

**FACTORS AFFECTING MAINTENANCE OF EARLY
CHILDHOOD DEVELOPMENT EDUCATION INFRASTRUCTURE
IN VIHIGA DISTRICT, KENYA.**

BY

MUGANGA NANCY WANJIKU

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS IN PROJECT PLANNING
AND MANAGEMENT OF THE UNIVERSITY OF NAIROBI.**

2013

DECLARATION

This research project is my original work and has not been presented for any other university.

Signature..... Date.....

MUGANGA NANCY WANJIKU

L50/73228/2012

This research project has been submitted with our approval as the supervisors,

Signature Date.....

PROF. OMOLO ONGATI

PROFESSOR, SCHOOL OF MATHEMATICS AND ACTUARIAL SCIENCE,

BONDO UNIVERSITY COLLEGE.

Signed..... Date.....

MS. LENAHI KIROP

LECTURER, DEPARTMENT OF EDUCATIONAL PSYCHOLOGY,

MASENO UNIVERSITY.

DEDICATION

This research project is dedicated to my parents who gave me a lot of moral support during this long journey of pursuing a masters degree and; to my spouse, Ernest for the patience he showed during long hours of absence at home as I carry out my project.

ACKNOWLEDGEMENT

I acknowledge and express my gratitude to my Supervisors; Prof. Omolo Ongati and Ms. Lenah Kirop, were constant mentors in my study and for their countless hours of time in making continued criticism and guidance every time I needed guidance. Also for their input and insights they gave me, on how to improve on my project which helped me get into the right track. My sincere thanks goes to the out going Resident Lecturer Dr. Charles Rambo, who was a constant source of inspiration and information during this study, and to the in coming Resident Lecturer Dr. Rapheal Nyonje, for coming up in a big way to make sure I get the right guidance to help me complete my work. My appreciation also goes to the Unit Lecturer Dr. Paul Odundo, through whom I got the knowledge and information on how to carry out this study; not forgetting other lecturers at the University of Nairobi Kisumu Campus, for being a source of inspiration during this study and; to the University of Nairobi Kisumu Campus for giving me a venue to carry out my study. My appreciation also goes to the Campus staff, especially the Library staff for their services and continued assistance they gave me every time I visited the Campus. I would also not wish to forget my friends Jane Obiero and Judith Kedenyi, who kept on encouraging me to move on despite the challenges I encountered; to the typist, who is none other than myself, for working tirelessly to ensure this work was typed and submitted for criticism whenever it was required.

I also thank Mr Isiji, the ECDE coordinator Vihiga district DICECE for the support he gave me during this study. He assisted me to get crucial information in the field regarding ECDE government support programmes and other important information regarding ECDE activities . My thanks also goes to the public ECDE managers and teachers in Vihiga district, for their cooperation and for giving out the necessary information I needed as I carried out my study.

I also acknowledge and thank my husband Ernest, who allowed me to undergo this study and for his continued moral and financial support; to my children Sammy, Dan, Nelson & Elnora, to whom I hopefully instill a love for learning and for bearing with my persistence absence at home as I carried out this study.

TABLE OF CONTENT

	Page
DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENT	vi
LIST OF FIGURES	ix
LIST OF TABLES	x
ABBREVIATION\ACRONYMS	xi
ABSTRACT	xii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background of the study.....	1
1.2 Statement of the problem.....	7
1.3 Purpose of the study.....	8
1.4 Objectives of the study.....	8
1.5 Research questions.....	9
1.6 Significance of the study.....	9
1.7 Basic assumption of the study.....	10
1.8 Limitations of the study.....	10
1.9 Delimitations of the study.....	11
1.11 Definition of significant terms of the study.....	11
1.12 Organization of the study.....	12

CHAPTER TWO.....	13
2.0 LITERATURE REVIEW.....	13
2.1 Introduction.....	13
2.2 The concept of Maintenance of school infrastructure.....	13
2.3 Policy guidelines and maintenance of school infrastructure.....	15
2.4 Funding and maintenance of school infrastructure.....	20
2.5 Community cooperation and maintenance of school infrastructure.....	27
2.6 Buildings design, facility conditions and maintenance of school infrastructure.....	29
2.7 Theoretical Framework.....	35
2.8 Conceptual Framework.....	37
2.9 Knowledge Gap.....	40
2.10 Summary of Literature Review.....	41
CHAPTER THREE.....	42
3.0 RESEARCH METHODOLOGY.....	42
3.1 Introduction.....	42
3.2 Research design.....	42
3.3 Target population.....	43
3.4 Sample size and Sample Selection.....	43
3.4.1 Sample Size.....	43
3.4.2 Sampling procedure.....	44
3.5 Research instruments.....	45
3.5.1 Pilot testing of research instrument.....	45
3.5.2 Validity of research instrument.....	46

3.5.3 Reliability of research instrument.....	46
3.6 Procedure of data collection.....	47
3.7 Data analysis Techniques.....	47
3.8 Ethical Consideration of the study.....	48
CHAPTER FOUR.....	49
4.0 Data analysis, presentation, interpretation and discussions.....	49
4.1 Introduction.....	49
4.2 Questionnaire Response rate.....	49
4.3 Demographic characteristic of the respondents	50
4.3.1 Distribution of the respondents by gender.....	50
4.3.2 Distribution of respondents by age.....	51
4.3.3 Distribution of respondents by level of education.....	52
4.3.4 Distribution of respondents by management capacity.....	52
4.4: Distribution of Policy guidelines and maintenance of school infrastructure.....	53
4.5 Funding and maintenance of school infrastructure.....	55
4.5.1: Distribution of Respondents' responses on funding.....	56
4.6: Community cooperation and maintenance of school infrastructure.....	58
4.7 Facility conditions and maintenance	60
4.7.1: Distribution of Respondents on rating of infrastructure in their centers.....	61
4.7.2: Distribution of responses in relation to maintenance processes done.....	64

CHAPTER FIVE.....	65
SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS.....	65
5.1 Introduction.....	65
5.2 Summary of findings.....	66
5.3 Conclusions.....	70
5.4 Recommendations.....	73
5.5 Contribution to the body knowledge.....	75
5.6 Suggestions for further studies.....	76
REFERENCES.....	77
Appendices	81
Appendix 1: Letter of transmittal.....	81
Appendix 2: Questionnaire for ECDE Managers.....	83
Appendix 3: Interview Schedule for ECDE Managers.....	86
Appendix 4: Observation Check list.....	89
Appendix 5: Research Authorization Letter.....	90
Appendix 6: Research Clearance Permit.....	91

LIST OF FIGURES

	Page
Figure 2.1: Abraham Maslow pyramid of hierarchal needs.....	36
Figure 2.2: Conceptual Framework.....	38

LIST OF TABLES

	Page
Table 2.1: Frequency and Percentage for Demographics.....	25
Table 2.2: Disbursement of government community support grant phase 1 year 2008.....	32
Table 2.3: Disbursement of government community support grant phase 2 in year in 2009.....	33
Table 2.4: Disbursement of government community support grant phase 4 in year 2011.....	33
Table 3.1: Statistical Data showing number of ECDE centers and managers in Vihiga district's four zones.....	45
Table 3.2: Distribution showing Sample Size.....	46
Table 4.1: Distribution of response return rate.....	50
Table 4.2 Distribution of respondents by gender.....	50
Table 4.3: Distribution of respondents by age.....	51
Table 4.4: Distribution of respondents' level of education.....	52
Table 4.5: Distribution of respondents by management capacity.....	53
Table 4.6: Distribution of Respondents' responses on policy guidelines.....	54
Table 4.7: Distribution of Respondents' responses on funding.....	55
Table 4.8 Distribution of funded ECDE centers.....	57
Table 4.9: Distribution of responses on community participation.....	59
Table 4.10 Distribution of Respondents on rating of infrastructure in ECDE centers.....	61
Table 4.11: Distribution of responses in relation to maintenance processes done.....	64

ABBREVIATION\ACRONYMS

ASAL:	Arid and Semi-arid Region
CFS:	Child Friendly Schools
CMS:	Christian Missionary Schools
DPMF:	Development Policy Management Forum
DICECE	District Center for Early Childhood Education
ECDE:	Early Childhood Development Education
EFA:	Education for All
FPE:	Free Primary Education
GER:	Gross Enrolment Ratio
KCDF:	Kenya Community Development Foundation
KESSP:	Kenya Education Sector Support Programme
KIE:	Kenya Institute Of Education
MDG:	Millennium Development Goals
MOE:	Ministry Of Education
MOEST:	Ministry of Education Science and Technology
NACECE:	National Centre for Childhood Education
NER:	National Net Enrolment Ratio
SEPU:	School Equipment Production Unit
SWAP:	Sector Wide Approach Programme
USA:	United States of America
UNESCO:	United Nations Education, Science and Cultural Organization
UNICEF:	United Nations Children Educational Funds

ABSTRACT

The challenge of providing adequate early childhood education in Sub-Saharan Africa is huge. Early interventions in early childhood development education (ECDE) are significant to the social and economic development of a country as they provide children with a fairer and better start in life. In Kenya, the trend of development in education system has steadily risen over the years and many changes are still taking place. The introduction of Free Primary Education in 2002 caused a tremendous increase in enrolment in primary schools and this made the government to establish a document in 2005-the Kenya Sector Support Programme (KESSP) to give grants to poor communities in support of school infrastructure. Therefore, this study attempted to look at the scope of school infrastructure and maintenance programmes in different countries and tried to relate them with the factors affecting maintenance of ECDE infrastructure in Vihiga District, Vihiga County in Kenya. The purpose of the study was to investigate the factors affecting maintenance of ECDE infrastructure in public ECDE and feeder centers in Vihiga district. The findings were derived from the following study objectives; To examine the level at which government policy guidelines affect maintenance of ECDE infrastructure; To assess the extent to which funding affect maintenance of ECDE infrastructure, and lastly; To establish the level at which community cooperation affect maintenance of ECDE infrastructure; To examine the level at which facility conditions affect maintenance of Early Childhood Education infrastructure. Vihiga District was the case for this study having benefited partially from the government grant. Information got from DICECE coordinator showed that only 27 ECDE centers had benefitted from the government community support grant. The study will be significant to managers, administrators, teachers and other stakeholders of early childhood education. The target population was 130 public ECDE centers and feeder centers in Vihiga District. The sample size was 52 public ECDE centers and feeder centers in Vihiga District which made 40% of the population size. Questionnaires were administered to 52 respondents and there was a return rate of 50(96.15%). The basic assumption was that poor conditions of early childhood education infrastructure in some ECDE centers in Vihiga district, was due to factors affecting maintenance. Descriptive statistic that included frequencies and percentages was adapted to meaningfully analyze both qualitative and quantitative data to ascertain completeness and uniformity of the responses. Study findings indicated that there were no specific policy guidelines to guide on maintenance. Funding was found to be a major challenge in maintenance of infrastructure. Community participation in ECDE maintenance programmes was found to be very minimal. Observation carried out showed that most ECDE centers had inadequate facilities and that they were not consistently maintained. Most facilities were shared with the primary schools and needed over whole renovation or new construction. The study conclusion was that, government investment in this sector as compared to other education sectors was minimal. The recommendations of the study were that; the government of Kenya should revise policy framework and funding in ECDE sector. Finally the study suggested that the findings can be used as a bench mark to guide EDCE managers and educational planners in evaluating the situation of facility conditions and come up with well planned infrastructure maintenance programmes .The study should be a contribution for further studies on maintenance of infrastructure especially in public primary schools that have been allocated government funding through FPE.

CHAPTER ONE

INTRODUCTION

1.1: Background of the study

Maintaining school facilities is important to providing high-quality education programs (Bowers and Burkett, 1989). More importantly, by investing in strong preventative maintenance programs, school facilities can continue to serve students for long periods of time. Maintenance is a continuous operation to keep the school buildings, furniture and equipment in the form for normal use and to ensure the use of the school buildings as shelter in case of emergency caused by natural hazards. The goal of School infrastructure development in primary school education is to increase school attendance motivation and to improve academic performance of students. Favorable attitude towards school infrastructure conditions and quality facilitates enrollment and performance and other educational activities. The importance of addressing poor school facility is because school facility where both teachers and students struggle with such issues such as noise, poor indoor air quality, poor lighting and even physical security concerns is unlikely to be conducive for this very function (Bello and Loftness, 2010). School buildings, being part of school infrastructure have a historical development related to educational development systems from ancient years.

Globally, the challenge of providing adequate education facility in primary schools is huge (World Bank, 2003) as cited by Bonner et al (2003). To meet Education for All (EFA) target and Universal access to primary education worldwide, an estimated number of about 10 million classrooms need to be built at a cost of US \$ 30 billion. In United States of America (USA), school facilities in the seventeenth century were one-room structures with limited

furnishings functioning primarily as shelter (O'Neill, 2000). As towns grew, additional rooms were added for additional space with little regard for modernizing the schools. The nineteenth century ushered in such advances as chalkboards, gas lighting and central heating. By the twentieth century, arrangement of buildings and classrooms allowed for active student participation. In 1940's, it is noted that there was an increase in class size as well as attention to characteristics such as increased student access and natural lighting according to O'Neill (2002). In recent time, the mean age of a school building in the USA is given as forty-two years, with 28 percent of school buildings built before 1950. Many of the building materials, furnishings, and equipment will not last half that long and will require constant upkeep, maintenance, and inevitable replacement to deter building obsolescence. The cost of maintaining public schools and facilities is enormous. According to government accountability office and American society for civil engineers, school districts have been under spending on maintenance and repair for many years. Most district schools do not have resources to address the maintenance. According to BEST (2005), it is the responsibility of each state to ensure that every child has access to a quality education. In many states, the courts have determined that school facilities that provide educational settings suited to the state's determined curriculum are a significant part of this responsibility. However, school facility management and construction have traditionally been entirely the responsibility of the school district. Many states particularly those who have increased funding to local school districts have put in place policies, procedures and technical assistance to ensure that their public school facilities are educationally adequate. To meet this goal, each state should know the condition of their school facilities, the elements and determining factors in meeting the state's educational curriculum outcomes. The state should measure these factors against one another to determine each facility's education adequacy. It

should then ensure that facilities that do not meet these standards are brought up to an acceptable level. Those that do not have financial resources to bring their school facilities up to state standards are given assistance to ensure that the facilities meet the state standards.

In Chile, according to SIDA (2000), the Ministry of Education undertook a programme to improve the quality of primary schools in disadvantaged areas of the country. Approximately 10 percent of the country's existing primary schools (1200) took part in the programme at a cost of just under \$ 17 million US dollars. The programme provided for the improvement of learning environment, including improvement of infrastructure and provision of classrooms, libraries and learning materials among others. The evaluation of the programme found significant improved achievement among participating schools as compared to their prior performance and performance of schools outside of these programme. The results indicated that focusing on key quality dimensions within a learning system can have an important impact on the students' skills and as a result the life chances.

