# PREPAREDNESS OF SECONDARY SCHOOL HEAD TEACHERS ON MAINTENANCE OF PHYSICAL FACILITIES IN WESTERN REGION, KENYA

**BY**

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# DECLARATION

## DECLARATION BY THE CANDIDATE

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## DEDICATION

This thesis is dedicated to my husband Ibrahim and children Jared, Richard, Kevin, Billy and Sarah

## ABSTRACT

Physical facilities are vital in the learning process, a reason why the governments as well as parents invest heavily in them. It is therefore necessary that there is proper maintenance of the same by those who are concerned with management of educational institutions. This study investigated the preparedness of secondary school head teachers on maintenance of physical facilities in Western Region, Kenya. In the study an attempt was made to find out the extent to which secondary school head teachers hire qualified personnel, organize for capacity building of personnel, as well as how they supervise and monitor maintenance of facilities. The study was guided by the Systems Theory proposed by Bertalanaffy (1968) as quoted by Hanson (2004). The study was eclectic utilizing both quantitative and qualitative methodologies. The research design used was a descriptive survey which covered 92 secondary schools drawn from 8 selected districts of Western Region**.** Primary data was collected from a sample of 460 respondents, who included 92 head teachers, 92 deputy head teachers, 92 stores clerks, selected through purposive sampling, 92 class teachers and 92 class prefects selected through simple random sampling. Data was collected using questionnaires, interviews, direct field observation and document analysis. The data was analyzed using descriptive statistics involving frequencies and percentages and inferential statistics using chi-square tests. The study found out that: secondary school head teachers do not hire qualified personnel nor organize for capacity building of their personnel for maintenance through training workshops, seminars, and expert talks; they do not adequately supervise maintenance activities through planning, formulation of policies on maintenance, allocation of duties on maintenance, motivation of personnel, and provision of adequate materials for maintenance. They do not monitor maintenance of physical facilities through personal inspections, stock taking nor preparation of maintenance records. The study also found that there is a significant relationship between head teachers gender, training and maintenance of physical facilities. The study concluded that secondary school head teachers are not adequately prepared for maintenance of physical facilities. The study recommends that there is need for secondary school head teachers to: hire qualified personnel, arrange for capacity building of personnel on maintenance of facilities, adequately supervise and monitor maintenance activities in schools. This study is significant because it is hoped that the results will be useful in generating knowledge to head teachers on better maintenance practices, thus saving the cost of constructing new buildings and doing major repairs due to poor maintenance. It is also hoped that it will inform the Ministry of Education in coming up with more policies on proper maintenance of physical facilities in educational institutions.

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## LIST OF ABBREVIATIONS

**ATS:** Approved Teacher Status

**APS -** Action Planning Sheet

**BED:** Bachelor of Education

**BOG –** Board of Governors

**CDF -** Constituency Development Funds

**DQASO** District Quality Assurance Officers

**GOK-** Government of Kenya

**HODS -** Heads of Departments

**KEMI-** Kenya Education Management Institute

**KESI-** Kenya Education Staff Institute

**LATF -** Local Authority Transfer Funds

**MOE –** Ministry of Education

**NGOs -** Non Governmental Organizations

**PTA -** Parents Teachers Association

**PGDE:** Post Graduate Diploma in Education

**RMI**- Repairs and Maintenance

**SGB -** School Global Budget

**TEMDEP-** Teacher Education Materials Development Programme

**VAGO -** Victorian Auditor General's Office

# CHAPTER ONE

## 1.0 Introduction to the Study

This chapter is divided into the following sub-sections: background to the study, statement of the problem, purpose of the study, objectives of the study, research questions and hypotheses, justification and significance of the study, delimitations and limitations of the study, assumptions of the study, theoretical framework of the study, and definitions of key terms.

## 1.1 Background to the Study

Education is a basic human right that is supposed to be enjoyed by every learner. This is why governments all over the world strive to ensure that there is enough funding for its provision (Psacharopoulos and Woodhall 1996). In a formal setting this is offered in schools, and therefore there is need to ensure that such institutions possess adequate physical and material resources. The resources in turn need to be utilized optimally so as to benefit the learner. Tabir (2004) says a school is an organized environment where educational curricular are interpreted. It is a formal organization which serves as a transitional stage in life between family and the society.

According to Charis (2001) a school plant is the totality that makes up a school system, and involves the physical and material facilities in form of buildings, school site and the environment that embody the school. The school plant includes the site, the buildings and equipment. It also includes structures like workshops, libraries, classrooms and even the education system itself. Adeboyeje (2000) in his study asserted that school facilities are the physical and spatial enablers of teaching and learning which increase the

production of results, and that school plants are material resources that facilitate effective teaching and learning. They include school buildings, classrooms, furniture, libraries, recreational equipment and facilities, and other instructional equipment. This is in agreement with Teacher Education Materials Development Project (TEMDEP, 1993) which observed that the term resource in educational management is any item that one finds in the school or environment which may be used to facilitate teaching and learning.

According Bakhda (2004), facilities may include permanent and semi-permanent structures such as machinery, laboratory equipment, blackboards, teachers' tools as well as consumables like chemicals, soap, exercise books, papers and others. Nwagwu (1978), Ogunsaju (1980) and Asiabaka (2006) in their studies found that physical facilities play a pivotal role in the actualization of the educational goals and objectives by satisfying the physical and emotional needs of the staff and students of the school. They observed that school facilities consist of all types of buildings and equipment for academic and non-academic activities, areas for sports and games, landscape, and farms and gardens which include trees, roads and paths. Others include furniture and toilet facilities, lighting, acoustics, storage facilities and packing lot, security, transportation, information communication technology (ICT), cleaning materials, food services, and special facilities for the physically challenged persons.

According to the International Facilities Management Association (2002) facilities management is the practice of co-ordination of the physical workplace with the people and the work of the organization. It is the application of scientific methods in the planning, organizing, decision-making, co-ordination and controlling of the physical

environment of learning for the actualization of the educational goals and objectives. Ajayi (2001) asserts that facilities management is the school plant planning, and that it is the process of management, construction, utilization and maintenance of facilities to ensure goal achievement. Knezevich (1975) in his study emphasized that the physical needs of a school are met through provision of safe structure, adequate sanitary facilities, a balanced visual environment, and sufficient shelter space for the work of learners. Therefore head teachers have to be creative and innovative in the management of school facilities.

The International Facilities Management Association (2002) asserts that facilities management is the practice of co-ordination of the physical workplace with the people and the work of the organization. It is the application of scientific methods in the planning, organizing, decision-making, co-ordination and controlling of the physical environment of learning for the actualization of the educational goals and objectives. This involves among other things, collective decision making in relation to design and construction of new school plants including grounds, renovation and modernization of old plants, provision of equipment for academic and non-academic activities, maintenance of all facilities and review of management practices and processes.

Studies have found the importance of maintenance of facilities in schools just like other organizations. Kopp (2005), in her study on facilities in Maryland state found that by maintaining building systems, the cost of future repairs and major renovations are significantly reduced, and that regular maintenance ensures that buildings remain

operational even under adverse weather conditions. She further observed that well maintained school facilities protect the health and safety of occupants. The same observations were postulated by Kent (2003), whose study found that there is a positive relationship between the quality of school facilities and the quality of educational activities that take place within it. The standard of maintenance of facilities depends on the efforts put by the head teacher. The findings agree with those of Price Water- Coopers (2001) in a study carried out in Great Britain, that good teaching takes place in schools with a good physical environment.

Cash (1993) studied the relationship between classroom condition and the school building and student achievement in rural schools in Virginia and found that there was a relationship. These findings concur with those of Caddick (2006) whose study examined relationship between school building adequacy and student achievement, and found that quality facilities were related to all of the school climate variables such as teacher professionalism, leadership, community engagement and academic achievement.

In a study by Bullock (2007), it was found that students performed better in schools that were new or renovated recently than in older schools. The study concluded that overall building condition, age of the building and windows in schools were positively related to student achievement. To underscore the importance of physical facilities, Edwards (1992) and Young et.al (2003) investigated the relationship between school building conditions, parental involvement and student achievement in schools in Washington D.C school system and found that building conditions had an effect on student achievement. The

studies also found that in schools where large numbers of parents were involved had schools that were in better condition than those that did not.

Fisher (1997) in studies done in Australia also indicated the same results, where student academic achievement improved with improved building condition. Individual factors such as lighting levels, air quality and temperature and acoustics have an effect on student behaviour and outcomes. Janaidu and Urwick (1991) in their study in Nigeria that analyzed the effects of the quality of physical facilities on the process of teaching and learning revealed that important educational processes are strongly influenced by furniture provision, classroom maintenance and other physical facilities. A beautiful, neat and attractive school campus can motivate both the teachers and pupils to work best.

A study by Akinsolu (2004) in Nigeria found that educational curriculum cannot be sound and well operated with poor and badly managed school facilities. Olagboye (2008) argues that proper maintenance of the school plant ensures safety of the occupants, facilitates teaching and learning, and saves costs incurred from repairing collapsed facilities. A study by Kent (2003) also found that there is a positive relationship between quality of school facilities and the educational activities that take place within it.

Bakhda (2004) observed that well maintained facilities are attractive and that head teachers can make facilities attractive without much expense. This would include, cleaning, painting, upgrading, and trimming of hedges as well as maintaining flower beds. All facilities and equipment in schools need to be regularly and frequently inspected in order to ensure their proper working at all times. The school plant should be

protected from defacement and damage. The same observation was postulated by Kolawole (2000) and Abudulkareem (2003) that the physical appearance and general condition of school facilities give the first impression to the visitors and about what goes on inside the school.

A study by Olagboye (2008) in Nigeria, found that maintenance of the school plant ensures safety of the occupants, facilitates teaching and learning, as well as ensuring continued use because early repairs of facilities makes them to be in good shape. However, Ijaduola (2008a) argued that school plant planning requires maximum cooperation and hard work from a combined team of the head teacher, teachers, students and other school personnel. The head teacher therefore is required to possess skills in human relations so as to ensure proper management of facilities. The common goal of maintenance according to Ojedele (2008) is to keep the physical plants in the best possible condition at all times.

A study by Abudulkareem (2003) revealed that the physical appearance and general conditions of school facilities give the first impression about the school to parents and visitors to the school, and that a school with well coordinated plant planning and maintenance practice recorded better student performance. Olakoya (2004) and Uya (2004) in their studies also contend that in an educational environment, facilities such as furniture, laboratory equipment and materials have great influence in the teaching learning process.

## 1.2 Statement of the Problem

Grauwe (2007) in his study argued that the quality of leadership makes the difference between success and failure of a school. His study revealed that in highly effective schools, it is the head teacher who sets pace by leading and monitoring learners and staff to perform to their highest potential. A study by Igwe (2001), found that the head teachers' role of supervision is to help personnel become more effective in planning their work in terms of utilizing maximally materials for achievement of educational objectives.

In Kenya just like other countries, there is need for the Ministry of Education to underscore the vital role of facilities by considering facilities maintenance as an integral part of the overall management of the school. The actualization of educational goals and objectives of education require the provision, maximum utilization and maintenance of the resources. In the management of facilities, it is the head teacher who creates a shared vision and strategic plan for the school which inspires teachers, students and the whole school community to achieve the best. Head teachers lead other school members in setting plans and achievable objectives that ensure the school delivers continuous improvement in maintenance of facilities. In order to do this, they need to collect and use data effectively to monitor the progress and encourage other school members to do the same. It is against this background that this study was carried out to examine the preparedness of secondary school head teachers in supervision of maintenance of physical facilities in Western Region.

### 1.3 Purpose of the Study

The purpose of this study was to investigate the preparedness of secondary school head teachers in supervision of maintenance of physical facilities in Western Province.

### 1.4 Objectives of the Study

The following objectives were used to guide the study:

1) To establish the extent to which secondary school head teachers recruit qualified personnel for maintenance of physical facilities in Western Province
2) To examine the extent to which secondary school head teachers facilitate capacity building of school personnel on maintenance of physical facilities
3) To determine how secondary school head teachers supervise maintenance of physical facilities
4) To find out how secondary school head teachers monitor and evaluate maintenance of physical facilities
5) To determine the relationship between secondary school head teachers'
    i. gender,
    ii. administrative experience,
    iii. type of school,
    iv. exposure to management training, and maintenance of physical facilities

### 1.5 Research Questions

The study sought to answer the following research questions:

i. To what extent do secondary school head teachers recruit qualified personnel for maintenance of physical facilities in Western Region?

ii. To what extent do secondary school head teachers facilitate capacity building of school personnel on maintenance of physical facilities?

iii. How do secondary school head teachers supervise maintenance of physical facilities?

iv. In which way do secondary school head teachers monitor and evaluate maintenance of physical facilities?

