

**INFRASTRUCTURE RESOURCES AND PERFORMANCE OF
PRIMARY SCHOOLS UNDER FREE PRIMARY EDUCATION
IN SELECTED SCHOOLS, ELDORET, KENYA**

A Thesis

Presented to the School of
Postgraduate Studies and Research
Kampala International University
Kampala, Uganda

In Partial Fulfillment of the Requirements for the Degree
Master of Project Planning and Management

By:

Tuiya Kipng'etich Nimrod

Reg. MPP/20009/82/DF


June, 2011



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DECLARATION A

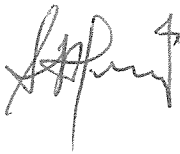
I, Tuiya Kipngetich Nimrod, declare that this thesis is my original work and has not been presented for a Degree or any other academic award in any University or Institution of Learning.

TUIYA KIPNGETICH NIMROD 
Name and Signature of Candidate

6th/09/2011.
Date

DECLARATION B

I confirm that the work reported in this Thesis was carried out by the candidate under my supervision.

Prof. Dhruv Saxena 

Name and Signature of Supervisor

5/9/2011

Date

APPROVAL SHEET

This Thesis entitled "**Infrastructure Resources And Performance Of Primary Schools Under Free Primary Education In Selected Schools, Eldoret, Kenya**" prepared and submitted by Tuiya Kipngetich Nimrod in partial fulfillment of the requirements for the degree of Master of Arts in Project Planning and Management has been examined and approved by the panel on oral examination with a grade of PASSED.

Dr. Mwenika Roseann R. Wank

Name and Sig. of Chairman

Prof. Thurot Fwony

Name and Sig of Supervisor

Dr. Mwangi Twale

Name and Sig. of Panelist

Dr. Abuya Makeno Isaac

Name and Sig. of Panelist

Name and Sig. of Panelist

Date of Comprehensive Examination: _____

Grade: _____

Name and Sig of Director, SPGSR

Name and Sig of DVC, SPGSR

DEDICATION

This research report is dedicated to my Parents John Ngerechi and Nancy Ngerechi who have always given me inspiration in life and proved to me that nothing is impossible as long as you put your head to it.

ACKNOWLEDGEMENT

I would like to pass my sincere gratitude to my supervisor Prof. Sunday Nicholas Iwor, who guided me through the research process for his direction and constructive criticism that enabled me to go through the research study process. I would also like to thank the office of the Municipal Education Officer in Eldoret for their facilitation of my research fieldwork activities. Lastly I would also like to recognize and appreciate the cooperation that I received from the Heads of schools and their teaching staff of the specific schools that I visited to conduct the study.

ABSTRACT

The government of Kenya introduced free primary education in the year 2003. This was very well received all over the country due to the reduced burden on parents who were unable to pay school fees for their children. However during the initial implementation stages, it was realized that the country had limited physical infrastructure to be able to handle the ever increasing enrolment of students in primary schools. The government through the Kenya Education Sector Support Program developed various initiatives to be able to improve these shortages in infrastructure. This study was intended to determine the infrastructure capacity of the schools in Kenya, with a study in Eldoret Municipality. The various physical infrastructures were categorized into various groups and the various infrastructure groups compared to the set standards by the government and other recognized bodies.

The study was conducted on selected primary schools within the selected samples that were chosen through Simple Random Sampling and Stratified Random Sampling. The main respondents targeted were the head teachers and education officials from Eldoret Municipal Council. The data was collected through questionnaires, interviews and Observation techniques.

The findings of the study indicated that the existing infrastructure in a high number of the schools were not sufficient to provide the students with a good learning environment. Lack of adequate and appropriate classrooms,

staffrooms and toilet facilities to the required standards were prevalent in most schools. With a good number of the schools lacking electricity, proper access roads and accessibility to safe drinking water. The measures put in place by the government in reducing the gap of the insufficient infrastructure are taking a slow pace and proper measures need to be taken to ensure that the quality of education is not hindered due to inadequate infrastructure in the existing schools.

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CHAPTER ONE: THE PROBLEM AND ITS SCOPE

Background of the study

The introduction of free primary education by the Kenya government was implemented in the year 2003. This led to the increase in student population in public primary schools country wide as poor parents were encouraged to send their children to school to benefit from the program. Primary school education is one of the key issues in giving the basics and foundation of education to people in a society. The government in collaboration with development partners and other stakeholders formed the Kenya Sector Support Programme (KESSP) with the view of consolidating the gains to be made from the free primary education program. In particular it was critical to work in ensuring that quality and access prevailed in the education offered. Free primary education lead to the increase in enrolment of students in public schools and thus most of the institutions were faced with various challenges in handling the student population. (World Bank, 2006)

Poor primary school infrastructure is one of the major barriers to improving access to primary education in Kenya. Empirical data show that physical facilities are important factors in both school attendance and achievement. For this reason, improving primary school infrastructure is a high priority for school management committees. Over time communities and parents have been responsible for and have made substantial investments in schools infrastructure. Development partners have also made investments often in support of community initiatives. Through such efforts, Kenya has over 18000 public

primary schools and a large number of non-formal schools offering primary schools curriculum. ("Primary education," 2009)

However overtime there has been a backlog of infrastructure provision and a shortage of permanent classrooms, particularly in poor communities. At the same time, existing infrastructures are generally in poor condition due to lack of investment capital, poor construction standards and inadequate maintenance. With the significant increases in primary school enrolments additional pressure has been put on the existing infrastructure. The results of the sharp rise in numbers are poor conditions and overcrowding that are not conducive to good learning environment. (KESSP, 2005)

To address the existing challenges, the government has continued to issue grants to primary schools, including the non-formal schools in urban slums which serve as the re-entry points for over-age children and also support mobile schools in arid and semi arid areas. The government also mobilized resources for infrastructure development in order to construct new classrooms and new schools especially in poor communities. However infrastructure development has been based on strategic plan manuals and guidelines designed to help schools address their specific needs and contribute effectively towards improving learning outcomes. (KESSP, 2005)

The infrastructure development policy is based on environmental and social assessments, to ensure that a school infrastructure development plan takes into account the local conditions to target communities. However management and accounting of funds for the infrastructure follow arrangements in use for free

primary education financing. The recommended staffing norms are one teacher per 45 pupils in a class of average dimensions 7.5 by 8.5 meters. (KESSP, 2005)

KESSP investments is aimed at strengthening the management and sustain reforms being implemented by the ministry of education in the education sector and help improve the quality of the delivery of services at all levels among school management committees.

The ministry of education identified four critical issues relating to primary schools infrastructure which included; the lack of adequate infrastructure and shortage of permanent classrooms particularly in poor districts, the poor state of existing school infrastructure due to lack of investment, poor construction standards and inadequate maintenance. The limited number of primary schools serving poor populations in isolated rural areas, those living in low-income and in other pockets of poverty. Huge discrepancies in needs depend on local conditions existing in various schools. (KESSP. 2005).

Statement of the Problem

Public Primary schools in Kenya are being faced with a tough challenge of providing quality primary education on the ever growing number of students. Among the crucial factors that contribute to adequate and quality education in schools is the availability of proper building infrastructure i.e. classrooms, staffrooms, toilets, libraries e.t.c. Other infrastructure requirements include electricity, water and access roads to the primary schools. The introduction of free primary education has led to the increase in enrolments in public schools. The increase in student population piles up the pressure on the schools infrastructure and development of the infrastructure is inevitable to ensure that

the schools can handle the growing student population. Infrastructure requirements and capacity should thus be addressed by the government and all other stakeholders in the education industry to ensure that the free primary education is successful in achieving its intended purpose. For these to be achieved proper information is required to identify the current infrastructure capacities of the various public primary schools in providing education to its students. The study investigated on the infrastructure capacity of the primary schools in handling the population of the students in the schools. The important infrastructure facilities were determined together with the existing populations in the schools and later compared to the set standards for quality education provision.

Purpose of the Study.

The main purpose of this study was to identify the infrastructure capacity of the public primary schools in supporting the free primary education of its students. The study also determined the infrastructure needs on the schools that are overwhelmed by its student population. This was considered useful as a pilot study for the government, its development partners and all other stakeholders in implementing their programs to support infrastructure development in primary schools. It was also important to determine the existing infrastructural constraints in the schools to be able to determine the needs of the various schools to meet the set standards by the various bodies and institutions of the government and its development partners. The development strategies adopted by the bodies will require existing data in formation of their strategic plans and the implementation processes.

Research Objectives.

The major objective of this study is mainly to determine the existing infrastructure facilities in the schools and determine their needs in infrastructure developments.

The specific objectives are outlined as shown below.

1. To determine the important infrastructure resources and the required standards for the primary schools.
2. To determine the existing infrastructure resources of the primary schools their capacities and the condition which they are in.
3. To compare the infrastructure resources of the schools with their performances.
4. To determine the needs on infrastructure resources for the primary schools to meet the student population and to reach the required set standards.

Research Questions

It is for these purposes that led to the development of the research questions outlined below.

1. What are the required standards set in infrastructure resources for public primary schools by the government and its development partners.
2. What are the current infrastructural capacities of the primary schools in meeting the needs of its student population and in what condition are they?
3. How does the infrastructure capacity of the schools reflect on the school performances?
4. What are the needs of the schools in infrastructural development to meet the required standards set by the government and its development partners?

Hypothesis.

Based on the research objectives and questions for this research, the Hypothesis was developed to be: "Schools without good infrastructure facilities perform better academically."

Scope.

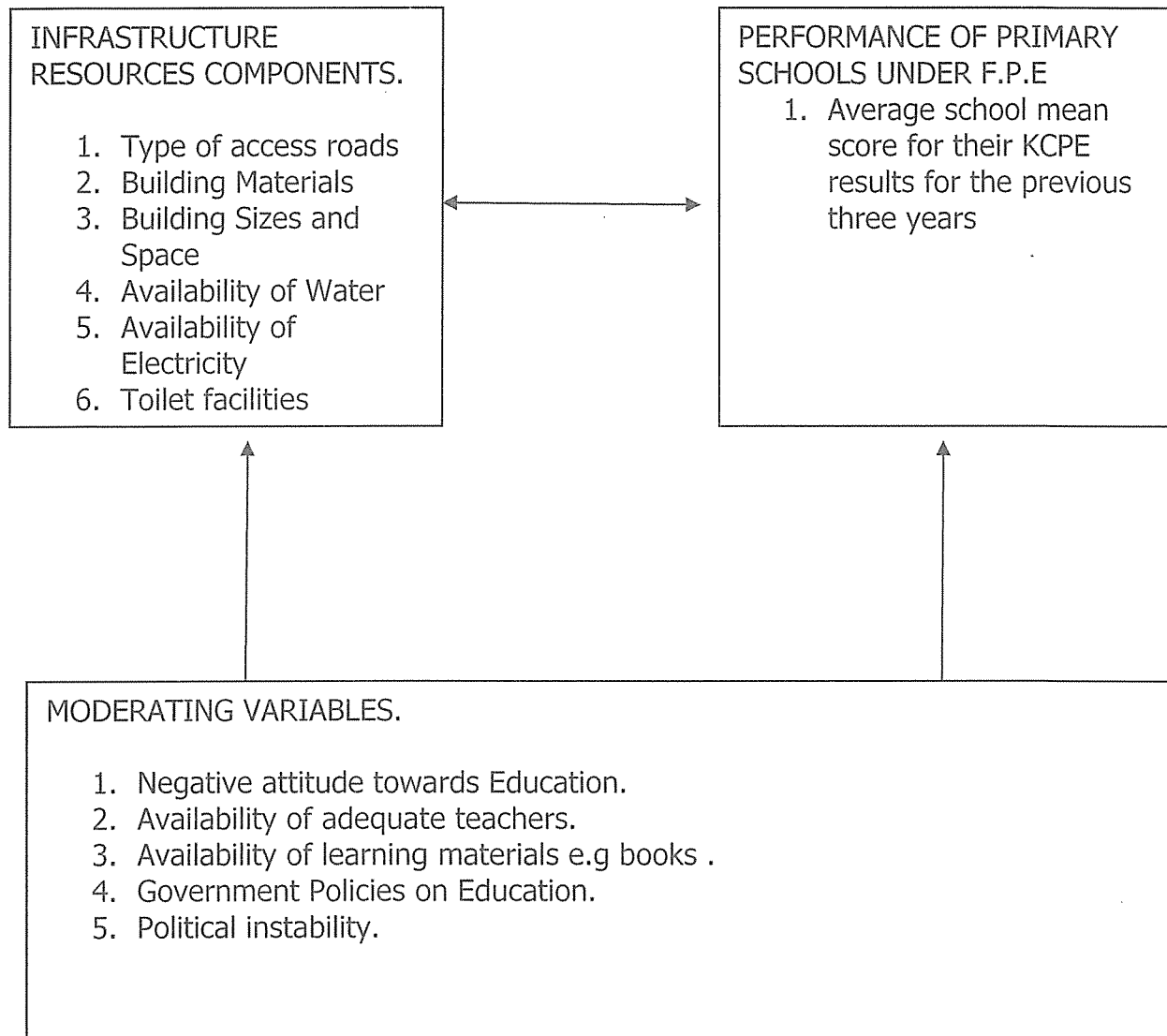
The study was intended to investigate the infrastructure capacities of the primary schools. The study was carried out in Eldoret Municipality in Kenya within the municipality geographical boundaries. Eldoret municipality has a total of 47 public primary schools where the government has implemented the free primary education program. The study investigated on the various government policies that have been developed and implemented in the country. The challenges that have been encountered in the development of schools infrastructure and the pressures put on the existing resources. The main independent variables considered were existing infrastructure facilities i.e. buildings, electricity, water and access roads to the schools. The independent variables were studied for the schools within the municipality against dependent variables which were the performance of the schools which included the average mean score of the schools for the past three years. The results were also compared with the existing standards from various bodies to determine the need for the various schools in terms of infrastructure development the quality of education provided. The research took a period of five 6 months from February 2010 to June 2010.