In Sub-Saharan Africa and poor countries in Asia, classrooms are typically overcrowded, main buildings and other facilities are inadequate, sites are poorly planned and there is little maintenance (MOE, 2010). The approaches required to make sustainable progress for effective maintenance cost are clear, but challenges to implement remain wanting. Educational programs should include policies that address the condition, improvement and maintenance of school infrastructure. According to MOE (2010) School construction strategies for universal education in Africa indicate that a school must have appropriate, sufficient and secure buildings. The document states that the design of classroom must be comfortable, accessible, flexible, and adaptable to provide sufficient space to ensure children's dignity, health and wellbeing are catered for. This means that, the classroom environment should attract learners and therefore

more attendance to school. Schools with well maintained permanent building and adequate playgrounds perform better than those with inadequate facilities (Okeno, 2011). Well designed and maintained school facilities also have an indirect impact on teaching and learning process (BEST, 2005).

In South Africa, facilities maintenance is also beginning to be recognized (Xaba, 2012). First, with its prescription as a school governance function in the Schools Act and, secondly, with the recent proclamation of the Schedule for the National Policy for an Equitable Provision of an Enabling School Physical Teaching and Learning Environment of the Republic of South Africa (2008). It also states that if well maintained and managed, school facilities provide conducive environments that translate into quality education. If well maintained and utilized, they can also realize substantial efficiency gains by deepening national and sector values of school-community relationships and community ownership of schools. On maintenance policies, Xaba (2012) found that schools did not have specific policies on facilities maintenance. The study also indicated that there were poor systems for facilities maintenance inspection in South Africa. Inspections were mostly conducted in an ad hoc manner and only when equipment broke down or became damaged would an inspection of facilities related to that object be conducted.

In Kenya, the development of education system and access to education is as far back as 1728 with schools in form of Swahili manuscript at coastal region and later the set up of one of the earliest mission school in the country at Rabai in 1846. Others schools were established in Western Kenya and by 1910, 35 mission schools had been founded (Keriga and Bujra, 2009). The trend steadily rose over the years and by the time of independence in 1963, a total of 840,000 children were attending elementary schools. The Kenyan school system has undergone many changes since Independence in 1963. After independence, with the National Motto of

Kenya being ‘Harambee’ meaning to ‘pull together’, volunteers in hundreds of communities built schools and other facilities. But the enrolment level in schools in Kenya was highly influenced by the colonial systems on development.

In defining a new path, Kenya struggles to improve an underfunded school system with school reforms that promise changes in overall structure and curriculum design. Exclusionary practices have been seen in certain regions in Kenya that benefit more from this ‘development’. In this back-log, as education has become increasingly involved in the design process, facilities have become more flexible and suited to innovative instructional approaches (MOE, 2008). The main aim and purpose of EFA by 2015 especially in Kenya was to include improvement of education at all levels. Early Childhood Development Education (ECDE) being a sub-sector in Education sector was to be mainstreamed as part of basic education. The policy on ECDE focuses on providing a holistic and integrated programme that meets all the need of the child. Most children who undergo early childhood education are likely to proceed to basic and higher levels. Despite of the achievements made in this sub-sector, access to ECDE services remain slow with 65% of children aged 3-6 years currently not accessing EDCE services. The introduction of FPE in primary education in Kenya, led to overcrowding in most public primary schools. Therefore this made many public school ECDE centers attached to these primary schools also to be either overcrowded or have very few children due to poor condition of buildings. According to the MOE (2008), ECDE policy focuses on providing a holistic and integrated programme that meets all the needs of the child. Therefore in this situation and condition of infrastructure in public ECDE centers, there is need for a school infrastructure maintenance programme that involves the government, administrators and managers of ECDE sub-sector, community, parents and private developers plus all other stakeholders.

Early childhood education being a sub-sector of the Education system in Kenya was to benefit from this program. In recent years, a great deal has been achieved in this sub-sector that got development partners, community and parents invest in ECDE. However, despite the achievements made, access to ECDE services remain slow, with 65% of children aged 3-6 years currently not accessing ECDE service. The greatest challenge in the implementation of ECDE remains the wide disparities among districts in quality of services especially in the ASALs and informal settlements that have a GER of as low as 10% and NER of 8%. To overcome this challenge the government has established National Centre for Early childhood Education (NACECE) and District Centers for Early childhood Education (DICECE), for the purpose of inservicing teachers, mobilizing communities and parents through awareness creation and providing community support grants to support marginalized communities in collaboration with other partners. The programme goal is to enhance the quality of ECDE services for children aged 4-5 years, especially those living in difficult circumstances such as ASAL areas, urban slums and pockets of poverty in Kenya. Early childhood development and education interventions are significant to the social and economic development of a country as they provide children with a fairer and better start in life. Children from low-income households who access ECDE services will be more likely to enroll in primary schools at the right age and are less likely to drop out of school or repeat grades. There is also a high probability that these children will have improved school performance and cognitive abilities than those who do not attend ECDE. But in this backlog, many ECDE centers are yet to benefit from this KESSP programme. Those that benefitted received grants that enabled the managers to buy some facilities such chairs, tables, play equipment, instructional materials and renovation of classrooms.

1.2: Statement of the problem

Most EDCE centers in Vihiga District continue to experience challenges related to poor infrastructure. The centers that are supposed to create a nurturing environment for the young children have facilities that are low maintained. A number of the buildings and structures that are used as classrooms are in poor conditions, particularly of those that are in public primary schools and those owned or sponsored by the community that serve as feeder centers. Other facilities used in these centers are inadequate or unavailable. Although the Government of Kenya introduced a programme, the Kenya Education Sector Support Programme (KESSP) for its Education Sector to give support grants to poor communities to expand and improve ECDE services, access to ECDE services remain low, with 65% of children aged 3-6 years currently not accessing ECDE service. Some ECDE centers have received government grants in support of such school infrastructure as a pilot project, but the biggest challenge is how to maintain them.

According to World Bank (2005) unsecure learning environment poses security risks to students and inhibits quality education and for this reason, parents of young preschool going children avoid enrolling them in schools in poor conditions. The government policy on early childhood education focuses on providing a holistic and integrated programme that meets all the needs of the child. The condition of facilities in most public ECDE centers does not provide fully for the child's holistic development.

This study has the view that unless ECDE Programmes are reviewed to include ECDE centers from poor communities when issuing grant in support of provision of school facilities and continued maintenance in those available, many preschool age-going children will continue missing the foundation of basic education which is early childhood education. Many teachers

would also prefer to teach in a school that has facilities and with buildings that are in good condition.

This study has examined factors affecting maintenance of early childhood education infrastructure and its maintenance programmes. This study chose Vihiga District to be the case of its study due to the poor condition and quality of school infrastructure in some public ECDE and feeder centers despite of some benefitting from the government grant in support of infrastructure. The study has therefore investigated the factors affecting maintenance of early childhood education infrastructure in Vihiga district.

1.3: Purpose of the study

The purpose of this study was to investigate the factors affecting maintenance of early childhood education infrastructure by focusing on the public ECDE and the feeder centers in Vihiga District in Kenya.

1.4: Objectives of the study

The study was guided by the following specific objectives;

1. To examine the level at which government policy guidelines affect maintenance of Early Childhood Education infrastructure in Vihiga District.
2. To assess the extent to which funding affect maintenance of Early Childhood Education infrastructure in Vihiga District.
3. To establish the level at which community cooperation affect maintenance of Early Childhood Education infrastructure in Vihiga District.

4. To examine the level at which facility conditions affect maintenance of Early Childhood Education infrastructure in Vihiga District.

1.5: Research Questions

The study realized the outcome of its findings through answers to the following research questions;

1. To what level do government policy guidelines affect maintenance of Early Childhood Education Infrastructure in Vihiga District.
2. To what extent does funding affect maintenance of Early Childhood Education Infrastructure in Vihiga District.
3. To what level does community cooperation affect maintenance of Early Childhood Education Infrastructure in Vihiga District.
4. To what the level do facility conditions affect maintenance of Early Childhood Education infrastructure in Vihiga District.

1.6: Significance of the study

This study aimed at investigating factors affecting maintenance of early childhood education infrastructure. Early childhood education being the foundation is a significant sector of basic education. Therefore, it is the hope of the researcher that the findings of the study will be a bench mark for all stakeholders in the ECDE sector. The study also aimed at stimulating more questions for further studies on the issue of school infrastructure, maintenance and education programmes.

1.7: Basic assumptions of the study

In this study, the following assumptions have been made; First, that well maintained school infrastructure motivates both students and teachers in schools; Secondly, it has been assumed that availability of a policy guideline, adequate funding, proper buildings design and facility conditions, and community cooperation influences maintenance of school infrastructure; Thirdly, that poor condition and quality of school infrastructure in some public early childhood education centers in Vihiga District, is due to factors affecting them such as; policy guidelines, funding, facility conditions and community cooperation. During administration of research instruments, it was assumed that the respondents will answer all the questions and the responses will be to the expectation of the researcher.

1.8: Limitation of the study

There was limitation on the research instruments especially questionnaires, where some were not be available when being collected from the respondents. The researcher tried to overcome this challenge by making a follow up on those administered and ensuring that all questionnaires have been collected. Only 2 questionnaires were not returned. Another challenge was that, not all the questions were answered by the respondents. There was also biasness on target population and sample size because not all public early childhood education and feeder centers were sighted during the study. The study has a target population of 130 public ECDE centers with a sample size of 52 centers. The study investigated only 4 factors affecting maintenance of early childhood education infrastructure.

1.9: Delimitations of the study:

These are issues that can affect the findings of the study negatively. This study is restricted to 52 public Early Childhood Education public and feeder centers in Vihiga District out of 130 centers in Vihiga district in Vihiga county in Kenya. In this study the vastness of Vihiga district and difficulty access of some areas under study was a big issue. The researcher solved the problem by hiring a tax in form of motorbike to access to area where they were unreachable by vehicle. Inaccessibility of crucial documents such as bank statements for those early childhood education centers that have been funded from the relevant persons was also another issue. The researcher solved this issue by consulting the district early childhood education centers coordinator to provide the documents with records and information for those centers that have been funded.

1.10: Definition of terms

Public ECDE centers- These are centers attached to primary schools in Kenya. They are managed by primary school headteachers and are partly run by the local community who pay teachers.

Feeder centers- These are ECDE centers that are community based or run by sponsors but managed by a teacher. They are used as feeders of standard one class to the nearest primary school.

Maintenance of school infrastructure- It is a continuous operation to keep the site and buildings such as classrooms, kitchen, toilets and water tanks; play ground and play equipment;

furniture, fence and other fixtures that contribute to learning environment of a school (KESSP, 2005-2010).

School infrastructure- It refers to the site; buildings such as classrooms, kitchen, toilets and water tanks; play ground and play equipment; furniture, fence and other fixtures that contribute to learning environment of a school (KESSP 2005-2010).

1.11: Organization of the study

The study has five chapters: In chapter one, the study has given insights on the background of the study, statement of the problem, the purpose of the study, the objectives, research questions and its significance; the basic assumptions of the study, the limitation and delimitations of the study, definition of terms used in the study and the organization of the study. In chapter two, the study has reviewed literature on factors affecting maintenance of school infrastructure from both primary and secondary sources. The review has tried to identify the gaps in related studies on maintenance of school infrastructure in some empirical studies. The chapter also has a theoretical framework in relation to the research problem and conceptual frameworks that has been developed to summarize perceived existing relationships of the variables in the study and summary of the reviewed literature. In chapter three, the study has the research methodology; the research design and target population; the sample and the sampling techniques to be used; the research instruments, pilot testing, instruments validity and reliability. It also has the data collection procedure, data analysis techniques and ethical consideration of the study. Chapter four has given the insights of data analysis, the findings and discussions of the study. Then lastly in chapter five, the study has given a summary, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1: Introduction

This section explores different types of challenges in maintenance of school infrastructure. The chapter has given insights on relationship between variables such as policy guidelines, funding, community cooperation and facility conditions with maintenance of school infrastructure. This chapter discusses five themes: Concept of maintenance of school infrastructure; Policy guidelines and maintenance; Funding and maintenance; Community cooperation and maintenance; Facility conditions and maintenance. It also has empirical studies with sub-themes of studies done on maintenance of school infrastructure outside and inside Kenya. The empirical literature reviews other past related studies on maintenance of school infrastructure. This section has also discusses the theoretical and conceptual frameworks on challenges faced in maintenance of school infrastructure.

2.2: The concept of Maintenance of school infrastructure

School infrastructure refers to the site; buildings such as classrooms, kitchen, toilets and water tanks; playground and play equipment; furniture, fence and other fixtures that contribute to learning environment of a school (KESPP, 2007). Maintenance is a continuous operation to keep the school buildings, furniture and equipment in the form for normal use and to ensure the use of the school buildings as shelter in case of emergency caused by natural hazards. Facilities maintenance comprises emergency, routine, preventive, predictive, corrective and deferred maintenance. The following are different types of maintenance; Deferred maintenance- which

refers to maintenance necessary to bring a school facility to good condition whereby only routine maintenance is required or if the condition is too poor then deferred maintenance can refer to replacement of an existing facility; Renovation- which refers to repair and painting of an old building, furniture, equipment or grounds so that it is in good condition again. Renovation is also done to accommodate mandated to educational programs. Renovation reduces the expense of constructing a new building and; New construction- which refers to addition of other facilities such as buildings, grounds, fixtures, furniture and other major equipment. Early detection of building problem areas and quick response to necessary repairs directly influence the success of the academic environment; Routine maintenance refers to the repair, replacement and general upkeep of the grounds and buildings (Carter and Carter, 2001) as cited by Xaba (2012); Preventive maintenance is the most important category of facilities maintenance (Szuba and Young ,2003) as cited by Xaba(2012) . It is the scheduled maintenance of equipment, such as the replacement of important parts of equipment every ten weeks or the semiannual inspection and is crucial for ensuring that equipment is always in good working order and provides safety for learners and educators; Predictive maintenance is maintenance that forecasts the failure of equipment based on age, user demand and performance measures. This kind of maintenance is rooted in the proper execution of a facilities audit (Gaither, 2003) as cited by Xaba (2012), which aims to assist schools in avoiding emergencies and dramatically reducing damage.

The importance of addressing poor school facility is because school facility where both teachers and students struggle with issues such as noise, poor indoor air quality, poor lighting and security concerns is likely to be conducive for this very function (Bello and Loftness, 2010). Building that are in poor condition can be improved through renovation, rehabilitation or done deffered maintenance. New construction can be done if the condition of the classrooms cannot be

renovated or rehabilitated (Mcgowen, 2007). The inside environment of the classrooms should have learning materials that are attractive and can motivate children to attend school. The classroom environment can also increase learning skills and knowledge to children. Availability and quality of furniture is another variable that can help increase attendance. Furniture that is in good condition allow children to have good sitting posture and therefore able to write well and do other learning activities, hence increase in learning skills. Furniture that is in poor condition should be done repair and maintenance (O'Neill, 2000). Availability of playground and play equipment, their condition and safety and, if well maintained can ensure the safety of children during play. They can also help increase manipulation and social skills. The condition, location and nature of school infrastructure have an impact on access and quality of education: the closer the school is to the children's homes, the more likely are to attend, both because of distance and safety issues; where the quality of infrastructure (particularly water and sanitation facilities) is improved, enrolment and completion rates are also improved and there is less teacher absenteeism. A basic minimum package of school infrastructure which is accessible, durable, functional, safe, hygienic and easily maintained therefore needs to be part of any strategy to meet the Millennium Development Goals (MDGS) for primary education.

