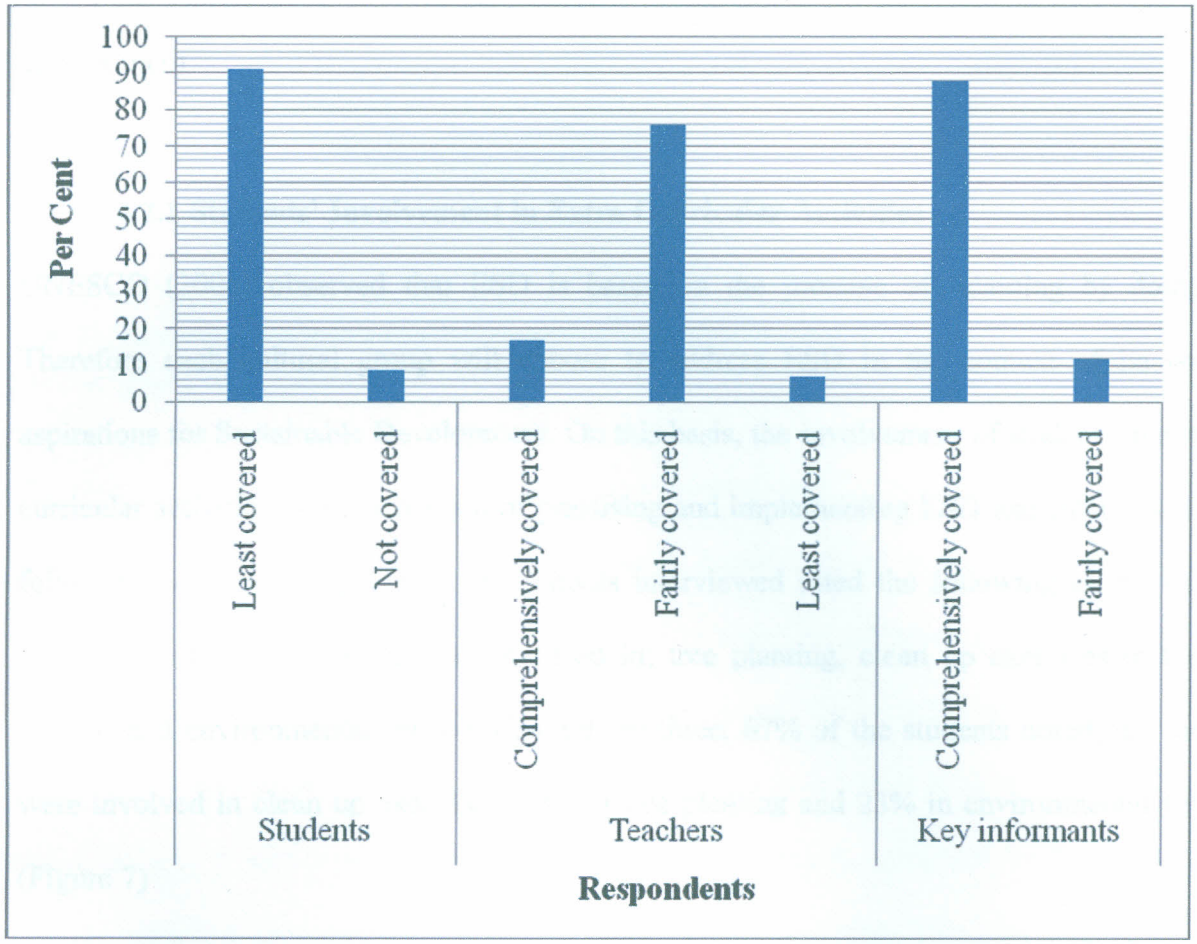

Fig. 6: Perceptions of the status of conflict resolution in the school curriculum
Source: Field Study (2007)

Most teachers who taught social subjects mostly Social Ethics and C.R.E were the ones who rated conflict resolution as fairly covered, while those in the physical and commercial subjects as well as the languages majorly rated it as least covered. The students explained their contrasting ratings as being attributed to the fact that only some few aspects of Conflict resolution were covered in the curriculum, and as such felt that Conflict resolution and

related aspects should actually be taught as distinct subjects on their own for them to be understood clearly by most of them. Therefore, it was a general observation that less understood but very important components of ESD needed to be included in the school curricula especially issues of good governance, conflict resolution and sustainable economic development

4.2.1 Students' Involvement in Extra Curricular Activities

UNESCO (2008) observed that ESD is based on the premise of 'learning by doing'. Therefore each cultural group will choose to address ESD in the context of its own aspirations for Sustainable Development. On this basis, the involvement of students in extra curricular activities as a mechanism of practising and implementing ESD was rated and the following was observed; that all the schools interviewed rated the following as the only extra curricular activities they are involved in; tree planting, clean up exercises in their schools and environmental related trips. Of the three, 67% of the students noted that they were involved in clean up exercises, 10% in tree planting and 23% in environmental trips (Figure 7)

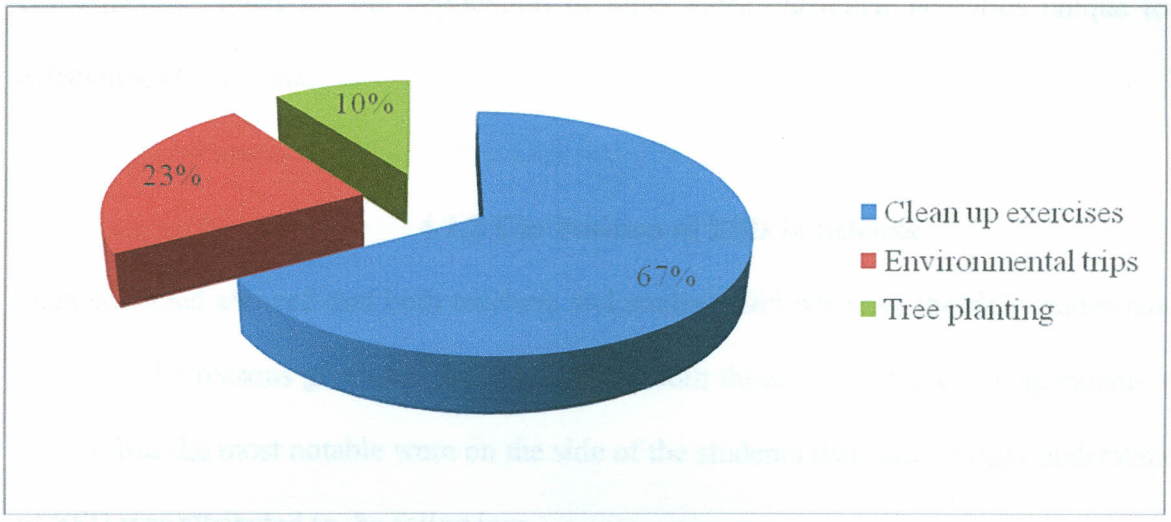

Fig. 7: Students involvement in extra curricular activities
Source: Field study (2007)

The clean up exercises in the schools were daily routine, with all the students both in day and boarding schools having duty rosters and work stations. Environmental trips were also rated with most students participating being those in boarding schools, while those mostly involved in tree planting being the ones in non slum areas. The extreme congestion in the slums and its consequent limited space for such exercises posed great challenges to those in slums schools. It was also noted that those in boarding schools compared to those in day schools, were the ones majorly involved in the environmental trips. This was explained by the fact that those in boarding schools paid higher school fees which could accommodate such trips, and consequently had readily available school transport. The situation was grim especially for those in slum areas since their parents had lower income to allow for such 'luxurious' trips, and subsequently also lacked own school transport. Interviews conducted also showed that most of these trips took place mostly over the weekends when most day schools were out of session. This therefore showed that the 'learning by doing' bit of ESD had not been universally adopted across the different school categories, and this

consequently called for the application of other extra curricular activities unique to the affected specific areas.