Significance of study.

Free primary education is ranked as one of the highest achievements by the government in Kenya and according to Steadman polls December 2009; it has the highest public approval rating in Kenya. The introduction of free primary education has given the children of Kenya an opportunity to get primary education even for the ones who come from poor families. For the free primary education to be successful, the program has to be supported to meet all its required need so as to provide quality education to the children.

Infrastructure is important to ensure that free primary education is sustainable. The increase in enrollment of students in primary schools has put pressure on the existing infrastructure resources. To ensure that quality education is given to the students, investments on infrastructure development has to be emphasized to cope with the increasing number of students in schools. The respective government bodies and nongovernmental organizations will benefit from the study to get relevant information to facilitate its developments. Eldoret Municipality Educational office will benefit from the research in knowing the existing conditions of infrastructure in its region and the challenges that they face in the infrastructural resources. Schools will also benefit by the key issues that will be raised from the research in making their plans for infrastructure developments and also after developments to ensure that their infrastructure needs are met.

Conceptual Frame Work



The conceptual frame work represents Infrastructure resources variables and how they affect the performance of Public primary schools which performance indicator was taken as the average mean score of the schools. The moderating variables included external factors that affected relationship between the dependent and independent variables which were not considered in this study.

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

This section covers the literature reviewed for the purpose of the study. It covers various policies by the government on education and infrastructure including the challenges faced in providing infrastructure in public primary schools to support free primary education.

The overall policy goal of the government is to achieve Education For All (EFA). The priority is, to ensure equitable access and improvements in quality and efficiency at all levels of education. The ultimate goal is to develop an all inclusive and quality education that is accessible and relevant to all Kenyans. This is guided by the understanding that good education can contribute significantly to economic growth, improved employment prospects and income generating opportunities. The government policy also entails allowing a broad-based participation in the provision of education with all stakeholders taking responsibility for planning and implementation. In tandem with this policy direction is the decentralization of decision-making and resource management to lower level structures with the MOEST maintaining general oversight and overall superintendence, (MOEST, 2003).

Concepts, Ideas, Opinions From Authors/Experts

Early childhood care, Development and Education (ECCD&E) involves household, community and Government efforts to provide for the integrated development of children from the time of conception to eight years of age. The MOEST'S policy is that ECCD&E programmes should be holistic and integrated to meet the child's cognitive, social, emotional and physical needs. However, this sub sector is

constrained by various challenges, which include, low access, low participation rates, inadequate funding especially from the local Government and lack of clear policy on coordination and regulation in the provision of ECCD&E services. To address these challenges, a multi-faceted approach was proposed which included improving the quality of ECCD&E through training, provision of teaching and learning materials and strengthening advocacy and collaboration with communities and other Government ministries, departments, local authorities, NGOs, and the other private sector and religious organizations, (MOEST, 2003).

The overall policy for primary education is to achieve Universal Primary Education (UPE) by the year 2015. This entails improvement in enrolments, access, participation and quality. It is within this policy framework that the government is implementing the Free Primary Education (FPE) programme. The policy priorities for primary education seek to address the declining enrolment rates, high dropouts, and low completion and transition rates. The Government in a major policy shift reviewed the cost-sharing policy, which required households to contribute towards the cost of educating their children in primary schools. It was envisaged that this new policy, which was deliberate in promoting universal primary schooling, will result in the attainment of UPE. Following this action, primary education Gross Enrolment Rate (GER) rose to 104 percent with 1.3 million new enrolments in 2003 one year after the introduction of free primary education. This brought the total primary enrolment to 7.2 million in 2003 the same year, (MOEST, 2003).

The expansion of primary sub-sector has implications on the other levels. This essentially implies that other sub-sectors must be prepared to absorb the

pressure resulting from this upsurge in enrolments. The policy for the secondary school level is to expand the opportunities available in order to improve access and enrolments. The major concern for secondary education is, therefore to address the issue of low participation, with the GER being as low as 22.2% in 2002. This poor performance by the sub-sector is part attributable to the high cost of secondary education and increased household poverty. Strategies for realizing this policy desire include, providing targeted bursary schemes to benefit particularly those in the poorest quintile. It also involves provision of learning materials to schools, (MOEST, 2003).

University education is expected to contribute to the building of the nation's human resource. Since independence, university education in Kenya has increased tremendously both in student numbers and physical facilities. Since 1970 when University of Nairobi was established as the first public university, another five have been established. In addition there has been rapid growth in private universities. Over the years, however, the number of students transiting from secondary schools to university has been very low. An added challenge relates to the mismatch between the quality of graduates and the skills demands in the industry. The government policy priority is, therefore, to expand opportunities in this sub sector in order cater for all deserving Kenyans. Besides, the policy will focus on internal efficiency and enhancement, sustainability and assurance of quality and relevant training. Regarding university education, the government policy is to expand access, improve quality and relevance of university education, (MOEST, 2003).

Kenya's education management system is highly centralized with the MOEST playing the key role. However this arrangement has resulted in major weaknesses in management and delivery of services particularly at the school level. In addition, an outdated legal framework, poor co-ordination, weak policy planning inadequate evaluation and monitoring among others have led to poor services in the entire sector. Mechanisms to coordinate the various state agencies involved in the management of education are lacking and capacities of district and school level structures that manage education services are inadequate particularly at the district level and school level planning and reporting, inspection and monitoring of resource management, (MOEST, 2008).

Policy relating to institutional management entails devolving decision making and resource management to lower levels through decentralization. The government recognizes that decision making is highly centralized at the MOEST headquarters. Decentralization entails school registration services, administration, finance and accounting services, teacher management and inspection. The policy priority is to strengthen the management at this level and to make them ready for the added roles. Regarding education financing, the long term policy goal of the government is to ensure that no potential student will be denied access to education or training for reasons of inability to afford. Under this policy framework, mechanisms are to be established which will ensure equitability and which will take into account affordability by the Government, households and other contributions to the sector. In the medium term, the policy is to increase overall spending volumes on education to reduce the cost burden on the poorest families especially with regard to primary education. Regarding

secondary education, the policy priority is to enhance the proportion of the poor student benefiting from targeted selective and merit-driven scholarships. It also entails establishing day-schools as a deliberate strategy to reduce costs, (MOEST. 2008).

The school infrastructure programme was developed in 2005 by the ministry of education in partnership with development partners to respond to the challenges that emerged following the implementation of FPE. An assessment of the school infrastructure revealed that many primary schools had inadequate classrooms. In some schools, the buildings were dilapidated and in dire need of renovation, while in others, children were learning under trees or in makeshift structures, (KESSP, 2005).

The challenges were greater in the poor districts where infrastructure investment was minimal. Poor standards of construction and inadequate maintenance were also identified as a major contributor to these challenges.

Head teachers, school committees and pupils also expressed the need for boarding facilities, teachers' houses, proper fencing and building of new classrooms where none existed (KESSP, 2005).

The school infrastructure investment programme is one of the 23 investment programmes in the Kenya Education Support Programme (KESSP) whose overall objective is to enable the government to provide quality education and training for development. The KESSP strategy revolves around four thematic areas: transparency, devolution of authority, multi-sectoral approach programme planning and implementation, results-based approach to programme management and accountability.

The school infrastructure programme aims at improving access, retention and learning outcomes in primary education, for both boys and girls, through provision of grants to schools in the poorest areas of the country, (KESSP, 2005). At the national level, the school infrastructure management unit was established at the ministry headquarters. The unit is staffed with an infrastructure co-coordinator, assistant co-coordinator and education planner, who work closely with development partners in carrying out its activities. The British development agency, Department for international Development (DFID) for example, has seconded a senior infrastructure adviser to work with the national team. A quantity surveyor and an architect from the ministry of roads and public works have been seconded to the infrastructure unit to provide technical support, (Elimu news, 2007).

At the district level, teams of eight professionals from different ministries have been constituted to oversee the infrastructure development. The members are the district education officer, who is the chairman of district infrastructure coordination team, district public works officer, district environmental officer, district water officer, district planner/district development officer, district schools auditor, district public health officer and district quality assurance officer. At the school level, school infrastructure committees have been constituted to work with the school management committees to harness local initiatives towards infrastructure improvement. Members of this committee are: The chairman of the school management committee, chairman of the school infrastructure committee elected by the community, two teachers, matron, (if boarding

school), special needs teacher, representative of the sponsor, and representative of the district education office, (Elimu news, 2007).

The district infrastructure coordinating teams were trained on programme implementation and management, accounting and procurement procedures, maintenance, monitoring and supervision among others. The same training was replicated at the divisional, zonal and school levels, with those trained at the district level being used as trainers at the divisional and school levels. By the end of 2007, 5205 members of school infrastructure committees from 1041 primary schools in 12 districts had been trained, (Elimu news, 2007).

By the end of the process 1041 school infrastructure development plans were developed and approved by the respective district infrastructure coordinating teams and ratified by district education boards. A criterion to rank districts and identify schools for infrastructure improvement was developed using poverty indices, enrolment figures, number of permanent classrooms and toilets. Data on poverty index was obtained from the ministry of planning whereas other relevant data were obtained from the ministry of Education. This criterion assisted the district education boards to select deserving schools. This was followed by the identified gaps in infrastructure status, (Elimu news, 2007).

Infrastructure improvement grants amounting to KSH 192 million had been disbursed by June 2007 to 435 primary schools from five districts covered in the first phase. However the programme has met several challenges. The multi-sectoral approach to development strategy hampers progress in the implementation of activities. For example, it is not easy to convince employees from other ministries that they have a stake in the ministry of education projects.

Thus this created the need for an all inclusive strategy that links line ministries within the framework of the sector-wide approach to programme planning and implementation, (Elimu news, 2007).

The implementation, particularly at the district level, needed also involve all stakeholders such as NGOs, Local communities and private sector. The implementation of Free Primary Education remains the most successful programme by the Narc government.

Through the programme, the Government has brought on board a further 1.7 million children to school by 2007. In total the government had spent Ksh 31 billion on the programme as at end of June 2007, the bulk of which came from the Exchequer. In the 2006/7 financial year the government spent about Ksh 9 billion on the programme. The first batch of Ksh 4 billion was released to the schools at the end of 2006. The government set aside Ksh 234 million in the 2006/2007 financial year to rehabilitate primary schools. A further Ksh 200 million went towards grants to low-cost boarding primary schools in arid and semi-arid areas and pockets of poverty. An additional Ksh202 million went to school feeding programmes. "This allocation covers the cost of distribution of foodstuffs donated by the world food programme to schools under the feeding programme" (Elimu news, 2007).