2.3: Policy guidelines and maintenance of school infrastructure

Implementation of policies that result in high performance, well designed and maintained school facilities has a direct and indirect impact on teaching and learning process. In Kenya, basic education in Kenya went through various reforms during the 1990s but the uncondusive political and economic conditions at the time were unable to support its growth (Oketch and Rolleston, 2007; Onyango, 2003) a cited by Mungai (2002). Having to depend on limited resources and donor funding, the government experienced difficulties maintaining educational

standards. Subsequently the quality of education deteriorated and there was an increase in the numbers of school-age children who were not receiving formal education. Some figures for instance show that massive school dropouts were recorded and that out of about one million students who enrolled in standard one in 1993 and 1998, less than half a million got to standard eight. In 2003, free primary education (FPE) was introduced and the enrolment significantly rose from 5.9 to 7.2 million. However, most schools were not equipped to handle the large numbers of students in terms of the number of teachers, physical classroom space, and learning resources (Mukudi, 2004) as cited by Mungai (2002). In some schools, some classes now have as many as 80-100 students and this has led to a dramatic increase in number of privately owned and operated schools that target families who can afford to pay school fees. Despite a sizable portion the budget being allocated to the education sector, the government still relies on donor-funding.

In Ghana, the building of formal education is directly associated with the history of European activities on the Gold Coast (Eyiah, 2004). The colonial schools produced the first generation of English- Educated Africans and this had a great influence on the development of the country. Despite the colonial efforts to assist and regulate schools, the provision of education in the Gold Coast was carried out primarily by Christian denominations. Mostly, the mission schools provided rudimentary teaching at the primary level. Progress has however, been made in Ghana's education development. The rapid expansion of schools under the free and compulsory policy was aimed at an ultimate provision of universal education. While this lofty goal has still not been attained, it is impressive to note that, according to 1999 figures, almost 80 percent of the approximately 3.4 million children of basic education age were actually attending school. Day care and kindergarten programs while not widespread, are beginning to take shape in the early child education system,

The introduction of FPE in Kenya made major policy reforms to be undertaken to enhance access, equity relevance and quality of education at all levels (MOE, 2005). According to Sessional Paper No. 1 of 2005, KESSP was provided with a comprehensive policy framework for programme implementation which was a 5 year program. The aim and purpose was to ensure Education for All (EFA) by 2015 at all levels of education. Despite the fact that ECDE is not a prerequisite for joining primary school 70% of the 18,356 public primary schools in the county have established pre-primary classes. Major achievement in ECDE sub-sector in education system is the provision of grants for the purpose supporting ECDE teaching and learning Kit. Since June 2007 to date, a sum of Ksh 581,107.93 has been disbursed to 4,000 needy ECDE centers in the form of community support grants. The government wanted to mainstream ECDE as part of basic education and integrating the 4 to 5 years old children into primary cycle by 2010; and develop partnership with parents, sponsors, the private sector and other agencies to promote the development of ECDE. The MOE policy on ECDE focuses on providing a holistic and integrated programme that meets all the needs of the child. Most children who undergo ECDE in Kenya have better academic performance, fewer dropouts and repetitions because of the exposure to stimulating environment of ECDE (MOE, 2008). The greatest challenge in the implementation of ECDE remains the wide disparities among districts in quality of services especially in the ASALs and informal settlements that have a GER of as low as 10% and NER of 8%.

In United States, Public school facilities management policy states that it is the responsibility of each state to ensure that every child has access to quality education (BEST Collaborative, 2005). Many states put in place policies, procedures and technical assistance to ensure that their public school facilities are educationally adequate. Officials and administrators

are elected and appointed at state, local and school district level to improve facilities management in order to support and enhance the delivery of educational programs and services. In 2001, a group of very experienced school facility and community-based groups came together in a collaboration called BEST (Building Educational Success Together). The BEST partners developed a four – part policy agenda: Increase public participation in facilities planning; create and support schools as centers of community that offer school – based to children to eliminate barriers to success and serve the broader community; Improve facilities management, including maintenance and capital improvement programs and; Secure adequate and equitable facilities funding.

In South Africa, facilities maintenance is also beginning to be recognized (Xaba 2012). First, with its prescription as a school governance function in the Schools Act and secondly, with the recent proclamation of the Schedule for the National Policy for an Equitable Provision of an Enabling School Physical Teaching and Learning Environment of the Republic of South Africa (2008): It also states that if well maintained and managed, school facilities provide conducive environments that translate into quality education. If well maintained and utilized, they can also realize substantial efficiency gains by deepening national and sector values of school-community relationships and community ownership of school. On maintenance policies, Xaba (2012) found that schools did not have specific policies on facilities maintenance. The study also indicated that there were poor systems for facilities maintenance inspection in South Africa. Inspections were mostly conducted in an ad hoc manner and only when equipment broke down or became damaged would an inspection of facilities related to that object be conducted. He analyzed school facilities maintenance and a school governance function in South Africa. Qualitative interviews were conducted with 13 principals and three deputy principals as coordinators of this

function at their schools. The interviews were purposively and conveniently selected to gather data regarding school facilities maintenance and gain insight into the challenges this function presents to schools and their governing bodies. The participants comprised six primary and secondary school principals (three each) from suburban schools, four and three township primary and secondary schools principals, respectively, two deputy principals from township primary schools and one secondary school deputy principal from a township school. Findings indicated that schools generally do not have organizational structures for planned facilities maintenance, nor do they have policies on facilities maintenance. Fifteen participants indicated that their schools did not have specific policies on facilities maintenance, with most being forthright and stating categorically that they did not have such policies. Evidence of facilities maintenance at schools mainly related to concerns with facilities repairs, (mostly “as the need arises”) and general campus cleanliness; mostly with emergency and corrective forms of maintenance as opposed to crucial preventive maintenance. Therefore, there was need for interim facilities maintenance committees and, in the long term, a whole-school approach to facilities maintenance that makes facilities maintenance a strategic lever for school functionality. Maintenance funding was found to be the basis of facilities maintenance challenges at most schools. Although the Department of Education allocates money to schools, participants indicated that it was not enough. All participants indicated that, of the overall financial allocation to schools, the department allocated 12% for maintenance, which was “ring-fenced”, implying that even if maintenance needs exceeded the 12%, schools could not use funds allocated for other functions. Most participants, especially experienced principals, indicated that their maintenance budgets were higher than the allocated 12% and they had to raise funds to augment the allocated amounts. On maintenance categories the study revealed that school facilities maintenance was an

unfamiliar phenomenon for most participants. While there was evidence of facilities maintenance in its narrower sense, it was clear that the nature of the phenomenon was generally unknown. Consequently, responses mostly indicated that only routine, emergency and corrective maintenance were carried out. In most instances, there was evidence of deferred maintenance. There were clearly no systems or predictive and preventive maintenance. Because of that, facilities maintenance was mostly a reaction or response, and comprised repairs and replacement of items deemed indispensable for sections considered crucial for the school to function.

2.4: Funding and maintenance of school infrastructure

There are factors that contribute to the deterioration of school buildings such as reduced funding available to properly maintain school facilities. The value for money in construction and maintenance allows a greater emphasis to be put on how infrastructure supports other educational inputs, how buildings are used and maintained, where resources are targeted and what added value can be incorporated into the construction process. Issues to be addressed when considering value for money therefore include: Targeting investments to where the need is greatest; Coordinating programmes with other educational interventions; Putting schools and communities at the centre of the process; Using modest design standards which provide safe, attractive, durable and flexible learning environments and allow access for all; Ensuring that there is a balance between new construction, renovation and maintenance; Using procurement approaches that are simple, transparent and lower costs; Focusing on the quality of construction; Emphasizing on the provision of water, sanitation and hygiene promotion; Increasing the efficiency of building use, and Providing predictable, long term financial support, capacity building, monitoring and evaluation; and Creating a ‘child-friendly’ enabling learning

environment (following UNICEF's guidance on this), with particular attention to the needs of girls.

According to U.S Census Bureau Report (2006) as cited by Bello and Loftness (2010) the total amount of deferred maintenance of schools in United States was estimated at \$ 254.6 billion in 2008. There are over 94,000 public elementary middle and high schools being attended by more than 50 million students and there is need to implement an effective method of estimating facility maintenance. Inadequate investment in school facility maintenance has led to a scenario where there are a significant number of school facility with need for major repair and renovation. The cost of deferred expenditures currently runs to over \$200 million in Los Angeles, Detroit, Chicago, Seattle, and Miami's Dade Country, with an enormous bill of \$780 million for the New York City schools. The accumulated cost to repair the nation's public schools, according National Forum of Educational Administration & Supervision Journal according to knowledgeable sources, can now be conservatively placed at \$60 billion and may run as high as \$150 billion (Report to Congressional Requesters, 2005). In the year 2009, government sources estimated the nation's school repair bill to be \$2,900 per student, and the cost per student for schools needing to make the repairs was \$3,800 per student. Approximately 76 percent of public schools needed major repair or renovation. In this backlog, educators must be equipped with knowledge base and skill level in facility appraisal (O'Neil, 2000). It is the responsibility of government and development partners to work together to develop approaches that will contribute to significant, measurable and sustainable progress towards national goals and targets and provide good value for money (DFID, 2004) a cited by (UNESCO, 2004). Adherence to good financial planning and management practices must be a mandatory requirement for all

partners. Without this, problems with programme implementation and lack of transparency are inevitable and money value will generally be compromised.

In Sub-Saharan Africa, the challenge of providing adequate primary education facility is huge. An estimated cost of up to US\$ 30 billion is needed to build up to 10 million classrooms (World Bank, 2003). In Nigeria there are several issues confronting effective school plant maintenance in Nigeria Schools. These include: Enrolment explosion leading to excessive pressure on existing school facilities; Inadequate funding arising from economic recessions and competitions for funds by other sectors. Consequently, facilities are inadequate to cope with increased enrolment pressure. In addition, inadequate funds have not allowed for proper maintenance of available facilities.

According to Miguel (2000) the impact of ethnic diversity on the provision of local public goods and collective action in Africa remains largely unexplored. To address this gap, he explored the relationship between ethnic diversity and local primary school funding in rural western Kenya. The study was done before introduction of free primary education in primary schools. The econometric identification strategy showed historically determined patterns of ethnic land settlement in western Kenya. The main empirical result was that higher level of local ethnic diversity was associated with sharply lower primary school funding. The material poverty of primary schools in Busia and Teso was striking. The study showed that few classrooms for the lower grades had desks, so most pupils sat on the dirt floor; pupil textbooks were rare and chalk in short supply; and classes were held outside due to a lack of permanent classroom structures. The school headmaster collected most local school funds from parents in the form of annual school fees, which are set by each school's primary school committee. Local community members who did not have children in the school did not typically participate in the school

committee, and they were not expected to pay school fees. The second source of local primary school funding to account for approximately one-third of local funding in western Kenya were village fundraisers called *harambees* are an important source of public finance throughout Kenya, at which parents as well as other community members met and publicly pledged their financial support for a planned school investment project, such as the construction of a new classroom. The study was conducted using structured field interviews with twelve primary school headmasters in this area during June 2000 – at six schools in Busia district and six schools in Teso district, in both ethnically diverse and homogeneous areas – and their responses indicate that schools employ a variety of methods to encourage school fee.

Most recently, education quality in Kenya has received a lot of attention with the introduction of FPE in 2002. School enrollment increased by 23% and it was estimated that the Net Enrollment Rate (NER) rose from 6,313,726 to 7,614,326 pupils by December 2003, both in private and public schools. The Kenya Education Sector Support Programme (KESSP) was started to run for a period of 5 years (2005-2010) to help monitor learning achievement in all Education Sectors. KESSP is based on the rationale of the overall policy goal of achieving Education for all (EFA) and the Kenya government is committed to the attainment of MDGs. Successful implementation of this programme was to lead to the actualization of construction/renovation of physical facilities / equipment in public learning institutions in disadvantaged areas particularly in Arid and Semi-Arid Lands (ASALs) and urban slums (MOE, 2005). There are two school infrastructural programmes with components which include; School improvement grants, new school construction, management and capacity building; and Monitoring and Evaluation (UNESCO, 2002). Management and capacity building component ensures appropriate design and adequate capacities that ensure resources both public and donor funds invested in school

infrastructure contribute positively in enhancing running outcomes as well as giving guidelines and procedures for school construction. School improvement grant as a component of school information program is prioritized per district and is based on existing pupil to classroom ratio. The aim is to improve access, retention and learning outcomes in the poorest areas (World Bank, 2001). Kenya struggles to improve an underfunded school system with school reforms that promise changes in overall structure and curriculum design. Another challenge for the schools is that they receive funds at unpredictable times and in a “trickle down “approach that is often insufficient. Many heads of both primary and secondary schools have complained that there are delays in disbursing the funds that each public school should receive. Suppliers are not being paid for their services. Some secondary schools had to be closed indefinitely since they cannot sustain themselves. Funding for capital projects such as infrastructure and water projects are unavailable unless through a local Harambee fundraiser, the work of NGO’S, access to Community Development Fund (CDF) Kenya or in a few cases international development agencies. This makes planning a budget and running a school a very hard task.

According to Vihiga DICECE Coordinator the following are data records on funding by government in the district as part of community support grant allocated to twenty seven selected public ECDE centers attached to public primary schools. The funds were allocated according to enrolment of each center.

Table2.2: Disbursement of government community support grant phase 1 year 2008

School	Enrolment	Tranche 1	Tranche 2	Tranche 3	Tranche 4
Kisienya	53	75,533.45	38,199	36,516	41,843.5
Kitumba	59	80,001.54	40,446	38,664	46,580.56
Lusavasavi	35	62,228.42	31,458	30,072	27,632.5
Lyamidi	30	37,021.25	18,725	17,900	23,685
Madzugi	28	32,410	16,478	15,752	22,106
Chanzuvu	42	62,223.42	32,202	30,072	32,685
Ihyagalo	36	–	22,470	21,480	28,422
Kegendilova	41	–	24,717	23,628	32,369.5
Total	324	349,418.08	224,695	214,084	255,323.5

Source: DICECE Office, Vihiga

Table 2.3: Disbursement of government community support grant phase 2 in years 2009

School	Enrolment	Tranche
Inyanza	76	88,920
Chavavo	51	59,670
Idavaga	31	36,270
Matsigulu	64	78,880
Mbihi	120	140,400
Mkumba	20	23,400
Kilagiru	14	16,380
Mutambi	60	70,200
Chekombero	21	36,270
Total	467	769,754

Source: DICECE Office, Vihiga

Table 2.4: Disbursement of government community support grant phase 4 year 2011

School	Enrolment	Tranche
Enanga	32	36,736
Gilwadzi	64	73,472
Chavugami	56	64,288
Imanda	52	59,696
Inavi	59	67,732
Induvu	43	49,364
Lwanyele	30	34,440
Madzuu	35	40,180
Matagalu	34	39,032
Vigetse	51	58,558
Total	489	561,372

Source: DICECE Office, Vihiga

According to the data given, a total of KSH 1,043,520.58 of government community support grant benefited twenty seven ECDE centers. The money was disbursed in four tranches. Second phase of government grant was disbursed to nine ECDE centers in the year 2009. The money was disbursed in only one tranche and allocated according to population size of each ECDE center. A total of KSH 769,754 was disbursed that year. The third phase of government grant did not benefit ECDE centers in Vihiga. According to DICECE coordinator, the money was allocated to the neighbouring Sabatia district. The fourth phase that benefited the district was disbursed in year 2011. A total of KSH 561,372 that year benefited 10 ECDE centers.