4.2.2 The Position of ESD in Schools

Data collected showed that both teachers and students did not have the right understanding of ESD. The reasons given for this scenario by both these two groups of respondents were varied. But the most notable were on the side of the students that lack of right understanding of ESD was attributed to the following;

i. To them they felt that they should have a subject titled ESD in the curriculum and an accompanying teacher for the subject.

ii. Some of them had the misconception that the researcher might ask further questions beyond the answers that they had given on the stipulated questions and as such they decided to rate ESD as not taught in their school.

Subsequently, the teachers' lack of proper ESD understanding was attributed to the following;

i. The lack of any of their trained colleagues on ESD.

ii. The feeling that ESD was an extremely new concept, such that even in cases where some of their colleagues knew about it, their knowledge was sketchy, knowing just the basics or just some of its aspects, for instance Environmental conservation. They attributed this situation to the lack of ESD as a distinct subject in the school curriculum. Most teachers interviewed only hoped that their students would be taught about ESD in its entirety in higher institutions of learning.

This resultant scenario contrasts with the situation in other countries especially in the developed world like Canada whereby learners in all levels form associations and other groupings and come up with ESD related activities and compete on the same. In areas like the Asia- pacific regions, school- community interlinkages that centre on ways and means of disseminating ESD initiatives are steadily on the increase, and majorly use drama and music to relay the message (UNESCO, 2008). This is in line with the vision of Agenda 21, that learning institutions should promote non-formal education activities by cooperating with and supporting the efforts of non-formal educators and other community-based organizations (UNCED, 1992).This means that in the study area and indeed the whole country in general, there is the undisputed need for more vigilance to initiate ESD initiatives not just at the school and policy levels, but also focusing on individual capacities especially at the home level. This can be through local actions like the proper use of domestic water and in soil conservation measures at the farm level.

4.3 Barriers to the Implementation of ESD in Kenyan Secondary Schools

Kaivolla (2001) showed that with the exception of some few elite schools in the urban areas, most students are made to learn under difficult situations in Africa especially with regard to teaching facilities and poor staffing issues. This scenario there fore stalls their creativity and development into reflective young citizens as demanded in ESD. In this regard, effort was made to find out the barriers to the implementation of ESD in the study area's secondary schools. Field data obtained showed that the following factors were the most challenging in the implementation of ESD in Kenyan secondary schools;

i. Inadequate access to resources (teaching materials, competent and trained educators and finances).

ii. Increase in profit driven/ motivated private schools (Respondents observed that some of these schools do not even use the Kenyan education system, and that most emphasize on students passing examinations and not 'drilling them with unnecessary new concepts' which would end up costing them much.

iii. Poor implementation of Government policies and lack of political good will. This was attributed to several reasons for instance, since the inception of the first ESD draft in 2005, the government stills lags in the production of a curricula with ESD in it, the distribution of ESD materials and in partnering with organizations that are involved in ESD matters, this is despite the importance that ESD is accorded the world over. The high poverty levels in the country were also cited as a contributing factor whereby the government channels resources to fight poverty and all its related ills at the expense of new concepts such as ESD.

iv. Insufficient time allocation for in-service training for secondary school teachers. This had hindered the introduction of extra courses to the already overloaded teacher training curricula. As such, the teacher respondents felt that just like the government had recently introduced courses on special education and Early Childhood Development (ECD) for those willing to study them, there was also need to do the same to ESD so that it could be taken up as an additional course by those interested, or alternatively be made a compulsory course for in-service teachers and in teacher training colleges.

In addition to the foregoing barriers, both the interviewed teachers and students unanimously rated the following ESD components as very important to be emphasized in the school curriculum. They included liquid and solid waste management, biodiversity conservation, environmental pollution control, sustainable agriculture, personal and compound hygiene as well as tidiness.

4.4 Key Stakeholders and Their Roles in the Implementation of ESD in Secondary Schools

There is a need for co-ordinated intervention and capacity building to strengthen, extend and mainstream existing practice that could help to in implementing ESD. Field data showed that 100% of all the three categories of respondents interviewed rated the Government, the Civil Society and the Development partners as very important stakeholders in the implementation of ESD in schools. The only outstanding difference in respondents' rating was in the assessment of the Private sector, whereby all the key informants rated them as very important, with only 5% of both teachers and students rating it as such. It was notable that 95% of both teachers and students rated the private sector as just important in ESD implementation in schools. A great majority of both teachers and students felt that the private sector was in business, aiming to increase capital and make profits and as such had little to offer in implementing ESD. On the other hand, the key informants' higher rating of the private sector was influenced by their observation that private sector players were involved in information dissemination and public sensitization of key issues on development. Likewise, it was also universally observed that the development partners had a

very important role to play in ESD implementation as they were the main architects of the ESD initiative which had now trickled down to world Governments through UNESCO.

4.4.1 Stakeholder Roles in Implementing ESD

i. The Government

Chapter 36 of Agenda 21 showed the need for governments to strive to update or prepare strategies aimed at integrating environment and development as a cross-cutting issue into education at all levels in cooperation with all sectors of society (UNCED, 1992). Likewise, data collected showed that 80%, 25% and 47% of the students, teachers and key informants respectively were of the view that the Government's chief role was to introduce ESD as a distinct subject in the school curricula. Likewise, 20%, 75% and 40% of the students, teachers and key informants respectively felt that the government was obliged to train ESD teachers in both teacher training colleges as well as those in in-service. This had earlier been emphasized in Agenda 21 that Educational authorities, with the appropriate assistance from community groups or non-governmental organizations, are recommended to assist or set up pre-service and in-service training programmes for all teachers, administrators, and educational planners, as well as non-formal educators in all sectors, addressing the nature and methods of environmental and development education and making use of relevant experience of non-governmental organizations (UNCED, 1992).The remaining 13% of the Key informants interviewed were of the opinion that the Government should prioritize ESD incorporation in its development policies focussing on its citizenry. As such, this called for vibrancy in its political will and policy guidance, which according to UNCED (1992), the government has an important role to play in recognition of the values, traditional knowledge

and resource management practices among its populace with a view to promoting environmentally sound and sustainable development;

ii. Civil Society Organizations

On the role of the Civil Society, 96% of the students pointed out that they should fund ESD initiatives both in and outside the school curricula while 4% were undecided. Subsequently, 35% of the teachers and 55% of the key informants felt that the civil society should be organizing in-service training seminars and symposiums on ESD for teachers. There was also the need for the civil society in conjunction with the Government to work together towards drafting a comprehensive school curriculum with ESD in it, according to 65% and 45% of the teachers and the key informants respectively.

iii. The Private Sector

Data collected showed that the media, being a pivotal part of the private sector, had a central role to play in the implementation of ESD. According to a notable percentage (83%, 87%, and 79%) of the students, teachers and Key informants respectively, the media had a vital role to play in information dissemination and awareness creation on ESD initiatives. They felt that creating awareness was important in order to impart knowledge, and could be done via both the print and electronic media, for instance having programmes on ESD being aired, or having special newspaper and journal columns on the same. It was also noted that this kind of mass communication had the capacity to reach a wide range of the populace, and could also be done in different languages for the different targeted social groups and audiences. The remaining percentages of both the teachers and the students were of the opinion that the private sector especially corporate companies like Safaricom and Celtel

should organize and sponsor ESD challenge competitions/ quizzes for students to be held in schools or even aired on TV and Radio. These challenge competitions should be accompanied with incentives, for instance, prizes either in monetary terms or even in scholarship forms so that more students could be interested in them. This would be an effective way of getting more students involved and having the ESD concept inculcated in the young ones. The remaining 21% of the Key informants observed that the Private sector especially those in business should adopt sustainable production practices that would enhance ESD. For instance, they should actively advocate and be involved in recycling, and the use of cleaner technologies. There was also the undisputed need for a viable corporate social responsibility programmes to be expected from private sector players, for example in the support of both school and community initiatives aimed at enhancing ESD.