**1.6 Hypotheses of the Study**

$Ho_1$: There is no significant relationship between secondary school head teachers' gender and maintenance of physical facilities

$Ho_2$: There is no significant relationship between secondary school head teachers' administrative experience and maintenance of physical facilities

$Ho_3$: There is no significant relationship between type of school for head teachers and maintenance of physical facilities

$Ho_4$: There is no significant relationship between secondary school head teachers' exposure to management training and maintenance of physical facilities

## 1.7 Assumptions of the Study

Basic assumptions of the study were:

1. That secondary school head teachers in Western Region possess the necessary training for utilization and maintenance of physical facilities.
2. That the respondents would willingly participate in the study and their responses would represent the actual situation of maintenance of physical facilities in secondary schools in Western Region

## 1.8 Justification of the Study

The government and parents invests heavily in the provision of physical facilities in schools. It is important that the resources are well maintained so that they can serve the intended educational purposes and also save schools the costs of doing major repairs or construction of new facilities due to poor maintenance.

## 1.9 Significance of the Study

This study is significant because it is hoped that the results will provide greater insight to the administrators and managers of schools about factors that contribute to best maintenance practices for physical facilities. On the practical value, the findings will serve as reference point for head teachers of secondary schools on management skills requirements that would lead to improvement on maintenance of physical facilities. It is also hoped that the findings of the study will benefit the Ministry of Education and the Kenya Education Management Institute (KEMI) with salient training needs for head teachers with regard to maintenance of physical facilities. It is also hoped that it will

inform the Ministry of Education to come up with policies that will be used by schools to save on the cost of repairs and construction of new buildings that result from poor maintenance practices.

### 1.9 Delimitation of the study

The study was carried out in public secondary schools in Western Region of Kenya. It focused on the preparedness of head teachers in supervision of maintenance of physical facilities. The study was delimited to: head teachers, deputy head teachers, class teachers, stores clerks, and form three and four class prefects. The other groups such as teachers, heads of departments, as well as BOG members were not covered and would therefore form basis for further research.

### 1.10 Limitations of the study

According to Orodho (2000) limitations of the study are those characteristics of design or methodology that impacted or influenced the application or interpretation of the results of the study. They are the constraints on generalizability and utility of findings that are as a result of the ways in which the design of the study is chosen and the methods used to establish internal and external validity. The limitations encountered during the study included low participation rate in interviews on head teachers since some of them were not in their stations at the time of the study. In some schools head teachers were hesitant to avail or did not posses some documents such as maintenance schedules, punishment books and facility records which would have provided pertinent information on

maintenance practices used in schools. However through triangulation of the research instruments, an attempt was made to resolve the anomaly. This was done by using other instruments for data collection such as questionnaires and direct field observation.

### 1.11 Theoretical Framework of the Study

According to Babbie (2007) a theoretical framework refers to the logical structure of meaning that guides the development of the study. It is based on the identification of key concepts and the relationship among concepts. A theoretical framework provides a context for examining a problem and also serves as a guide to systematically identify logical, precisely defined relationships among variables. It plays the important role of guiding the entire process of the research study.

This study was guided by the Open Systems Theory proposed by Hoy and Miskel (2005). The theory was an advancement of the Systems theory by the German biologist Ludwig von Bertalanaffy (1968), who postulated that the way the parts of a system are organized and how they interact with each other, determines the properties of that system and therefore makes the behaviour of the system independent of the properties of the elements. According to Hoy and Miskel (2005), the Open System Theory views organizations as not only influenced by environment but also depending on them. Organizations are pictured as open systems since they take inputs from the environment, transform them, and produce outputs for the environment. Stoner, Freeman and Gilbert (1996) described the environment of an organization as all elements relevant to its operation and they include direct and indirect action elements. People skills, raw materials, information and money are the typical inputs for organizations. In the

transformation process, these inputs are changed into outputs which are then discharged back into the environment. Cole (1996) adds that open systems are those which interact with the environment on which they rely for obtaining essential inputs and for the discharge of their system's outputs.

Schools are social systems that take financial, time, human skills and physical resources from the environment and subject these inputs to an educational process to produce literate and educated students or graduates. In schools tuition facilities such as classrooms, books, computers, instructional materials as well as boarding, sanitation and cleaning materials are critical inputs. These inputs are used to enhance the teaching and learning process. The outcome from these inputs depends on their state and it is the head teachers who are charged with the responsibility of ensuring quality supervision of maintenance. The level of maintenance on the other hand depends on the preparedness of the head teachers through training and capacity building of their school personnel (Hanson, 2004). The supervision of school facilities starts with acquiring adequate and well maintained facilities.

The Open Systems Theory was adopted for this study because, while many parties are involved in the provision of physical facilities in schools, their level of maintenance is what will facilitate the teaching and learning process which will in turn determine the grades attained by the learners. Maintenance of facilities depends on the inputs which are management and supervisory skills possessed by the head teacher, provision of maintenance materials, and other facilities. The outputs in this case are the well

maintained facilities which give comfort to the learners. Well maintained facilities in turn determine the outcomes which are the good grades attained by learners who use the facilities.

### 1.12 Conceptual framework of the study

Miles and Huberman (1994) assert that a conceptual framework is the system of concepts, assumptions, beliefs and theories that supports and informs the research. Shields and Rangarjan (2013) add that it is a visual or written product that explains either graphically or in narrative form the main things to be studied such as key factors, concepts or variables and the presumed relationships among them. It is the way ideas are organized to achieve a research project's purpose and helps in the justification of the research.

In this study head teachers' preparedness was conceptualized in terms of whether they recruit qualified librarians, store clerks and artisans as well as whether they organize for capacity building of personnel through training, attending workshops and seminars and holding expert talks. Supervision of personnel on maintenance was interpreted to include planning, allocation of maintenance duties, budgeting, motivation and setting policies on maintenance of facilities in schools. Monitoring and evaluation of maintenance was conceptualized to encompass items such as personal inspections, stock taking and preparation of maintenance records. The conceptual framework is as presented below in fig 1.0 below:

**Independent variable** **Dependent variable**

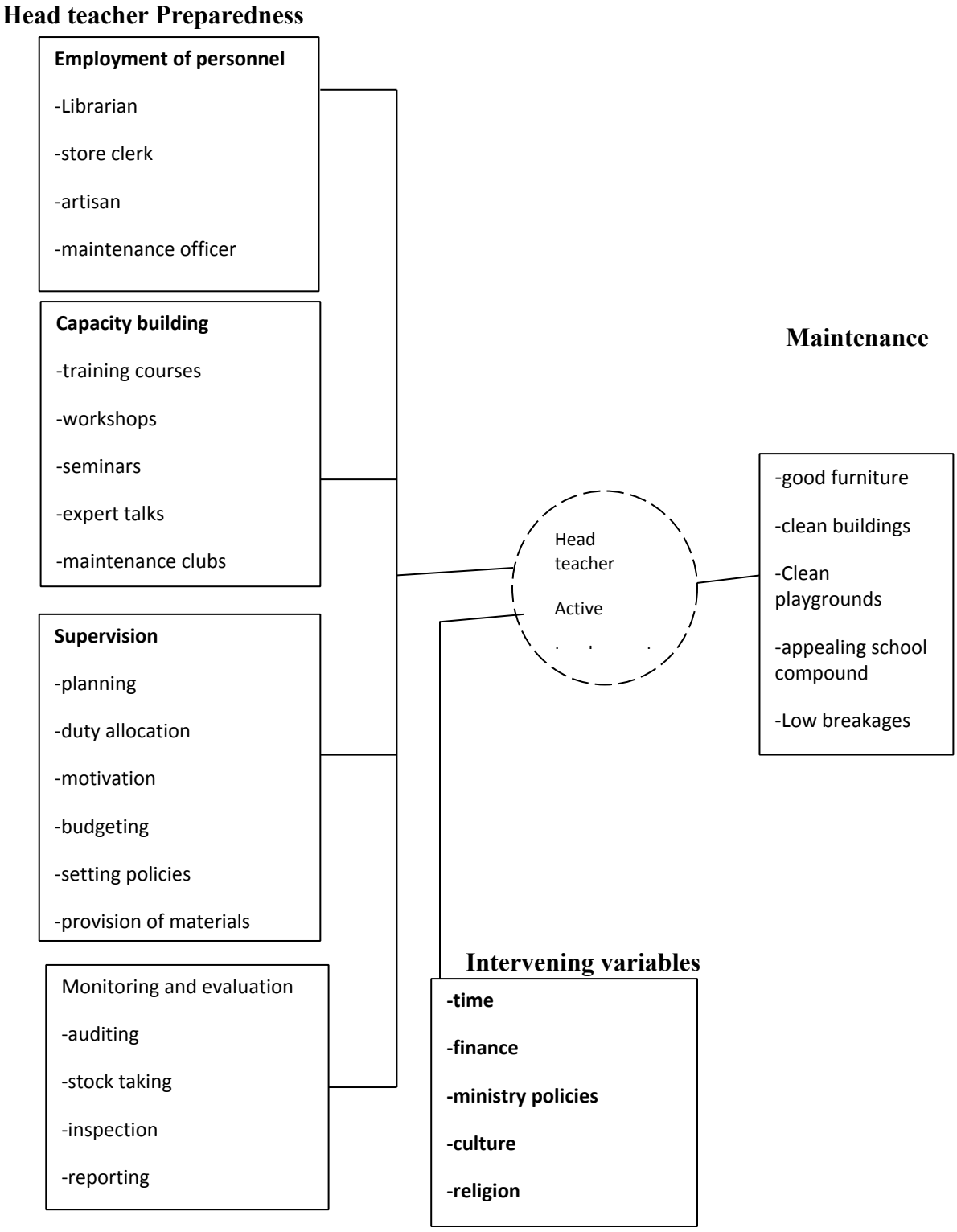


**Fig 1.0 Conceptual Framework of the Study (Source: Developed by the Researcher)**

In this framework head teachers preparedness comprised: employing qualified personnel, sponsoring personnel for training workshops and seminars, planning for facility maintenance, allocation of maintenance duties, motivation of personnel, provision of maintenance materials, preparation of maintenance records, stock taking of facilities as well as personal inspection of facilities to ascertain maintenance needs. The active participation of the head teacher in these activities will translate to possession of clean buildings, good furniture, low breakages, and an appealing school compounds as indicators, hence save the schools costs of major repairs, construction of new buildings and replacement of faulty facilities.

**1.12. Operational Definition of Key Terms:**

The following terms have been used with the following specific meanings:

**Capacity building:** Used here to mean organizing for school personnel (teachers, support staff and prefects) to acquire necessary skills through training courses, seminars and workshops, organizing for sensitization talks to school personnel on maintenance

**Community:** Used here to mean members of the school, both within and neighbours

**Environment:** Anything outside the boundaries of the school that either affects the attributes of its internal components or is changed by the physical or social system itself such as government policies, funds, resources

**Facilities:** Used here to mean physical resources found in schools such as: buildings, furniture, playgrounds, as well as equipment and materials used in schools

**Facility Management:** Used here to mean supervision of maintenance. It does not include acquisition or procurement of facilities

**Grounds men:** Used here to mean personnel employed by schools for maintenance of school facilities, both male and female

**Head teachers Preparedness:** Used here to mean training and possession of relevant administrative skills by head teachers to:

i. recruit personnel,

ii. supervise and

iii. monitor and evaluate maintenance of facilities in schools

**Maintenance:** Used here to mean work carried out on any component of the school facility with a view of keeping it or restoring it to optimum condition through, cleaning, repairing or servicing

**Maintenance officers:** Used here to mean trained personnel specifically employed by schools to maintain school facilities

**Monitoring:** Used here to mean preparation of relevant records documents as well as physical checks on facilities in schools

**Physical Facilities:** Used here to mean both physical as well as material resources such as buildings- class rooms, dormitories, footpaths, buses, hedges, flower beds, plumbing materials, lighting materials, playgrounds, teaching and learning materials such as text books, laboratory equipment, chemicals, charts and wall maps.

**Prefects:** Used here to mean form three and form four class prefects

**School Managers**: Used here to mean head teachers and Board of Governors

**School Administration**: Used here to mean the head teachers, deputy head teachers and heads of departments

**School Plant:** Used here to mean the whole school compound, including buildings, play- grounds and all the materials found inside.

**Secondary Schools**: Used here to mean public secondary schools

**Supervision:** Used here to mean planning, allocation of duties and provision of necessary requirements for maintenance of facilities in schools

**Training**: Refers to improving the skills and attributes of head teachers and other personnel by attending training courses, seminars and workshops

**Summary of Chapter One**

Chapter one is the introduction to the study. It is divided into the following sub- sections: background to the study, statement of the problem, purpose of the study, objectives of the study, research questions and significance of the study, delimitations and limitations of the study, assumptions of the study, theoretical and conceptual framework of the study, definitions of key terms.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This chapter consists of reviewed literature related to maintenance of physical facilities in schools. The first section deals with the literature on the importance of physical facilities in schools, the role of head teachers in supervision of school programmes, capacity building of personnel, and monitoring and evaluation of maintenance of physical facilities. The second section deals with types of maintenance of physical facilities, as well as the challenges faced in maintenance. The last part presents a summary of the literature reviewed and the gap that the study endeavoured to fill.