2.5: Community cooperation, and maintenance of school infrastructure.

School and community involvement, (through school management committees, parent teacher associations or similar bodies) has an important role in any infrastructure programme. Participation at this level can increase local ownership, improve the planning process, ensure local priorities are addressed, provide oversight and promote better maintenance. Infrastructure programmes have the potential to play a role in strengthening school management and the strategy therefore needs to set out. Given the need for infrastructure and the limited resources available, there is a responsibility on governments and development partners to work together to develop approaches that will contribute to significant, measurable and sustainable progress towards national goals and targets and provide good value for money (DFID, 2004). The approaches required to achieve this should be based around the development of long term partnerships with a strong focus on good governance, capacity building, developing management systems and on ensuring that schools and communities (through school management committees and parent-teacher associations) have participation in the process. Communities, NGOS, the private sector and religious organizations can make valuable contribution but not replace the government's responsibility for providing adequate facilities.

In United States, many school designs and arrangements done collaboratively have become integrated to make schools the center of their communities (Hadden, 2005). They acquire this status in either of two ways: They more effectively integrate with the community, or they extend the learning environment to use the community as full range of resources (Bingler, Quinn, and Sullivan, 2003) as cited by (MOE, 2008). The function of educational design features creates many social opportunities for students, community, and parents in recent designs. Educational research in U.S, calls for removing some of the traditional barriers between school

and nonschool life and between school and community. Students achieve better in an environment where lifelong learning has a community value, where everyone is a learner, and where school is central to the life and learning of the community, accessible beyond traditional school hours.

In Guatemala, Kraft (1998) as cited by SIDA (2000) has shown how Nueva Escuela Unitaria (NEU) project began its first pilot projects in 1989. By 1998, NEU had spread in 1,300 institutions, both government and private. The programme focuses on creating positive participatory environments processes. The physical environments in NEU schools support participatory learning in many ways. Classrooms are structured so that students can easily work cooperatively in small groups dispersed around the room and the teacher can use available spaces to structure diverse learning experiences. NEU project and processes are based on active community involvement. Parents contribute in many ways to effective functioning of schools. Parents and other community members are included as schools are established and this active, voluntary participation translates into support for learning.

In Kenya, the education system has undergone many changes since Independence in 1963 (SIDA and WHO, 1997). With the National Motto of Kenya being ‘Harambee’ meaning ‘pulling together’, volunteers in hundreds of communities built school and other facilities. A number of studies have been made on the *harambee* tradition. One study concluded that “one of the keys issues to the success of most projects is the existence of at least one individual with energy, wisdom and talent for organization. For a major *harambee* project, such as building a school, community will generally form a committee to oversee the works and resolve any problems arising from the existence of different community interests. In 1968, the government decided to formalize the status of these committees. An Education Act officially recognized their role in

negotiating with the authorities and in raising money for construction and maintenance. Despite the long history of community contribution to education in Kenya as documented by numerous studies on *harambee* schools, the recent trend in the development of community schools in the country presents different and original features. Community schools have been mushrooming since the late 1980 as a result of cost-sharing policy that was in 1989. Such schools are common in slum areas (Ousumu et al, 2004) as cited by (MOE, 2008)..

Even though the Kenyan Government has never financed the construction of primary schools, most communities now have sufficient basic facilities to ensure that their children receive eight years of schooling. While the standards of construction, furniture and maintenance cannot be described as high, they are in fact higher than those in neighbouring countries where schools are provided by government. The conditions which have made Kenya's achievement possible can be listed as; the well-established tradition of communal self-help; a consistent government policy, since independence, giving the local community responsibility for the construction of schools and teachers houses, the provision of furniture and maintenance; no government interference in design, choice of materials and construction methods.

2.6: Facility conditions and maintenance

According to MOE (2008) school construction strategies for universal education in Africa indicate that a school must have appropriate, sufficient and secure buildings. The design of a classroom must be comfortable, accessible, flexible, and adaptable to provide sufficient space to ensure children's dignity, health, safety and wellbeing are catered for. This means that, the classroom environment should attract learners and therefore more attendance to school. Each classroom must be designed and constructed in such a way that it has good acoustic condition

appropriate to its intended use. In a book written by Pines (1967) about an elementary school, a child's attitude towards learning can be molded by the atmosphere in which learning take place. If it is good, expresses acceptance, warmth and recognition of individual identity, he will be well disposed and respond positively. School buildings have a way of generating their own atmospheric electricity. The school environment was used as an educational tool to make children receptive and want to learn, making it a place where they would want to be. The planners of this elementary school made the arrangement of the flow of space within the classroom from building to building and from indoors to outdoors, in order to allow maximum freedom of movement and a minimum number of rules. The classroom had a feeling of openness, of easy transition between interior and out of doors.

In Georgia, Hadden (2005) compared schools with age differing by 44 years and found out that students in modern schools had favourable attendance data compared to students in the older schools. The participants represented mainly public school principals located primarily in rural and suburban areas. As noted in Table 1, responses indicate the age of schools almost evenly distributed among schools built within the last 5 years, schools built from 1985-1999, and schools built between 1950-1969, representing the population by totaling over 75% of the responses given. Schools represented in the data set are approximately 58% elementary, 23.6% middle school, 12.5% high school, and .055% Pre-kindergarten through grade 12.

Table 2.1: Frequency and Percentage for Demographics

Survey Items	N	%
Public Schools	81	92.05
Independent Schools	5	5.68
Other	2	2.27
Urban	9	10.34
Rural	35	40.23
Suburban	43	49.43
Opened in last 5 years (00-04)	23	24.21
Built between 1985-1999	28	29.47
Built between 1970-1984	11	11.58
Built between 1950-1969	27	28.42
Built prior to 1950	6	6.32

Source: Hadden 2005.Georgia

The responses totaled 74; however, answers including not enough information and not applicable were excluded in data analysis due to increased frequency with a median of 14. The following features were indicated in at least 50% of schools: central air conditioning (81%), air

conditioning in most classrooms (78%), exhaust vents placed in ceiling for one way air flow (73%), day lighting (61%), and less porous materials such as masonry and concrete for moisture prevention (54%). Using cross tabulations, further analysis was done to determine features occurring in over 50 % of the 17 new schools built within the last 5 years. Features indicated in the second and third quartile include using less porous materials such as masonry and concrete for moisture prevention, day lighting, air-conditioning in most classrooms, and central air conditioning. Central air conditioning was reported in 100% of schools built in the last 5 years.

Recently, another study done by Lunenburg and Ornstein, (2008) on School facility management indicated that, schools in USA seem to be deteriorating at a faster rate than they can be repaired, and faster than most other public facilities. Plumbing, electrical wiring, and heating systems in many schools are dangerously out of date, roofing is below code, and exterior materials (brickwork, stone, and wood) are chipped or cracked. The cost of deferred expenditures currently runs to over \$200 million in Los Angeles, Detroit, Chicago, Seattle, and Miami's Dade Country, with an enormous bill of \$780 million for the New York City schools. The study found that the accumulated cost to repair the nation's public schools, according National forum of educational administration & supervision journal as knowledgeable sources, can now be conservatively placed at \$60 billion and may run as high as \$150 billion (Report to Congressional Requesters, 2005). In the year 2009, government sources estimated the nation's school repair bill to be \$2,900 per student, and the cost per student for schools needing to make the repairs was \$3,800 per student. Approximately 76 percent of public schools needed major repair or renovation (U.S. Department of Education, 2010). Although experts maintain that schools need to allocate 5% a year for repairs and replacement, recent findings suggest that schools allocate only 3%. The investment in new construction is equally insufficient. Whereas

colleges and universities allocate 7% annually for new construction and other public sectors allocate 8%, public schools allocate approximately 3.5%.

In Pakistan, an evaluation report conducted by UNICEF (2010) showed that Child Friendly school (CFS) initiatives within countries have improvement of school buildings, consistent provision of safe water supply; expanded sanitation and hygiene services such as constructing sanitary latrines. Construction of separate latrines for girls has had an effect on enrolment in primary schools (World Bank, 2004). Providing hand-washing facilities next to area where food is prepared and ensuring that school grounds are kept free of garbage and other contamination sources. Both the physical structures of the school and its staff's approach to discipline and student support can contribute to health and safety as well as to inclusivity and academic achievement.

In Nigeria, according to African Research Review Journal (2012) the conditions and situation of the physical and infrastructural facilities in primary schools had marred the attainment of the goal of education for all. The present Primary Education Commission (UPEC) survey indicated that approximately 4.9% of Nigerian primary school have no building, while the survey equally shows that there is a short fall of 64.2% in pupils furniture and 62.5% in teachers and non teaching furniture nationwide. It also stressed further that equipment for teaching sciences, sports, Home Economics creative Arts were lacking in majority of the Primary Schools. Moreover, the above situations seem not to have improved in the recent times. Many of the primary school buildings are dilapidated, displaying no window panes or Shutters, no ceilings, plaster peel offs, broken floors and leaking roofs. Poor as these structures are, they are not even adequate and thus two or more streams have to use the same dilapidated class in many cases. This has resulted into overcrowded classrooms with serious implications for teaching and

learning in the primary schools in Nigeria. It is against this backdrop that this paper examined the role of head teacher in improvisation and maintenance of school plants in primary schools.

An evaluation report conducted in six countries by UNICEF showed that CFS initiatives within countries have often been improvement on the school building, consistent provision of a safe water supply, and expanded sanitation and hygiene services, such as constructing sanitary latrines, providing hand-washing facilities next to an area where food is prepared and ensuring that school grounds are kept free of garbage and other contamination sources. Both the physical structure of a school and its staff's approach to discipline and student support can contribute to health and safety as well as to inclusivity and academic achievement (Osher, Dwyer and Jackson, 2004).

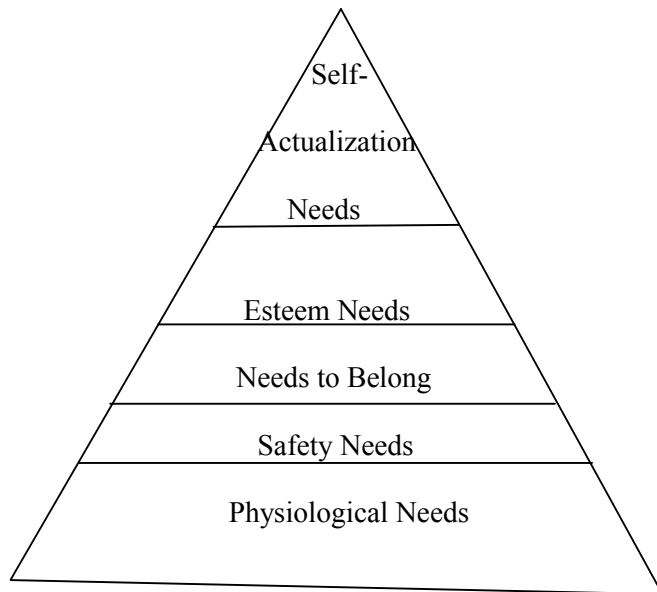
The main aim and purpose of EFA by 2015 especially in Kenya was to include improvement of education at all levels. ECDE being a sub-sector in education system was to be mainstreamed as part of basic education (MOE, 2008). The policy on ECDE focuses on providing a holistic and integrated programme that meets all the need of the child. Most children who undergo ECDE education are likely to proceed to basic and higher levels. Despite of the achievements made in this sub-sector, access to ECDE services remain slow with 65% of children aged 3-6 years currently not accessing EDCE services. The introduction of FPE in primary education in Kenya led to overcrowding in most public primary schools. Therefore, this made many public school ECDE centers attached to these primary schools also to be either overcrowded or have very few children due to poor condition of buildings. According to Ministry of Education (MOE, 2005) ECDE policy focuses on providing a holistic and integrated programme that meets all the needs of the child. Therefore in this situation and condition, there is need for a school infrastructure maintenance programme in public ECDE centers that involves

the government, administrators and all other stakeholders of ECDE sub-sector. Such a program should be devoted to maintaining and improving public schools so as to provide learners with a healthy environment for learning. According to the Education Commission Reports, Kamunge (1988) and Koech (1990) as cited by MOE (2008) provision of school infrastructure is a critical component of quality education in Kenya. Sessional Paper 1 of 2005 recognized the need for improved infrastructure to ensure successful implementation of Educational programmes at all tiers of the education system. There are two school infrastructural programmes by the Kenya Education Sector Programme (KESSP) with the following components; School improvement grants, new school construction, management and capacity building; Monitoring and Evaluation (UNESCO, 2002). Management and capacity building component ensures appropriate design and adequate capacity that ensure resources by both public and donor funds invested in school infrastructure contribute positively in enhancing running outcomes as well as giving guidelines and procedures for school construction (UNESCO, 2002). School improvement grant as a component of school information program is prioritized per district and is based on existing pupil to classroom ratio. The aim is to improve access and retention and learning outcomes in poorest areas (Word Bank, 2001).

2.7: Theoretical Framework

School infrastructure maintenance has a long history and practice right from ancient time of formal education. A great deal has been written about maintenance of school infrastructure, but in this backlog there still remains a gap on challenges faced in maintenance. The study was based on Abraham Maslow (1970) theory of hierarchy of needs.