Under the FPE, each student is allocated Ksh 1020 a year, which is sent directly to schools for the purchase of exercise books, textbooks, chalk, dusters, rulers and other teaching and learning materials. The funds are also used for repair and maintenance as well as travel and salaries for support staff like guards. According to government estimates 13 more pupils out of every 100

were completing primary education by 2006, thanks to the free primary education programme. By 2004, the primary school completion rates stood at 76.2 per cent compared to 62.8 per cent in 2002. There were approximately nine million textbooks for the five core subjects in primary schools by the end of 2004. Although there was teachers' shortage, most public schools had registered good performance in national examinations, which indicated that the programme had not compromised standards. The national average pupil-teacher ratio in 2007 was 50:1, implying that the pupils received fewer assignments because teachers had little time to mark them, (Elimu news, 2007).

By 2007 there were 1768887 teachers in primary schools against a pupil enrolment of 7.6 million pupils. According to the government, the success of FPE has largely been realized due to collaboration between the government, development agencies, parents, school administrators, communities and civil society.

Despite teething problems, the programme had benefited many children and had put the country on a good stead to realize universal primary education (UPE). In the year 2007 Britain's department of international development (DFID) praised FPE saying "It is changing lives. The funds DFID provided, together with those of government, were channeled directly to the general purpose and schools instructional materials bank accounts established by 18,500 public primary school." (Elimu news, 2007).

Though recently the government has come under heavy criticism by the British government for the misappropriation of over KSH100 million meant for the free primary education by the Ministry of Education, (Daily Nation, 2010).

There has been low access to primary education in remote rural areas in ASAL districts. This has been dealt with by establishing mobile schools in remote rural areas offering ECCD&E, standards 1-3, and Adult Education (established based on best practices from existing pilot programmes and Duksi (Islamic) schools in ASAL areas), Construction of new satellite boarding schools for girls and boys in rural areas where schools do not exist. School placement has been based on district-wide Education Strategic Plan developed and agreed by the DEB and DEO. Developing clear guidelines for the construction of new boarding schools has been based on MOEST/UNICEF African Girls Education Initiative Project, which involves strong community participation in school management, (MOEST, 2004).

Insufficient and poor quality classrooms have been prepared new classrooms constructed using the grants. Detailed guidelines for effective use of school improvement grants have also been developed. Inefficient deployment and usage of teachers has been reduced by decentralizing the full management of teachers' deployments and transfers to District Education Boards (DEBs). Detailed guidelines to effectively manage and redeploy teachers have been developed, including ways to depoliticize teacher deployment. Others include special training for redeployed teachers servicing in schools with small number of students, including relevant management skills and multigrade teaching methods. Where teachers shortage persist recruitment of more teachers is done, (MOEST, 2004).

Theoretical Perspectives

Primary school education is one of the key issues in giving the basics and foundation of education to people in a society. In the year 2003, the Kenya government introduced free primary education in the countries public schools. This was a milestone in the education sector in Kenya in pursuit of the Millennium Development Goals and Education for All Goals. The government in collaboration with development partners and other stakeholders formed the Kenya sector support programme (KESSP) with the view of consolidating the gains to be made from the free primary education program. In particular it was critical to work in ensuring that quality and access prevailed in the education offered. Free primary education lead to the increase in enrolment of students in public schools and thus most of the institutions were faced with various challenges in handling the population, (World Bank, 2006).

Poor primary school infrastructure is one of the major barriers to improving access to primary education in Kenya. Empirical data show that physical facilities are important factors in both school attendance and achievement. For this reason, improving primary school infrastructure is a high priority for school management committees. Over time communities and parents have been responsible for and have made substantial investments in schools infrastructure. Development partners have also made investments often in support of community initiatives. Through such efforts, Kenya has over 18000 public primary schools and a large number of on-formal schools offering primary schools curriculum, ("Primary education," 2009).

However overtime there has been a backlog of infrastructure provision and a shortage of permanent classrooms, particularly in poor communities. At the same time, existing infrastructures are generally in poor condition due to lack of investment capital, poor construction standards and inadequate maintenance. With the significant increases in primary school enrolments additional pressure has been put on the existing infrastructure. The results of the sharp rise in numbers are poor conditions and overcrowding that are not conducive to good learning environment, (KESSP, 2005).

KESSP made significant progress towards achieving its objective in that the free primary education resulted into substantial growth in enrolment from 5.9 million children in 2002 to 8.2 million children in 2008. (Elimu news, 2008)

Weakness in food distribution systems and lack of access to water means that food cannot be cooked. Effective mechanisms for quick reporting and redress of food distribution failures and examining the possibility of a second meal at low cost boarding schools has been adopted to reduce it, (MOEST, 2004).

Head teachers are overworked due to expanding management responsibilities under FPE and weak enforcement of disciplinary measures for poor performance of head teachers (e.g. maintaining teachers and following the curriculum) has been reduced by in-service training of head teachers in management and financial management. Effective performance monitoring mechanisms for head teachers, including clear performance indicators, rewards for good performance and disciplinary measures for poor performance have been proposed for development. Low enrolment and completion rates in primary

schools due to traditional cultural practices and economic pressures has been lowered by mainstreaming parent and community ECCD&E/Primary education sensitization and awareness campaigns in all ASAL districts, (MOEST, 2004).

Lack of facilities for children with special needs has been catered for by improving access by making selected schools disability friendly, (MOEST, 2004).

There are various standards with regard to development of public infrastructure in general. The Kenya Educational sector support programme standardized the construction of classrooms based on the number of pupils in the classroom. Every classroom of 8.5 meters by 7.5 meters is supposed to have a maximum student population of 45 students,(KESSP, 2005).

According to Neumark standards for architectural design, a space of 65-70 square meters is supposed to accommodate 15 pupils. This is a much higher standard as compared to the KESSP standard for classroom construction. The standard for staffroom construction according to the Neumark standard further states that the for office constructions, a space of 20 square meters should be occupied by one person. The type of building material largely depends on the available funds but permanent buildings with proper ventilation are suitable for proper learning of the students.

The Ministry of Education standard under the umbrella of Kenya Educational support sector programme for the use of public toilets indicates that one pit latrine should be used by a maximum of 25 Persons. Drinking water should also be safe for human consumption and the local water service providers follow the guidelines provided by the Ministry of Water to ensure that piped water is safe for human consumption.

The school should also have proper access roads that should ensure access even with poor weather conditions. Tarmacked and well graded murram roads with good drainages cater for this purpose.

The Kenya government policy on education is to provide Education for All. Primary education has been given more emphasis as it is the background of the entire education system by introducing free primary education. The government has introduced various infrastructure programmes that have had shortcomings in management structures and administration to ensure that developments are done to cope with the growing demand to the required standards

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Related Studies

In comparison to studies conducted for universal primary education in Uganda. The major aim of the ministry of education and sports (MoES) is to provide wider access to quality education. The Ministry formulated the Education Strategic Investment Plan (ESIP) 1997-2003 framework and ESIP II framework through ESIP and vision 2025 government made a commitment to addressing education as a development priority. The Poverty Eradication Action Plan (PEAP) 2005/06-2007/08 Uganda's key development strategy paper-does not emphasize education as a right, but instead focus on its capacity to contribute to economic

growth. The PEAP treats education as a resource that contributes to economic growth. The PEAP further notes that education plays a role in strengthening institutions, building democracy, empowering women and protecting the environment and highlights the governments commitments in achieving the Millennium Development Goals through increasing funding for the number of children from primary to secondary schools and those going for vocational training and reducing funding for the number of students going into higher education.

The Uganda constitution makes provision for the right to education. Article 30 states that all persons have a right to education. Article 34 refers to the right of children and states that a child is entitled to basic education which shall be responsibility of the state and the parents of the child. In addition to these provisions in the bill of rights, the National Objectives and Directive Principles of state policy provide that the state shall promote free and compulsory education, take appropriate measures to affect every citizen equal opportunity to attain the highest education standard possible and that individuals, religious bodies and other non-governmental organizations shall be free to found and operate education policy of the country and maintain national standards.

Uganda's education structure runs on four level single-track system namely preprimary, primary, secondary and tertiary levels. With the exception of preschool, all these levels are under the Ministry of Education and Sports. Until 1997, government policy on education was to subsidize school fess at 50% for primary education, 65% for secondary boarding schools and 25% for secondary day schools.

In 1997, Government of Uganda introduced Universal Free Education (UPE) where four children were entitled to free education. However the four child access to primary education faced problems. With UPE the state meets the costs of school meals and contributions towards construction and maintenance. (Juuko and Kabonesa, 2007)

Availability or the state provision of necessary Infrastructure is crucial to the realization of the education. The infrastructure includes classrooms, seating and writing facilities e.t.c.

In the 2004 Education Statistics Abstracts the number of government aided schools increased from 10086 in 2002 to 10460 in 2004 and those receiving partial support from government decreased from 1156 to 655, while those not aided by government increased from 2050 to 2208.

In terms of seating space in 2002 the highest percentage of students with adequate space was 70% in primary seven and the lowest of 30% in primary one. Both figures reflect the enrolment figures in the lower classes and progressive dropout rates from the lower to the upper classes, (Juuko and Kabonesa, 2007).

According to Juuko and Kabonesa (2007), the condition of the classes were in a dilapidated state for 70% of the schools visited there were few latrines in the schools and there was no clear provision of separate latrines for girls and boys. The 2004 abstract states that about 706 schools in Uganda used river/lake water that may or may not be safe for drinking. The most common source of water source were wells/springs followed by boreholes.

In Kenya, the ambitious Ksh500 Billion programme to support Kenya's education programmes has bared fruits since its implementation. Through KESSP, the ministry of education was able to set up clear plans and harness the requisite resources to implement them. In 2006 the World Bank approved a Ksh 5.8 billion loan to the government to support education. Britain's department of international development also committed to providing Ksh7.4 billion to support KESSP for five years and part of the funds have already been released, (Elimu news,2006).

To address the existing challenges, the government has continued to issue grants to primary schools, including the non-formal schools in urban slums which serve as the re-entry points for over-age children and also support mobile schools in arid and semi arid areas. The government also mobilized resources for infrastructure development in order to construct new classrooms and new schools especially in poor communities. However infrastructure development has been based on strategic plan manuals and guidelines designed to help schools address their specific needs and contribute effectively towards improving learning outcomes, (KESSP, 2005).

The infrastructure development policy is based on environmental and social assessments, to ensure that a school infrastructure development plan takes into account the local conditions to target communities. However management and accounting of funds for the infrastructure follow arrangements in use for free primary education financing. The recommended staffing norms are one teacher per 45 pupils in a class of average dimensions 7.5 by 8.5 meters, (KESSP, 2005).

KESSP investments is aimed at strengthening the management and sustain reforms being implemented by the ministry of education in the education sector and help improve the quality of the delivery of services at all levels among school management committees.

The ministry of education identified four critical issues relating to primary schools infrastructure which included; The lack of adequate infrastructure and shortage of permanent classrooms particularly in poor districts, the poor state of existing school infrastructure due to lack of investment, poor construction standards and inadequate maintenance. The limited number of primary schools serving poor populations in isolated rural areas, those living in low-income and in other pockets of poverty. Huge discrepancies in needs depend on local conditions existing in various schools, (KESSP, 2005).

There are a number of projects that either wholly or partly support primary school construction, particularly in Arid and semiarid Lands. These include the infrastructure support for North Eastern province primary schools (GOK/USAID), Basic education project (GOK/OPEC), Arid land resource management project (GOK/World bank), community development trust fund (EU). In addition, local authority trust fund and constituency development fund provide funding for community based projects including school construction; all these initiatives require effective coordination through the District education boards, (KESSP, 2005).

The government policy framework is aimed at providing educational opportunities to all Kenyan children is central to the government plan for Economic Recovery Strategy(ERS) and Poverty Reduction Strategy Paper (PRSP).

In line with the above policy and strategies, the Ministry of Education Science and Technology developed programmes that included: School improvement grants, new primary school construction and Management and capacity building of schools, (KESSP, 2005).