## 2.2 Importance of Physical Facilities in Schools

Tabir (2004) and Olabode (2002), define a school as an organized environment where educational curricular are interpreted. It is a formal organization which serves as a transitional stage in life between family and the society. The school plant on the other hand is the totality of all things that make up a school system and involves the physical and material facilities in form of buildings, school site and the environment that embody the school. Irele (2003), and Charis (2001), agree that school plants include the site, the buildings and equipment, which may be permanent structures like workshops, libraries, class rooms among others. The Teacher Education Materials Management Program (1993) defines the term resource in educational management as any item that one finds in the school environment which may be used to facilitate teaching and learning. Bakhda

(2004) refers to them as ‘top up’ since they enrich and enhance the teacher’s existing background and knowledge of the subject. They may be of a general nature such as chalk or textbooks, or of specific nature such as classrooms or laboratories.

According to Ministry of Education Science and Technology (GoK, 2007), physical facilities include buildings such as: classrooms, office blocks, toilets and sanitary facilities, workshops and laboratories and dormitories. Material resources in a school include: teaching equipment such as science, physical education equipment and art equipment, library collections which include: reference materials and periodicals, stationary of all kinds, electronic equipment such as radios, tape recorders, television, videos, slide projectors, computers and their accompanying accessories such as scanners and printers and furniture. (Nwagu 1978) adds that resources also include school support equipment such as telephone systems, cooking equipment, ground maintenance equipment, lighting, transport vehicles and general maintenance equipment.

Oloniyami (2007), divided school plant into seven components that included: buildings for tuition and administration, machinery such as workshops and machines, transport such as school buses, vehicles and tractors. They also include equipment such as workshop and laboratory equipment, sporting equipment, teaching aids, computers and others, furniture that include tables, desks and book shelves, books and utilities such as electricity, water supply and communication systems like telephones. Adeyemi (2006), referred to school plant planning as the process of management, construction, utilization and maintenance of school facilities to ensure goal achievement. Paisey and Paisey

(1987) say physical assets of a school consist of its buildings, facilities, furniture, equipment and materials. These assets are the part of the school's identity and nature which give the first impression about the school to the public and visitors. The assets convey first impressions about how effective the management of the school is and visitors to the school are most likely to take note of particular items regarding for example, the building and its appearance apart from their age and condition, which may not be in the discretionary management of the head teacher.

Earthman (2002) in his study found that school facility conditions affect academic achievement and that school building design feature and components have a measurable influence upon student learning and that facilities play a pivotal role in the actualization of the educational goals and objectives by satisfying the physical and emotional needs of staff and students of the school. Hoy and Miskel (1996), Deal and Peterson (1999), Holt and Smith (2002) in their studies concluded that the quality of education that learners receive bears direct relevance to the availability or lack of physical facilities and the overall atmosphere in which learning takes place. Studies by Earthman (2004) and Caddick (2006) found that there is a relationship between building quality and academic outcomes. This is confirmed by a study by Hallak (1990) which revealed that school facilities serve as a major factor contributing to academic achievement in a school system, so were the findings by Maxwell (1999).

The management of school facilities is crucial in determining the structural external beauty of the institution and the internal comfort received by its users and the extent to

which instructions are given. A school with adequate buildings, furniture and instructional materials tends to produce good results not only in examinations but also co-curricular activities (TEMDEP, 1993). This is in agreement with the studies by Cash (1979) and Bullock (2007) found that students scored consistently higher scores across a range of tests if they learn in adequate, new or modernized buildings. A study by Crump and Fisher (1997) in Australia found that student academic achievement improves with improved building condition, and that individual factors such as lighting levels, air quality, temperature and acoustics have an effect on student behaviour and outcomes. These findings agree with Bowers and Burkhet (1987) in a study of primary schools in Georgia in the USA where fourth grade students in non-modernized buildings recorded poorer results in basic skills. Four replicated studies in Australia identified a relationship between factors related to age, maintenance and condition, and student performance and behaviour, with student achievement improving much in schools of higher condition rating.

A study by Edwards (1992) on achievement of building condition noted that as a school moves up from one condition category to another, the achievement scores also improve. This agrees with studies by Cash (1993), who found that a building's age is a significant contributor to student achievement. In an examination of 280 fourth and sixth grade students in old and new buildings, those in newer buildings performed much better than those in the older buildings. The students in modern buildings also had a better record in health and discipline. The studies concluded that approximately three percent of the variance in achievement scores can be attributed to the age of the facility (Bowers and

Burkhet, (1987). However, a study by Ikpa (1992) found a strong inverse relationship between student behaviour and building age, and concluded that the older the buildings were, the better the behaviour of students. The same were the findings by Carla (2009), who investigated how factors such as lighting, acoustics and colour influenced perceptions of former students of the university that utilized them. The findings indicated that there was no relationship between the former students' perceptions of adequacy of their higher education facilities and the actual condition.

A study by Olagboye (2008), found that the school plant maintenance is important since it ensures safety of the occupants, it facilitates teaching and learning process, and also saves costs that would have otherwise been used to reactivate collapsed buildings.

Abudulkareem (2008) and Ijaduola (2008a) observed that the general appearance and condition of school facilities constitute the yardstick with which stakeholders make judgements about the schools' activities and standards, and that those schools with coordinated plant planning and maintenance practice recorded better student academic performance regardless of their location. In order to acquire and utilize resources in schools there is need for proper resource management, that is, the acquisition, allocation or deployment, development, maintenance, proper use and controlling for the promotion of instructions at various levels. Durosaro (1981) in his examination of school plant planning in relation to administrative effectiveness of secondary schools in Oyo Township found that schools that planned and maintained their facilities had higher student retention. This agrees with observations of Ministry of Education Science and Technology (GoK, 2004), that well maintained facilities lead to high student retention

rate, while poorly maintained facilities lead to high student turnover. Head teachers as well as all other school personnel, need knowledge on management of resources since they are scarce and in high demand. Lackney and Picus (2008), in their studies found that the design and management of school facilities provide a sense of ownership, security and safety. Holt and Smith (2002) suggested that there is a link between school facilities and student achievement, teachers' perception, concerning the importance of appealing and inviting learning environment.

Earthman (1996), Edwards (1992), and Hines (1996) in their studies found that school climate and safe educational facilities which are conducive to learning are determinants to academic achievement. Cash (1993) investigating the relationship between school building condition, student behaviour and student achievement in rural high schools in Virginia found a significant difference between achievement scores of students in substandard buildings than those in above standard building. Buckley et.al (2004), Hunter (2006), and Hale (2002) in their studies found that students with large windows, natural lighting and well designed skylights performed 19 percent to 26 percent better than those in classes without these facilities. A study by Uline and Schannen (2005) observed that dilapidated, crowded or uncomfortable school buildings lead to low morale and reduced effort among the school personnel.

## 2.3 The Role of Head teachers in Maintenance of physical Facilities

The role of head teachers is vital in the running of schools, since they are the ones in charge of day to day programmes. The tone and efficiency of a school largely depends on the head teacher's ability and skills, personality and competence. This is because the head teacher is the organizer, leader, and coordinator of all activities in the school. To ensure effective and successful management, the head teacher must be innovative, resourceful and dynamic. Paisey and Paisey (1987), equate the head teacher in a school to a general manager, who is in a pivotal position and has responsibility of knowing and understanding all aspects of the life and work of the school, and hence give it leadership. The head teacher is the major component of the school administration on whose ability and skill, personality and professional competence will determine the tone and efficiency of the school. Everything in the school, that is, the plant, staff, curriculum methods and techniques of teaching, co-curricular activities as well as human relations depend on the personality of the head teacher.

Musungu (2007) observes that the head teachers are key persons in any educational system since they take care of the final arrangements for the education of students in a school and should therefore be objective and delegate responsibilities to other personnel. According to Sushila (2004), head teachers are the leaders in schools and the pivot around which many aspects of the school revolve. They are in charge of all aspects of the running of the school, and are involved in making decisions of the school. They are therefore required to possess decision making skills and also be team players. Effective

head teachers are those who keep standards of performance by staff and learners in the forefront of their thinking based on adequate information, and who take regular action to correct underperformance.

According to (Bakhda, 2004), due to the importance of school facilities in achieving effective teaching and learning, head teachers have a duty of ensuring that the facilities under their care do not degenerate into a state of dysfunction. They should therefore work hard to ensure effective management and proper maintenance of the available facilities in their schools. However, Chitiavi (2002) asserts that supervision accounts for only less than one percent to institutional performance.

### *2:3:1 Planning for Maintenance of Facilities*

Ajayi (2001) observed that the school plant needs to be adequately managed in order to ensure both effectiveness and efficiency of the system. This is done through plant planning, which is the process of positioning school facilities in a comfortable place where educational activities could be achieved. School plant planning however, requires maximum cooperation and hard work from a combined team of school personnel, who include the head teacher, teachers, students, school workers and even the community. Plant planning has the common goal of operation and maintenance, which as observed by a study by Olagboye (2008), lead to keeping the physical facilities of the school in the best possible condition at all times. The management of school facilities needs to be a form of corporate responsibility which involves identifying and using managerial skills

among staff as much as possible. This requires involvement of other personnel through distribution of duties.

Akinsolu (2004) in her study found that head teachers can achieve maximum benefit from the facilities by determining the goals, priorities, services and programmes to which each of the existing facilities in the school should be directed through the use of an Action Planning Sheet (APS). Planning allows an evaluation of the available facilities in terms of quality and quantity. This is in agreement with the TEMDEP (1993), view that head teachers are required to do audits of facilities which exist in their schools and prioritize areas of need, identify strategies on how to meet the future needs as well as maintaining and putting into use idle facilities.

A study by Lawrence (2005), in Baltimore County public schools found that planning for facilities is done at the district level through preparation of total operations budgeting. The maintenance managers indicate the annual operating budgets as benchmark figures that would allow school systems to correct deficiencies and also conduct preventive maintenance. A study by Kopp (2005) reports that in Maryland while the state provides assistance for school construction in the state capital budget, the maintenance of school facilities is the responsibility of the local education authorities, and hence schools have long established programmes that allow them to identify, prioritize and execute projects that address corrective maintenance and preventive maintenance tasks.

In Kenya, according to the Ministry of Education (RoK, 2011), head teachers are required to prepare five year infrastructure development plans that clearly indicate what

infrastructure they possess, their condition and improvement requirements, as well as requirements for new facilities. Out of the infrastructure development plans they need to extract annual action plans or work plans (AWP), which are an integral component of a continuous school infrastructure planning process. The annual work plans can assist them to access sources of financial support from funding bodies, analyzing the needs of the school, identifying what and when actions should be taken. It is also an important tool for stakeholders to understand the process of using and maintaining facilities so that they can participate in the process effectively.

Just like managers of other organizations, head teachers are required to ensure proper custody and supervision of all facilities within their schools, through monitoring and inspection as suggested by Jesop and Morrisson (1999) about other organizations. This assists in identifying facilities that require repairs or immediate replacement, and hence save the school costs due to early detection and rectification of problems on the school plant and its components. Facilities such as water pipes, lighting accessories, duplicating machines or printers are important and need such checking and repairs so as to avoid breakdowns, which sometimes occur during critical periods such as exams. In order for plans to be effective, there is need for record keeping. Jessop and Morrisson (1999) and Akinsolu (2004), underscore the importance of record keeping of all available organizational facilities. By so doing the managers will become conversant with all the existing facilities in the organization in terms of when they were bought, analysis of periodic services, maintenance manuals and even their expected lifespan.

### *2.3.2 Supervision of Maintenance of Facilities*

Kochar (1987) argues that supervision is an expert technical service primarily aimed at studying and improving cooperatively all factors which affect an organization. It is a way of stimulating, guiding, improving and encouraging school personnel with the hope of seeking their cooperation for the success of the school. It refers to the activities which are primarily and directly concerned with studying and improving the conditions which surround the learning and growth of learners. It is a service activity intended to help teachers grow professionally and do their jobs better. The head teacher as inspector creates conducive conditions where the best qualities, talents and energies in human resources are realized for the benefit of the school. Head teachers as supervisors play multiple roles such as: checking the effectiveness of the methods of maintenance and cleanliness, beautification, hygienic conditions of the school and examination of all kinds of records and registers.