Figure 2.1: Abraham Maslow pyramid of hierarchal needs



Maslow believed that a man can work out a better world for mankind as well as for himself. His model shows how human beings' needs are satisfied in a hierarchical manner and the hierarchy of needs is presented in the above figure 2.1 in form of a pyramid. At the base are the physiological needs and at the top are the self-actualization needs. His theory shows that physiological needs are the most basic and important and that an individual's needs are satisfied from the basic survival to higher needs to determine behaviour. He states that when one's need is satisfied, an individual move to another level of needs. This study has related this theory with ECDE programme policy guideline, which advocate for a quality and rich physical environment in which children learn to satisfy their psychological needs. A safe environment caters for the children's physiological and safety needs when they are learning. The study has tried to relate how factors affecting management and maintenance of school infrastructure have an effect on the learning of the young children because a safe environment is determined by the safety of the facilities they are using. Maintenance of school infrastructure is determined by factors such as government policy guidelines to guide those who manage the infrastructure on how to maintain

them; adequate funding and community cooperation. ECDE Programmes advocate for a quality physical environment in which children learn to be a critical education capacity factor that contribute to their academic achievement and wellbeing. In his theory, Abraham states that when one need is satisfied, an individual move to another level of needs. Therefore, a safe and conducive environment is a need to the young children in ECDE centers. Small children are incapable of controlling the physical environment they live in and therefore, safety needs are important for such children. The condition of the school infrastructure should be safe and well maintained to provide an environment free of physical harm and allow the children to develop courage to face environmental stimuli. The study assumed that provision of well maintained school infrastructure of good quality and condition can act as motivation to teachers and young children in these centers. Using construction imagery to describe the process of healthy child development is particularly fitting when considering the physical infrastructure for early childhood education. Maintenance of school infrastructure cannot be effective without a well programmed education system. Lack of or inadequate address to this programme can lead to various challenges. In this backlog therefore, maintenance of school infrastructure in ECDE centers and the factors that affect maintenance need to be adequately addressed.

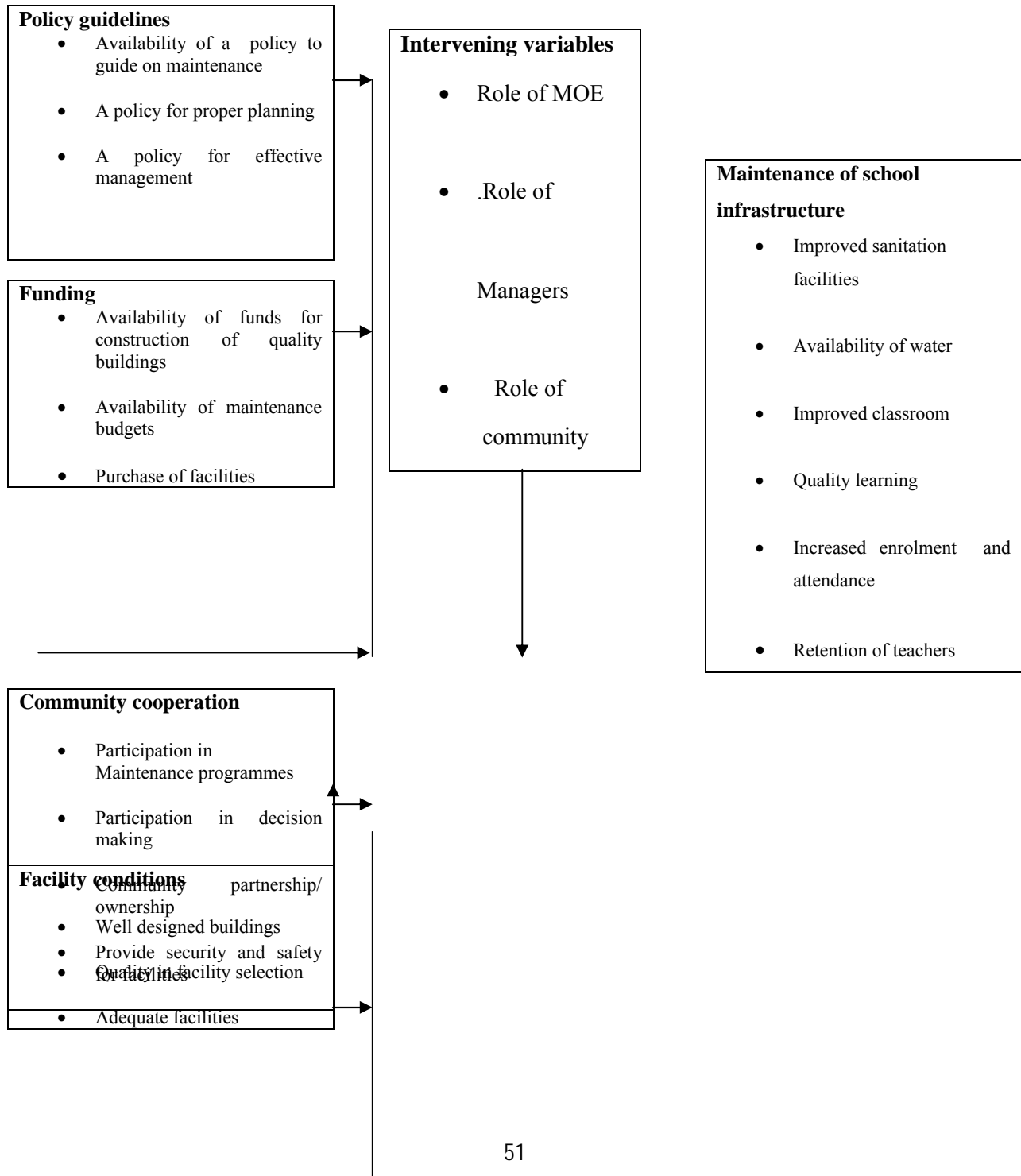
2.8: Conceptual framework. The study was guided by a conceptual framework below which shows the relationship between and maintenance of infrastructure of early childhood education.

Figure 2.2: Conceptual Framework

The figure below shows the relationship between the independent variables which are; factors affecting school infrastructure maintenance, and dependent variable which is maintenance of school infrastructure.

Independent variables

Dependent variables



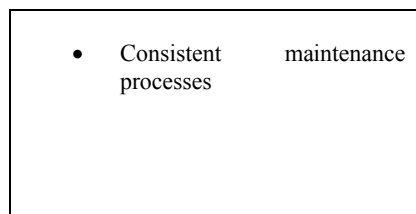


Figure 2.1 was adopted to show some of the factors affecting maintenance of early childhood education infrastructure. According to Mugenda and Mugenda (2003), a variable is a measurable characteristic that assumes different values among the subjects. An Independent Variable is a variable that influences and accounts for an explanation. In this figure, the independent variables are factors affecting maintenance of school infrastructure such as policy guidelines, funding, community cooperation and facility conditions. These factors affecting maintenance of school infrastructure hinder effectiveness in management and maintenance. Effectiveness in maintenance can be influenced by availability of policy guidelines, adequate funding, community participation and quality facilities. Figure 2.1 shows the relationship between these factors and maintenance of school infrastructure to make the school environment conducive for teaching and learning. School management and teachers in preschools should provide services and resources to enable the children to enroll and stay in school.

Dependent Variable, also known as criterion variable, attempts to indicate the total influence arising from the effects of the independent variable (Mugenda and Mugenda, 2003). In the figure above the dependent variable is maintenance of school infrastructure. To provide a safe and protective learning environment, the school managers should maintain structures like buildings, classrooms, furniture and other equipment. The facilities should be well maintained

and rehabilitated consistently to ensure safety of children and avoid accidents. Good condition and quality of school infrastructure is a variable that motivate teaching and learning in schools. On the other hand, buildings that are in poor conditions can be improved through renovation, rehabilitation or done deffered maintenance. New construction can be done if the condition of the classrooms cannot be renovated or rehabilitated (Mcgowen, 2007). The inside environment of the classrooms should have learning materials that are attractive and can motivate children to attend school. The classroom environment can also increase learning skills and knowledge to children. Availability and quality of furniture is another variable that can help increase attendance. Furniture that is in condition allows children to have good sitting posture and therefore enables them to write well and do other learning activities, hence increase learning skills. Furniture that is in poor condition should be done repair and maintenance (O'Neill, 2000). Availability of playground and play equipment, their condition and safety and, if well maintained can ensure the safety of children during play. They also help the children to increase manipulation and social skills.

Figure 2.1 also showed some intervening variables that have an influence on the relationship. Intervening Variable refers to a variable that assumes casual relationship or link among the variables (Mugenda and Mugenda, 2003). It is recognized as being caused by the independent variable and is a determinant of the dependent variable. In this figure, the intervening variables are; Roles of Ministry of education, the managers and the community. The study assumed that these roles are intervening variables that are determinant of maintenance of school infrastructure.

2.9: Knowledge Gap

The study has some common issues with previous studies done by Xaba(2012) and Okeno (2011) among other scholars. However their studies did not investigate on factors affecting maintenance of early childhood education infrastructure. This study therefore has the view that there is a knowledge gap on studies done on factors affecting maintenance of school infrastructure.

2.10: Summary of the Literature

This section has summarized the review of the Literature which has the following five themes; Concept of maintenance of school infrastructure; Policy guidelines and maintenance; School buildings, facility conditions and maintenance; Funding and maintenance; and lastly, Community cooperation and maintenance. The chapter has given an overview of maintenance programmes in developed countries, in Sub-Saharan Africa and Asia. The chapter has also given insights on empirical studies done on maintenance of school infrastructure outside and inside Kenya in each theme. The theme on the concept of maintenance of school infrastructure discusses different types of maintenance in relation to maintenance of school infrastructure. The chapter has also given theoretical and conceptual frameworks of the study. The frameworks have tried to show the relationship between factors affecting maintenance and the maintenance of school infrastructure. Empirical studies reviewed in the literature showed that there is knowledge gap, according to in studies done on maintenance of school infrastructure especially in the ECDE sector.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1: Introduction

This chapter has highlighted the research methodology which was used during the study. In this chapter the following has been discussed; research design, target population, sampling and sample size; different types of research instruments, how to carry out pilot testing of the research instruments; reliability and validity of the research instruments; data collection procedure and data analysis techniques and ethical issues in the research study.

3.2: Research design

The study adapted a descriptive survey research design which involved both qualitative and quantitative approaches. Descriptive survey is a scientific investigation method of collecting information by conducting interviews sessions, observation and administering questionnaires to sample individuals (Orodho, 2003). A qualitative approach is a technique that does not involve use of discrete data while quantitative approach is a technique that uses discrete numerical or

quantifiable data. The researcher used descriptive statistic to meaningfully describe the data collected using both approaches. Qualitative data was organized, coded and described using descriptive statistics to facilitate analysis. This ascertained completeness and uniformity of data analysis. The sample size used in this study was managers of early childhood education centers in Vihiga District in Kenya. The source of information was from both primary and secondary sources. The study has compared the information got from those public ECDE Centers that received and those that have not received government grants and related them to the research problem.

3.3: Target population

The study's target population was 130 managers in ECDE centers in Vihiga District. Vihiga district is sub-divided into different zones as shown in the table below;

Table 3.1: Statistical Data showing number of ECDE centers and managers in Vihiga district's four zones

NO	ZONE	ECDE centers	MANAGERS
1	CENTRAL	28	28
2	NORTH	37	37
3	SOUTH	32	32
4	WEST	33	33
TOTAL		130	130

Source: Vihiga DICECE office

3.4: Sample size and Sample Selection

Sample selection is a process of selecting subjects as a sample in order to come up with conclusions about the whole set of subject cases. The sample should be a true representative of the universe (population) from where it has been taken (Kothari, 2008).

3.4.1: Sample size

According to Mugenda and Mugenda (2003), a sample size of 30 and more is required for descriptive research and it should be 10% or more of the population size. This study picked 52 managers in 52 ECDE centers using random sampling technique. Below is Table 3.2 showing a distribution of sample size.

Table 3.2: Distribution showing Sample Size

Population	ECDE centers	managers
Target population	130	130
Sample size	52 (40%)	52(40%)

3.4.2: Sampling procedure

The study used simple random sampling technique when selecting the sample population. According to Kothari (2008), Simple random sampling also known as chance sampling or probability sampling refer to selecting a number of subjects or sample from the whole population in such a way that, the characteristics of each of the unit of the sample approximates the broad characteristics of the total population. It gives each element in the population an equal probability of getting into the sample. The researcher assigned numbers to the ECDE centers and

wrote them on a table in a set of random numbers. The study selected a sample size by selecting and picking the numbers randomly and associated them with units sequentially listed in the sampling frame of different ECDE centers in each of the four divisions in Vihiga district. The sample size in this study was 52 ECDE managers who manage the public and feeder centers. They represented the larger population of 130 managers in the ECDE centers. Simple random sampling method yielded study data that was generalized to a larger population. The method permitted the study to apply statistic analysis to the data and provide equal opportunity of selection of each element of the population

3.5: Research instruments

This study used the following research instruments; Questionnaires and interview schedule. The questionnaires had both open and close-ended questions derived from the research objectives. The questions asked were focusing on factors affecting maintenance of early childhood education infrastructure. The questionnaires were administered to 52 ECDE managers both in public and feeder centers. The questionnaires were used to collect qualitative data that was coded and categorized according to the research objectives and questions. The information got was tabulated and analyzed to give insights on factors affecting maintenance of early childhood education infrastructure. A structured interview schedule was prepared and conducted on ECDE managers of both public and feeder centers. The interview focused on how some factors such as; Lack of policy guidelines on maintenance; Buildings design and facility conditions; Inadequate funding; and Lack of community cooperation affect maintenance of early childhood education infrastructure.

3.5.1: Pilot testing of research instruments

Pilot testing is a process of trying out the already finalized questionnaire (Mugenda 2003). The researcher carried out a pilot study using a small sample size of six respondents in the neighbouring Sabatia district. Pilot testing was used to measure the variables before exposing them to a treatment. Questionnaires were administered to the sample and the sample used was excluded in the final administration of the instruments. After pilot testing was done, some questions in both questionnaires and interview schedule were restructured and improved before being administered to the sample population. The questions and the responses in the questionnaires were used to ascertain the validity and reliability of the research instruments used before final administering.

3.5.2: Validity of research instrument

Validity is the degree or the evidence to which the instruments used in a study to measure a concept does indeed measure the intended concept. In this study the validity of the instruments (questionnaires and interview schedules) were ensured by first giving them to the supervisors to ascertain their content validity. There was comparison of information obtained in both instruments to ensure their content validity. A small sample population of six respondents from the neighbouring Sabatia district was used to test the external validity of the instruments during the pilot study.

3.5.3: Reliability of research instrument

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials (Mugenda 2003). To determine the reliability of the instruments, the researcher designed questions that were simple to understand and those that are according to the research objectives. Pre-testing of the instruments was done to measure their

clarity and hence, their reliability. Pre-testing offered a chance for the tools to capture desired data. The researcher ensured that all the data collected using research instruments had been coded accurately and correctly to avoid an increase in random errors. The questionnaires were administered to early childhood managers.

3.6: Data collection Procedure

The study used a descriptive survey design where data was collected using questionnaires and interview schedules. The researcher made visits to selected early childhood education public and feeder centers and administer questionnaires to a sample size of 52 of managers of these centers out of a target population of 130. The sample size was 40 percent of the population size. The questions asked in the questionnaires were able to reflect both the independent and dependent variables in the specific objectives of the study. The respondents were given three days to read and answer the questions. But there are those who insisted on answering the questions in my presence and others requested to be given time. Information given was treated with a lot of confidentiality. The interview sessions were purposively conducted face to face where by some structured questions were asked and the data obtained from information given was able to required meet the specific objectives of the study. The researcher also collected some information from Vihiga district DICECE office which added value to the research study.