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CHAPTER 3: METHODOLOGY

Research Design

The research design adopted was a survey research. This was the most appropriate research design because the study of the schools in Eldoret Municipality was expected to give a general description on the characteristics and capacity of the other Municipal and districts in the country

Research Population

A survey was conducted on chosen schools in Eldoret municipality since it would have been more expensive to carry out the study on the entire population of schools which constituted of 47 public primary schools distributed across the entire geographical boundary of the municipality. The respondents targeted were mainly head teachers, deputy head teachers or the senior teachers in the respective schools depending on their availability. These were considered because of a number of reasons: The head teachers are the individuals who are entrusted by the responsibility to discuss school matters with external sources, they were also in a good position to give reliable information regarding the schools since they are directly involved in running of the schools in their day to day activities and lastly the protocol observed is in the order of head teacher, deputy head teacher then the senior teacher in a descending order respectively. This was important to ensure that the data could be collected on the respective dates set for the particular schools with the option of having different respondents if the other ones are not available. 12 head teachers were respondents in the study with 3 deputy head teachers covering for the head teachers who were not available in three schools at the time of visit.

The total number of respondents during the study was 17. These included 12 head teachers, 3 deputy head teachers and 2 officers from the municipal education office who were interviewed.

Sample Size

The sample selected for the study consisted of 15 schools. The entire schools population consisted of 47 schools in the municipality. This number was arrived at due to limited financial resource that had been set aside from the budget to cater for fare and data collection instruments for the various schools in the municipality. Expressing the sample number as a percentage of the total school population, it was also realized that it covered 31% of the total schools population, thus this was a good representation for the data collection and it was considered that the sample should be able to give data that is relatively similar to the entire population. This sample was selected because the characteristics of the public primary schools were not any different apart from the location and student population of each school i.e. the schools in the entire municipality were all mixed day primary schools.

Sampling Procedure

The sampling procedure used was of two types, simple random sampling and stratified random sampling. This was important so as to get a sample that was representative of the population of schools in Eldoret Municipality. Stratified random sampling was first used in the development of the sample from the population. The schools were listed according their geographical location into two groups. The first group consisted of schools in the city centre and within its environs. This was important because schools within the city centre are

characterized by high students' population due to the dense population and settlements within the city centre. The schools were also closely located to one another. The second group consisted of the schools outside the city centre. These mainly consisted of schools in the rural areas within the municipality. The schools were sparsely distributed compared to the schools within the city centre.

A simple random sample was then conducted separately on the two groups. The number of schools selected from each group was based on ratio of the number of schools on each group to the number of schools in the entire municipality. This was meant to ensure that the sample chosen was a representation of the entire schools population within the municipality.

Research Instruments

The main instruments used for the data collection were interviews, questionnaires and observation. Interviews were mainly be used to collect data from the officers in the municipal education office. The information from these participants was mainly to get the involvement of government, communities and other stakeholders involved in infrastructure development of schools on a practical level. This was crucial to identify the practicability and implementation of the government policies regarding the free primary education that have been discussed in the literature review.

Questionnaires were used in collecting data from the head teachers or deputy head teachers of the selected schools. The questionnaires were structured to be close ended and open ended especially where specific numerical data was required for the particular variable i.e. population of students in schools. Contingency questions were also used where the scope of the variables

could not be explicitly identified from the close ended question. The questionnaire consisted of two sections: Section one were mainly open ended questions with contingency questions on particular close ended questions. The focus was on collecting data that were to determine the students/ teachers populations, number of buildings and availability of infrastructure facilities i.e. water and electricity. Sections two were questions targeted to collect the data on the nature and conditions of existing infrastructure i.e. the type of building material.

Validity and Reliability of the Instrument

A pilot study was done on the questionnaire to determine its reliability and validity since it was the most crucial document providing over 90% of the data required to study the chosen variables. The test–retest method was used on two schools to determine the reliability of the Questionnaires. Questionnaires were initially administered to the schools one week before the actual study. The respondents during the first visit were the head teachers of the schools. The schools were just chosen from an economic perspective due to their proximity to my residence. The second questionnaires were then administered 2 days earlier before the commencement of the actual field study and data collection. During the second visit, the respondents were the deputy head teacher, these were necessary to avoid the risk of compromising the pilot study by the respondents being initially sensitized and repeating the same answers all over. A correlation coefficient for the reliability of the instrument was determined to be 98% which was considered very appropriate for collecting the data. The validity of the instrument was conducted by comparing the answers on the questionnaire and

conducting an actual observation. The questionnaire was found to have correlation coefficients of all construct and content validity above 85% these was considered appropriate.

Observation techniques were used to validate the information given in section two of the questionnaires and also in measurement of the sizes of the classrooms and the other building within the schools. The access road type and nature data was also collected from the observation checklist. Lastly the nature and conditions of the classrooms i.e. availability of doors and windows were also captured using the method.

The Questionnaires were administered to the head teachers who filled them immediately while some preferred for me to fill for them while they responded to the questions. Some of the Head teachers preferred to be left with them and were collected the following day.

Data on the observation checklist were filled after permission was granted the head teachers or their deputies. The data to be collected from the observation list were basic and measurements were taken with a tape measure. The time spent on a school to collect data ranged from 30 minutes to 1 hour.

Data Gathering Procedures

The research was carried out in the Eldoret town in Kenya. The inception process started with the discussion of the title of study with the project supervisor to ensure that it gave a good picture of the variables to be researched and the content expected for the study. The proposal was then prepared and submitted to the supervisor for corrections on 22/02/2010. A final copy was then

submitted to the supervisor for approval in Kampala international University on 26/02/2010.

A letter of approval was then be issued by the department of social sciences as a go ahead once it has been approved.

Beginning of March an introductory meeting with the Municipal education office was arranged. This was important for the subsequent reconnaissance and introductory meetings with the various schools which was conducted to be able to familiarize myself with the institutions. The Municipal Education Officer was instrumental in issuing an introductory letter to the various head teachers in the schools. A request for appointment on the particular days when the data collection was to be conducted was agreed upon with the school heads during the reconnaissance visits and recorded on the detailed work schedule. All the data collecting Instruments were then finalized and prepared in readiness for the actual visits to the school by 12/03/2010.

The field study was then conducted from the 15/03/2010 to 26/03/2010 and the data organized for analysis. The data was analyzed using computer software for data analysis (Microsoft excel). The final write up for the literature review was then finalized and the entire research report finalized, compiled and edited before handing to the supervisor for corrections.

The final research document was then be prepared with the recommendations from the project supervisor and handed over for defending.

Data Analysis

The data collected was analyzed using quantitative techniques of data analysis. Descriptive statistical methods were used to determine the infrastructure capacity of the schools by comparing the existing infrastructure to the population of the schools and later determining and the needs assessment by comparing the current schools infrastructure capability to the required or standard infrastructure requirement.

The mean and mode of the variables from the various schools were used to give a general description of the data captured in the sample. The standard variations and variances were used to measure the variability of the data. Lastly graphical representations of the frequency distribution of the variable were used to determine the distribution of the various variables for the sample and in general for the total population of the schools within the municipality.

Qualitative data on the conditions of the infrastructure were also coded and also analyzed using descriptive statistics. Microsoft excel program was used for the data analysis.

Ethical Considerations

It was crucial to ensure proper work ethic during the research process. Proper consent was gotten from the Municipal Education office before the research study in the various schools and they were instrumental in giving a consent and introductory letter to be presented to the schools during the research study. The head teachers were also informed that the study was for academic purposes only and any information would not be used for any other purposes.

Limitations of the study

The main limitation of the study were convincing the heads of schools that data collected were only for the purpose of this study since this was the time when the Ministry of Education were under heavy criticism for misappropriation of funds for the free primary education.

CHAPTER 4: PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This chapter covers the findings of the study and presents the data in tables as collected from the survey. It further represents the data in a graphical manner to give a clear representation of the findings from the variables of the study.

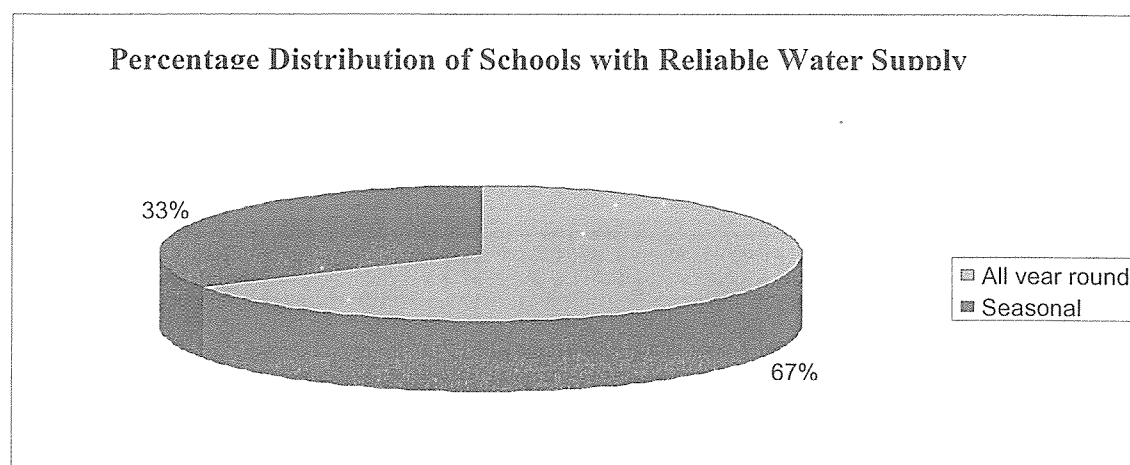


Fig 1. Percentage distribution of schools based on reliability of water supply (Source: Authors Primary data, 2010)

The 67% of schools with reliable water supply were mainly schools within the city centre connected to the water supply system while the remaining percentage were the schools in the rural areas. Some schools connected to the water pipeline system also experienced periodic water supply in the dry seasons these could be attributed to rationing from the water supply provider.

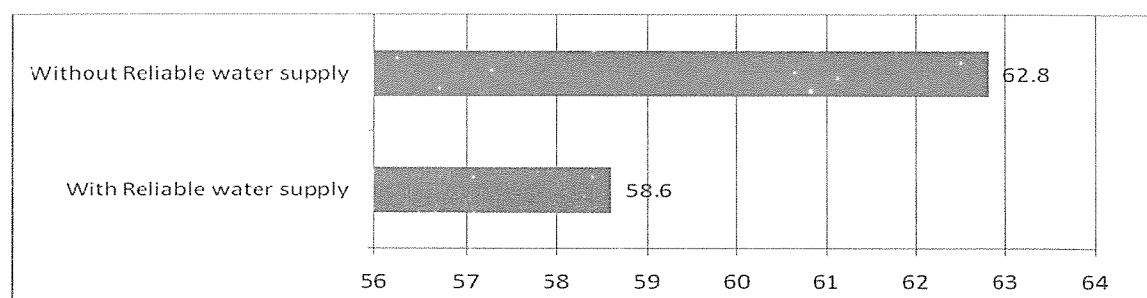


Fig 2 Average Mean score of the schools with and without reliable water supply (Source: Authors Primary data, 2010)

The mean score of the schools with reliable water supply was 58.6% while for the schools without a reliable water supply system was 62.8%. These results showed that the schools that experienced water shortages during the year performed better than the schools with reliable water supply.

Schools that experienced seasonal water supply were mainly those that drew their water from shallow wells that ran dry during the dry seasons.

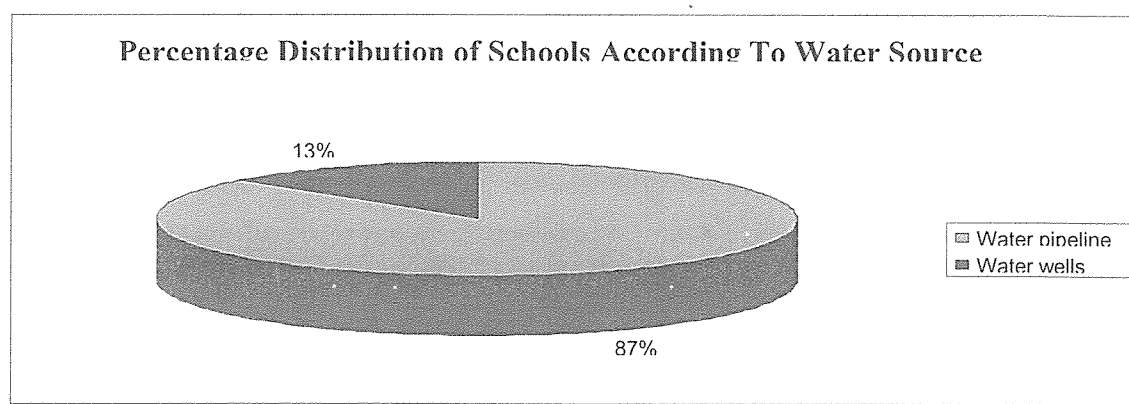


Fig 3 Percentage distribution of schools according to their water source. (Source: Authors Primary data, 2010)

schools are connected to the water pipeline system of the local water service provider were 87% while 13% access water through dug water well. The water supply pipeline system is covering a major area of the municipal and the 13% of schools were mainly in the rural areas where the water supply system has not been extended to.