Grauwe and Ganon (2004), observe that supervision exists in all organizations and it plays a key role in development of education system, by monitoring the quality of schools by supporting their improvement. Supervision is needed to guide school personnel in their decision making and to monitor the use they make of their resources. According to Igwe (2001), to supervise means to direct, oversee, guide or to make sure that expected standards are being met. Thus supervision in schools implies the process of ensuring that principles, rules, regulations and methods prescribed for purposes of implementing and achieving objectives of education are effectively carried out. It involves the use of expert knowledge and experience to oversee, evaluate and coordinate

the process of improving teaching and learning activities in schools. Some specific tasks of the head teacher as supervisors are: helping teachers and stimulating curriculum improvement, emphasizing the use of group process with teachers and students, helping individuals for professional growth, acquiring cooperating spirit and team work, making better use and maintenance of teaching learning materials.

In supervision head teachers need to carry out long range planning for facilities. This would include: classroom and facility visitations so as to periodically check the state of the facilities and advise where they find faults. They also need to identify those who are performing well and recognize them and also encourage the attitude f inquiry by being receptive to new ideas and suggestions on improvement. However a study by Afolabi and Loto (2008) identified problems which tend to militate against supervision in schools among them being, a staff inadequacy, since the number of professionally trained supervisors in schools is grossly inadequate to meet the needs of an effective and efficient programme of supervision. The same observations are postulated by Ogunu (2005), whose study found that shortage of supervisory personnel led to unprofessional practices being carried out in schools to the detriment of physical facilities. This concurs with a study by Wanzare (2007) whose study on inspection of schools in Kenya concluded that there is hardly follow up by internal supervisors who are head teachers.

The Ministry of Education (RoK, 2011) advises that the head teacher should supervise maintenance work on daily basis as per the school infrastructure guidelines. Head teachers need to undertake supervisory function so that they can identify and mitigate

typical basic flaws in the utilization and maintenance process. Head teachers need to ensure maintenance of all records related to facilities, such as financial, procurement, supervision and progress reporting. The work of maintenance involves continuous supervision of the works so as to ensure that the regulations are being followed.

The head teacher is responsible for proper maintenance and operation of the school plant, and has to ensure that each facility in the school is ready for use each day and that sufficient care is taken of the school plant so that it does not deteriorate. In carrying out this function, the head teacher needs to delegate responsibility to the users of the facilities. They also need to mobilize and motivate their teaching and non teaching staff to embrace a maintenance culture of all existing school facilities. A study by Grauwe and Ganon, agree (2004), found that there is a relationship between motivation and performance of skills.

Adewole and Olaniye (1992) say that supervision helps the head teacher to interpret programmes to the school community. If head teachers as supervisors motivate their personnel with available working materials and conducive working environment, their morale could be boosted and therefore improve their skills. Head teachers need to inculcate the idea of valuing school facilities so as to discourage school personnel from wilful destruction. This will also expose them to the idea of handling school facilities with care, and hence avoid damages. Olagbaye (1989) maintained that school administrators are required to ensure that school property is neither misused nor converted into private use, and no component of the school plant is illegally

commercialized by individuals. Ministry of Education Science and Technology (GoK, 2004) and Akinsolu (2004), agree that the head teacher needs to act as a public relations officer between the school and the community so as to gain its support. This can be achieved by building a strong network through parents' teachers' associations (PTA) members. By doing so, the community members become actively involved in the maintenance of the school plant at minimal cost, leading to drastic reduction in the rate of encroachment on school facilities by the community.

### *2.3.3 Capacity Building on Maintenance*

A study by Olowoye (1989), found that head teachers as supervisors in schools required professional skills for supervision in: pedagogical, evaluation, disciplinary, motivational, reportorial, managerial, interactive and analytical areas. These skills are acquired through training of personnel. According to Chapman (2010), training is required to cover essential work related skills, techniques and knowledge. According to him, the most effective way to develop people is through learning and development. These include aspects such as ethics and morality, attitudes and behaviour, leadership and determination as well as skills and knowledge. Development helps personnel grow in abilities, confidence, tolerance, commitment, initiative, interpersonal skills and motivation. All these attributes are vital in carrying out maintenance activities.

Through training the head teacher will understand how to help other personnel learn and develop how best to communicate school policies and relate with the outside world. Schools just like other organizations need staff at all levels to be more self sufficient,

resourceful, creative and competent. This is why training is important because it helps personnel achieve the competencies required and also provides a platform for trust and subsequent skills and knowledge that is necessary for management. However, a study by Ogunu (2005) found that there is lack of adequate training and orientation of instructional supervision since many newly appointed head teachers are not equipped with skills they need to carry out their instructional supervisory functions. The study attributed this to lack of funds which often resulted in head teachers' inability to organize in-service training programmes for staff, or sponsoring them out of schools to gain access to new developments in education that could benefit their schools.

A study by Fellegi (1999), about training of supervisors in schools in Canada recommended that an important element of planning and support for training and development is the strategic direction provided by corporate training development committees, which continually monitor the need for development of training programmes. His study found that planning and support for training is integrated into organizational plans and activities at all levels. In supervision of maintenance of facilities in schools the head teacher needs to conform to the policy guidelines. Such policies may include requirements on the sizes and general maintenance requirements and may cover facilities such as classrooms, laboratories, dormitories and even sanitation facilities.

Sanitation facilities in schools include all structures constructed for purposes of disposal of solid waste and for cleanliness. Head teachers need to have sanitation facilities built up to the required standards and kept clean with high standards of hygiene. According to

Ministry of Education (RoK, 2008), schools can achieve this by building toilets at least 10 metres away from tuition and boarding facilities and on the downward side. Where the ablution block is attached to the dormitory, a high degree of cleanliness must be maintained. Girls' schools should ensure safe and effective disposal of sanitary wear, while in mixed schools, girls' sanitation areas must be separate from those of boys and also offer enough privacy.

The head teacher needs to ensure that facilities are built in compliance with the ministry of Public Health and Sanitation requirements of: the first 40 learners entitled to 4 holes, the next 270 learners; one extra hole for every 30 learners, while every additional 270 learners, 1 closet for every 50 learners. At least one third of the fittings for boys need to be closets and the rest urinals. In all schools appropriate provisions should be made for learners with special needs, by for example ensuring that passageways are accessible and toilets are suitable for such persons. Due consideration should also be made for staff sanitation with at least 1 closet for 12 persons and with separate provision for male and female teachers. All sanitary facilities and equipment should be in the best state of repair, serviceable and inspected regularly (MOE 2008). Mbiti (2009), commenting about cleanliness and hygiene consideration of school facilities, says that toilets are the most unclean places since they are in constant use throughout any school day, and usually cleaning is done in the morning. Also some students are careless in using these facilities, or they lack basic sanitary requirements. A study carried out in Kenyan schools by School Sanitation and Hygiene Education Working Group in Nairobi, Machakos, Kajiado

and Kiambu districts revealed that most schools lacked sanitation facilities, and even where there were a fair number of latrines their condition was deplorable Kirimi (2004).

Maintenance also covers the school compound which includes all the open space within the school land, playgrounds, flower beds, as well as all the areas surrounding classrooms, offices, staff houses, and sanitation blocks. The compound may be covered with trees, grass lawns, roads, pavements and flower gardens (Mbiti 2009). The school compound requires thorough daily cleaning to keep it in optimum state. This may include: sweeping, washing or mopping where necessary so as to remove dust and other forms of dirt. Cleaning the school compound may also involve collection or picking of litter such as pieces of paper, bottle tops, cans, plastics, leaves, grass and broken tree branches. Plastics and paper litter can be burned in an incinerator, constructed for this purpose. Litter bins should be placed in all buildings and strategic places in the school compound for disposal of litter, and all members of the school be sensitized about the need to keep the environment clean (Ibid). The litter bins should be emptied regularly, in order to create room for more litter. Bakhda (2004) advises that the school compound is important because it gives the first impression to visitors to the school. The buildings and their surroundings must be clean, pleasant and attractive. This can be done by having all items arranged in an orderly manner and attractively, having potted plants at the entrance to the school, in the office area, in and around the school and anywhere else possible. The school compound can further be improved by Planting flowering shrubs and trees. The plants can also be put in the classrooms, where teachers and students can be asked to take care. This will inculcate environmental awareness among members of the school.

Paisey and Paisey (1987) are of the opinion that schools can have notice boards on which latest photographs of school activities and notices are pinned. Good pieces of art work, essays, and other class work could also be put up in strategic places. This could also include honour boards made with names of students with the best results, outstanding performance in sports drama, music and other extra-curricular activities are displayed. This promotes an atmosphere of pride and honour in the school community. The corridors and walkways in the school should be wide enough, and sheltered or covered for protection from the weather, and buildings should be spread out and not congested. Since the compound gives appearance to the school, it should be planned in such a way that it has hedges which are properly trimmed, as well as some selected trees planted in strategic sites. The grass in the compound should be kept short and litter removed. Any ditches should be covered, and if there are items of equipment located externally such as football posts should be secured. According to Bakhda (2004), while it is important to ensure that buildings and facilities are made available and that they are serving the purpose for which they were built, it is equally important to ensure proper maintenance of the same.

The outlook of the school compound can be improved by involving contributions to external appeal of the school from the curricular work of the students by for example, conservation, animals, plants or the weather, artwork with solid materials or mathematical work like those presented during the science congress. The school should also have a sign post so that it is easy for visitors to the school to know where they enter and where to go for attention. Signposting can extent to the labelling of every room, area

or facility, cupboards and shelves in different rooms. According to TEMDEP (1993), each school preferably needs to have a teacher in charge of the school compound, whose responsibility will be the regulation, development and management of the school compound. This is usually not the case since in most schools one easily finds teachers assigned to classes, dormitories, games and other duties, but hardly one in charge of the school compound despite the fact that it is a vital factor in determining the achievement of educational objectives.

Bakhda (2004) adds that a school also becomes attractive when it has enough room to accommodate visitors, professional displays in the office or on the notice boards. As well as display of students' work, latest news about school teams, games, latest photographs of school activities in the reception area. This could also include honour boards with names of students who excel in academics, outstanding achievements in sports, poetry, drama and other co-curricular activities. This will create an atmosphere of pride and honour to the school community and visitors to the school. It is important that the play grounds are kept tidy and utilized to foster other talents so as to develop all-round students. According to TEMDEP (1993), useful characteristics such as, tolerance, cooperation and reliability are learned through games.

### *2.3.4 Monitoring and evaluation of maintenance of physical facilities*

The head teacher needs to monitor and evaluate maintenance of facilities in schools so as to safeguard them against unnecessary damages. One of the ways to ensure proper monitoring would be to have facilities records. All facilities and equipment need to be known and recorded, and furniture for example for a particular building or equipment

need to have labels and also be numbered. There is need to arrange facilities so that there is order in any given room. Facilities such as furniture should not be moved from one place to another since this leads to loss and breakages or damage. In case of breakages there should be immediate repair and replacement. Individual teachers and subordinate staff in charge of certain special rooms where there is furniture should also be responsible to account and maintain records of such furniture or equipment (MOEST 2000). According to Shonberger and Knod (1997), maintenance of physical facilities begins with having a plan. The initial step in planning for materials involves having an inventory of facilities in an institution. A facility inventory is a comprehensive review of facilities assets. Facility audits are a standard method for establishing baseline information about the component, policies and procedures of a new or existing facility. An audit is a way of determining the status of the facility at a given time, that is, it provides a picture of how the various systems and components are operating. A primary objective of a facility audit is to measure the value of an ageing asset relative to the cost of replacing that asset. Thus head teachers need to have facility audits which can be used as a tool for projecting future maintenance costs. Facility audits are accomplished by assessing buildings, grounds, and equipment, documenting the findings, and recommending service options to increase efficiency, reduce waste, and save money. Thus an audit provides the ground against which all facilities maintenance effort and planning occurs as recommended by Naylor (1996).

Facility audits should be a routine part of facilities maintenance program. By integrating the findings of annual audits over time, planners can ascertain realized versus expected product life cycles, the impact of various maintenance strategies and efforts on product

life cycles and the future demands the ageing process might place on the infrastructure of a school. This information can be used to increase the efficiency and cost effectiveness of facility use and maintenance efforts in the future. Facility audits require time, energy, expertise and therefore resources. Although performing a comprehensive and accurate audit will not be cheap, it is economical all the same because it is a necessary step in the effective and efficient management of school facilities (TEMDEP 193). According to Bakhda (2004), it is important for a school to carry out an assessment of the existing facilities before embarking on a building and development plan. This can be done from time to time so as to establish the current requirements of the school. For example a facility may have been built when the school was smaller or when certain subjects were not included in the syllabus, but after revision of the curriculum, such facilities are no longer used. However schools could convert such facilities into other uses such as dormitories or laboratories. It is therefore important to review the role of the buildings and facilities regularly. According to Paisey and Paisey (1987), it is a fact of life that things change and so to the school facilities maintenance planning. For example, the lustre of new buildings and equipment are sure to fade over time. As facilities age, their condition changes as well, hence need to plan for new facilities. Therefore knowing the age and condition of a facility or piece of equipment is a prerequisite for maintaining it properly.