3.7: Data analysis Techniques

The study used descriptive statistics to analyze qualitative data by using frequencies and percentages to account for responses from the respondents. This enabled the researcher to meaningfully describe a distribution of scores or measurements using a few indices or statistics.

The types of statistics or indices to be used depended on type of variables in the study. In this study the independent variables are factors affecting maintenance early childhood education infrastructure. The dependent variable is maintenance of early childhood education infrastructure. Once data was collected through both questionnaires and interview schedules, the qualitative data was organized and coded using according to the research questions. The data was then computed using descriptive statistics of percentages and frequencies to facilitate analysis. Quantitative data was analyzed using intervals and data analysis software such as SPSS. The process of this analysis showed the relationships of some of the variables. These also ascertained completeness and uniformity by comparing the responses acquired, with the objectives of the study. The meaning of the analyzed data was put in comparison to other theory sentiments.

3.8: Ethical considerations of the study

For ethical purposes, permission to conduct the research at the centers was obtained from the National Council of Science and technology in the Ministry of Higher Education Science and Technology who issued a permit to allow the researcher to carry out the research project in Vihiga district. Permission was also sorted from District Education Officer, the district center for early childhood education (DICECE) office and the ECDE managers who are the participants. The researcher wrote an introductory letter to the respondents indicating some of her personal details. During the study, the researcher displayed high standards of integrity and confidentiality was reassured to the respondents especially on information that may be given of sensitive matters that deal with finances. The study also ensured protection of the privacy and confidentiality of the respondents by writing an introduction letter and to inform them not to indicate their names on the questionnaires. The researcher assigned code numbers to individual participants to conceal their identity.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1: Introduction

This chapter contains data analysis, presentation, interpretation and discussions of the study. It has analyzed and discussed the responses rate, demographic characteristic of the respondents, respondents' responses on factors affecting maintenance of early childhood infrastructure through questionnaires and interviews; and what was observed about facility conditions during data collection. The chapter has examined how factors such as policy guidelines, funding, community cooperation and facility conditions affect maintenance of early childhood infrastructure in Vihiga District.

4.2: Questionnaires response return rate

This section has discussed the response return rate of questionnaires administered to the sample population. A total of 52 questionnaires were administered to ECDE managers and 50 questionnaires were returned for data analysis. This yielded a response return rate of 96.15% which was appropriate for the study. The response return rate was an achievement due to proper coordination with the respondents as some filled the questionnaires immediately and while others asked to be given time. A follow up of questionnaires that were not returned within three days was made to avoid misplacement. Table 4.1 has shown the response return rate.

Table 4.1: Distribution of response return rate

Types	Number of	Number of	Percentage
Respondents	questionnaires issued	questionnaires returned	
EDCE managers	52	50	96.15%

4.3 Demographic characteristic of the respondents

The researcher found it important to understand the demographic characteristic of the respondents used in the study. This section therefore has examined the demographic characteristic of the respondents such as; gender, age and level of education and their management capacity in the ECDE centers.

4.3.1 Distribution of the respondents by gender

The study measured the distribution of the respondents by gender and the results showed how ECDE centers are managed by different gender. The respondents were asked to indicate their gender and the following results were obtained as presented in Table 4.2.

Table 4.2 Distribution of respondents by gender

Sex	Frequency	Percentage
------------	------------------	-------------------

Male	32	64
Female	18	36
Total	n=50	100

Table 4.2 shows that the distribution rate of N=50 respondents by gender had 32(64%) as male and 18(36%) as female. This showed that management in ECDE centers was done mostly by males especially in those attached to public primary schools.

4.3.2 Distribution of respondents by age

The study established the age of the respondents by asking them to indicate their age bracket and the following results were obtained as indicated in Table 4.3. The results showed how ECDE centers are managed by different age groups.

Table 4.3: Distribution of respondents by age

Respondents' Age limit	Frequency	Percentage
Below 30 years	0	0
31-40 years	6	12
41-50 years	26	52
50 years and above	18	36
Total	n=50	100

Table .3 shows that out of n=50 respondents, majority were in the age bracket of 41-50 years which had 26(52%), 18(36%) were 50 years and above and 6(12%) were between 31-40 years. This was an indication that majority of the ECDE mangers were at productive age of between 41-50 years.

4.3.3 Distribution of respondents by level of education

The researcher wanted to establish the level of education of the respondents by asking them to tick in the categories of ECDE and P1 certificates, Diploma and Degree. Table 4.4 shows the results obtained.

Table 4.4: Distribution of respondents' level of education

Level of education	Frequency	Percentage
Untrained	0	0
EDCE certificate	6	12
P1 certificate	13	26
Diploma	29	58
Degree	2	4
Total	n=50	100

Table 4.4 shows the distribution of respondents by the level of education. Majority of the respondents had diplomas with a frequency and percentage of 29(58%), 13(26%) had P1 certificates, 6(12%) had ECDE certificate and another 2(4%) had degrees. These results was an indication that majority of the ECDE managers were trained.

4.3.4 Distribution of respondents by management capacity

The researcher wanted to establish the management capacity of the respondents by asking them to state their roles as managers in the ECDE centers. The study measured the distribution of

the management capacity of the respondents and the results got from the responses are shown in Table 4.5.

Table 4.5: Distribution of respondents by management role capacity

Respondent's management role	Frequency	Percentage
Primary school administrators cum		
ECDE managers	38	76
ECDE teacher cum manager	12	24
ECDE managers	0	0
Total	n=50	100

Table 4.5 shows that out of n=50 respondents, majority 38(76%) were public primary schools administrators who serve as managers in public ECDE centers attached to the public primary schools and 12(24%) were ECDE teachers cum managers who manage centers that serve as feeder centers to the primary schools nearby.

4.4: Distribution of Policy guidelines and maintenance of school infrastructure

Implementation of policies that result in high performance, well designed and maintained school facilities has a direct and indirect impact on teaching and learning process (Oketch and Rolleston, 2007; Onyango, 2003) in Mungai (2002). If well maintained and managed, school facilities Also provide conducive environments that translate into quality education. If well maintained and utilized, they can also realize substantial efficiency gains by deepening national and sector values of school-community relationships and community ownership of school Xaba(2012).

The study examined the level at which policy guidelines affect maintenance of early childhood education infrastructure. The researcher wanted to establish whether there were government maintenance policy guidelines in ECDE centers and how they assist the managers in maintenance of school infrastructure. The participants were asked to state whether there were government policy guidelines by ticking a ‘Yes’ or ‘No’ and if ‘Yes’ how the policy has assisted in maintenance. If ‘No’ how the participants overcame the challenge of lack of policy guidelines in their centers. The study found the following results as shown in Table 4.6

Table 4.6: Distribution of Respondents’ responses on policy guidelines

Respondents’ responses	Frequency	Percentage
Yes	18	36
No	32	64
Total	n=50	100

Table 4.6 shows a distribution of responses on policy guidelines. The results shows that out of n=50 participants 18(36%) indicated that they had policy guidelines in their ECDE centers but majority of respondents of 32(64%) indicated that they do not have policy guidelines. When interviewed some managers said that even though the government has given policy guidelines, it has not stated categorically what types of maintenance are to be done. Some of those who had policy guidelines said that the policy help them in the following ways; It guides them in proper planning of tasks, assists in the upkeep and maintenance of the physical facilities, creates awareness on the type of maintenance for the school infrastructure and guides on what to buy as physical facility and avoid duplication of maintenance activities. One participant stated that policy guideline in his center has assisted in bringing together the school committee and parents and guides them on how to come up with a maintenance programme. Policy guideline also

enhances relationship among the stakeholders. When interviewed those who indicated ‘No’ said they did not have specific policy guidelines on maintenance of facilities with most being forthright and stating categorically that they did not have such policies. Some of those interviewed said that they seek guidance from the District Center for Early Childhood Education office (DICECE) and others stated that they use their own personal guidance and other participants said that they use guidance from their sponsors.

4.5: Funding and maintenance of school infrastructure:

According to UNICEF (2009) the value for money in construction and maintenance allows a greater emphasis to be put on how infrastructure supports other educational inputs, how buildings are used and maintained; where resources are targeted and what added value can be incorporated into the construction process. Issues to be addressed when considering value for money therefore include: Targeting investments to where the need is greatest; Coordinating programmes with other educational interventions; Putting schools and communities at the centre of the process; Using modest design standards which provide safe, attractive, durable and flexible learning environments and allow access for all; Ensuring that there is a balance between new construction, renovation and maintenance; Using procurement approaches that are simple, transparent and lower costs; Focusing on the quality of construction; Emphasizing on the provision of water, sanitation and hygiene promotion; Increasing the efficiency of building use, and Providing predictable, long term financial support, capacity building, monitoring and evaluation; and Creating a ‘child-friendly’ enabling learning environment.

This study wanted to assess the extent to which funding affect maintenance of early childhood education infrastructure. Some earlier information had been collected from the district

DICECE coordinator as a primary source about those ECDE centers that had benefitted from government community support grant. The researcher asked the respondents to state if they had received any government support grant and if they had, to state how they used the money in terms of facility maintenance. Those who had not received were asked to indicate how they overcame the challenge of inadequate funding in their ECDE centers.

4.5.1: Distribution of Respondents’ responses on funding

The researcher wanted to establish the distribution of funds in ECDE centers under the study sample size. The respondents were asked to indicate if they had received any funding and those for ‘Yes’ to state how the money was utilized in terms of maintenance. Those for ‘No’ they were asked to state how they overcome the challenge of inadequate funding. Table 4.7 shows the responses given.

Table 4.7: Distribution of Respondents’ responses on funding

Respondents’ responses	Frequency	Percentage
Yes	8	16
No	42	84
Total	n=50	100

According to table 4.7, the study found that, funding was the basis of facilities maintenance challenges at most centers. Out of n=50 participants, 42(84%) who were the majority indicated that they had not received any government funding. 8(16%) indicated that they had received some funds. This means that only eight ECDE centers of the sample size had received government grant. The results were compared with the information given by DICECE Coordinator and they were analyzed according to centers as shown in figure 4.8

Table 4.8: Distribution of funded ECDE centers

ECDE Center	Enrolment	Amount (Ksh)	Percentage
Chanzuvu	42	157,182.42	28.26
Kegendilova	41	80,714.5	14.51
Idavaga	31	36,270	6.52
Matsigulu	64	78,880	14.18
Madzuu	35	40,180	7.22
Matagalu	34	39,032	7.02
Chavugami	56	64,288	11.56
Imanda	52	59,696	10.73
Total	355	556242.92	100

The study established that out of a sample size of n=50 ECDE centers, 8(16%) were funded with government community support grant. Table 4.8 show that the amount of money allocated was a total of Ksh 556242.92. The first two ECDE centers that show bigger amount received were the first beneficiaries in the year 2008. The rest of the ECDE centers were allocated funds either in 2009 or 2011. When interviewed, all participants whose centers had received government grant had their views that the financial allocation of grants by the government in ECDE centers was not enough in regard to maintenance activities. Some suggested that the government should allocate maintenance budgets according to vote heads and also according to the needs of each center. Most participants, especially experienced ECDE managers, said that

their maintenance budgets were higher than the allocated money and they had to raise funds to augment the allocated amounts. According to the majority, the money that was disbursed and allocated in support of maintenance was used to:- improve the walls by repainting and renovating classrooms, buying of seating facilities and learning materials. The participants whose centers had not received any government grant stated that, they overcame the challenge of inadequate funding by seeking assistance from donors, well wishers, sponsors and by involving parents in maintenance programme. A few indicated that they seek assistance from the community.

4.6: Community cooperation and maintenance of school infrastructure

School and community involvement, (through school management committees, parent teacher associations or similar bodies) has an important role in any infrastructure programme. Participation at this level can increase local ownership, improve the planning process, ensure local priorities are addressed, provide oversight and promote better maintenance. Infrastructure programmes have the potential to play a role in strengthening school management and the strategy therefore needs to set out.

The study wanted to establish the level at which community cooperation affect maintenance of early childhood education infrastructure. The respondents were asked to state whether the neighbouring community participate in ECDE programmes. They were also asked to state the type of community participation. As for those where the community did not participate, the respondents were asked to state how they overcome the challenge of lack of community participation. Table 4.9 shows a distribution on community participation

Table 4.9: Distribution of responses on community participation

<u>Respondents' responses</u>	<u>Frequency</u>	<u>Percentage</u>
--------------------------------------	-------------------------	--------------------------

Yes	28	56
No	22	44
Total	n=50	100

Table 4.9 shows the distribution of responses on community participation in ECDE programmes. Out of n=50 participants, 56% stated that the community do participate and while another 44% felt that the community does not participate. Those who said that there was community participation stated that it participated in the following ways; That they act as monitors and provide in feeding programmes; they also provide learning materials and pay teachers; they provide security and safety for the facilities. A few said that the community participate in doing ‘harambee’ for construction where need be. Others stated that the community participated in decision making. The participants who stated that the community did not participate said that they overcome lack of community participation by in-cooperating parents and sponsors in buying facilities and funding on maintenance. According to the data gathered, the responses showed that even though there was community participation, their participation was very minimal in maintenance programmes. Those interviewed said that community participation was quite a challenge because it was not consistent. One participant said that they had put a penalty for those parents whose children break or looses any facility. They also stated that security was enhanced by locking the classrooms to avoid theft. The participants were of the view that the community did very little participation in ECDE maintenance programmes.

4.7: Facility conditions and maintenance

School designs can be planned to assist with revamping and reshaping of the environment, while taking care of necessitated repairs and not always costing additional monies (Hadden, 2005). In fact, research examples suggest that when building, projects are designed with the

community, principals, teachers and parents, funds can be saved. The design of classrooms must be comfortable, accessible, flexible, and adaptable to provide sufficient space to ensure children’s dignity, health, safety and wellbeing are catered for (MOE 2008). Consistent provision of a safe water supply, and expanded sanitation and hygiene services, such as constructing sanitary latrines, providing hand-washing facilities next to an area where food is prepared and ensuring that school grounds are kept free of garbage and other contamination sources ensures a safe environment for children (UNICEF 2009).

This study wanted to examine the level at which facility conditions affect maintenance of Early Childhood Education infrastructure in Vihiga District. The researcher considered this variable because some facility conditions are normally poorly designed such that their condition required a lot of resources to be maintained. The respondents were asked to indicate the types of school facilities that were in their ECDE centers and rate them according to their condition in each category. They were also asked to indicate a ‘Yes’ or a ‘No’ on the type of maintenance processes they have done in the centers. Observation was also conducted using an observation checklist to check on conditions of the buildings and other facilities.

4.7.1: Distribution of Respondents’ responses on rating of infrastructure in their centers

The study established the rating of types of infrastructure in ECDE centers and the results are as shown in Table 4.10.