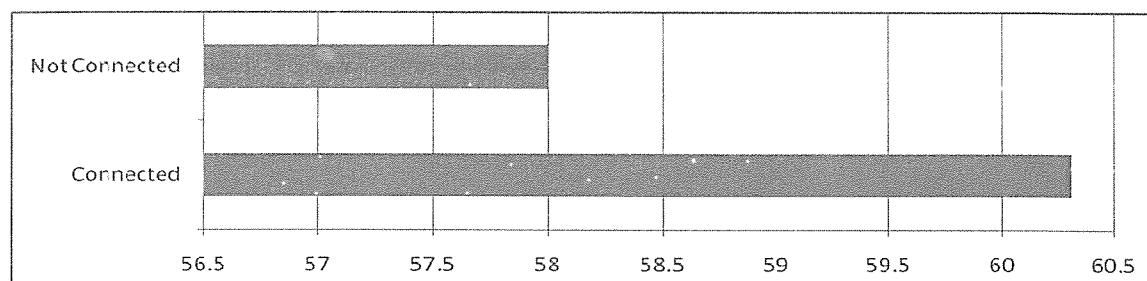


Fig: 4 Average Mean score of schools based on connection to water supply system. (Source: Authors Primary data, 2010)

The average mean score of the schools connected to the water pipeline system is 60.3 % while for the schools not connected is 58%. These showed that the schools that are connected to the water supply system performed better than the schools that were not connected to the water supply system of the local water supply provider.

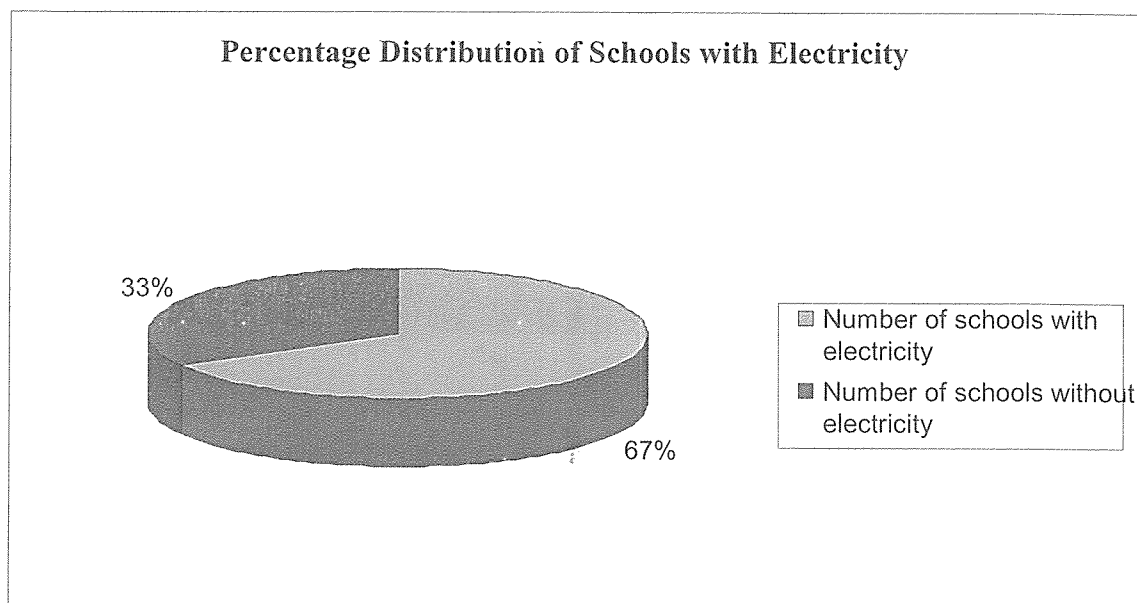


Fig: 5 Percentage distributions of schools according to power availability. (Source: Authors Primary data, 2010)

schools having electrical power were 67% while 33% of the schools don't have electrical power connection. Schools connected to the power lines are the schools that are within the vicinity of the city centre. The schools in the rural areas were awaiting connections through the rural electrification programme. Other sources of electricity like solar and generators were not prevalent because of the high capital and maintenance costs.

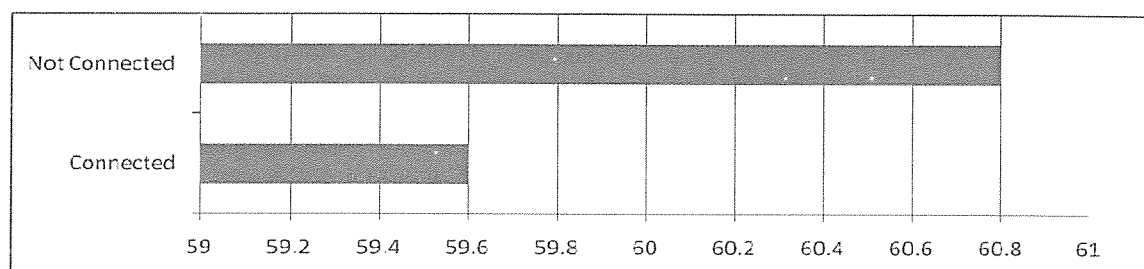


Fig: 6 Average Mean score of schools based on connection power supply. (Source: Authors Primary data, 2010)

Of the schools with electrical power the mean score was 59.6% while for the schools without electrical power it was 60%. The school with electrical power connection did not report any significant better performance than the schools without electrical connection.

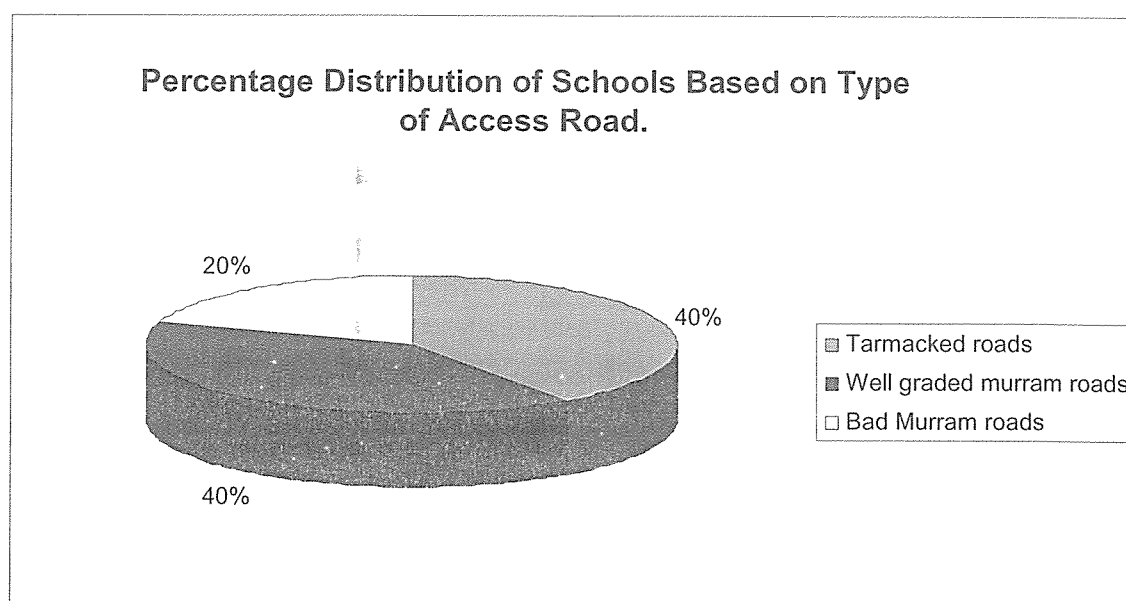


Fig: 7 Percentage distribution of schools according to the type of access roads (Source: Authors Primary data, 2010)

Schools accessed by Tarmacked roads are 40%, another 40% is accessed through well graded murram roads with proper drainage and 20 % of the schools have poorly graded murram roads that don't have adequate drainage channels and are prone to water pits during rainfall. 80% of the schools from the

above data are easily accessible and the 20% of the schools were in remote areas of the municipality where little is done on the maintenance of the roads. The municipal education office is not directly involved in building access roads purposefully for the access of the schools but for the general area through the Municipal Engineering department. These increases the difficulty in the transportation of learning materials to the schools in general due to increased transportation cost.

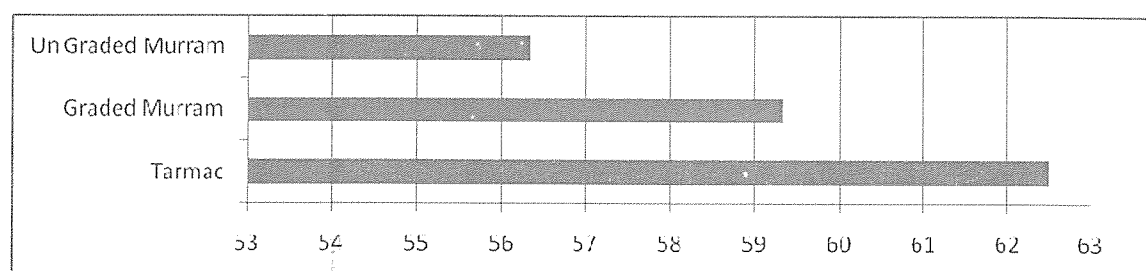


Fig: 8 Average Mean score of schools based on type of access road.

(Source: Authors Primary data, 2010)

The mean score for the schools with Tarmac access roads was 62.5% while for well graded murram road was 59.3% and 56.3% for the schools with bad murram roads. These shows that the schools with better access roads performed better than the schools with poor access roads to the schools.

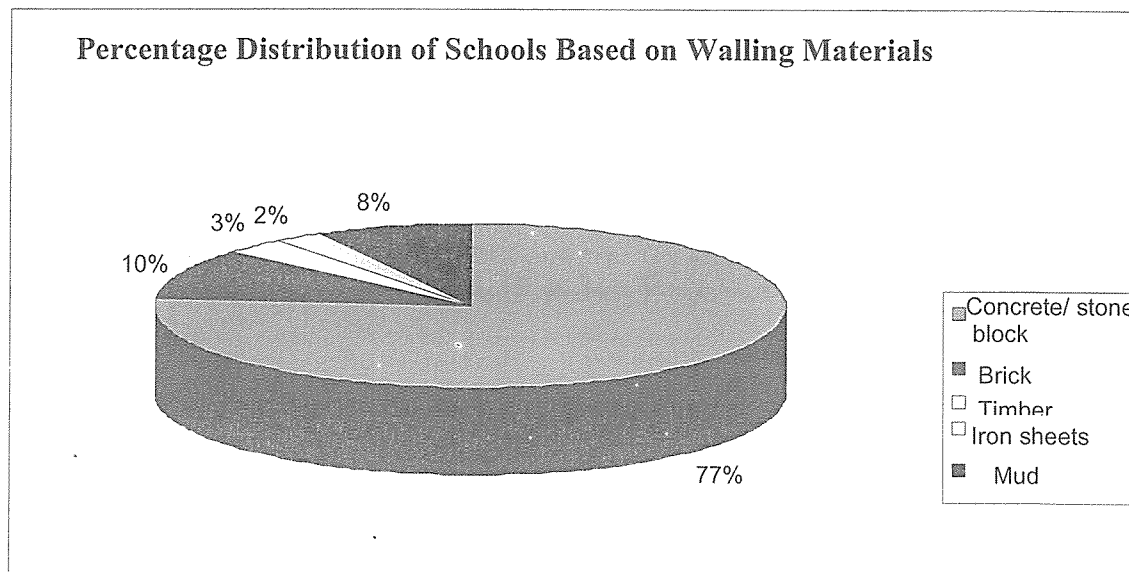


Fig: 9 Percentage distributions of schools buildings based on the Building materials. (Source: Authors Primary data, 2010)

Schools using concrete blocks as their walling material were 77%, these schools reported a mean score of 62%. 10% schools used bricks and had a mean score of 60%, 8% used mud with a mean score of 53%, 3% timber with a mean score of 65% and 2% used iron sheets with a mean score of 56% as shown below.