iv. Development Partners

As a matter of priority and urgency, all the respondents unanimously observed that there was an unparalleled need for the Government to liase with all relevant development partners in enhancing ESD initiatives in schools. This could be done through funding, research, among other ways. As earlier noted, every single region will have to implement ESD in its own peculiar way according to its needs and policies; it is the successful attainment of the final product that will justify the means used. As such, development partners can come in handy to fund local research initiatives that seek to establish the most applicable practices to actualize ESD in different localities. Their technical guidance as well as the provision of the necessary resources is necessary for localizing the ESD agenda. This is also in line with the ideals of Agenda 21 that development partners should increase the efficiency of indigenous

people's resource management systems, for example, by promoting the adaptation and dissemination of suitable technological innovations (UNCED, 1992)

4.5 Opportunities and Strategies for the Implementation of ESD in Secondary Schools

4.5.1 Strategies

A significant 93% of the students and 96% of the teachers rated the introduction of Environmental Education (EE) in schools as a very important strategy for implementing ESD in secondary schools. This was echoed by only 50% of the Key informants (Table 5). This teacher- student scenario was attributed to two factors;

i. The fact that in secondary schools, EE is not taught as an independent subject on its own, in fact it is only some of its components majorly those touching on the physical environment are taught in schools. This is usually a part of the physical and biological sciences.

ii. As stated earlier, most teachers and students, though with a vague idea of ESD, felt that EE and ESD were two interdependent units and that they both enriched each other. As such majority were of the opinion that introducing EE as a subject in schools would boost their chances of understanding their environment in totality.

It was equally important to note that a mere 7% and 4% of the students and teachers respectively, and a significant 50% of the key informants rated the introduction of EE to schools as just important. Majority of the key informants who had a better understanding of ESD, felt that EE was basically a building block/ foundation to ESD and hence their

responses. This showed the need for mechanisms to be put in place to capacity build both the learners and the teachers so as to make the understanding of these two concepts clearer.

Table 5: Strategies to introduce ESD in schools

Strategy	Respondent	Perception (%)			
		Least important	Important	Extremely important	Total
Introduction of EE as a subject	Students	0	7	93	100
	Teachers	0	4	96	100
	Key informants	0	50	50	100
Use of field trips	Students	0	0	100	100
	Teachers	0	12	88	100
	Key informants	17	60	23	100
Clean up and tree planting exercises	Students	11	89	0	100
	Teachers	0	100	0	100
	Key informants	0	7	93	100
Use of Drama, music and dance	Students	0	0	100	100
	Teachers	0	90	10	100
	Key informants	0	10	90	100
Environmental talks and lectures	Students	63	37	0	100
	Teachers	0	23	77	100
	Key informants	0	8	91	100
Use of legal and policy frameworks	Students	63	33	4	100
	Teachers	77	23	0	100
	Key informants	0	16	84	100

Source: Field Study (2007)

Tilbury (2002) noted that a lot of inspiration could be drawn from examples of informal approaches of inculcating ESD to learners like field excursions. These avenues were more likely to drive home the messages faster and deeper than traditional teacher – dominated classroom teaching. As table 5 shows, the use of field trips and environmental days also attracted varied responses from the different respondent categories. For instance, whereas 100% of the students and 88% of the teachers rated it as a very important strategy in

implementing ESD in schools, a mere 23% of the key informants viewed it as such. It was particularly notable here that most students valued trips outside their school confines, and as such had no objection in rating this strategy as very important. This was in contrast to most key informants who felt that these trips and environmental days were used by students as leisure days and as such not much concrete learning would end up being achieved. This was also reflected in the Key informants' rating of this strategy as just important (60%) and least important (17%) against the remaining 12% of the teachers who felt that this strategy was important.

ESD encourages young people to take action on what they have learned rather than simply absorbing information for regurgitation in exams. This is achieved through taking learning beyond the classroom. As such, their involvement in practical skills outside the classroom was rated, focusing on clean up exercises and tree planting sessions. Results showed that not a single student rated them as very important strategies in implementing ESD in schools. The Key informants' rating varied from very important (93%) to important (7%), while all the teachers interviewed rated this strategy as just important. It was of particular interest to note that 89% of the students rated this strategy as simply important, with 11% rating it as least important. It emerged that majority of those who felt that it was a least important strategy were those students from the slums, who in most cases were day scholars. They pointed out that it was not interesting to carry out clean up exercises in the slums due to the surrounding filth, and that tree planting was not possible in their schools due to the nature of their school environment, considering the extreme congestion in the slum environment. It was also this group of students who observed that it was exhausting having to foot from

home to school alongside preparing for these clean up exercises, whereby in most cases they had to carry their own cleaning materials. In contrast, it was observed that majority of their counterparts in boarding schools rated this particular strategy as important, pointing out that tree planting in their markedly cleaner school environments was a 'fun' experience to them. It was also noted that cleaning materials were availed by the school authorities, and each student duly assigned specific work stations.

For a long time, drama and comedy has been used to successfully help communities share their concerns about their economic and social well-being. UNESCO (2004) observes that communities and schools in Vanuatu Villages in the Pacific islands are visited periodically by a travelling theatre group known as Wan Smolbag that puts on plays that simultaneously entertain and inform villagers about important issues such as HIV/AIDS, malaria-reduction through mosquito control and the conservation of sea turtles. As a result there has been a steady evolution of village-based marine resource management in Vanuatu. This shows the central role that drama and comedies play in driving change within and among communities. Ogunyemi (2005) showed that community- school relations would have to be fostered more strongly than ever before, for example the use of experts within the community and among NGOs as resource persons in addressing issues like traditional ways of controlling soil erosion, forest conservation and pollution. Subsequently, the importance of ecosports, drama and music in implementing ESD in schools was highly rated. Results showed that 100% of the students rated out door activities as very important. Interviews carried out showed that students valued these events since to them they served as the much needed outings and as avenues for meeting new friends. To the teachers, only 10% rated them as very important,

with 90% taking them as simply important. While acknowledging the vital role that these events played in enhancing the ESD spirit especially in the area of HIV/AIDS and crime, a cross section of the teachers felt that organizing these events was very involving on their side and ended up taking up their personal time in coaching the students. An overwhelming majority (90%) of the key informants on the other hand felt that these events were very important in the exchange of ideas between the students and their personal growth. They singled out the issues of corruption, drugs and substance abuse among students, and the call for environmental conservation as important themes that these activities relayed. They observed that as a result, there had been notable behaviour change among the youth and consequent actions taken at the parental and policy levels. This was contrasted with only 10% of those informants who felt that it was just important.

When rating environmental talks and lectures as strategies in implementing ESD, 63% of the students rated them as least important, with only 37% rating them as important. It was notable that also none of the students termed these talks as very important. They attributed their responses to the fact that these lectures were conducted during their free time and as such they felt that it was taking up their leisure time. Others exhibited open dislike and boredom for these talks because they said that they were not examinable and as such just attended them as a formality. The key informants, majority of whom were parents with children in secondary schools, took these lectures as very important, with 77% of the teachers rating them as such. This group of teachers was of the idea that these talks were avenues that provided extra ways of learning and exposure to new ideas for both the teachers and the students. Subsequently, the remaining 23% of the teachers who rated these

talks as simply important cited the fact that the lectures were few and far between, being conducted once in a whole term or twice in a whole year, if any. As such, they felt that their impact in contributing to ESD implementation was minimal and remote.