Table 4.10: Distribution of responses on rating of infrastructure in ECDE centers

Types of facilities	Very good	Good	Fair	Poor	Very poor
Classrooms	1(2%)	10(20%)	15(30%)	24(48%)	0
Kitchen	0	0	0	0	50(100%)

Water facility	2(4%)	6(12%)	19(38%)	5(10%)	18(36%)
Play equipment	0	0	0	0	50(100%)
Seating facilities	2(4%)	12(24%)	19(38%)	17(34%)	0
Sanitation facilities	0	0	1(2%)	39(78%)	10(20%)

According to data shown in table 4.10, the study established that the rating of classrooms conditions had 24(48%) respondents rating them as ‘poor’ and another 15(30%) rated classrooms conditions as ‘fair’. 20% of the respondents rated classrooms as ‘Good’. While only one respondent rated the classrooms as ‘Very good’. The findings of the study revealed that the status of the facility condition especially the classrooms in ECDE centers were in poor condition and they were not consistently maintained. Observation carried out by the researcher showed that majority of the public ECDE centers attached to primary schools did not have their own classrooms but shared them with the primary school section. When interviewed the ECDE managers who were public primary school administrators said that this had made it difficult for them to maintain the classrooms and put them in the required standards for young children. The managers, whose classrooms were in good condition said that the classrooms were built using other funds such as Community Development Fund (CDF). Observation also done on feeder centers showed that all the 12(24%) use churches as classrooms which were used with a lot of restriction.

The researcher investigated further the rating of water facility which showed that 18(36%) of the respondents rating them as ‘very poor’, while 5(10%) rated them as ‘poor’. Another 19(38%) rated them as in ‘fair’ condition and 6(12%) of the respondents felt that water facilities in their centers were in ‘Good’ condition. 2(4%) of the respondents said that water facilities were ‘Very

good'. Observation done on this type of facility showed that the centers shared this facility with the primary section and only two centers had tap water. Another observation also showed some water tanks were leaking and therefore did not provide the intended services. Further findings as indicated in table 4.10 showed that water facilities had 36% rating them as poor which revealed that this type of facility was not well maintained.

The condition of play equipment was another facility that was investigated and it had 50(100%) rating it as very poor. Study findings on this facility through observation and interviews showed that all ECDE centers did not have play equipment especially the outdoor facilities. This contention was an indication that these types of facilities had not been given priority during purchasing or installation. When interviewed ECDE managers admitted that play equipment was a very important facility for any ECDE center because the children are supposed to engage in play activities almost all the time, but priority on allocation of funds was given to other vote heads such as seating and instructional materials.

The condition of kitchen as a facility showed that 50(100%) participants rated it as 'Very poor'. Observation done during data collection showed that all the ECDE centers attached to public primary schools shared the kitchen primary section and that all the kitchens were semi-permanent. This facility therefore, required to be done preventive maintenance or new construction. During interview the participants agreed that the kitchen as facility in the school required new construction but they were of the view that the funds were either limited or unavailable. They also stated that policy guideline on maintenance did not include new construction of kitchens.

The rating of seating facilities had 17(34%) respondents rating them as poor 2(4%), 19(38%) rated to be fair, 12(24%) rated as 'Good' and only 2(4%) rated as 'Very good'. Further findings through observation and interviews showed that the 8(16%) ECDE centers that had benefitted from government grants had a few tables and chairs for children. The participants who were interviewed said that although they had received some funds, it was not adequate to buy enough facilities and at the same time do maintenance. Observation showed that the rest of public ECDE centers attached to primary schools had desks as seating facility and that they were too uncomfortable for the young children. Seating facilities in feeder centers were church benches and these also did not give any comfort to the young children. The managers in the feeder centers operating in churches said that they had no control over maintenance of these facilities.

Sanitary facilities such as toilets were also rated and the findings showed that majority 39(78%) of the participants rated them as 'poor' and 10(20%) rated as being 'very poor'. This created the impletion that maintenance of this type of facility was far below the expected provision for the needs of the children. It was observed that most of the centers shared toilets with the primary section or the church for those centers operating in churches. Young children shared the facilities with bigger children in the primary section and therefore no privacy. Further observation showed that there was only one center that had its own latrines and urinal.

4.7.2: Distribution of responses in relation to maintenance processes

The study wanted to investigate whether there were some maintenance processes done on infrastructure in the ECDE centers. Consistent maintenance is determined by facility conditions. If the facilities are in poor condition they require to be done deffered maintenance or new

construction. Other types of maintenance processes are dictated by the condition of the facility or availability of funds. The respondents were asked to indicate the types of maintenance processes they had done in their centers. The following are the results as shown in Table 4.11.

Table 4.11: Distribution of responses in relation to maintenance processes done

Processes	Done	Rarely done	Not done
Renovation	37(74%)	13(26%)	0
Construction	2(4%)	48(96%)	0
Preventive	10(20%)	40(80%)	0
Routine	18(36%)	32(64%)	0
Deffered	0	0	50(100%)

The study investigated the types of maintenance processes done in the ECDE centers. The results shown in table 4.11 shows that only 37(74%) had done renovation, 2(4%) had done construction, 10(20%) had done preventive and 18(36%) had done routine maintenance. The findings in table 4.11 was an indication that majority of the respondents had done renovation while the rest of the maintenance processes were rarely done. None of the participants stated that they had done ‘differed’ maintenance. When interviewed, participants said that they did not understand the meaning of the word “differed’. Conducted interviews revealed that school

facilities maintenance was an unfamiliar phenomenon for most participants especially for those in feeder centers. The findings on types of maintenance processes done in the centers were interpreted to be a big issue in the problem of the study. The finding was an indication that most of the managers do not take the issue of maintenance as a priority in management. Also that although some centers had received some funds, very little money was allocated for maintenance.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary findings, conclusion, the recommendations made related to the findings of the study, contribution to body of knowledge and suggestions for further research studies. The study adapted a descriptive survey research design which was employed to allow an in-depth and detailed study of the situation of ECDE sector in relation to maintenance of infrastructure. The purpose of the study was to investigate the factors affecting maintenance of early childhood education infrastructure by focusing on the public ECDE and the feeder centers in Vihiga District, in Kenya. The objectives of the study are; to examine the level at which government policy guidelines affect maintenance of Early Childhood Education infrastructure in Vihiga District, to assess the extent to which e funding affect maintenance of Early Childhood Education infrastructure in Vihiga District, to establish the level at which community cooperation affect maintenance of Early Childhood Education infrastructure in Vihiga District and To examine the level at which facility conditions affect maintenance of Early Childhood Education infrastructure in Vihiga District.

5.2 Summary of findings

The study had administered fifty two questionnaires to ECDE managers. There was a sample return rate of 50(96.15%) out of questionnaires administered. The response return rate further indicated that, there were more male ECDE managers than female. Male were 32(64%) and female 18(36%). Interview schedules and observation check lists were also used to authenticate the study findings.

The study had four objectives under its investigation. The first objective was to examine the level at which government policy guidelines affect maintenance of Early Childhood Education infrastructure in Vihiga District. Policy guideline was found to be a major factor in any management of an institution. Maintenance of infrastructure, being part of management processes is crucial especially in a learning institution to ensure safety of the learners. The study revealed that 18(36%) indicated that they have policy guidelines in their ECDE centers and 32(64%) indicated they do not have policy guidelines. A further investigation through interviews revealed that the government had not provided a laid out policy guideline on maintenance of infrastructure in public ECDE centers. Those interviewed said that the policy guideline provided by the government during disbursement of support grant had not stated categorically on what type of maintenance should be done.

The second objective of the study was to assess the extent to which funding affect maintenance of Early Childhood Education infrastructure in Vihiga District, Vihiga County. The study found out that inadequate funding affects maintenance of school infrastructure. The findings showed that funding was found to be the basis of facilities maintenance challenges at most centers.

The study revealed that out of n=50 participants, 8(16%) indicated that they have received some funds and 42(84%) indicated that they have not received. Although the government allocates money to schools, participants felt that the money was not enough. . All participants whose centers had received government grant when interviewed stated that, the financial allocation by the government to ECDE centers was not enough in regard to maintenance programme activities. Maintenance budgets were higher than the allocated amount and they had to raise funds to augment the allocated amounts. The finding on funding was showed that without adequate funding all maintenance processes in ECDE centers was a big challenge to the management.

The third objective of the study was to establish the level at which community cooperation affect maintenance of Early Childhood Education infrastructure in Vihiga District. The findings of the study revealed that community participation in ECDE maintenance programme activities was very minimal. The finding was an indication that community participation affect maintenance programmes in ECDE centers. Lack of community cooperation was found to be evident in most ECDE centers. The responses on participation had 28(56%) respondents stating that there was community participation and another 22(44%) said there was no community participation. As for those who indicated that there was community participation 28(56%) said that, the community act as monitors and provide in feeding programmes, provide learning materials and pay teachers. They also provide security and safety for the facilities. A few said that the community participate in doing ‘harambee’ for construction where need be and participate in decision making. This revealed that community participation in infrastructure maintenance programmes was very minimal. Some participants stated that they in-cooperate parents and sponsors in buying facilities and funding on maintenance.

The fourth objective of the study was to examine the level at which facility conditions affect maintenance of Early Childhood Education infrastructure in Vihiga District. Facilities were conceptualized as classrooms, kitchen, water tank, play equipment, seating facilities and toilets. Analysis on rating of facilities was also done and the following are the findings; classrooms condition had 24(48%) rating them as 'poor' and another 15(30%) rated classrooms conditions as 'fair'. 20% of the respondents rated classrooms as 'Good'. While only one respondent rated the classrooms as 'Very good'. The findings of the study revealed the status of the facility condition especially the classrooms in ECDE centers are in poor condition and they are not consistently maintained. Observation carried out showed that majority of the public ECDE centers attached to primary schools do not have their own classrooms but share with the primary schools. When interviewed the ECDE managers who are public primary school administrators said that this had made it difficult for them to maintain the classrooms and put them in the required standards for young children. The managers, whose classrooms were in good condition said that the classrooms were built using other funds such as Community Development Fund (CDF). Out of n=50 ECDE centers 38(76%) are attached to primary schools while the rest 12(24%) are feeder centers. Observation done on feeder centers showed that all 12(24%) use churches as classrooms. The rating of water facility which showed that 18(36%) said they were very poor, while 5(10%) rated them as 'poor'. Another 19(38%) rated them as in 'fair' condition. 6(12%) of the respondents felt that water facilities in their centers were in 'Good' condition and 2(4%) said that they were 'Very good'. An observation done on this facility showed that 18(36%) ECDE centers do not have water tanks and those that are available are shared with the primary school section. Play equipment as a facility had 50(100%) rated as very poor. A further finding on this facility through observation showed that all ECDE centers do

not have play equipment. When interviewed, the managers admitted that play equipment was a very important facility, but priority on allocation of funds is given to other vote heads such as seating and instruction materials. Another finding indicated that 50(100%) rated kitchen as ‘Very poor’. Further findings during observation showed that all the ECDE centers attached to public primary schools share the primary school kitchen and that all the kitchens are semi-permanent and they needed preventive maintenance or new construction. When interviewed the participants agreed that the state of the kitchen as facility in the school, require new construction but the funds are either limited or unavailable. They also stated that policy guideline on maintenance does not include new construction of kitchens. The rating of seating facilities 17(34%) respondents rating as poor 2(4%), 19(38%) rated to be fair, 12(24%) rated as ‘Good’ and only 2(4%) rated as ‘Very good’. Further findings through observation and interviews showed that the 8(16%) ECDE centers in the sample size that had benefitted from government grants had a few tables and chairs for children. The participants who were interviewed said that although they had received some funds, it was inadequate to buy enough facilities and do maintenance. The rest of public ECDE centers had desks which were too uncomfortable for the young children. Seating facilities in feeder centers were church benches. The managers in this centers said that they have no control over maintenance of these facilities. The rating of sanitary facilities had 39(78%) of the participants rating them as ‘poor’ and 10(20%) rated as being ‘very poor’. This is an indication that maintenance in this type of facility was far below the expected provision for the needs of the children. An observation done during data collection showed that only one center had its own toilets and urinal. The rest of the centers share toilets with the primary section or the church for those that use churches as centers. The study findings further showed that

maintenance processes are not consistently done and there this was proof why most of the infrastructure in ECDE centers in Vihiga district are in poor condition.

5.3 Conclusions

The purpose of this study was to investigate factors affecting maintenance of early childhood education infrastructure in Vihiga District in Kenya. Such factors are; policy guidelines, funding, community cooperation and facility conditions. Empirical studies showed that these factors are the basis of facilities maintenance challenges. Maintenance of school infrastructure is determined by factors such as a well formulated government policy guideline to guide those who manage the infrastructure and how to maintain them; adequate funding, community cooperation and facility conditions. Maintenance of facilities is a priority in any school management because it provides learners a safe environment for learning. ECDE Programmes advocate for a quality physical environment in which children learn and to be a critical education capacity factor that contribute to their academic achievement and wellbeing.

During investigation, the study found that there were no specific government policy guidelines on maintenance of infrastructure in ECDE centers. Interviews that were purposively conducted showed that although the government had provided policy guidelines to funded ECDE centers, the policy guidelines were not very specific on the types of maintenance processes to done. The choice on maintenance processes was left to the management and the school management committee.

The study findings on funding showed that although the government had allocated money to some schools, participants felt that it was not enough. All participants whose centers had received government grant revealed that, the financial allocation by the government to ECDE

centers was not enough in regard to maintenance programme activities. The budgets were claimed to be higher than the allocated amount and therefore most managers had to raise funds to augment the allocated amounts.

The findings on community cooperation revealed that community participation in maintenance programmes was minimal. The participants who were interviewed said that the community does very little participation in ECDE maintenance programmes and if there was any participation it was quite a challenge because it was not consistent.

The findings also revealed that, although the government has come up with programme (KESSP) in support of ECDE sector, investment in this sector as compared to other education sectors is very minimal. The study findings showed that majority of ECDE centers are yet to benefit from this programme. The pathetic conditions and inadequate facilities in ECDE centers require the government to reconstruct its allocation to this sector because it is a basic to quality education. Further findings during observation showed that some classrooms design and facility conditions were not favorable to the young children. Some children sat on desks designed too high for their small sizes. Majority of classrooms did not have shutters to protect the children from harsh weather conditions. Most of the classrooms were also old and needed renovation. Some of these classrooms were also shared with the primary section. Other facilities such as kitchen and toilets were also shared with the primary section and those in bad states needed renovation, differed maintenance or new construction. In comparison to other education sectors, construction and repair needs rank ECDE sector among the most serious. This sector also needs to construct classrooms that are designed purposely for young children. Observation showed that facilities such as kitchen and toilets required urgent renovation, differed or new construction.

5.4 RECOMMENDATIONS

The study made the following recommendations:

- The study supports full implementation of the government community support grant programme in support of maintenance of infrastructure in the early childhood education sector and recommends for its sustainability. The government of Kenya should revise the policy framework and funding in the ECDE sector by revisiting the needs of this sector. It should put into place policy framework in consideration to the importance of Early Childhood Development, as one of the most important levers for accelerating the attainment of Education For All (EFA) and the Millennium Development Goals (MDGs).
- Through the MOEST the government should extend supervision and inspection services to ECDE centers especially those attached to public primary schools owing the fact that ECDE sector is the basic of quality education. Proper supervision by an appointed committee will ensure proper utilization of disbursed funds.