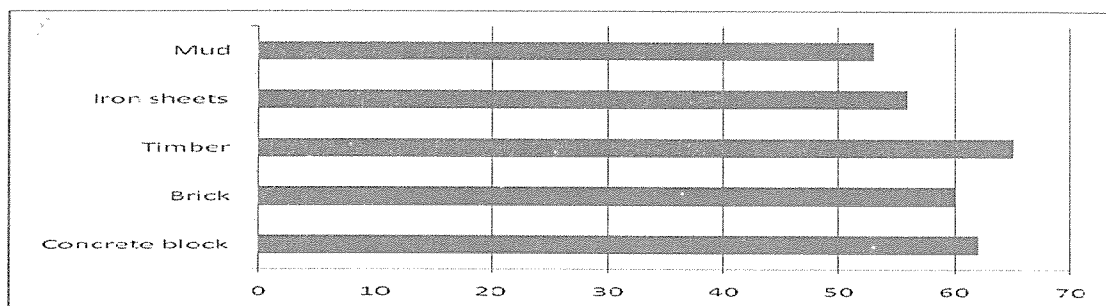


Fig: 10 Average Mean score of schools based on type walling material. (Source: Authors Primary data, 2010)

Eldoret municipality is within the rich environs of the country in the production of natural stones for building purposes these reflects on the high number of building with stone blocks. The schools built with mud, timber and iron sheets are prone to damage or deterioration due to the weather and don't provide

proper learning environment for classrooms. Lack of financing is one of the principal likely cause for the adoption of walling material that is cheap but not durable in the long run. Generally from the above results, the schools with proper building materials reported better results than the schools without.

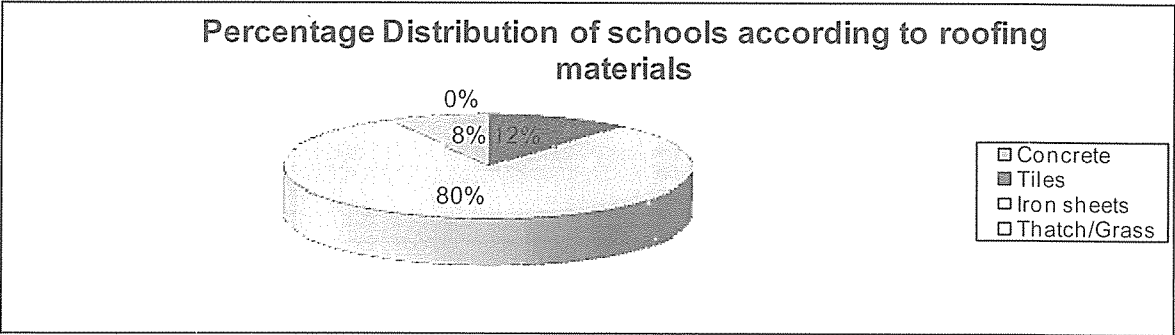


Fig: 11 Percentage distribution of school buildings according to roofing materials (Source: Authors Primary data, 2010)

The roofing materials distribution of buildings was distributed across three building materials. Iron sheets were the most widely used with 81% of the schools across the entire sample these schools reported a mean score of 61.3%. Roofing tiles had a composition of 11% of the schools with a mean score of 59% while thatch consisted of 8% of the schools with a mean grade of 56.3% as shown below.

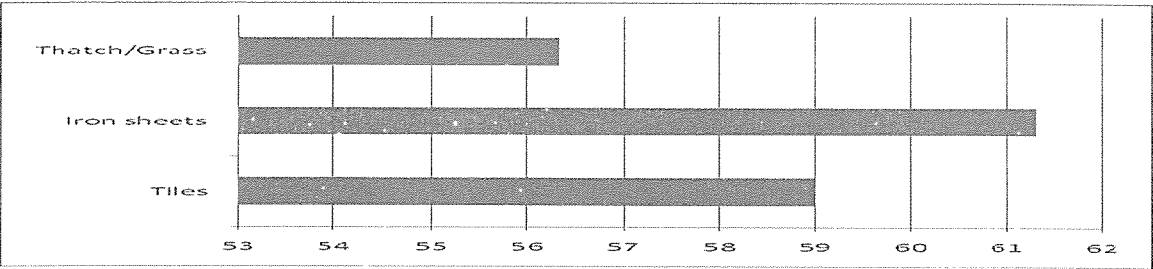


Fig: 12 Average Mean score of schools based on type roofing material. (Source: Authors Primary data, 2010)

Iron sheets are considered cheap and durable roofing material and constitute the biggest percentage of roofing materials for the buildings. The classrooms with roofing tiles are mostly the old schools in the municipality. The schools with proper roofing materials performed better than the schools with thatch roofing. The thatch schools are mainly in the rural areas where the number of students is also low and since they are far from administration office little emphasis is put do address their infrastructure development issues. The roof is crucial as it protects the students from the weather conditions and thus they are able to study well in proper conditions.

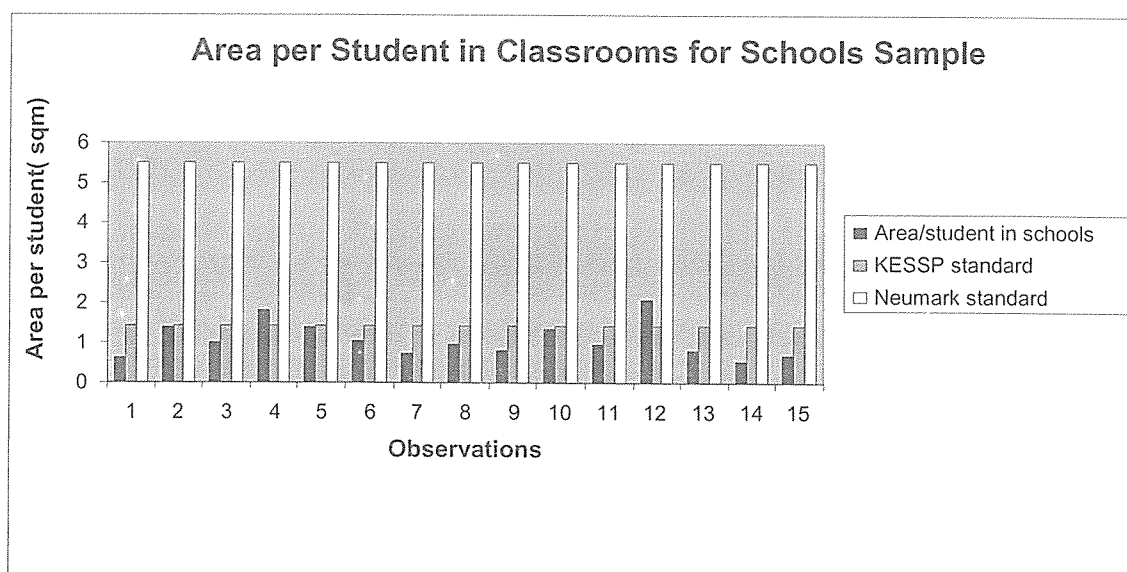


Fig: 13 Area per student (sqm) in classrooms. (Source: Authors Primary data, 2010)

The average area per student in classrooms within the observed sample is as represented in the bar graph above. The school with the highest area per student in classrooms had an area of 2.07 square meters per student. It recorded a mean score of 66 % in its KCPE results. The student with the lowest area had an area of 0.54 square meters per student and had a mean score of 52%. In general the schools with a higher area per student showed better

performance than the schools with least areas per student. This area is inclusive of the walk ways between desks and teachers space for mobility in front of the classroom to be able to write on the black board. The results were further compared to the Kenya education support program guideline for classrooms construction which has an average of 45 students in a standard classroom of 8.5 by 7.5 meters. This gives an average area of 1.41 square meters per student. The Neumark standard for architectural design which is used mostly as a guideline for the architectural bodies in East Africa's code of practice, gives an average area of 5.5 square meters per student. These gave the indication that the students are crowded in the classrooms in most schools as only two of the sampled schools out of 15 schools had exceeded the required standards. These showed that the increasing population of students had insufficient number of classrooms in most schools and the rate of classroom developments were superseded by the increasing population.

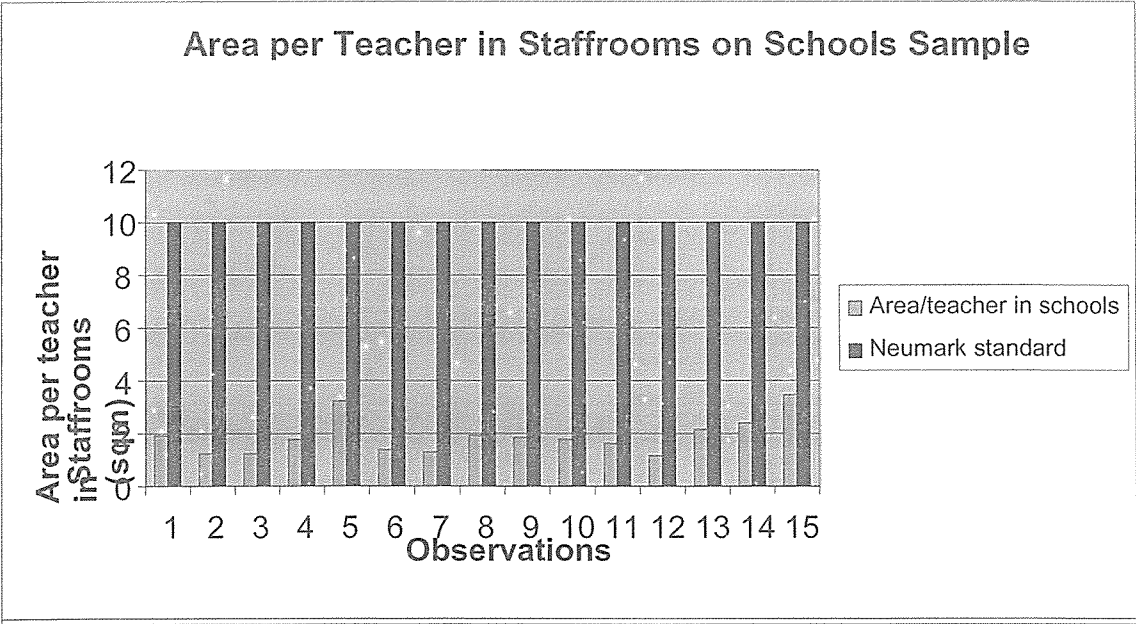


Fig: 14 Area per teacher in staffrooms on schools sample. (Source: Authors Primary data, 2010)

The average area per teacher occupied in staffrooms of the sample schools are as represented above. The areas were as high as 3.5 square meters with a mean score of 53% while the school with the lowest area per teacher in the staffrooms of 1.13 square meters per teacher recorded an average mean score of 64%. The schools with larger teaching space in the staffrooms did not have a guarantee of better performance in their KCPE results. This area is inclusive of the furniture and walk way space. The Neumark standard for architectural design gives a standard area of 10-20 square meters per person in office space design. This shows that most schools have limited staffroom buildings for the teaching staff and the teachers have to crowd in the available buildings.