Results obtained from field study showed the undisputed need to create awareness on the importance of legal and policy frameworks in the implementation of ESD in schools, especially among students. It was noted that a significant 63% of the student respondents observed that policy frameworks as a strategy in ESD implementation was least important, compared with a mere 33% who felt that it was important. Those who were in the least important bracket were of the view that the terms 'legal and policy' were laced with punishment connotations and excessive court procedures and as such shied from them. Some of them actually confused the word 'policy' with 'politics' and hence felt that there was nothing to be achieved out of this particular strategy. A near similar scenario was exhibited by the teachers, who, despite having a better understanding of legal and policy frameworks, had their own reservations. Only 23% of them rated this strategy as important in ESD implementation, with a 77% rating it as least important. They pointed out bureaucracy and red tape in Government procedures, and as such felt that implementing ESD, just like any other government policy would end up being time consuming. The key informants on the other hand showed an open support for this strategy, with 84% of them terming it as very important, in the sense that it would put a check on all schools, and instil a legal backing that would punish those who violated the teaching of ESD as a government policy in the school curricula.

4.5.2 Opportunities

There are several opportunities that can be harnessed and built on to implement ESD in secondary schools. They include existing sports, music and drama, as well as existing subjects and clubs. Field data showed that 100% of all respondent categories rated these aforementioned opportunities as very important. The teachers in particular felt that it was prudent to just incorporate in the existing subjects all the aspects of ESD that might not be well covered in the current curriculum, as changing the entire curriculum would be time consuming and might not benefit majority of those students already enrolled. This was supported by the key informants who felt that the use of the existing subjects to teach ESD concepts would be an effective mode, instead of burdening the students with an already over loaded curriculum.

Another opportunity considered was the interschool science congresses and quizzes. All the three categories of respondents felt that this was a very important avenue for the advancement and implementation of ESD in schools. The teachers and the key informants felt that these congresses promoted the exchange of ideas between and among students, consequently invoking innovations and creativity. It was also noted that these quizzes had also encouraged research both theoretical and practical, whereby some schools have been noted to come up with very creative works of science and technology. This was one of the main reasons that had made most schools adapt these congresses and transformed them into science weeks in their school calendars. The student respondents especially those in boarding and private schools on the other hand felt that inter- school science congresses were important times to them since on top of being avenues to meet their friends, it

presented them with the chances to show off their 'superior creations' to their 'inferior' counterparts in public and day schools. This kind of competition and mentality, according to the teachers, had triggered the coming up of excellent ideas and innovations to show case on such days. This was necessitated by the fact that those in 'lesser' learning institutions had to work extra hard to prove themselves up to the challenge.

When rating the importance of the Civil Society and Private Sector in the implementation of ESD in schools, very diverse answers were noted from each of the three categories of the respondents. It was noted that only the key informants felt that these two groups of stakeholders were very important in the implementation of ESD, whereby 89% of them rated them as such, with only 11% of them rating them as important. The main reason towards this kind of a response was that these key informants were part of the civil society and/ or the private sector, and as such were advocates of ESD or of some of its components. About 93% and 46% of the teachers and students respectively felt that the Civil Society and Private sector were important players in ESD's implementation, with a sizeable 54% of the students citing it as least important (Figure 8).

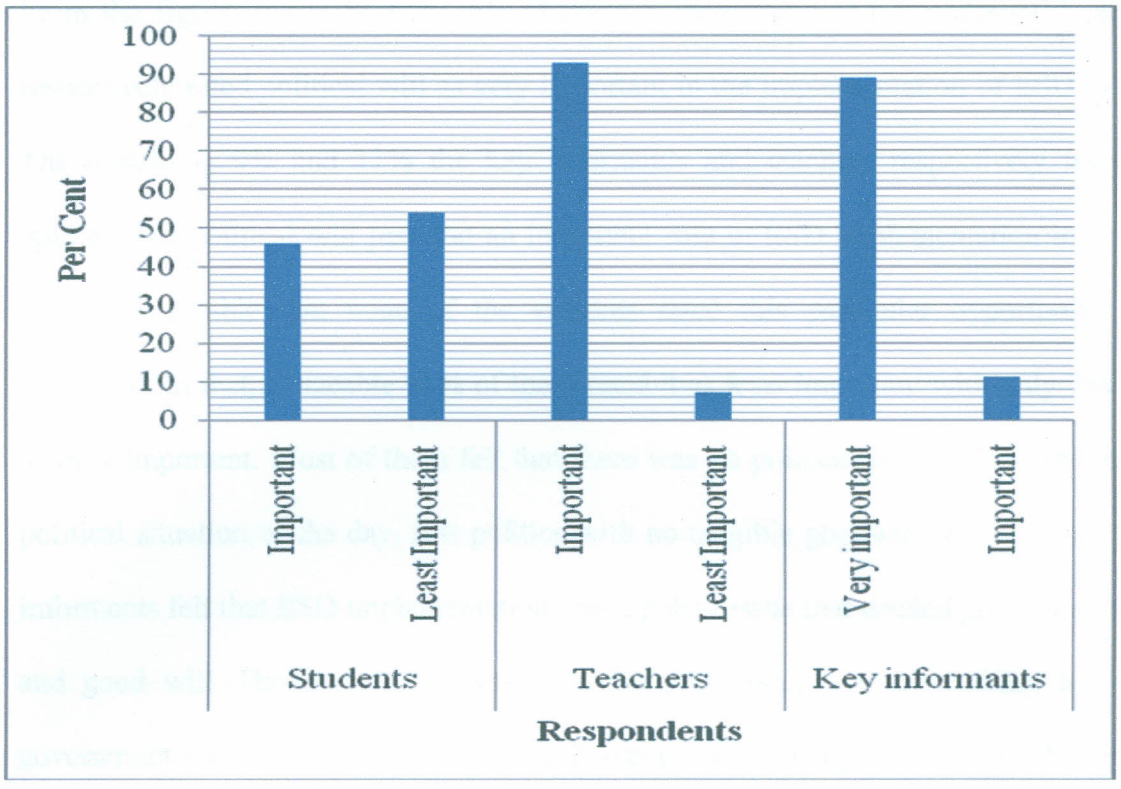

Fig. 8: Perceived importance of the civil society and private sectors in implementing ESD in schools

Source: Field Study (2007)

Respondents were also asked to rate the importance of political good will in the implementation of ESD in schools. Their responses have been shown in figure 9.

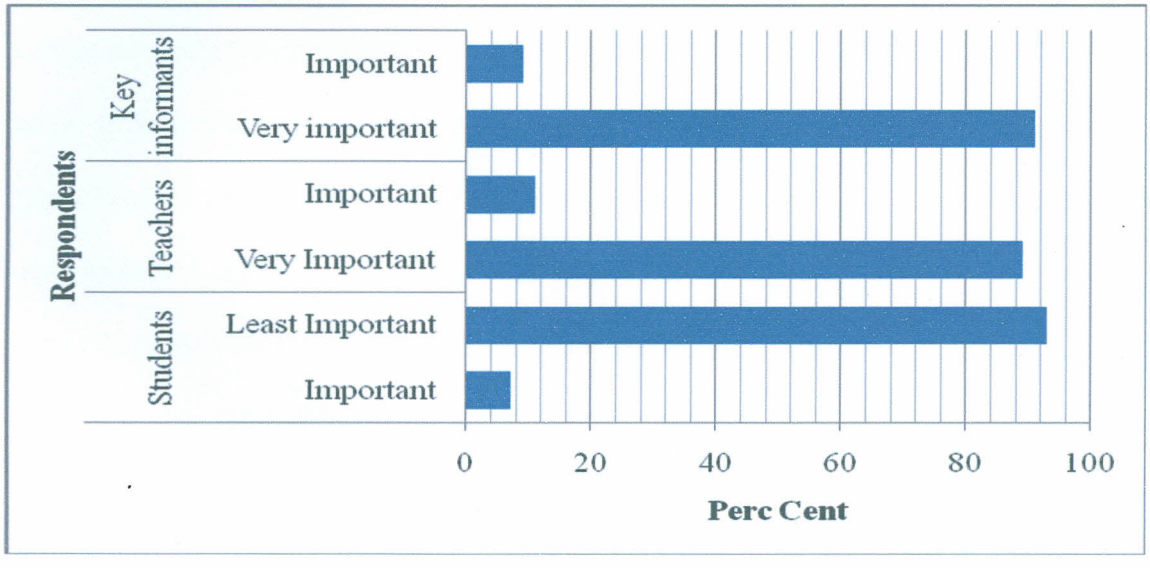

Fig. 9: Respondents perception towards political will in implementing ESD in schools