Facility audits are important because they help planners, managers, and staff to know what they have, its condition, service, history, and maintenance needs and location. They provide facts not guess-work, to inform plans for maintaining and improving school

facilities. They also establish a base-line for measuring facilities maintenance progress as well as allowing in-depth analysis of product life cycles to occur on a routine basis that is, measuring actual life versus expected life. Factors such as location, that is, in or out of direct light, environmental condition such as humid or dry air, as well as actual use as opposed to recommended use can greatly affect the expected service life of the equipment. In maintenance, the life cycle should be considered much more than just the sticker price. Thus the initial cost of a building typically represents only a small portion of the actual cost to own the facility over its lifetime.

According to the Ministry of Education (GoK, 2008), it is recommended that in addition to adequacy, furniture in classrooms should be appropriate for use by the gender of students concerned because poorly constructed or impropriate desks can lead to physical deformities such as curvature of the spine, contraction of the chest, roundness of shoulders or even a stoop. Poor furniture can also create tension and fatigue among learners. The class teacher should in addition ensure that desks are arranged in a manner that allows easy movement of learners, with no more than 3 learners in one desk, and the space between any two desks being at least 2 feet.

According to Bakhda (2004), properly maintained and managed resources give the school a longer and effective service, reduce general costs of purchasing new ones, add value to the general aesthetic nature of the school, apart from improving the school's retention rate. It also inculcates a culture of managing resources in teachers and learners, which promotes a sense of responsibility among them, This is in agreement with the findings of

Akinsolu (2004) that educational curriculum cannot be operated with poorly managed school facilities. In order to ensure proper maintenance, the head teacher needs to ensure provision of adequate cleaning materials. This can be done by the head teacher surveying the demands, stock and new demands. He/she should determine the quality of materials which will be required by having the personnel concerned make inventories of the existing stock, and lists of priority. There is need to register in stock both the old and new inventory by carefully recording the allocation and distribution of stock for use. Each stock of the material should have an issue record both for balancing purposes and ensuring careful use of materials (TEMDEP, 1993).

### 2.3.5 Types of Maintenance used by schools

There are different types of maintenance undertaken by manufacturing industries which also apply in schools. Olagboye (1998) identifies three types of maintenance that schools can use: preventive, corrective and breakdown maintenance. Preventive maintenance also termed as planned maintenance, focuses on preventing breakdown or situations which can put parts of the plant out of use. Examples could include: timely and regular servicing of components of the school such as vehicles, duplicating machines, photocopiers, generating sets, as well as periodic painting of buildings. For this type of maintenance to be effected, there is need for facilities maintenance plans. A school facilities maintenance plan serves as a guide to the head teacher on the appropriate maintenance of facilities. According to Mbiti (2009), schools which do not have enough funds to employ maintenance officers can depend on the class teachers, the head teachers and school committees to coordinate maintenance procedures among themselves. This can be done

by involving students to perform most of the day-to-day cleaning of the facilities, whose practice rather than impacting positive personality development, also serves as a discipline tool and instilling a sense of ownership in them. The cleaning of rooms involves dusting furniture and windows, removing cobwebs and dirt from ceilings, walls, as well as washing, sweeping or mopping floors on regular basis. Schools which lack cemented floors, ceilings, or glass window panes, may develop their own ways of cleaning whatever resources they have. Classrooms or offices must be given aesthetic touches by having walls painted white or some other bright colours in order to brighten the rooms.

Naylor (1996) recommends preventive maintenance for facilities. Preventive maintenance involves regular inspections and maintenance in order to minimize future costs that would be spent due to breakdowns. It also prolongs the functional lifetime of buildings and equipment. This should therefore be the preferred type of maintenance as compared to corrective maintenance. Because routine and unexpected maintenance demands are bound to arise, the head teacher needs to proactively develop and implement a plan for dealing with these inevitable. Thus head teachers have to plan to meet all challenges of effective facilities maintenance, since poor maintenance affects teaching and learning, day-to-day building operations and the long-range fiscal outlook of the school. Preventive maintenance can also be done by wiping walls and keeping them free of dirty marks and stains, washing floors regularly and keeping them clean. Rubbish should be disposed of regularly, and corridors and classrooms swept and cleaned constantly. Walls should be painted regularly since buildings look neat and tidy if kept

clean. Appropriate paints should be chosen for this purpose so that the walls do not retain dirt and fingerprints when washed. This might require use of high quality paints, although this may seem expensive initially, hence consideration for both quality and durability (Bakhda 2004).

In order to accomplish this, the school may employ support staff charged with the responsibility of cleaning, or involve students by assigning them maintenance duties. If students participate in cleaning, they become conscious of caring for their environment. This they can do by sweeping, mopping, dusting the windows as well as cleaning and arranging equipment in order. As part of maintenance, equipment should be arranged in such a way that one does not have to go through piles before locating the correct item. The stores should be cleaned, and equipment kept in good order and repaired regularly (TEMDEP, 1993).

Apart from preventive maintenance, there is corrective maintenance. As much as schools will apply preventive maintenance, there are times when they have to use corrective maintenance. This involves restoring broken parts or replacing old parts of objects with new ones in order to give those objects a new look. Even though head teachers keep the facilities and equipment properly maintained, these facilities eventually suffer wear and tear beyond the level of maintenance. This may include leaking roofs, worn out timber floors, or grounded motor vehicles or generators. Such facilities may require repair work to be done before the facility can be restored back to its normal working condition (Mbiti 2009). According to the National Council for Education (NCE, 2003), maintenance is a

hit or miss situation. That is, some things only get fixed when they break while others get maintained on a routine basis whether they need it or not. When an education organization knows the status of its facilities and equipment, the need for maintenance, repairs and upgrades becomes much clearer. Also the definitions of what constitutes proper maintenance change, over the life of the equipment and building.

According to Victorian Auditor General's Office (VAGO, 2002), maintenance of Victorian school facilities is under the department of Education and Training. By 2002, the department was maintaining around 14,000 school buildings valued at around $3.3 billion. Given the State of Victoria's significant investment in school facilities, the department has a responsibility to ensure that facilities under its control are well maintained in order to support an effective learning environment for the learners. Maintenance funding is provided annually to schools through the maintenance and minor works component of the Annual School Global Budget (SGB) process. The SGB is designed to enable schools to allocate resources in ways that best support effective delivery of education programmes and is provided through an annual parliamentary appreciation to the department. Each year the SGB makes available $27 million to address the maintenance needs of all schools. Of this $13.5 million must be used to carry out planned maintenance while the balance of $13.5 is available for unseen maintenance needs. This is unlike the case of Kenya where the MRI vote is minimal and may not allow planned maintenance, leaving head teachers with the option of doing breakdown maintenance only. There is therefore need for additional funds to be provided through supplementary grants to schools to enable tem carry out preventive maintenance. In the

state of Victoria, a council may acquire additional school facilities from its own resources. However the Department of Education and Training does not provide maintenance funding for those facilities it considers to be over and above the standard set of facilities to which a school is entitled by virtue of its enrolment. According to VAGO (2004), studies are carried out to examine the adequacy of processes established to ensure timely maintenance of facilities. The review includes an evaluation of the procedures developed by the department to assess the condition of facilities at all Victorian government schools and managing information dealing with the level of outstanding maintenance at school.

The Department engages private sector firms with wide experience in the building industry to ascertain the physical condition of all school facilities, including re-locatable classrooms. The exercise involves an examination of every room in all school buildings touching areas such as: floors, roofs, external windows, cement or asbestos, school grounds and services, among others. Identified maintenance requirements are rated according to a time scale as urgent: where immediate repair is required due to high risk, repairs are required in the next 12 months, within 2 years, within 3 years, within 4 years, or those that will last for 5 or more years without repair. The contractors are also requested to calculate the cost of identified maintenance based on standard costs determined by the Department. Such an assessment was carried out in Victorian schools from 2000-2001, (VAGO, 2002). The study found that $82 million was required for items categorized as in need of urgent repair, prompting the department to allocate sufficient funds to schools to fully meet maintenance of facilities rated as in dire need of repair. The

subsequent ratings were allocated different amounts, on a descending order of urgency. However there is a caution that inflationary factors and other pressures sometimes exacerbate the funding shortfall for schools, for example, under the Building Act 1993, in Victoria schools were required to conduct periodic inspections of essential services for life safety such as fire detection and suppression systems, air handling systems and lifts. The study concluded that delays in addressing outstanding maintenance works are likely to reduce the useful life of school facilities and could expose the country to increased maintenance costs in the long-term. Such reviews are to be conducted regularly to ensure that data on the condition of facilities remain up-to-date and continue to provide useful information for planning and management purposes.

In British schools, physical resources such as classrooms, laboratories, and other facilities are appropriately configured and equipped to provide lighting and heating, ventilation and air conditioning systems appropriate for its use with consideration for conditions which might adversely affect the health and safety of students. Particular attention is paid to institutional cleanliness and appearance. Facilities are designed, constructed, and maintained in accordance with legal requirements regarding physical access, environmental standards and regulations, energy efficiency, safety, aesthetics and consistency with the institutions mission (New England Association of Schools and Colleges, 2008). Physical resource evaluation and planning occurs on a regular basis to ensure that physical resources allocated to any institutional function are adequate for the effective conduct of that function and its current demand. Special attention is given to safety issues relating to the use and disposal of equipment and hazardous materials.

Proper management, maintenance and operation of all physical facilities are accomplished by adequate and competent staffing. According to New England Association of Schools and Colleges, (2008), Institutions have facilities plans linked to academics, student services and financial operations and maintenance, preventive maintenance, energy management, deferred maintenance and capital renewal and replacement. The plan specifies strategies for correcting identified problems, including costs, and supported by adequate and appropriate staffing.

In Uganda according to TEMDEP (1997), the allocation of funds to service education needs is considered according to prioritization of those needs. Just like the case of Kenya, the highest percentage of financial resource allocation goes to the teachers' salaries which account for 70 % of the recurrent expenditure budget of the Ministry of Education. Educational and instructional materials usually account for a very small percentage of the budget in educational institutions despite the fact that they are basic to learning. Due to this, management and maintenance of physical facilities is considered important. The school buildings are of varying sizes depending on their purposes. Dormitories are designed in such a way that they are big enough so as to avoid over-crowding. The Project also recommended painting of plastered walls at least once in two or three years as a way of preserving the walls. The school buildings are also to be kept clean by sweeping and keeping the grass around them short. Every building is to be used for a specific purpose. However according to the report this was not in practice and therefore most school buildings were in a bad state. For the compound, the project recommended proper trimming of hedges, planting of selected trees, keeping grass short,

and removal of litter, as well as discouraging trespassing so as to keep pathways clear. Schools are to appoint teachers in charge of the school compound who are to regulate, develop and manage the school compounds effectively. Furniture and equipment in schools is to be recorded and assigned to different rooms so as to avoid unnecessary damage.

**2.4 Summary of the reviewed literature**

From the literature reviewed above it can be observed that physical resources play a major role in the implementation of the curriculum in schools and therefore need to be given priority by all that are concerned with the provision of education. While provision of the resources is considered important, maximum utilization and maintenance of the same is not given much consideration by those who handle them, either due to lack of training skills in the area or non-challant attitude towards public property as found by a study by Akinsolu (2006). Kochar (1996) commenting about the case of India says that in most cases, the school plant on which so much is spent is utilized only for 5 or 6 hours a day and about 6 months in a year, while certain rooms such as libraries, halls and science rooms are put to 50 percent to 70 percent use or even less.

Kopp (2005) in her study in the state of Maryland found that by maintaining systems, the cost of future repairs and major renovations are significantly reduced. Abdulkareem (2003), and Abayomi (2009) who studied school facilities' relationship to performance and found that well coordinated plant planning and maintenance practices recorded better performance. Kent (2003) studied relationship between quality of school facilities and educational activities that take place and found a positive relationship. Ayoo (2002)

carried out a study in Kisumu on the effects of physical facilities on academic performance and established that availability of facilities had a direct link to performance of learners in exams. Kamindo (2008) in her study in Kajiado studied role of the head teacher in supervision of school programmes. So was the study by Chitiavi (2002) in Vihiga district which investigated the role of head teachers in supervision of instruction in schools. However, these studies did not look at the role of the of head teachers in maintenance of facilities. This is the gap that this study endeavoured to fill by investigating the extent to which secondary school head teachers are prepared to maintain physical facilities in schools.

# CHAPTER THREE

# RESEARCH DESIGN AND METHODOLOGY

## 3.1 Introduction

This chapter discusses the methodology used in the study. First it outlines the research design adopted, target population, sampling design and sample size. It also describes the data collection instruments that were used, their validity and reliability and how they were determined. Finally the data collection procedure, data analysis techniques and ethical considerations are presented.