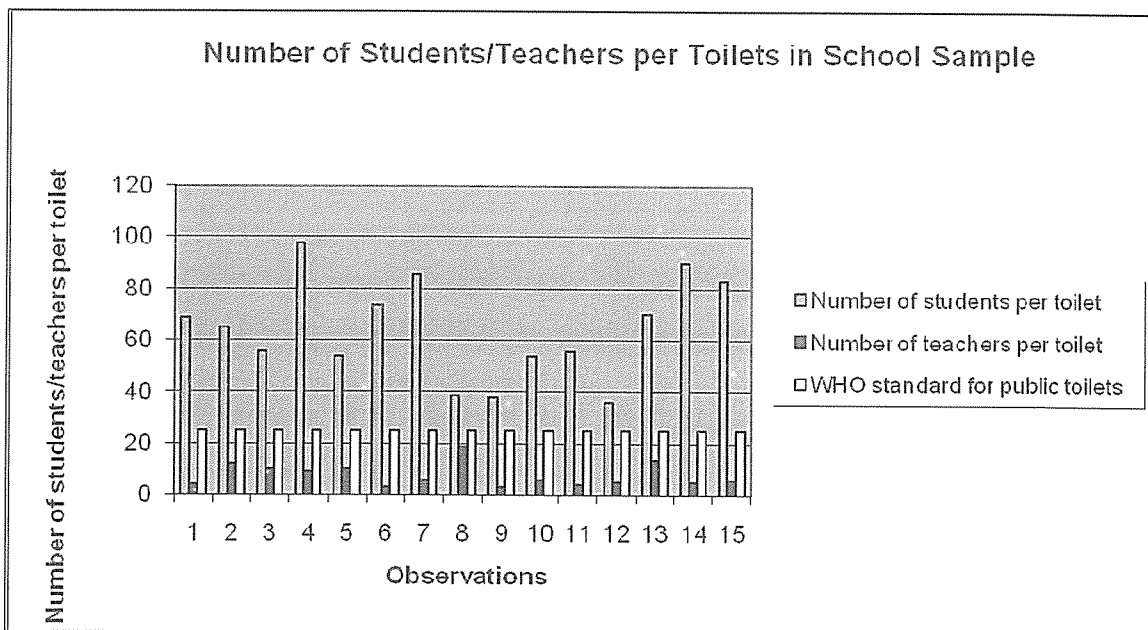


Fig: 15 Number of students/teacher population in schools per toilet facilities (Source: Authors Primary data, 2010)

The number of students and teachers per toilet are as shown in the graph above. The Number of students being served by one toilet was as high as 98 students per toilet and recorded an average mean score of 58% and the schools

with as low as 38 students per toilet recorded a mean score of 66%. The teachers number were as high as 19 teachers per toilet with the school reporting a mean score of 63% while the lowest constrained had 3 teachers per toilet and recorded a mean score of 53%. The Ministry of education standard under the Kenya education support programme has a guideline of 25 female students per toilet and 30 male students per toilet. These are due to the limited toilet facilities in most schools with the ever increasing number of students in schools.

All the schools have water supply systems with most of the schools drawing water from the water supply pipeline of the Local water Service provider which is considered safe for drinking. A good number of the schools have electricity power supply and a few schools are without power supply mainly in the rural areas. Most of the existing physical facilities including classrooms, staffrooms and toilet facilities are in fairly good condition but are in limited supply to meet the required standards set by the government and other recognized bodies. The next chapter discusses the findings, draws conclusions and makes recommendations from the study.

CHAPTER 5: FINDINGS, CONCLUSIONS, RECOMMENDATIONS.

This section covers the discussions, conclusions and recommendations based on the findings of the research. They discuss the findings in details the specific variables studies and what their findings were from the study.

Findings

The purpose of this study was to identify the capacity and effect of infrastructure in the public primary schools in supporting free primary education of its students. The study also determined the infrastructure needs on the schools that are overwhelmed by its student population.

Availability of water in schools is necessary for better performance of the students. The Joint Review Mission Ministry of Education Science and Technology (2004) identified lack of access to water as one of the hindrances in the implementation of food provision in public primary schools and thus poor performance. This is however not the case as from the results of this study but rather the critical issue is availability of safe drinking water. Eldoret Water and Sewerage Company has an extensive water supply system in the region. The local water service provider provides safe drinking water to the students in the schools since it is pretreated before being pumped into pipeline system. The mean score of the schools with reliable water supply was 58.6% while for the schools without a reliable water supply system was 62.8%. These showed that the connection of schools to the water supply of the local water service provider was not a major hindrance to the school performances. Water wells do not provide a guarantee for clean and safe drinking water and can lead to the spread

of water borne diseases. The high number of schools with water supply in the municipality ensures that the students have a good learning environment.

From the data presented in chapter four of this study, it was realized that schools with good Physical infrastructure performed better than the schools without. This concurred with what other researchers had stated from their findings. The Kenya Education Sector Support Program (2005) also identified that overtime there has been a backlog of infrastructure provision and a shortage of permanent classrooms, particularly in rural areas. At the same time, the existing infrastructure is generally in poor condition due to lack of investments, poor construction standards and inadequate maintenance.

Most of the schools had the basic physical infrastructure including classrooms, staffrooms and other facilities but most of them were in poor condition. Students were crowded in most of the schools and this does not give them the required room for proper learning to take place. The Neumark standard for architectural design gives a standard area of 10-20 square meters per person in office space design. None of the schools met this standard and they are all operating below the required capacity. The schools with a higher teaching space didn't report better performance than the other schools. These can be attributed to the fact that teachers are able to cope psychologically even with constrained spaces in the staffrooms and would not have a negative effect on the delivery of their duties even with less sitting space in the staffrooms.

Most schools don't have proper sanitary facilities and were mostly constrained. The Number of students being served by one toilet was as high as 98 students per toilet and as low as 38 students per toilet. The teachers number were as

high as 19 teachers per toilet to as low as 3 teachers per toilet. The schools that had limited toilet facilities performed poorly than the schools with proper toilet facilities. Children at the age of primary school need proper hygienic toilet facilities for use. The Ministry of education standard under the Kenya education support programme has a guideline of 25 female students per toilet and 30 male students per toilet. No school met the KESSP standard on the use of public toilets with all the schools working with fewer latrines and toilets than required for the students though most schools had enough toilets for the teaching staff. The infrastructure capacities are shown to be below recommended standards which are a reflection of the KESSP and other researchers' observations.

Conclusions.

There is serious shortage in terms of the important infrastructure facilities for the schools in Eldoret Municipality. Classrooms are the most fundamental requirement for the schools. 87% of schools need extra classrooms to be able to support the students' population in the municipality. Thus proper actions and measures should be adopted for the short term and the long term to be able to implement the government policy on classroom development of schools. The buildings in place are in fairly good conditions with more than 77% being permanent buildings built to proper standards.

Availability of water in all the schools is good with 87 percent of the schools being supplied through the water pipeline system of the local water service provider. 67% of the schools have all year round reliable water supply this is crucial because availability of safe drinking water should be ensured to avoid the spread of water borne diseases that can lead to serious consequences.

80% of schools are accessible with good roads 40% being tarmacked and 40% as well graded murram roads. 20% of schools don't have proper access roads and transportation of goods and learning materials to the schools can be a problem.

67% of schools have electricity in the schools. The power is mainly from the electricity mains supply since it is the most affordable source of power. 33% of the schools that don't have power are mostly schools from the rural settings.

Most schools lack enough toilets lack enough toilet facilities. None of the schools met the required standard of 1 toilet to 25 students. This can be very detrimental to the health of the students. Over stretched toilet facilities can lead to a break out of diseases that would have serious consequences to the students.

5.3 Recommendations.

- There is need for the implementation of schools infrastructure development programmes faster than it is being implemented to ensure that schools have proper infrastructure resources to meet the ever growing student population.
- There is need to develop more schools other than just expanding the existing schools to be able to distribute schools in a more widely geographical region.
- There is need for the public utilities companies to develop investment schemes that will ensure physical development of classes is coupled with extension of water and electricity for the schools.
- The local government needs to ensure that funds for roads development are availed to enable proper construction and maintenance of the access roads for the schools.

- There is need for the use of appropriate technology to ensure that other local and cheap construction materials i.e. stabilized soil which has been used in other countries can also be used to ensure that more classes can be built at a cheaper cost.
- Toilets have to be increased in more schools and school inspectors need to put more emphasis on these to avoid diseases from breaking out in future.
- The government needs to have proper evaluation processes in the infrastructure programmes to ensure that they are equipped with proper data for developing the classes.
- There is need for further research on the construction cost analysis of the classes to be able to develop proper financial vehicles to enhance cost effective construction.

Most schools in Eldoret Municipality have insufficient infrastructure resources to meet the demands of the students' population in its region. The development programmes and policies of the government and its development partners have to be speeded up in its implementation processes to ensure that the quality of free primary education is improved and sustainable in the coming years.

There is also need for further studies on determining the direct relation of the conditions and capacities of the various schools infrastructures to the education performances of the respective schools.

REFERENCES.

- Juuko.F,W. and Kabonesa.C. (2007). *Universal primary education in contemporary Uganda*, Kampala: Human Rights and Peace Centre. Unpublished.
- Ministry of Education Science and Technology. (2008). *National Conference on Educating and Training*. Nairobi: Ministry of Education Science and Technology. Unpublished.
- Ministry of Education Science and Technology. (2005). *National Conference on Educating and Training*. Nairobi: Ministry of Education Science and Technology. Unpublished.
- Ministry of Education Science and Technology. (2005). *Kenya Education Sector Support Programme*. Nairobi: Ministry Of Education Science and Technology. Unpublished.
- Ministry of Education Science and Technology. (2004). *A Report on Joint Review Mission (Education and Training)*. Nairobi: Ministry of Education science and technology. Unpublished.
- Ministry of Education Science and Technology. (2003). *National Conference on Educating and Training*. Nairobi: Ministry of Education Science and Technology. Unpublished.
- Mwiroti, M., Ariyo, M., Njeru, L., Mwandikwa, J., Barasa, E., Khaemba, P., Ochola, T., Cherono, M., Muthongo, S., Moturi, T. (2007). Ksh 500 billion education plan. *Elimu news*. 1, 5-6.

Nkanata, K., Okemo, M., Apondi, G., Ngacha, G., Theuri, J., Mwandikwa, J., Ocharo, J., Moturi, T., Khaemba, P., Oduol, C., Wangari, V., Kariuki, J. Turning pipe dreams into reality. *Elimu news*. 3, 12-13.

Njagi A. (2010 February). The misappropriation of free primary education funds. *Daily Nation Newspaper*.p. 11.

Primary education developments in Kenya. (2009 November 3). *The Daily Nation Newspaper*, p. 12.

World Bank, (2006). *Project Appraisal Document on Proposed Credit In US\$80 Million To The Republic of Kenya For an Educational Sector Support Project*. Nairobi: World Bank. Unpublished.

APPENDICES

APPENDIX I: Research Instruments.

Questionare

I am **Nimrod Tuiya**, a student at Kampala International University, I am conducting research on the infrastructure resources capacity of public primary schools in supporting free primary education in Kenya. The purpose of this questionnaire is to request you to fill for the purposes of my study. The information will used confidentially and only for this study. Your name is not required but your cooperation will be highly appreciated.

1. What is the student population of the school?

.....

2. What is the teachers' population of the school?

.....

3. What is the number of classrooms in the school?

.....

4. What is the number of staffrooms in the school?

.....

5. How many toilets do you have in the school?

	Number
Staff	
Students	

6. Do you have any other buildings in the school?

Yes No (If yes please indicate below and its number.)

Name	Number.

7. Is there electricity in the school?

Yes No

(i) If yes what is the source of electricity

a). Power lines b).Solar c). Generator d). Others (Please indicate below)

.....

.....

8. Is there water in the school?

Yes No

If yes, what is its source?

a). Water pipeline b). Borehole c). Water well d). Rainwater e). River

What is its reliability?

a) Seasonal b) All year round.

9. What has been the mean score over the last three years for KCPE examinations?

Year	Mean Score

Section 2

1. What is the construction material for the schools?

Walling Material	Number of Buildings.
Concrete block	
Brick	
Timber	
Iron sheets	
Mud	

Roof Material	Number of Buildings
Concrete	
Tiles	
Iron sheets	
Thatch/Grass	

2. What is the average size of the classrooms?

INTERVIEW TO RESPONDENTS

I am, a student at Kampala international university, I am conducting research on infrastructure resources capacity of public primary schools in supporting free primary education in Kenya, Eldoret Municipality in particular. The information will be used confidentially and only for the purpose of this study.

1. Names

First Name.....

Last name.....

Occupation and job designation

.....

.....

.....

2. What are the major challenges that you face on infrastructure development of schools

.....

.....

.....

.....

.....

.....

.....

3. What are the sources of financing of infrastructure of schools in Eldoret Municipality

.....