Source: Field Study (2007)

From the figure, it can be seen that of the key informants and teachers (91% and 89%) respectively rated political will as very important in the implementation of ESD in schools. The remaining 9% and 11% the key informants and teachers respectively were of the opinion that political will just had an important role in ESD implementation in schools. It was very notable that none of the students rated this particular opportunity as very important. In fact, a sizeable 93% of them rated it as least important with only 7% rating it as only important. Most of them felt that there was no political good will in the prevailing political situation of the day, just politics with no tangible goodwill. The teachers and key informants felt that ESD implementation was a policy issue that needed government support and good will. However, there was need for partnership and networking between the government and all other key sector stakeholders in actualizing the noble goals, vision and objectives of the UN Decade for ESD, key of which would be the domestication of the ideals of sustainability in all sectors of the economy.

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSIONS AND RECCOMENDATIONS

5.1 Summary of Major Findings

The study established that there was inadequate understanding and consequent implementation of ESD in the sampled schools. Sustainable development was also considered a peripheral curriculum issue, majorly attributed to governing authorities and other development partners. For instance when rating development needs, ESD was perceived by the greater majority of the respondents as playing a central role in addressing poverty and hunger, achieving universal primary education, ensuring environmental sustainability and in addressing HIV/AIDS, malaria and other diseases. However, its role in development needs like reducing child mortality, promoting gender equity and ensuring balance in trade was rated as peripheral and minimal, as most respondents perceived these needs as the preserve of the government.

There was also inconsistent and uncoordinated promotion of the ESD through the national curriculum subjects. For instance, it was noted that the physical and biological sciences had to a greater extent effectively covered some aspects of ESD which included waste management, food security, afforestation, water, soil and biodiversity conservation and environmental pollution control. On the other hand, it was observed that the social sciences had also adequately covered the issue of HIV/AIDS, while marginally touching on issues of societal importance like conflict resolution, tribalism and insecurity. There was also a notable involvement of schools in extra curricula activities, especially in tree planting, environmental related trips and clean up exercises, although the different school categories

sampled did so at varying extents. For instance all students both in day and boarding schools were involved in the daily clean up exercises in their respective schools, while environmental related trips were mostly notable to those in boarding and private schools owing to the readily available school transport and the fact that these trips were undertaken over the weekends when most slum day schools were out of session. Likewise, tree planting exercises were also notable to those schools in non slum zones as the extreme congestion in the slums and its consequent limited space for such exercises posed great challenges to those in slums schools.

The study also identified diverse barriers to ESD implementation in the schools which included the lack of adequate financial, material and human resources. For instance, most students felt that they should be taught ESD as a separate subject and not as a concept embedded in the main school curricula, so that its relationship with the other taught subjects could be clearer. The teachers on the other hand only had a sketchy knowledge on ESD as a whole and as such felt that it was an extremely new concept which they couldn't adequately teach their students. The mushrooming of private schools was noted as another barrier to ESD implementation, whereby some schools were not even using the Kenyan education system, and as such were not under the direct supervision of the Ministry of Education. The situation was grim especially in the slums where it was noted that there were very few public schools.

Several key stakeholders were identified and subsequently their roles in ESD implementation stipulated. The most important ones were the government, civil society and

development partners. Most students and teachers, compared to the key informants, did not accord much importance to the role that the private sector played in ESD implementation in schools, citing that the private sector was in business, aiming to increase capital and make profits and as such had little to offer in implementing ESD. The government's chief role was noted as the introduction of ESD in teacher training colleges and consequently to the secondary school curricula, as well as maintaining a vibrant political will to actualize the same. The civil society was noted to be a key player in funding ESD initiative in and out of the school curricula as well as in partnering with the government towards drafting a comprehensive school curriculum with ESD in it. The private sector was seen as instrumental in information dissemination and awareness creation on ESD initiatives, as well as in organizing and sponsoring ESD challenge competitions/ quizzes for students to be held in schools or even aired on TV and Radio.

Likewise, as a matter of priority and urgency, all the respondents unanimously observed that there was an unparalleled need for the Government to liase with all relevant development partners in enhancing ESD initiatives in schools especially through funding and research. However, most respondents identified strategies that could guide the implementation of ESD in their schools. For instance, the need to introduce and teach EE in schools as a precursor to ESD, facilitating extracurricular activities like ecosports, as well as highlighting the need to create awareness on the importance of legal and policy frameworks in the implementation of ESD in schools, especially among students.

5.2 Conclusions

The study was themed on the barriers to implementing ESD in secondary schools in Nairobi's Southlands. To this end, the study objectively assessed the current status of ESD implementation in secondary schools and evaluated the barriers to its implementation in theses schools. Consequently, the key stake holders involved in ESD implementation in secondary schools were also examined and opportunities and strategies aimed at implementing ESD in these schools also identified. Data was both qualitative and quantitative, which was analyzed using descriptive statistics. From the study it was evident that although the sampled schools acknowledged the importance of ESD and the undisputed need to have it embraced wholly in the school curricula as well as their desire to fully understand its concept, they still remained challenged by their limited knowledge of ESD. They agreed that it was poorly implemented in their secondary school curricula. While the teachers simply had a basic knowledge of ESD, the challenge became increasingly complex for the students especially in understanding the various aspects of ESD that had been embraced in already existing subjects. Students did not have any idea on the role of ESD in enhancing good governance and conflict resolution. It was noted that Southlands, and by extension the whole of Kenya's secondary school education system remained challenged by poor infrastructural development and service provision mainly due to:

a) Inadequate access to resources: this was evident especially in accessing ESD teaching materials, considering that the concept is still new and has not been fully embraced even in the teacher training colleges. This was tied to the fact that lack of trained teachers in this field posed difficulties in sourcing competent instructors to teach this important concept. Lack of adequate funds posed challenges especially to

schools in the slums to be able to organise environmental lectures, seminars and forums themed on ESD issues.

b) Poor implementation of Government policies and lack of political good will. This was attributed to several reasons for instance, since the inception of the first ESD draft in 2005, the government still lags in launching the strategy, the distribution of ESD materials and in partnering with organizations that are involved in ESD matters.

c) The high poverty levels in the country were also cited as a contributing factor whereby the government channels resources to fight poverty and all its related ills at the expense of new concepts such as ESD.

d) Insufficient time allocation for in-service training for secondary school teachers. This had hindered the introduction of extra courses to the already overloaded teacher training curricula. As such, the teacher respondents felt that just like the government had recently introduced courses on special education and Early Childhood Development (ECD) for those willing to study them, there was also need to do the same to ESD so that it could be taken up as an additional course by those interested. Alternatively ESD could be made a compulsory course for in-service teachers and in teacher training colleges. This way teachers would be able to stimulate discussions and engage students in activities related to sustainable development.

Additional opportunities that were noted by key policy makers, as well as teachers and students alike which could be built on to facilitate the achievement of ESD in schools include sports, music and drama, as well as existing subjects and clubs. Incorporating in the

existing subjects all the aspects of ESD that might not be well covered in the current curriculum was seen as prudent. It was agreed that changing the entire curriculum would be time consuming and might not benefit majority of those students already enrolled. This was also seen as a means of avoiding burdening the students with an already over loaded curriculum. However interschool science congresses and quizzes could contribute to ESD implementation as they promoted the exchange of ideas between and among students, consequently invoking innovations and creativity. Lastly, the pivotal role that the government played in funding ESD initiatives and in reorienting the existing curricula, as well as in fostering partnerships and synergies between and among key sector players was also highlighted.