## 3.2 The Philosophical Assumption Underpinning the Study

According to Kothari (2004) a research methodology is the overall plan or approach of the study, and is determined by the type of data collected. Bryman (2004) asserts that the methodology of the study is determined by the epistemological and ontological assumptions about the research paradigms. Epistemology is the theory of knowledge and assumptions and beliefs that a researcher holds about the nature of knowledge. Ontology on the other hand concerns the philosophy of existence and the assumptions and beliefs that the researcher holds about the nature of being and existence.

Angen (2000) argues that the positivist position is based on the theoretical belief that there is an objective reality that can be known to the researcher if he uses the correct methods and applies them in a correct manner. Positivist approaches rely on experimental and manipulative methods. It generally involves hypothesis generation and testing, and

use of quantitative methods such as questionnaires. Interpretive paradigm on the other hand assumes that reality as we know it is constructed inter subjectively through the meanings and understandings developed socially and experientially. Generally meanings emerge from the research process and qualitative methods such as observation, interviews and document analysis are used.

This study was eclectic and utilized both quantitative and qualitative research paradigms. Bryman (2004) argues for a more a mixed approach that recognizes ties or themes that connect quantitative and qualitative research. In this study the quantitative methodology was used to gather data from questionnaires which could be quantified in figures and that answered questions as what existed on the ground with regard to maintenance of physical facilities while qualitative methodology was used to gather data from interviews and by observation of the state of physical facilities in schools under study. This provided rich information by trying to answer questions as to how head teachers supervise and monitor utilization and maintenance of facilities in schools.

**3.3 Research Design**

The study used a descriptive survey research design. According to Cohen and Manion (1992) this design helps to gather data at a particular point in time with the intention of describing the nature of the existing conditions, identifying standards against which they can be compared, and determining the relationships that exist between specific events. Bogdan and Biklen (1998) argue that a survey research design is part of the process of collecting data to be used in making value judgments and decisions on status of events,

process and products against objectives set. This research design was found appropriate for this study because it involved gathering data from a large area involving the whole Western region and was concerned with explaining how physical facilities are maintained in secondary schools.

### 3.4 Target population

The study targeted all the 870 public secondary schools in Western Region. According to Borg and Gall (1989), target population refers to all members of real or hypothetical group of people, events or objects to which the researcher wishes to generalize the results of the research study.

### 3.5 Sampling design and sample size

According to Mwanje and Butu (2001), sampling is the process involving the selection of a finite number of elements from a given population of interest for purposes of an enquiry. In the study sampling was done in three phases. The first phase involved drawing a sample of sub-counties to take part in the study. The sub-counties were first stratified into three categories based on the administrative boundaries of the counties of Western Region, that is, Bungoma, which has 7 sub-counties, Kakamega which has 12 sub-counties and Busia with 7 sub-counties. Out of these three strata, thirty percent of the sub-counties were proportionately selected giving a total of 8 sub-counties spread as follows: Kakamega county: Emuhaya, Vihiga, Mumias and Lugari. Bungoma County: Bungoma North and Bungoma South, and Busia County: Teso North and Busia. This was informed from the arguments of Borg and Gall (1989) that a sample of thirty percent is

representative of the population when target population is homogeneous. The number of districts and those selected for the study are as shown in table 3.1

**Table 3.1 Sampling Frame for the Sub-Counties in the Study**

| **Counties** | **Total No. of Sub-Counties** | **No. of Sampled Sub-Counties** | **Percentage** |
|---|---|---|---|
| Bungoma | 7 | 2 | 25.0 |
| Kakamega | 12 | 4 | 50.0 |
| Busia | 7 | 2 | 25.0 |
| **Total** | **22** | **8** | **100.0** |

The second phase involved sampling of schools for the study. A sample of 92 secondary schools was proportionately drawn from the 305 schools in the 8 selected districts using stratified and simple random sampling techniques. The schools were first stratified into: girls' only, boys' only and mixed schools. Thirty percent of the schools were proportionately selected from the three strata using simple random sampling. This gave 8 boys' schools, 17 girls' schools and, 67 mixed schools and a total of 92 schools in the study as shown in table 3.2.

**Table 3.2 Sampling Frame of Schools in the Study**

| County | Sub-County | Type of Schools from each Sub-County | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | **Girls schools** | **Sample** | **Boys schools** | **Sample** | **Mixed schools** | **Sample** | **Total schools** |
| Kakamega | Lugari | 10 | 3 | 3 | 1 | 31 | 9 | 44 |
| | Vihiga | 4 | 1 | 2 | 1 | 41 | 12 | 47 |
| | Mumias | 10 | 3 | 3 | 1 | 31 | 9 | 44 |
| | Emuhaya | 4 | 1 | 2 | 1 | 23 | 7 | 29 |
| Bungoma | Bungoma North | 10 | 3 | 3 | 1 | 26 | 8 | 39 |
| | Bungoma East | 6 | 2 | 3 | 1 | 31 | 9 | 39 |
| Busia | Teso North | 6 | 2 | 3 | 1 | 21 | 6 | 30 |
| | Busia | 6 | 2 | 3 | 1 | 24 | 7 | 33 |
| | **TOTAL** | **56** | **17** | **21** | **8** | **228** | **67** | **305** |

The third phase involved selecting respondents for the study. Purposive sampling was used to select 92 head teachers, 92 deputy head teachers and 92 store clerks. According to Kalton and Moser (1985) purposive sampling can be used to select participants based on specific characteristics, experience, behavior, or those that represent one or more perspectives deemed relevant to the study. Head teachers, deputy head teachers and store clerks were assumed to possess pertinent information regarding maintenance of physical facilities in their respective schools. Simple random sampling was used to select 92 class teachers and 92 form three and four class prefects. To sample the class teachers, pieces of paper equivalent to the number of class teachers in each study school were used. There was one piece of paper with a yes response, while the rest had no responses. The pieces of paper were churned in a box and each class teacher picked one piece without replacement. The one who picked the yes response formed part of the sample of the study. This was done so as to give every class teacher an equal chance of being selected to participate in the study, giving a total of 92 class teachers.

For the students, purposive and simple random sampling was used to select form three and four class prefects. Form three and four class prefects were purposively selected since it was assumed that they had stayed in current schools longer than their counterparts in lower classes and therefore possessed more information on maintenance of facilities. Simple random sampling was then used to select one class prefect from each study school. The procedure involved use of ballot papers, where pieces of paper equivalent to the total number of form three and four class prefects were prepared with one paper having a yes response and churned in a box. Each form three and form four class prefect

was required to pick one paper from the box without replacement. The one who picked the paper with a yes response participated in the study. This was done so as to give each class prefect an equal chance of being selected for the study, giving a total of 92 class prefects. This gave a total of 460 respondents in the study.

### 3.6. Instruments for Data Collection

The study used four instruments for data collection; Questionnaires, Interview Schedules, Document analysis and Direct Observation. This was done so as to allow triangulation of the data captured by each instrument exhaustively. Mwanje (2001) is of the view that triangulation has advantages since through it comprehensive information of the study topic can be adduced by eliminating over-reliance on one single source of data. Also as a strategy, several methods can be put to play to gather information and allow for the cross-checking of facts.

#### *3.6.1 Questionnaire Method*

A questionnaire is a printed or electronic list of questions distributed to a predetermined selection of individuals who complete and return it to the researcher as explained by Luthaus (1995). The questionnaire was considered appropriate for this study because as argued by Kothari (2004) through it, the respondents are allowed to think over the items and are saved from the anxiety involved in the face-to-face encounter with the researcher. Questionnaires also guard respondents from giving ambiguous responses and are also regarded as highly efficient for routine data collection with a large number of respondents as was the case for this study. The data collected through questionnaires lent themselves

to quantitative analysis by allowing the use of descriptive and inferential statistics as well as providing a forum for individual comments and perspectives in the respondent's own words.

In this study five sets of questionnaires were developed by the researcher for the following categories of respondents; head teachers, deputy head teachers, store clerks, class teachers and form three and four class prefects. The head teachers, deputy head teachers', class teachers' and stores clerks' questionnaires consisted of section A and B. The items in section A sought general demographic information such as gender, age, academic and professional qualification as well as working experience of the respondents, while section B contained statements seeking specific information on the maintenance of physical facilities in the schools by the various groups of respondents. Students' questionnaires also had two sections. The items in section A. sought information on gender, class and type of school for respondents, while the second section sought answers on their role in maintenance of physical facilities. The questionnaire items were both closed-ended and open-ended. The respondents were required to respond to closed- ended questions by ticking the responses that were applicable on the basis of information sought. In open-ended questionnaire items, respondents were to give their independent views on maintenance of physical facilities. This gave them an opportunity to express their opinions on issues such as the state of physical facilities as well as the challenges they faced in maintenance.

### *3.6.2 Interviews*

An interview is an oral administration of a questionnaire or an interview schedule through face to face encounters (Mugenda and Mugenda, 2003). According to Kothari (2004) by using an interview the researcher gathers more in-depth information and by his own skills can overcome respondents' resistance in answering some questions. Also the method allows greater flexibility to restructure questions to suit the respondent's level and can be used to obtain personal information easily.

The study used the structured interview method where there were sets of pre-determined questions to which respondents were expected to respond. The interviews were conducted to the head teachers, deputy head teachers and store clerks. This gathered in-depth information on the maintenance practices in the schools. After data collection the information was collated with those of questionnaires so as to rule out inaccurate information due to lack of understanding of questions on questionnaires by the respondents as advised by Peters (1996).

### *3.6.3 Observation Schedule*

Apart from questionnaires and interviews, structured observation was also used to collect data from respondents. Mwanje (2001) argues that observation is the basic technique of data collection instruments, and that it is the foundation of all scientific work both in the social and physical sciences. He adds that in using this method, a careful definition of things to be observed is made in advance.

Kothari (2004) underscores the importance of using observation as a method for data collection. Under observation method, the information is sought by way of investigator's

own direct observation without asking from the respondent; hence subjective bias is eliminated, especially if it is done accurately. Also the information sought by this method relates to what is currently happening and therefore is not complicated by the past events or future intentions or attitudes. The method is also independent of respondents' willingness to respond as is the case with the other methods.

In this study a list of what was to be observed was prepared in advance. This included items such as; school buildings, furniture, playgrounds, litter levels and means of litter disposal, as well as the general school cleanliness, flower beds, pavements, and adequacy and state of sanitation facilities such as latrines and toilets. The observation checklist was arranged in such a way as to allow for a variety of scoring procedure as recommended by Orodho (2004). The notes on the observed information for each item was recorded systematically in a field notebook and matched with those of the questionnaires and personal interviews.

### *3.6.4. Document Analysis*

The study also used document analysis for data collection. A desk analysis of the existing policy documents and government publications including; education commission reports, development plans, Ministry of Public Health and sanitation requirements, Ministry of Public works requirements was done. Other documents analysed included: circulars from the Ministry of Education on free day secondary education that shows the allocation of funds into different vote heads, school infrastructure improvement funds, text book receipt issue registers, stock taking records, stores ledgers that indicate receipts and issues

of cleaning materials, school procurement records, school strategic plans, school site plans, punishment books that indicate the type of punishments meted on those who damaged school facilities, and Ministry of Education return forms (yellow forms) that indicate availability of different facilities in schools.

### 3.7 Validity of the Research Instruments

Validity is the accuracy and meaningfulness of inferences, which are based on the research results (Kothari, 2004). Content validity of the questionnaire was established by consulting the two supervisors and experienced researchers in the school of Education, as well as colleagues in the department. This was done in line with suggestions by Cohen and Manion (1994) who suggested that supervisors and colleagues can be used to give objective opinions on content of the research instruments to ensure content and construct validity. These experts were asked to rate the ability of each item in the questionnaires to measure what it was supposed to in order to get the anticipated data. They also assessed whether the required data would be meaningfully analyzed in relation to the stated objectives and research questions. Suggestions and advice offered was used as a basis to modify the research items and make them more adaptable in the study. The items which were not clear and confusing were discarded while preparing the final drafts that were used in the field.

### 3.8 Reliability of the Research Instruments

According to Kothari (2004) reliability refers to the measure or the degree to which a research instrument yields consistent results or data after trials. The pilot test helps to

check on the suitability and ambiguity of the research instruments designed, relevance of the information sought, the level of language used, difficulties the respondents are likely to face when responding to the items, and the content validity of the instruments from the responses given. The results from the pilot test help in adjusting question sequence, format and content, ensuring that the data collecting instruments yield the information required. To minimize random error and hence increase the reliability of the data collected, a pilot test was carried out in 10 secondary schools comprising of: 4 mixed schools, 2 girls' schools and 2 boys' schools drawn from Uasin Gishu County. This formed approximately ten percent of the sample size of the study, and was in line with the argument of Mugenda and Mugenda (2003) that a ten percent sample of the sample size can be used in piloting of the research instruments. Vague questions were rephrased so as to convey the same meaning to the respondents and therefore enhance validity of the questionnaire instrument.