.....

.....

4. What are the key issues that need to be addressed to facilitate proper and faster infrastructure development of schools

.....

.....

.....

.....

...

OBSERVATION CHECKLIST.

1. What is the type and condition of access road?

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

2. What is the average size of the classrooms?

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

3. What is the type and condition of buildings?

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

4. Do they have windows and doors

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

TABULAR REPRESENTATION OF THE COLLECTED DATA

Table 1: Numbers of teachers, students and buildings in schools

OBSV	STD PP	ST PP	NO CL	NO ST	NO TL ST	NO TL STD	OT BL	NO OTBL
1	1640	31	16	1	8	24	BK ST	1
2	650	24	16	1	2	10		
3	780	20	14	1	2	14	BK ST	1
4	787	28	24	1	3	8	BK ST	1
							HS RM	1
							TC OF	4
5	648	20	16	1	2	12	BK ST	1
6	1484	34	32	1	11	20	BK ST	1
							SC HL	1
							HS RM	1
7	1750	36	26	1	6	20	BK ST	1
8	1400	38	28	2	2	36	BK ST	1
9	1221	23	24	1	8	32	BK ST	1
10	860	27	24	1	4	16	BK ST	1
							SC HL	1
11	1900	35	32	1	8	34	BK ST	1
12	933	32	32	1	6	26	BK ST	1
13	420	14	8	1	1	6		
14	540	10	8	1	2	6		
15	660	12	8	1	2	8		
NOTE								
All schools had a head teacher and deputy head teacher office.								
KEY								
OBSV	Observation							
STD PP	Student population							
ST PP	Staff population							
NO CL	Number of classrooms							
NO ST	Number of staffrooms							
NO TL ST	Number of toilets for staff							
NO TL STD	Number of student toilets							
OT BL	Other buildings							
NO OTBL	Number of other buildings							
BK ST	Book store							
HS RM	Home science rooms							
TC OF	Teachers offices							
SC HL	School Hall							

Table 2: Electricity, water and road infrastructure in schools

OBS	ELEC	TY ELEC	WATER	SRC WTR	RELB	ACC RD
1	YES	7A	YES	8A,	9B	TM
2	NO		YES	8A,	9B	TM
3	YES	7A	YES	8A	9A	WGMR
4	NO		YES	8A	9B	TM
5	YES	7A	YES	8A	9B	TM
6	YES	7A	YES	8A	9B	WGMR
7	YES	7A	YES	8A	9A	WGMR
8	YES	7A	YES	8A	9B	TM
9	YES	7A	YES	8A	9A	TM
10	YES	7A	YES	8A	9B	WGMR
11	YES	7A	YES	8A	9B	WGMR
12	YES	7A	YES	8A	9A	WGMR
13	NO		YES	8C	9A	BMR
14	NO		YES	8C	9B	BMR
15	NO		YES	8A	9B	BMR

KEY

OBS	Observation
ELEC	Availability of Electricity in the school
TY ELEC	Type of electricity source
WATER	Availability of Water in the school
SRC WTR	Source of water
RELB	Reliability of water source
7A	Mains electricity through power lines
8A	Water pipeline from the local water service provider
8B	Water from borehole
8C	Water from water well
9A	Seasonal
9B	All year round.
ACC RD	Access road.
TM	Tarmacked road
WGMR	Well graded murram road
BMR	Bad murram road

Schools with electricity are connected to mains electricity through power lines.

Table 3: Building materials, Sizes and number of buildings in schools.

OBS	WL MAT	NO BLD	RF MAT	NO BLD	CL AV SZ	ST AV SZ
1	1A,1C	12,4	2D	16	64	60
2	1A,1B,1C,1D	4,2,6,4	2D	16	56	30
3	1A	14	2D	14	56	25
4	1A	24	2D	24	60	49
5	1A	16	2B,2D	3,13	56	64
6	1A,1B,1D	28,4,4	2C	36	48	48
7	1B	27	2D	27	48	48
8	1A	40	2B,2D	35,5	48	72
9	1A	25	2D	25	42	42
10	1A	25	2C	25	48	48
11	1A	33	2C	33	56	56
12	1A	33	2C	33	60	36
13	1E	9	2D	9	42	30
14	1E	9	2D	9	36	24
15	1E	9	2D	9	56	42

NOTE

The number of buildings is represented in the same order respectively as the walling material and roofing material.

KEY

OBS	Observation
WL MAT	Walling material
NO BL	Number of building with the respective construction material
CL AV SZ	Class room average size in square meters
ST AV SZ	Staffroom average size in square meters
SYMBOL	Walling material
1A	Concrete block
1B	Bricks
1C	Timber
1D	Iron sheets
1E	Mud
SYMBOL	Roofing material
2A	Concrete
2B	Tiles
2C	Iron sheets
2D	Thatch/Grass

Table 4: Area per student/teachers in buildings and student/teacher population per toilet.

OBSV	ANSPC	ANTPS	AREA/ST	AREA/TC	ST/TL	TC/TL
1	102	31	0.63	1.94	69	4
2	40	24	1.4	1.25	65	12
3	56	20	1	1.25	56	10
4	33	28	1.82	1.75	98	9
5	41	20	1.37	3.2	54	10
6	46	34	1.04	1.41	74	3
7	67	36	0.72	1.33	86	6
8	50	38	0.96	1.89	39	19
9	51	23	0.82	1.83	38	3
10	36	27	1.33	1.78	54	6
11	59	35	0.95	1.6	56	4
12	29	32	2.07	1.13	36	5
13	52	14	0.81	2.14	70	14
14	67	10	0.54	2.4	90	5
15	82	12	0.68	3.5	83	6

KEY

OBSV	Observation
ANSPC	Average number of students per class
ANTPS	Average number of teachers per staffroom
AREA/ST	Area in sq meters per pupil in classroom
AREA/TC	Area in sq meters per teacher in staffroom
ST/TL	Number of students per toilet
TC/TL	Number of teachers per toilet

Table 5: Distribution of schools and classes as per the available infrastructure.

Infrastructure resource	Number of Schools
Number of schools with electricity	10
Number of schools without electricity	5
All schools with electricity are connected to mains electricity through power lines.	
Number of schools with water	15
Number of schools without water	0
Water Source	
Water pipeline	13
Water wells	2
Reliability of water source	
All year round	10
Seasonal	5
Access roads to the schools	
Tarmac roads	6
Well graded murram roads	6
Bad Murram roads	3
Wall material	Number of classes
Concrete block	254
Brick	33
Timber	10
Iron sheets	8
Mud	27
Total	332
Roofing materials	
Concrete	0
Tiles	38
Iron sheets	267
Thatch/Grass	27
Buildings with windows/doors	322
Buildings without Windows/doors	10

CURRICULUM VITAE

Personal Information

Full names Nimrod Kipng'etich Tuiya.

Date of Birth 29th April 1983.

Permanent Address P.O. Box 5377, Eldoret, Kenya.

Cell Phone: + 254-722-249635.

E-mail: nimrod.tuiya@gmail.com, kiptuiya@yahoo.com

Languages: English, Kiswahili

Qualifications

Graduate member of the Engineers Registration Board of Kenya

Graduate member of the institution of engineers of Kenya

Masters in project planning and management (KIU) - (Submitted thesis for defending and awaiting graduation.)

BSc. Civil Engineering (UoN) – [Upper second class honors. July 2007]

Career Objectives

Develop a carrier as an Engineer with an innovative, result oriented firm, where ingenuity, creativity, skill and teamwork are applied.

Skills

- Good project management and problem solving skills acquired from working experience as a project manger for equatorial real estate ltd and as a sales manager of steel team Africa ltd.
- Excellent Analytical, Problem solving and Presentation skills
- Good teamwork and Leadership skills.
- Good IT skills with proficiency in MS project, AutoCAD, Prokon, Water CAD, Sewer CAD and MS Office suite.

Work experience

June 2010 to Date

Position: Project Engineer.

Company: GIBB Africa Ltd.

Responsibilities.

- Company interface as a project manager to clients on projects handled.
- Engineering design of Water Supply and Sewer systems.
- Preparation of tender documents and supervision of CAD Techs to the production of construction drawings.
- Preparation of project monitoring and evaluation processes in line with the quality management systems of the company.
- Preparation of progress reports on the projects.

January 2010 to May 2010.

Position: Project/Design Engineer.

Company: Epoch engineering Consultancy.

Responsibilities.

- Structural design and detailing of proposed engineering projects.
- Company interface as a project manager for specific engineering projects.
- Project supervision of ongoing projects to meet the desired engineering specifications and quality.
- Project progress report preparation.

January 2009-December 2009

Position: Project Manager

Company: Equatorial Real Estate Ltd.

Responsibilities.

- Development of the overall project plan taking into account the goals, objectives, purpose, scope, deliverables and tasks to suite the companies' business model.
- Co-ordination of project consultants for delivery of construction contract documents.
- Development of project activities, resource schedules, share of responsibility documents and risk management plan.

- Contract administration on behalf of the company to the respective project teams.
- Development of project Monitoring and Evaluations plans, their implementation and making recommendations to the company management on the progress.
- Management of the various clerks of works and company staff on the sites.

December 2007-December 2008.

Position: Technical and Sales Manager.

Company: SteelTeam Ltd.

Responsibilities.

- Development of companies marketing and sales strategies.
- Facilitate the recruitment and management of management and service contracted team.
- Development of engineering designs of steel sections to suite customer needs.
- Logistics of shipment, clearance of goods and transportation to warehousing.
- Preparation of feedback and market reports to the Finland office and China offices.
- Formulation of systems for monitoring of competitors activities and pricing

August 2007 –December 2007

Position: Technical Sales Executive

Company: SteelTeam Ltd.

Responsibilities

- Engineering design of steel sections to suit client needs.
- Conducting a market research on the products of concentration, prices, potential clients and relaying it to China sourcing team.
- Sales of products to prospective clients.

Internship

July 2006 – September 2006

Field Supervisor. (Intern)

Houseman Multiservices Limited

Projects: Conversion of residential apartments into office premises.

Road resurfacing at the Embassy of Poland.

Responsibilities

- Preparation of the program of works.

- Labour sourcing and management.
- Supervision of projects to completion.
- Mobilization of the staff between the various sites.

July – Oct 2004;

HAIDCO LTD

Construction of classrooms and library at Eldoret

Polytechnic

Responsibilities

- Mobilizing and supervision of casual labour.
- Material inspection and approval.
- Equipment maintenance and care.

Education Background

2009-2010

Masters in project planning and management.

Kampala International University.

(Submitted Thesis for defending and awaiting graduation.)

Studying

- Research Methodology and Statistical analysis
- Managing Organizational behavior.
- Principles of project planning and Management.
- Project Risk Management.
- Financial Management of Projects.
- Ethics in Project Management.
- Negotiation Skills for Project Managers.
- Critical Path to Corporate Renewal.
- Project Planning Techniques.
- Project Monitoring and Evaluation.
- Strategic Perspectives in Project Management.
- Contracting and Procurement Management for Project Managers.

2002-2007

**Bsc. Civil Engineering - University of Nairobi
Upper Second Class Honors**

Studying

- Structural analysis and design.
- Land and road network survey.
- Water resource engineering.
- Traffic and highway engineering.
- Engineering material analysis.

- Public health engineering.
- Engineering management.

November 2003

- **Certificate Network Administration-Kenya Polytechnic**

2001

- **Microsoft office application programs-Alphax Computer College.**

1997 – 2000

**Maseno High School
Grade A-**

Other Interests

- Real estate entrepreneurship and development.
- Environmental conservation and management.
- Micro-economic developments and charity work.
- Sports – Swimming, rugby, golf and football.
- Reading magazines
- Socializing and making new friends.

REFEREES

Eng Kirumba.

Director, Transportation and Infrastructure
Uniconsult (Kenya) Ltd.
Phone: +254725639716
Email:-kirumba@uniconsult.co.ke

1. Lucas Kranck
Chief Executive Officer.
Equatorial Real-Estate Ltd Uganda.
Phone No: 0720630057
Email: lucas.kranck@equatorialrealestate.com.

2. Andrew Mutua
Dam Engineer
Runji and Partners Consulting.
P.O.Box 68053-00200.
Phone Number: 0720842184.
Email: andrewkmutua@yahoo.com

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