5.3 Recommendations

In order to improve the current status of ESD implementation and strengthen the existing opportunities in secondary schools in Nairobi's Southlands the following is recommended;

The government (through the Ministry of Education) in collaboration with the National Environment Management Authority (NEMA) should increase its vigilance in reorienting the current secondary school curricula to adequately reflect issues on ESD. This calls for a participatory approach between and among all relevant stakeholders in the education sector and development partners right from planning the revised curricula to the actual in and out of classroom implementation of ESD initiatives. Likewise the government should exercise the necessary political will to implement ESD in schools, fund ESD related activities, provide the required materials of learning and deploy trained teachers on ESD to schools.

Schools need to make sure sustainability is a key feature of their development plans because too often it is taken as a peripheral issue as observed in the study area. This can be done through the schools' involvement in small scale projects both in their schools compounds and in the neighbouring communities, so as to equip learners with occupational skills. For instance, schools can come up with environmental conservation projects like regular clean up exercises and tree planting exercises carried out with the involvement of the surrounding communities. The philosophy behind this approach is to use the school as the centre of learning for the community and to use the community as a learning resource of the school. These schools' initiated projects can yield a positive impact in enhancing the potential of many learners, reinforcing their practical skills and improving the surrounding communities' quality of life.

School heads and teachers need to form linkages with organizations like Conserve Africa Foundation which aims at facilitating the dissemination of information between entities that are active in the area of environmental conservation and sustainable living. This would provide the opportunity for both teachers and students to actively participate towards the resolution of environmental problems as well as develop their capacities to access, use and develop appropriate environmental education and sustainability resource materials. There is need for school authorities to organize workshops and seminars, and training programmes in their schools so as to promote the sharing of best practices and case studies relating to sustainable development.

5.4 Recommendations for Further Research

In the event that the existing curriculum is finally reoriented to embrace a clearer picture of the concept of ESD in all levels of learning, there will be need for an in depth study showing the different approaches that urban and rural schools practically embrace in order to actualize the ideals of ESD. This would be necessitated by the fact that experiences and circumstances of rural and urban schools are varied and diverse; as such each school set up would be treated as a unique entity in the operationalization of ESD especially beyond the classroom.

There is need for a follow up study to be carried out with the aim of assessing how the reoriented course content blends aspects of ESD with existing subjects. Focus could be on various aspects like course content and syllabi of the existing course. This could provide a fertile ground for the identification of gaps so that suggestions could be given for enhancing/ introducing the environmental as well as sustainability content where necessary.

Lastly, a replication of this study in a wider context in all existing and upcoming urban slum and non slum zones in Kenya is also recommended so as to get a clearer picture on the various barriers to implementing ESD in schools, as well as identifying the various avenues of action.

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APPENDICES

Appendix 1: Questionnaire for Students

The purpose of this questionnaire is to solicit the views, insights and opinions of the selected students in Education for Sustainable Development (ESD). You are invited to participate by answering the questions provided in this questionnaire.

Date of interview _____ Time started _____ Time Ended_____

A. General Information

1. Number of the respondent_____
2. Gender of the respondent: Male□ Female□
3. Age of the Respondent_____ Years old
4. Which form are you in: _____
5. Name of the School _____
6. School's Postal address_____
7. Please tick the nature of your school:
   a. Boys' secondary school□
   b. Girls' secondary school□
   c. Mixed secondary school□
8. Please tick the type of school that you belong to:
   (a) Private school □ (b) Public school □
9. Please indicate if your school is:
   (a) Day school (b) Boarding school

B. ESD's Place and Perception in the society

1. Rate the priority development needs (in the table below) which should be addressed in this area through the education system in Kenya.

(Please rate them on a scale of 1to 3
1 = least important, 2= Important and 3 = extremely important)
(Please write down your score for each need appropriately on left column)

No.	Development needs	Score
(a)	Eradicate extreme poverty and hunger	
(b)	Achieve universal primary education	
(c)	Empowerment of the youth, women and the disadvantaged	
(d)	Reduce child mortality	
(e)	Improve maternal health	
(f)	Combat HIV/AIDS Malaria and other diseases	
(g)	Environmental sustainability	
(h)	Promote good governance	
(i)	Ensure balance in trade	
(j)	*Any other please add and rate it*	

2. What's your perception of Education for Sustainable Development (ESD)?

(Please tick appropriately)

No.	The Perception	Agree	Undecided	Disagree
(a)	A new vision of education for a sustainable future			
(b)	A holistic approach to environmental education			
(c)	Synonymous to environmental education			
(d)	A shift from environmental education			
(e)	Knowledge that provides learners with skills to lead to sustainable livelihoods			
(f)	A lifelong process of education which encompasses environment, economy and society			
(g)	An essential tool for profit making			
(h)	Education that leads to wealth creation			
(i)	Education that addresses insecurity and marginalization			
(j)	An essential tool to address tribalism			

C. Current status of ESD implementation in Kenyan Secondary Schools

1. Below are some aspects of ESD. How effectively are they covered in the school curriculum?

Please rate them appropriately as follows. (0=not covered, 1= least covered 2=fairly covered & 3=comprehensively covered.)

No.	ESD Aspect	Rating			
(a)	Waste management	0	1	2	3
(b)	Food security				
(c)	Afforestation / tree planting				
(d)	Water conservation				
(e)	Disease control				
(f)	Conflict resolution				
(g)	Soil conservation				
(h)	Pest and disease control				
(I)	Air pollution control				
(j)	Water pollution control				
(k)	Land pollution control				
(l)	Biodiversity/wildlife conservation				
(m)	Child mortality				
(n)	Improved health care				
(o)	Good governance				
(p)	Economic development				
(q)	Universal Education				
(r)	Combating HIV / AIDS				

2. How would you rate your involvement in the following extra curricula activities in your school?

(3=Very involved, 2=Involved, 1=fairly involved, 0=Not involved)
(Please tick your rating appropriately)

No.	Activity	Rating			
		0	1	2	3
(a)	Tree Planting exercises				
(b)	Clean-up exercises				
(c)	Environmental advocacy / protests e.g. against land grabbing				
(d)	Litter / garbage collection duties in your school				
(e)	Nature excursions / walks				
(f)	Environment related field trips				
(g)	Conflict resolution				
(h)	Food distribution campaigns				
(i)	Peace and advocacy campaigns				
(j)	Business training seminars				
(k)	Environmental sporting				
(l)	Political and good governance advocacy				
(m)	Community policing				
(n)	Welfare / Humanitarian activities				
(o)	Human rights advocacy				

3. What is the position of education for Sustainable Development (ESD) in your institution?

(a) Taught□ (b) Not taught□ (c) New concept□

4 a. In your opinion, do you think that teachers and students have the right understanding of ESD?

Yes□ *No*□

4 b. Give reasons for your answer

_____

_____

_____

D. Barriers to the implementation of ESD in Kenyan secondary schools

1. In your own opinion, what are the challenges impacting teaching and learning of ESD?

(Please tick your chosen challenge on the left column)

No.	Challenges	Tick
(a)	Low teacher motivation	
(b)	Lack of quality materials	
(c)	Untrained educators	
(d)	Poverty	
(e)	Inadequate time for in-service training for teachers	
(f)	Poor implementation of government policies	
(g)	Accessing resources (materials, competent educators and finances.)	
(h)	Lack of funding	
(i)	Rural urban migration	
(j)	Population explosion	
(k)	Increase in profit driven / motivated private schools	
(l)	Any other please add	

E. Key stakeholders and their roles in the implementation of ESD in secondary schools

1. How would you rate the importance of the following stakeholders in the implementation of ESD?

(3=Very important, 2=Important, 1= least important and 0=Not important)
(Please tick your rating appropriately)

No.	Stakeholders' Category	Rating			
		0	1	2	3
(a)	Government (Ministries of environment, Education etc, NEMA etc				
(b)	Civil Society Organisations (NGOs CBOs FBOs)				
(c)	Private sector (Media, corporate companies such as Safaricom)				
(d)	Development Partners (UNDP UNEP IGAD NEPAD)				

2. What role should each of the following categories of stakeholder play in the implementation of Education for Sustainable Development (ESD?)