The study used the test retest method to assess the reliability of the instruments. This involved administering the questionnaires to 10 head teachers, 10 deputy head teachers, 10 store clerks, 10 class teachers and 10 form four class prefects from the pilot schools. After a period of two weeks, the same questionnaires were administered to the same respondents so as to establish the consistency in responses to the items. After collecting the questionnaires, the responses were scored. The two sets of scores from both testing periods were correlated using the Spearman rank order correlation, so as to determine the degree of correlation between the two pairs of ranks for the test retest. After the correlation, the value of r was found to be 0.67. According to Moser and Kalton (1985)

when the value of *r* is higher than 0.5 the instrument is assumed to yield data that have high reliability and therefore can be adopted for the study.

### 3.9 Data Collection Procedures

In preparation for data collection, a research permit was sought from the Ministry of Higher Education at the National Council of Science and Technology. Permission to conduct research in Western Region was sought by paying visits to the respective County Directors of Education and Sub-County Education Officers. The researcher then personally visited each school in the study to seek permission to administer the questionnaires and arrange for interviews with the respondents. The questionnaires were personally administered by the researcher to the respondents in the study schools after briefing the head teachers on the objectives of the study. The questionnaires were collected after being filled by the respondents. In few cases, where the respondents were not present in their stations, questionnaires and self-addressed envelopes were left behind for them to fill and mail to the researcher after two weeks. For schools that did not respond within this period, request telephone calls were made as follow up. This made it possible to get back 98% of the questionnaires. Face to face interviews with head teachers, deputy head teachers and stores clerks were also done during these visits. The researcher also made necessary observations on the state of the physical facilities in schools visited. During such observations, comments and marks were made in the observation schedule to ensure that anything relevant to the study observed did not escape being recorded.

### 3.10 Data Analysis Techniques

The data collected was cleaned and coded immediately the questionnaires were received from the field on the basis of the objectives of the study. The editing helped to check on the completeness and logic of the answers, consistency and relevance of the responses to the items of the objectives set. Errors or omissions in the filled up items of the questionnaires were corrected. The responses from the interview schedules, observation schedule and analysis of relevant documents were coded by allocating them to categories and themes of similar items in the questionnaires according to the strength of the reference. The responses were then interpreted basing on the consistency of the facts and logical themes adduced to them. Descriptive and inferential statistics were used during data analysis on every objective set using the computer package-Statistical Package for Social Sciences (SPSS). For descriptive statistics, frequencies and percentages were computed. The percentages were appropriate for the data on frequencies touching on the state of physical facilities in schools. The data was then interpreted by observation of proportions of frequencies and percentages in each category. For inferential statistics the chi-square test was used to test the significance of relationships between variables such as gender, type of school, administrative experience and training of head teachers and maintenance of facilities.

### 3.11 Ethical Considerations

According to Lee (1993) research ethics are codes or guidelines that help reconcile value conflicts, and researchers must try to minimize risks to participants, colleagues and

society while attempting to maximize the quality of information they intent to produce. In this study a number of ethical issues were considered before embarking on the research. This was done in order to protect the rights of the respondents. One of the issues considered was the principal of voluntary participation, where informants were not coerced to participate in the research.

The requirement of informed consent was also considered where the prospective respondents were fully informed about the study before it commenced. Also arrangements were made with head teachers of the participating schools with a view of gaining their consent before going ahead to issue questionnaires and interview participants. Sieber (1992) argued that there is need for researchers to ensure confidentiality of their respondents or subjects. In this research the respondents were assured of confidentiality, and that the information they gave would not be made available to anyone who was not directly involved in the study.

# CHAPTER FOUR
# DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

## 4.0 Introduction

This chapter presents the report of the data gathered from the field as well as an analysis of the same. In the first part of the chapter, a report of the data according to the questionnaire responses coded by the researcher using the SPSS computer package is done. The data was collected from five groups of respondents: the head teachers, deputy head teachers, class teachers, store clerks and students. Other methods of data collection were by way of oral face-to-face interviews with head teachers, deputy head teachers and store clerks, as well as observations and analysis of documents in the sampled schools.

The second part of the chapter is an analysis of the findings of the study as captured from the questionnaires, interviews, observations and documents. The analysis was done conforming to the requirements of the qualitative and quantitative research paradigms. For qualitative data, analysis of the responses was interpreted basing on the consistency of the facts and logical themes adduced to them. The interpretation and analysis were done based on the real life situation as observed in the schools, reports by head teachers and deputy head teachers during the oral interviews, and responses from questionnaires of head teachers, deputy head teachers, class teachers, stores clerks and students.

### 4.1 The Instruments Return Rate

The target population of the study consisted of all the 305 public secondary schools in the sampled sub-counties of western Region. Out of these, a sample of 92 schools representing thirty percent of the schools were selected through random sampling and used for the study. The sample was drawn from 8 selected sub-counties of the three counties of the Western Region: Bungoma, Busia and Kakamega. Ninety two of the sampled schools were visited during the study and questionnaires administered to head teachers, deputy head teachers, class teachers, stores clerks and students as presented in table 4.1:

**Table 4.1 Return Rate of Instruments by Respondents**

| **Instrument category** | **Expected** | **Returned** | **%** |
|---|---|---|---|
| Head teachers questionnaires | 92 | 90 | 97.8 |
| Deputy head teachers' questionnaires | 92 | 90 | 97.8 |
| Class teachers questionnaires | 92 | 90 | 97.8 |
| Stores clerks questionnaires | 92 | 90 | 97.8 |
| Students questionnaires | 92 | 90 | 97.8 |
| **Total** | **460** | **450** | **98.0** |

The questionnaires administered to head teachers, deputy head teachers, class teachers, stores clerks and students were 92 respectively. Out of these, 90 questionnaires for each

category of respondents were returned, giving a return rate of 98%. This return rate was considered very high. Apart from questionnaires there were interviews administered to head teachers, deputy head teachers and store clerks in each school in the study. The interviews participation rate for the three categories of respondents is as presented in table 4.2:

**Table 4.2 Interview Participation Rate by Respondents**

| **Instrument category** | **Expected** | **Returned** | **%** |
|---|---|---|---|
| Head teachers oral interview | 92 | 68 | 73.9 |
| Deputy head teachers oral interview | 92 | 80 | 87.0 |
| Class teachers oral interview | 92 | 81 | 88.0 |
| **Total** | **276** | **229** | **83.0** |

The average participation rate for all categories of participants in the interviews was 83.0%. This return rate was considered high enough, because as observed by Kerlinger (2006), a return rate of more than 60 % is considered high enough in a survey study.

**4.2 Data Analysis**

The study aimed at achieving four objectives. To help achieve these objectives, four research questions were formulated. These research questions were paraphrased to form themes for analysis. In determining preparedness of head teachers in maintenance of physical facilities, the researcher found it necessary to establish whether they employ

qualified personnel for various maintenance assignments, whether they organize for capacity building of personnel, how they supervise maintenance activities and how they monitor and evaluate maintenance in the schools. However before analysis of the study, the researcher first gained the background information on the respondents.

**Background Information on Respondents**

The background information on respondents sought included characteristics such as; type of school, gender, academic and professional qualifications, working experience and length of stay of head teachers in current stations. This was done so as to establish whether there is significant relationship between these characteristics for head teachers and maintenance of physical facilities in schools. The findings are presented in table 4:3 to 4:8.

**Table 4.3: Type of School for Head Teachers in the Study**

| **Type of school** | **Total No. of schools in selected districts** | **No. of Schools Sampled** | **%** |
|---|---|---|---|
| Girls' only | 56 | 17 | 18.5 |
| Boys' only | 21 | 8 | 8.7 |
| Mixed(both boys and girls) | 228 | 67 | 72.8 |
| **Total** | **305** | **92** | **100** |

Table 4.2 shows the categories of schools in the study. The schools were distributed as follows: girls only, boys' only and mixed (both boys' and girls'). Out of the 92 schools in the study 17 were girls' schools, 8 were boys' schools and 67 mixed schools. Type of school was included so as to determine whether there is a relationship between the gender of the students and maintenance of physical facilities. Apart from the type of school, the study also sought to find out the gender of head teachers, deputy head teachers and class teachers in the study. Results are as presented in table 4.4

**Table 4.4 Gender of respondents in the study**

| **Responses** | **Head teachers** | | **Deputy head teachers** | | **Class teachers** | |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % |
| Male | 48 | 63.3 | 67 | 74.4 | 52 | 66.5 |
| Female | 42 | 36.6 | 23 | 25.6 | 40 | 33.5 |
| **Total** | **90** | **100** | **90** | **100** | **90** | **100** |

The majority of respondents as indicated in table 4.4 in the study were males, where 63.3% of head teachers, 74.4% of deputy head teachers, and 66.5 % of the class teachers were males. These results imply that there are more males in administrative positions in the schools as compared to females. The item on gender was included so as to check whether there is a relationship between gender of the head teacher and maintenance of physical facilities in schools. Possession of well qualified and motivated staff in schools begins with the right identification of the head teachers, deputy head teachers and class

teachers for supervision of school programmes, maintenance notwithstanding. For head teachers who are not well grounded in administrative duties and responsibilities, mobilization of resources and coordination of school programmes may prove difficult. This study therefore attempted to determine the academic and professional qualification of head teachers, deputy head teachers and class teachers. The items on academic and professional qualification of head teachers, deputy head teachers and class teachers yielded the data in table 4.5 and 4.6

**Table 4.5 Academic Qualification of respondents**

| **Responses** | **Head teachers** | | **Deputy head teachers** | | **Class teachers** | |
|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % |
| O-level | 1 | 1.1 | 2 | 2.2 | 2 | 2.2 |
| A-level | 1 | 1.1 | 3 | 3.3 | 3 | 3.3 |
| University | 79 | 87.8 | 77 | 85.6 | 74 | 82.2 |
| Other | 9 | 10.0 | 8 | 8.9 | 11 | 12.2 |
| **Total** | **90** | **100.0** | **90** | **100.0** | **90** | **100.0** |

The data in table 4.5 revealed that the majority of the respondents, that is, 87.8% of the head teachers, 85.6% of deputy head teachers and 82.2% of class teachers were university graduates. These results indicate that the persons in administrative positions in schools possessed the relevant qualifications that would enable them effectively carry out duties of supervision of school programmes, maintenance included. This is in agreement with a

study by Ogunu (2005) in Nigeria, which found that educational personnel with higher academic qualifications displayed more confidence in their work place, and that they are more accessible to quality information, and adapt to changing conditions than those with lower qualification. These findings concur with those of Kamindo (2012) in Kajiado district Kenya, which revealed that head teachers with high professional qualifications had confidence in performing supervision functions such as motivation, programme development, allocation of duties, consultation with other personnel, and evaluation. However, academic qualification alone does not equip respondents with skills required to perform daily duties in schools effectively. This therefore calls for professional training. The data obtained on professional qualification of head teachers, deputy head teachers and class teachers is presented in table 4.6.

**Table 4.6 Professional qualification of respondents**

| **Responses** | **Head teachers** | | **Deputy head teachers** | | **Class teachers** | |
|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| No response | 2 | 2.2 | 2 | 2.2 | 5 | 5.5 |
| Diploma in education | 9 | 10.0 | 11 | 14.4 | 3 | 3.3 |
| B.Ed. | 56 | 62.2 | 54 | 60.0 | 69 | 76.7 |
| Masters | 15 | 16.7 | 13 | 14.4 | 8 | 8.9 |
| ATS status | 8 | 8.9 | 10 | 11.1 | 7 | 7.8 |
| **Total** | **90** | **100.0** | **90** | **100.0** | **90** | **100.0** |

The findings from table 4.6 indicate that the majority of head teachers, that is, over 62.2% had professional qualification of Bachelor of Education degree. The same case was with the deputy head teachers and class teachers where 60.0% and 76.7% respectively held Bachelor of Education professional qualification. Such professional qualification is considered adequate enough to enable the teachers in administrative positions interpret and implement government policies. They are also assumed to possess knowledge that enables them come up with policies at school level about areas such as maintenance of facilities.