- ECDE centers should be improved and maintained consistently to make the environment conducive for learning. A case can be made to renovate or build new facilities that maximize an effective learning environment. This will involve allocation of funds for building renovation or new construction. Funding, accurate and timely reporting on expenditure are essential for accountability.
- The ECDE management should have a collaborative partnership with the community to enable these functions of the environment offer learning opportunity for learners. The community should be integrated through cooperative planning.
- This study should be used as a bench mark to guide EDCE mangers and educational planners in evaluating the situation of facility condition and come up with well planned infrastructure maintenance programmes for functional purposes, safety and a healthy environment for learners.
- From this study it was not possible to assess fully the impact of factors affecting maintenance in ECDE centers in Vihiga district. A further study may be needed to analyze further on these factors. Further, the study will also be required to analyze on the real situation on how the government funding has been utilized to guide policy makers on the best way of coming up with a well formulated policy guideline to guide in facility maintenance.

5.5 Contribution to the body of knowledge

Objective

1. To examine the level at which lack of Government policy guidelines on maintenance of Early Childhood Education infrastructure in Vihiga District, Vihiga County,
2. To establish the relationship between buildings design and facility conditions with the types of maintenance of Early Childhood Education infrastructure in Vihiga District, Vihiga County,
3. To assess the extent to which inadequate funding affect maintenance of Early Childhood Education infrastructure

Contribution to Knowledge

Proper government policy guidelines enhances effective management. ECDE managers need well formulated policy guidelines to assist them in maintenance programmes.

Buildings design and facility conditions should activate types of maintenance process Well maintained facilities enhances safe and healthy Environment for learners.

Funding is the core factor in maintenance. Without it everything comes to a

in Vihiga District, Vihiga County

standstill.

4. To establish the level at which lack of community cooperation affect maintenance of Early Childhood Education infrastructure in Vihiga District, Vihiga County.

Community participant in ECDE shows programmes ownership. The management should involve the community in all ECDE Programmes

5.6 Suggestion for further Research studies

1. This study is a bench mark for all ECDE stakeholders to assist in well formulated ECDE maintenance programmes as an aspect of functional, safe and healthy environment for the young children to learn in. The study findings will generate more thought for other studies to be done on maintenance of infrastructure.
2. The study should also be replicated in primary schools where government funding has been allocated through FPE.
3. It is further suggested that factors affecting maintenance should be an immediate priority for the government of Kenya to look into.

Reference

- BEST (2005) *Facilities Management - Recommended Policies for Public School Facilities in USA*, Section 3:
- Berner, M.M (1993) *Building conductors, parental involvement and students' achievement in the District of Columbia*.
- Blalock, H. M., Jr. (1969) *Theory Construction: From Verbal to Mathematical Formulations*, Prentice-Hall, Englewood Cliffs, NJ.
- Bowers, J. H., & Burkett, C. W. (1989). Effects of physical and school environment on students and faculty. *CEFPI's Educational Facility Planner*, 27(1), 28-29.
- Brooks, J. G., & Brooks, M. G. (1993). *In search of understanding: The case for constructivist classrooms*. Alexandria, VA: Association of Supervision and Curriculum Development.
- Clark, C. (2001). Texas state support for school facilities, 1971 to 2001. *Journal of Education Finance*, 27(2), 683-700. Crampton, F. E., & Thompson, D. C. (2002). The condition of America's schools: A national disgrace. *School Business Affairs*, 68(11), 15-19.

- Crampton, F.E. and Thompson, D.C. (2008) *Building Minds, Minding Buildings, School Infrastructure*. Funding Need. A state-by-state assessment and an analysis of recent court cases. http://www.aft.org/pdfs/psp/bmmb_funding_1208.pdf.
- Dennson et al (2000) *Learning with the Body in Mind* (zephyr press)
- Fisher, D., & Grady, N. (1998). Teachers' images of their schools and perceptions of their work environments. *School Effectiveness and School Improvement*, 9(3), 334-348.
- Freeman, M.C. (2007-2008) *Assessing the impact of school-based water treatment, hygiene and sanitation programme on pupil absence in Nyanza Province, Kenya: a cluster randomized trial*. <http://www.swashply.org/Document/Assess> the impact of school WASH on pupil absence-2011-pdf
- Hadden, J. L (2005) Educational facility design features in georgia's schools. School Design, Planning, and Research Laboratory - <http://sdpl.coe.uga.edu>, 013 hrs (02/09/2013)
- Hill, F and Cohen, S (2005) *School Design Impact Upon Cognitive Learning*. <http://www.schoolfacilities.com/cd-1792.aspx>
- Jensen, E. (1998). *Teaching with the brain in mind*. Alexandria, VA: Association of Supervision and Curriculum Development.
- Keriga, L. and Bujra, A. (2009) *Social Policy Development and Governance in Kenya*. An Evaluation and Profile of Education in Kenya.
- Kerlinger, F. N. (1986) *Foundations of Behavioral Research*, Holt, Rinehart and Winston, New York.
- KESSP (2007) ECDE Community Support Grant Management Handbook. *Improving access,*

equity and equality of ECD education for children aged 4to5years, especially those from poor households.

Kothari (2008) *Research methods; Quantitative Techniques*

Kingsley, J. (2004). *Brief History of state –organized Education in Ghana*. [http:// www.ghana.gov.gh/Ghana homepage/features/artikel.php?ID=54812](http://www.ghana.gov.gh/Ghana_homepage/features/artikel.php?ID=54812), 0900 hrs 02/02/2013.

Kothari, C.R. (2004) *Research methodology; methods and Techniques (2nd Edition)* New Aye international [p] Ltd- Publishers; New Delhi.

Lewis, M. (2003) and Keith M. (2003) *Secondary Education in Africa: Issues of cost and finance* [http/ www. World Bank org](http://www.worldbank.org).

Lewis,M. (2001). *Facility conditions and student test performance in the Milwaukee public schools*. Scottsdale, AZ: Council of Educational Facility Planners International.

Lunenburg, F. C. (2010) *School Facilities Management*. National Forum of Educational Administration & Supervision journal volume 27, number 4, 2010

MOE (2008) *The Development of Education in Kenya Report at International Conference on Education*, Geneva 2008.

MOE (2005) *Kenya Sector Support Programme. Delivering quality education for all Kenyans*.

Mcgowen,R.S (2007) *Impact of School Facilities on Student Achievement, Attendance, Behaviour, Completion Rate and Teacher Turnover Rate in selected Texas High Schools*. Texas University.

Mungai, A.M (2002) *Growing up in Kenya; Rural Schooling and Girls*: University of Nairobi

Miguel, E. (2000) *Ethnic Diversity and School Funding in Kenya*. University of California at Berkeley

Okeno,J.O.(2011) *Influence of school infrastructure of students' achievement in public secondary schools in Rachuonyo North District Nyanza province*.

- Okoth, S.O. (2003) *Free Primary Education in Public Schools. Implications for Private Primary Schools in Nairobi Kenya.*
- O'Neill, D. (2000). *The impact of school facilities on student achievement, behavior, attendance, and teacher turnover rate at selected Texas middle schools in Region XIII ESC.*
Unpublished doctoral dissertation, Texas A&M University, College Station, TX.
- Orodho, A.J (2003) *Research Methods.* Kenyatta University, Institute of Open Learning. Nairobi
- Pines (1967) An elementary school build in the year 1953.
- Rukwaro, N. M.(2012) *Sanitation practices among public primary schools within Nyeri Municipality, Nyeri District, Kenya.* Etd-library-ku.ac.ke/.2288
- SIDA (2000) *Teacher Education, teacher's conditions and motivations.* Stockholm: Department for Democracy and Social Development, Education Division,
- Siegel, J. M. (1995). *Patterns for effective school environments.* Milwaukee, WI: University of Wisconsin-Milwaukee, Architecture and Urban Planning Research.
Traditional and Colonial System of Education. <http://CountryStudies/US/SriLanka/46.htm>.
- UNICEF (2002) Barriers to Girls Education Strategies and Interventions: Talking about Learning. <http://www.unicef.org/02-htm>.
- UNICEF (2009) Child Friendly Schools Programming. Global Evaluation Report. New York 10017,
United States.
- UNICEF (2010) *Child-Friendly Schools Manual:* info@education.go.ke.
- UNESCO (2004) Embracing Diversity. Tool Kit for Creating Inclusive Learning Friendly Environment. Bangkok: UNESCO.
- World Bank (2001) Community Support for Basic Education in Sub-Saharan Africa:
Washington. D.C.
- World Bank (2005) Expanding Opportunities and Building Competencies for Secondary Education. Washington, D.C. World Bank.
- Xaba, M.I (2012) *A qualitative analysis of facilities maintenance — a school*

Governance function in South Africa. School of Education Sciences, North-West University, Vaal Triangle Campus, South Africa.

APPENDIX 1

LETTER OF TRANSMITTAL

Muganga Nancy Wanjiku

P.o BOX 1089-50300

Maragoli.

Email:muganganancy@yahoo.com

Mobile: 0721293740

Dear Sir/ Madam,

RE: REQUEST FOR YOUR PARTICIPATION IN RESEARCH STUDY ON THE TOPIC-
Factors affecting maintenance of Early Childhood Education infrastructure in Vihiga District.

I am a Masters of ART in Project Planning and Management at the University of Nairobi carrying out research on the above topic. I am humbly requesting you to participate and assist me by filling in the questionnaire and respond to the interview questions as correctly and honest as possible. This is on voluntary basis but your responses will be treated with a lot of confidentiality. Therefore DO NOT WRITE YOUR NAME or INSTITUTION on the questionnaire.

Your cooperation and willingness will be highly appreciated. Thank you in advance.

Yours Faithfully,

.....

Muganga Nancy Wanjiku

(Student, University of Nairobi)

APPENDIX 2

A QUESTIONNAIRE FOR ECDE MANAGERS

INTRODUCTION

Dear Participant,

This is a questionnaire for a research project by the title “Factors affecting maintenance of Early Childhood Education infrastructure in Vihiga District, Vihiga county” for an award of a Masters degree in Project Planning and management of the University of Nairobi. You have been identified to give information on your role as a manager in the ECDE center. Your responses will be treated in strict confidentiality. Please give the most appropriate answers to the questions asked in this questionnaire. (Researcher- Nancy Wanjiku Muganga)

INSTRUCTIONS

- i. Answer all the questions
- ii. Do not indicate your name on the questionnaire
- iii. Put a tick(√) on the answer or provide appropriate information required

SECTION A: Personal Information

1. Indicate your gender: 1) Male 2) Female
2. Indicate your age bracket
 - (1) Below 30 years
 - (2) 31-40 years
 - (3) 41-50 years

- (4) 50 years and above
- 3. Indicate your level of education
 - (1) ECDE certificate
 - (2) P1 certificate
 - (3) Diploma
 - (4) Degree
- 4. In what capacity do you play your role in the ECDE center?
 - (1) Primary School Administrator cum ECDE Manager
 - (2) ECDE manager
 - (3) ECDE Teacher cum Manager

SECTION B: Policy guidelines and maintenance of school infrastructure

- 5. Do you have a government policy guideline on maintenance in you school?
 - (1)Yes (2) No
- 6. If Yes, how has the policy assisted you in maintenance of school facilities?

.....

.....

.....
- 7. If No, how do you overcome lack of policy guidelines?
 - (1) By seeking guidance from DICECE Office
 - (2) By seeking guidance from sponsors
 - (3) By using personal guidance

SECTION C: Funding and maintenance of school infrastructure

- 8. Has your center ever received government community support grant in support of infrastructure?
 - (1)Yes (2) No
- 9. If yes, how much money was your school allocated?

.....
- 10. State how the money was used in terms of maintenance.

.....
.....
.....
11. If no, how do you overcome the factor of inadequate funding in maintenance?

- (1) Seeking donor funding
- (2) Seeking assistance from well wishers
- (3) Seeking assistance from sponsors
- (4) Seek parents' contribution

SECTION D: Community cooperation and maintenance of school infrastructure.

12. Does the neighbouring community participate in the ECDE programmes?

- (1) Yes
- (2) No

13. If yes, state the community role in participation

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

14. If No, how do you overcome lack of community cooperation?

- (1) By in cooperating parents in the ECDE programmes such as the following;
 - (a) Buying of facilities
 - (b) Funding on maintenance
- (2) By in cooperating sponsors and well wishers in the ECDE programmes such as the following;
 - (a) Buying of facilities
 - (c) Funding on maintenance
- (3) By ensuring security and prevention of burglary

SECTION E: Facility conditions and maintenance

15. How do you rate the condition of the following facilities in your center?

Type	Very Good	Good	Fair	Poor	Very poor
Classrooms					
Kitchen					

Water facility					
Play equipment					
Chairs/ Desks					
Tables					
Toilets					

16. Indicate the type of infrastructure maintenance processes you have done in your ECDE center.

	Done	Rarely done	Not done
Renovation			
Construction			
Preventive			
Routine			
Deffered			

APPENDIX 3

INTERVIEW SCHEDULE FOR ECDE MANAGERS

Type of ECDE center _____

Demographic Information

1. Gender Status (1) Male (2) Female
2. What is your age bracket?
 - (1) 18-30 years
 - (2) 31-40 years
 - (3) 41-50 years
 - (4) 50 years and above
3. What is your level of education

- (1) ECDE Certificate
- (2) P1 Certificate
- (3) Diploma
- (4) Degree

4. Designation

- (1) Primary School Administrator cum ECDE Manager
- (2) ECDE manager
- (3) ECDE Teacher cum Manager

5. Do you have a government policy guideline on maintenance in you school?

- (1)Yes
- (2) No

6. If Yes, how has the policy assisted you in maintenance?

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

7. If No, how do you overcome lack of policy guidelines?

8. Have you ever received government community support grant in support of infrastructure?

- (1)Yes
- (2) No

9. If yes, how much money was your school allocated?

.....

10. State how the money was used in terms of maintenance.

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

11. If no, how do you overcome the factor of inadequate funding in maintenance?

.....
.....

12. Does the neighbouring community participate in the ECDE programmes?
17. Yes (2) No

13. If yes, state the community role in participation
.....
.....
.....

14. If No, how do you overcome lack of community cooperation?
.....
.....
.....

15. If Yes, what type of infrastructure maintenance processes have you done?

(1) Renovation
(2) Construction
(3) Preventive

(1) Routine
(2) Deffered

Facilities	Number	Condition	Adequate	Not Adequate	Maintained	Not maintained	Remarks
------------	--------	-----------	----------	--------------	------------	----------------	---------

APPENDIX 4

Classrooms							
Kitchen							
Water facility							
Play equipment							
Seating facilities							
Toilets							

AN OBSERVATION CHECK LIST

Type of ECDE center _____