(Please fill in the right side column of the table below with your appropriate response for each of the outlined categories)

NO	Stakeholder category	Role that they should play
(a)	Government Ministries (Education, Environment)	
(b)	Civil Society Organizations (NGOs, CBOs)	
(c)	Private sector (media, corporate bodies e.g. Celtel	
(d)	Development partners (UNEP, UNDP)	

F. Opportunities and strategies for the implementation of ESD in secondary schools

I. Strategies

1. How would you rate the importance / effectiveness of the following strategies in implementation of ESD in schools?

Please rate them on a scale of 1to 3.
With 1being = least important, 2= Important and 3 = extremely important)
(Please write down the value of your rating appropriately on the left column)

NO	Strategy of ESD Implementation	Rating
(a)	Introduction of Environmental Education as a subject	
(b)	Use of field trips	
(c)	Environmental essay competition	
(d)	School environmental days	
(e)	Clean up exercises	
(f)	Tree planting exercises	
(g)	Eco sports events	
(h)	Use of Eco schools models	
(i)	Use of drama, dance and music	
(j)	Environmental talks / lectures	
(k)	Environmental clubs	
	Any other please add and rate it	

II. Opportunities

1. How would you rate the importance of the following opportunities in the implementation of ESD in schools?

Please rate them on a scale of 1to 3.
With 1 being = least important, 2= Important and 3 = extremely important)

NO.	Prevailing Opportunities	Rating
(a)	Existing sports competitions	
(b)	Existing clubs	
(c)	Existing subjects	
(d)	Music and drama festivals	
(e)	Inter schools science congress and quizzes	
(f)	Vibrant media houses both print and electronic	
(g)	Existing and active NGOs, CBOs and FBOs	
(h)	Very active and environmental conscious private sector	
(i)	Prevailing good political will	
(j)	*Any Other Please add and rate it....*	

III. Any other comment related to this study?

_____
_____
_____
_____
_____
_____

IV. Any other general remark

_____
_____
_____
_____
_____
_____

Thank you very much for your cooperation

Appendix 2: Questionnaire for Teachers

The purpose of this questionnaire is to solicit the views, insights and opinions of key stakeholders in Education for Sustainable Development (ESD). You are invited to participate by answering the questions provided in this questionnaire.

Date of interview _____ Time started _____ Time Ended_____

A. General Information

1. Number of the respondent_____
2. Gender of the respondent: Male□ Female□
3. Age of the Respondent_____ Years old
4. Level of Education: (a) College□ (b) University□
5. Name of the School _____
6. School's Postal address_____
7. Please tick the nature of your school:
   d. Boys' secondary school□
   e. Girls' secondary school□
   f. Mixed secondary school□
8. Please tick the type of school that you belong to:
   (a) Private school □ (b) Public school □

9 Please indicate if your school is

(a) Day School (b) Boarding School

9. What subject (s) do you teach? _____

B. ESD's Place and Perception in the society

1. Rate the priority development needs (in the table below) which should be addressed in this area through the education system in Kenya.

(Please rate them on a scale of 1to 3
With 1 being= least important, 2 = Important and 3 = extremely important)
(Please write down your score for each need appropriately on left column)

No.	Development needs	Score
(a)	Eradicate extreme poverty and hunger	
(b)	Achieve universal primary education	
(c)	Empowerment of the youth, women and the disadvantaged	
(d)	Reduce child mortality	
(e)	Improve maternal health	
(f)	Combat HIV/AIDS Malaria and other diseases	
(g)	Environmental sustainability	
(h)	Promote good governance	
(i)	Ensure balance in trade	
(j)	*Any other please add and rate it*	

2. What's your perception of Education for Sustainable Development (ESD)?

(Please tick appropriately)

No.	The Perception	Agree	Undecided	Disagree
(a)	A new vision of education for a sustainable future			
(b)	A holistic approach to environmental education			
(c)	Synonymous to environmental education			
(d)	A shift from environmental education			
(e)	Knowledge that provides learners with skills to lead to sustainable livelihoods			
(f)	A lifelong process of education which encompasses environment, economy and society			
(g)	An essential tool for profit making			
(h)	Education that leads to wealth creation			
(i)	Education that addresses insecurity and marginalization			
(j)	An essential tool to address tribalism			
(l)	Education that increases food production			
(m	An essential tool to address landlessness			
(n)	An essential tool to enhance equitable resource allocation			
(o)	An essential tool that addresses good governance			

C. Current status of ESD implementation in Kenyan Secondary Schools

1. Below are some aspects of ESD. How effectively are they covered in the school curriculum?

Please rate them appropriately as follows. (0=not covered, 1= least covered 2=fairly covered & 3=comprehensively covered.)

No.	ESD Aspect	Rating			
(a)	Waste management	0	1	2	3
(b)	Food security				
(c)	Afforestation / tree planting				
(d)	Water conservation				
(e)	Disease control				
(f)	Conflict resolution				
(g)	Soil conservation				
(h)	Pest and disease control				
(I)	Air pollution control				
(j)	Water pollution control				
(k)	Land pollution control				
(l)	Biodiversity/wildlife conservation				
(m)	Child mortality				
(n)	Improved health care				
(o)	Good governance				
(p)	Economic development				
(q)	Universal Education				
(r)	Combating HIV / AIDS				

2. How would you rate your involvement in the following extra curricula activities in your school?

(3=Very involved, 2=Involved, 1=fairly involved, 0=Not involved)
(Please tick your rating appropriately)

No.	Activity	Rating			
		0	1	2	3
(a)	Tree Planting exercises				
(b)	Clean-up exercises				
(c)	Environmental advocacy / protests e.g. against land grabbing				
(d)	Litter / garbage collection duties in your school				
(e)	Nature excursions / walks				
(f)	Environment related field trips				
(g)	Conflict resolution				
(h)	Food distribution campaigns				
(i)	Peace and advocacy campaigns				
(j)	Business training seminars				
(k)	Environmental sporting				
(l)	Political and good governance advocacy				
(m)	Community policing				
(n)	Welfare / Humanitarian activities				
(o)	Human rights advocacy				

3. What is the position of education for Sustainable Development (ESD) in your institution?

(a) Taught□ (b) Not taught□ (c) New concept□

4 a. In your opinion, do you think that teachers and students have the right understanding of ESD?

Yes□ *No*□

4 b. Give reasons for your answer

_____

_____

_____

D. Barriers to the implementation of ESD in Kenyan secondary schools

1. In your own opinion, what are the challenges impacting the teaching and learning of ESD?

(Please tick your chosen challenges on the left column)

No.	Challenges	Tick
(a)	Low teacher motivation	
(b)	Lack of quality materials	
(c)	Untrained educators	
(d)	Poverty	
(e)	Inadequate time for in-service training for teachers	
(f)	Poor implementation of government policies	
(g)	Accessing resources (materials, competent educators and finances.)	
(h)	Lack of funding	
(i)	Rural urban migration	
(j)	Population explosion	
(k)	Increase in profit driven / motivated private schools	
(l)	Any other (please add)	

E. Key stakeholders and their roles in the implementation of ESD in secondary schools

1. How would you rate the importance of the following stakeholders in the implementation of ESD?

(3=Very important, 2=Important, 1= least important and 0=Not important)
(Please tick your rating appropriately)

No.	Stakeholders' Category	Rating			
		0	1	2	3
(a)	Government (Ministries of environment, Education etc, NEMA etc				
(b)	Civil Society Organisations (NGOs CBOs FBOs)				
(c)	Private sector (Media, corporate companies such as Safaricom)				
(d)	Development Partners (UNDP UNEP IGAD NEPAD)				

2. What role should each of the following categories of stakeholder play in the implementation of Education for Sustainable Development (ESD)

(Please fill in the right side column of the table below with your appropriate response for each of the outlined categories)

NO	Stakeholder category	Role that they should play
(a)	Government Ministries (Education, Environment)	
(b)	Civil Society Organizations (NGOs, CBOs)	
(c)	Private sector (media, corporate bodies e.g. Celtel	
(d)	Development partners (UNEP, UNDP)	

F. Opportunities and strategies for the implementation of ESD in secondary schools

I. Strategies

1. How would you rate the importance / effectiveness of the following strategies in implementation of ESD in schools?

Please rate them on a scale of 1 to 3.
With 1 being = least important, 2 = Important and 3= extremely important)
(Please write down the value of your rating appropriately on the left column)

NO	Strategy of ESD Implementation	Rating
(a)	Introduction of Environmental Education as a subject	
(b)	Use of field trips	
(c)	Environmental essay competition	
(d)	School environmental days	
(e)	Clean up exercises	
(f)	Tree planting exercises	
(g)	Eco sports events	
(h)	Use of Eco schools models	
(i)	Use of drama, dance and music	
(j)	Environmental talks / lectures	
(k)	Environmental clubs	
(l)	Corporate Social Responsibility (CSRs)	
(m)	Use of legal and policy framework	
(n)	*Any other please add and rate it*	

II. Opportunities

1. How would you rate the importance of the following opportunities in the implementation of ESD in schools?

Please rate them on a scale of 1 to 3
With I being= least important, 2 = Important and 3 = extremely important

NO.	Prevailing Opportunities	Rating
(a)	Existing sports competitions	
(b)	Existing clubs	
(c)	Existing subjects	
(d)	Music and drama festivals	
(e)	Inter schools science congress and quizzes	
(f)	Vibrant media houses both print and electronic	
(g)	Existing and active NGOs, CBOs and FBOs	
(h)	Very active and environmental conscious private sector	
(i)	Prevailing good political will	
(j)	*Any Other Please add and rate it....*	

III. Any other comment related to this study?

IV. Any other general remark

Thank you very much for your cooperation

Appendix 3: Interview schedule for Key Informants

The purpose of this questionnaire is to solicit the views, insights and opinions of key stakeholders in Education for Sustainable Development (ESD). You are invited to participate by answering the questions provided in this questionnaire.

Date of interview _____ Time started _____ Time Ended_____

A. General Information

1. Category of the respondent e.g. Community Leader, Private sector etc----------

2. Gender of the respondent: Male☐ Female☐

3. Age of the Respondent_____ Years old

4. Level of Education: (a) None☐ (b) Primary☐ (c) Secondary☐
(d) College☐ (e) University☐

5. Name of the Organization which you belong to _____

B. ESD's Place and Perception in the society

1. Rate the priority development needs (in the table below) which should be addressed in this area through the education system in Kenya.

(Please rate them on a scale of 1to3. With 1being least important, 2= Important and 3 = extremely important)
(Please write down your score for each need appropriately on right column)

No.	Development needs	Score
(a)	Eradicate extreme poverty and hunger	
(b)	Achieve universal primary education	
(c)	Empowerment of the youth, women and the disadvantaged	
(d)	Reduce child mortality	
(e)	Improve maternal health	
(f)	Combat HIV/AIDS Malaria and other diseases	
(g)	Environmental sustainability	
(h)	Promote good governance	
(i)	Ensure balance in trade	
(j)	*Any other please add and rate it*	

2. What's your perception of Education for Sustainable Development (ESD)?

(Please tick appropriately)

No	The Perception	Agree	Undecided	Disagree
(a)	A new vision of education for a sustainable future			
(b)	A holistic approach to environmental education			
(c)	Synonymous to environmental education			
(d)	A shift from environmental education			
(e)	Knowledge that provides learners with skills to lead to sustainable livelihoods			
(f)	A lifelong process of education which encompasses environment, economy and society			
(g)	An essential tool for profit making			
(h)	Education that leads to wealth creation			
(i)	Education that addresses insecurity			
(j)	An essential tool to address tribalism			
(k)	Education that addresses marginalization			
(l)	Education that increases food production			
(m	An essential tool to address landlessness			
(n)	An essential tool to enhance equitable resource allocation			
(o)	An essential tool that addresses good governance			
(p)	An essential tool to address child abuse / child labour			

2a. In your opinion, do you think that teachers and students have the right understanding of ESD?

Yes□ *No*□

2b. Give reasons for your answer

_____

_____

_____

D. Barriers to the implementation of ESD in Kenyan secondary schools

1. In your own opinion, which of the following challenges impact teaching and learning of ESD?

(Please tick the chosen challenge on the left column)

No.	Challenges	Tick
(a)	Low teacher motivation	
(b)	Lack of quality materials	
(c)	Untrained educators	
(d)	Poverty	
(e)	Inadequate time for in-service training for teachers	
(f)	Poor implementation of government policies	
(g)	Accessing resources (materials, competent educators and finances.)	
(h)	Lack of funding	
(i)	Rural urban migration	
(j)	Population explosion	
(k)	Increase in profit driven / motivated private schools	
(l)	Any other please add	

E. Key stakeholders and their roles in the implementation of ESD in secondary schools

1. How would you rate the importance of the following stakeholders in the implementation of ESD?

(3=Very important, 2=Important, 1= least important and 0=Not important)
(Please tick your rating appropriately on the left column)

No.	Stakeholders' Category	Rating			
		0	1	2	3
(a)	Government (Ministries of environment, Education etc, NEMA etc				
(b)	Civil Society Organisations (NGOs CBOs FBOs)				
(c)	Private sector (Media, corporate companies such as Safaricom)				
(d)	Development Partners (UNDP UNEP IGAD NEPAD)				

2. What role should each of the following categories of stakeholder play in the implementation of Education for Sustainable Development (ESD?)

(Please fill in the right side column of the table below with your appropriate response for

NO	Stakeholder category	Role that they should play
(a)	Government Ministries (Education, Environment)	
(b)	Civil Society Organizations (NGOs, CBOs)	
(c)	Private sector (media, corporate bodies e.g. Celtel	
(d)	Development partners (UNEP, UNDP)	

F. Opportunities and strategies for the implementation of ESD in secondary schools

I. Strategies

1. How would you rate the importance / effectiveness of the following strategies in implementation of ESD in schools?

Please rate them on a scale of 1 to 3
With 1= least important, 2 = Important and 3 = extremely important)
(Please write down the value of your rating appropriately on the left column)

NO	Strategy of ESD Implementation	Rating
(a)	Introduction of Environmental Education as a subject	
(b)	Use of field trips	
(c)	Environmental essay competition	
(d)	School environmental days	
(e)	Clean up exercises	
(f)	Tree planting exercises	
(g)	Eco sports events	
(h)	Use of Eco schools models	
(i)	Use of drama, dance and music	
(j)	Environmental talks / lectures	
(k)	Environmental clubs	

II. Opportunities

1. How would you rate the importance of the following opportunities in the implementation of ESD in schools?

Please rate them on a scale of 1to 3.
With 1 being= least important, 2 = Important and 3= extremely important)

NO.	**Prevailing Opportunities**	**Rating**
(a)	Existing sports competitions	
(b)	Existing clubs	
(c)	Existing subjects	
(d)	Music and drama festivals	
(e)	Inter schools science congress and quizzes	
(f)	Vibrant media houses both print and electronic	
(g)	Existing and active NGOs, CBOs and FBOs	
(h)	Very active and environmental conscious private sector	
(i)	Prevailing good political will	
(j)	*Any Other Please add and rate it....*	