Apart from academic and professional qualification, working experience of head teachers, deputy head teachers and class teachers is equally important. The data on working experience of these categories of respondents is reported in table 4.7

**Table 4.7 Working Experience of respondents**

| | **Head teachers** | | **Deputy head teachers** | | **Class teachers** | |
|---|---|---|---|---|---|---|
| | **Frequency** | **%** | **Frequency** | **%** | **Frequency** | **%** |
| 1-5 years | 5 | 5.6 | 11 | 12.2 | 14 | 15.5 |
| 6-10 years | 23 | 25.6 | 24 | 26.7 | 47 | 52.2 |
| 11-20 years | 51 | 56.7 | 48 | 53.3 | 23 | 25.6 |
| Over 20 years | 11 | 12.2 | 7 | 7.8 | 6 | 6.7 |
| **Total** | **90** | **100.0** | **90** | **100.0** | **90** | **100.0** |

Results in Table 4.7 show that most of the head teachers and senior teachers had worked for between 11-20 years as indicated by 56.7% and 53.3% respectively. Majority of the class teachers on the other hand had worked for between 6-10 years at 52.2%. Working experience of teachers is important since those who have worked for long are assumed to be equipped with skills of handling administrative challenges. Such challenges may include, care for different facilities, breakages, record keeping, punishment meted on those who damage facilities as well as supervision of cleanliness activities. Apart from working experience of respondents, length of stay in current schools is equally important. Head teachers and teachers just like other employees get transfers from one station to another. Results on length of stay of respondents in current schools is presented in table 4.8

**Table 4.8 Length of stay of respondents in current stations**

| | **Head Teachers** | | **Deputy head Teachers** | | **Class teachers** | |
|---|---|---|---|---|---|---|
| | **Frequency** | **%** | **Frequency** | **%** | **Frequency** | **%** |
| 1-5 years | 54 | 60.0 | 11 | 12.2 | 14 | 15.5 |
| 6-10 years | 28 | 31.1 | 47 | 53.3 | 23 | 25.6 |
| 11-20 years | 5 | 5.6 | 25 | 27.8 | 47 | 52.2 |
| Over 20 years | 3 | 3.3 | 7 | 7.8 | 6 | 6.7 |
| **Total** | **90** | **100.0** | **90** | **100.0** | **90** | **100.0** |

Results in table 4.8 indicate that the majority of head teachers had not stayed in current stations for long, since 60.0% had stayed for less than 5 years. The case was the opposite

for deputy head teachers, where the majority, that is, 53.3% had stayed for between 6 to 10 years. The group that had stayed longest in their current schools was that of class teachers, for the majority of them, that is, 52.2% had stayed for between 11 to 20 years. This is significant because of the assumption that the longer an employee stays in his/her working station, the more likely they will understand the strengths and weaknesses associated with it and hence be able to address them effectively. Since most of the head teachers had not stayed in their current stations for long, there is a likelihood that they may not have had adequate time to plan for maintenance of facilities under their care. The experience of head teachers is vital since it equips them with relevant skills to handle various administrative challenges. This study therefore attempted to find out how long the head teachers had served in headship capacity. The findings were captured in table 4.9

**Table 4.9 Administrative experience of head teachers**

| | **Frequency** | **%** |
|---|---|---|
| 1-5 years | 21 | 23.3 |
| 6-10 years | 54 | 60.0 |
| 11 years and above | 15 | 16.7 |
| **Total** | **90** | **100.0** |

Table 4.9 shows findings on the number of years that head teachers have served in headship capacity. Majority of the head teachers, that is, 60% had served for a period between 6-10 years. This period is considered long enough to expose them to various administrative challenges that enable them gain appropriate experience to handle school

matters, including maintenance of facilities. These findings agree with the study by Ogunu (2005), which found that lack of adequate training and orientation of supervision limited head teachers' performance, and that newly appointed head teachers lacked skills. The success in implementation of programmes in any given organization may not solely depend on the training and competence of those at the helm. It also requires the employment of workers who possess the right skills to enable the organization realize its goals. Schools are no exception. These personnel include artisans, stores clerks, and librarians. Findings on whether schools employ different types of employees for maintenance are presented in tables 4.10

**Table 4.10 Head teachers' employment of personnel for maintenance**

| **Response** | **Type of employee** | | |
|---|---|---|---|
| | **Artisans** | **Store clerks** | **Librarians** |
| No response | 81 | 58 | 72 |
| Yes | 9 | 32 | 18 |
| **Total** | **90** | **90** | **90** |

Responses from Table 4.10 revealed that majority of head teachers do not employ various employees in charge of maintenance of physical facilities in schools since only 9 employed artisans, 32 employed store clerks and 18 employed librarians. This was the case in spite of the important role these categories of employees play in maintenance of facilities. Store clerks are supposed to maintain records of all facilities possessed by schools and to work jointly with maintenance departments by providing them with materials required for maintenance. Since schools possess other categories of materials that support learning such as: text books, teaching and learning resources such as maps,

charts, globes and electronic devises, it is important that they employ librarians to manage them. Artisans on the other hand possess skills of repairing broken or damaged facilities and hence keeping them in optimum condition. Table 4.11 presents findings on professional qualification of these three categories of employees

**Table 4:11 Professional qualification of personnel in charge of maintenance**

| Responses | Type of employee | | |
|---|---|---|---|
| | **Artisans** | **Store clerks** | **Librarians** |
| Certificate | 4 | 8 | 6 |
| Diploma | 2 | 2 | 0 |
| Degree | 0 | 0 | 0 |
| No training | 3 | 22 | 12 |
| **Total** | **9** | **32** | **18** |

Results on this item revealed that it was only artisans employed by schools that possessed professional training, for out of the 9 employed, 6 had training at certificate and diploma level. However the case was different for store clerks and librarians where only 10 out of the 32 store clerks that were employed had professional training at certificate and diploma level, while only 6 out of 18 librarians had training at certificate level. Store clerks are supposed to maintain records of all facilities possessed by schools and to work jointly with maintenance departments by providing them with materials required for maintenance. It is therefore important that schools employ persons who are adequately qualified to be in charge of school stores. Use and management of library materials requires expertise on cataloguing and simple repairs, otherwise they will be prone to high rates of depreciation. This calls for employment of qualified librarians. The Ministry of Education policy on Teaching Learning Materials (TLMs) as stipulated in the TLMs maintenance manual (RoK, 2008) requires schools to employ qualified librarians to manage school libraries and safeguard school books and other materials. The fact that most schools employed unqualified personnel shows that head teachers did not put much

emphasis on recruiting qualified maintenance personnel. In order for facilities to have a longer life, it is important that early detection of defects and repairs are done. In the course of utilizing physical facilities there is a likelihood of the same facilities breaking or getting damaged. There is therefore need for repair of the damaged facilities, which calls for employment of school artisans. This study endeavoured to find out the areas of training for school artisans and findings are presented in figure 4.1

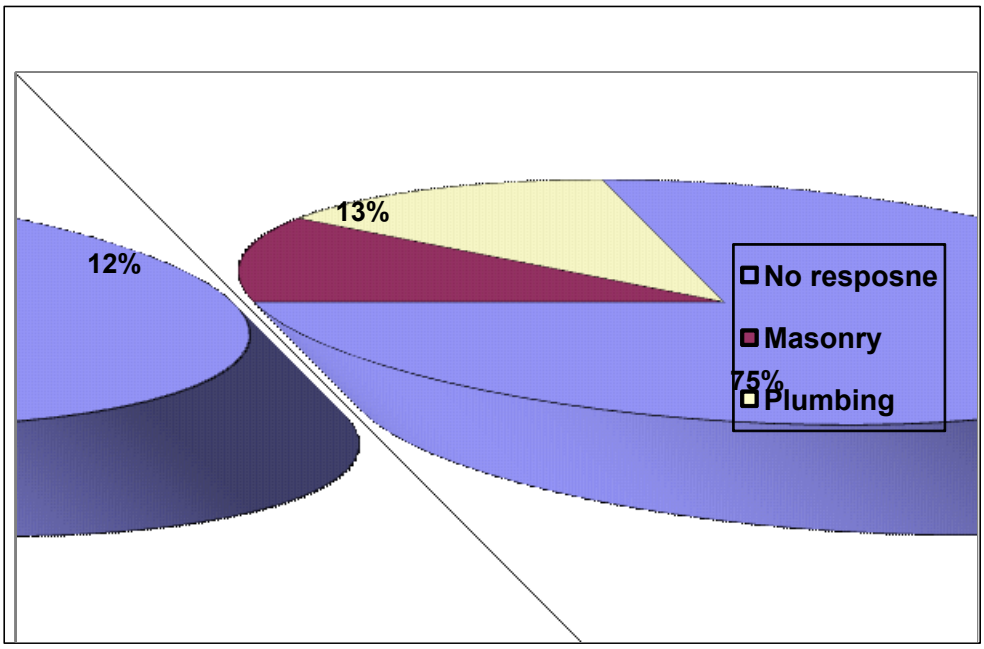

**Figure 4.1 Basic training skills of employees in charge of maintenance**

From the data in Fig.4.2 artisans employed by schools only 12% had training in masonry and 13% in plumbing. There was no artisan with training in carpentry and electrical works. Schools would save much of their funds by employing artisans who possess skills in different areas such as masonry, carpentry and electrical works, through early detection of faults and subsequent repairs. Given that majority of the schools did not employ such personnel means that schools depended on hired personnel for repairs and other maintenance works. This may explain the presence of many broken facilities observed during visits to schools in the study.

Investment in the maintenance section is important because through it the school is able to save much of its funds by having facilities which are in optimum state and which last longer due to better maintenance. Maintenance also requires keeping of records and preparation of maintenance schedules. This requires employment of store clerks who have skills in management of records. Since most of the schools employed personnel that did not possess any professional training, it means that there were many shortfalls in the maintenance process. If schools were to employ personnel such as artisans with training especially in carpentry, an area that registers breakages almost on daily basis, it could save them costs incurred on deferred maintenance. From interviews with head teachers, it was established that schools relied heavily on hired labour for repairs and maintenance of physical facilities, a cost that could be avoided if schools employed workers with necessary basic training in various maintenance works. Apart from employment of personnel, there is need for head teachers to organize for capacity building of the same.

The second objective of the study sought to find out whether head teachers organized for capacity building of their personnel for maintenance of facilities through attending training courses and workshops.

### 4.3.1 Capacity Building Personnel on Maintenance of Physical Facilities

Apart from employment of the right personnel in organizations, there is need for head teachers to organize for their capacity building so as to enhance their productivity. In this study there was an attempt to examine the extent to which head teachers facilitate training of personnel on maintenance of physical facilities through seminars and workshops. The other forms of capacity building included: organizing for internal workshops, inviting experts to sensitize school personnel on best maintenance practices, and involving various personnel in planning for facility maintenance as a form of motivation so as to enhance full participation and ownership of their areas of operation. This was done by first looking at whether head teachers themselves attended courses on school management.

**Table 4.11 Head teachers' attendance of training on school management**

| | **Frequency** | **%** |
|---|---|---|
| No response | 28 | 31.1 |
| KEMI | 55 | 61.1 |
| KEMI and others | 7 | 7.8 |
| **Total** | **90** | **100** |

Findings in Table 4.11 revealed that the majority of head teachers, that is, 61.1% had attended KEMI courses on management. The content analysis of the KEMI training manuals revealed that there are various topics on management such as, financial, human and physical resources, which are vital for the task of head teachers. This concurs with Muoka (2007) whose study found that secondary school head teachers require training in management in order to be effective in their work performance. The findings contradict those by Obanya and Makoju (2005) in Nigeria which found that only 14.1% of head teachers had training in management and administration which is a very crucial skill required by head teachers. From these findings it can be concluded that since most head teachers attended training courses on management, they are assumed to possess adequate and sound managerial experience and skills to administer schools under their jurisdiction and hence maintain their facilities well.

Apart from training courses, seminars and workshops are important because they expose head teachers to new information and emerging developments in the education sector. In this item head teachers were asked to indicate the number of workshops on management they have attended in the previous two years. Findings are as presented in table 4.12

**Table 4.12 Frequency of workshops attended by head teachers**

| | **Frequency** | **%** |
|---|---|---|
| No response | 12 | 19.4 |
| One | 42 | 67.7 |
| Two | 4 | 6.5 |

| | | |
|---|---|---|
| More than two | 4 | 6.5 |
| **Total** | **62** | **100.0** |

Findings in table 4.12 show that 67.7% of the head teachers had attended at least one workshop on management in two previous years before the study, while 13% attended at least two workshops. Workshops and seminars are used to communicate to participants' new knowledge and latest information on management as well as changes in school administration. They also provide a forum for attendees to share experiences of their work place with a view to assisting them address challenges they may be facing. It is also a forum to share knowledge on new findings and discoveries, especially in areas such as information communication technology. Head teachers require training so as tom improve their leadership styles, communication, motivation and relationships with other school personnel. All these are vital requirements for maintenance of facilities in schools Head teachers works in collaboration with other school personnel to implement set plans. They therefore also need to be facilitated to attend training courses that equip them with relevant skills to perform their duties. The study tried to find out if head teachers sponsor school personnel for training in management. Results are as captured in table 4.13

**Table 4.13 Sponsoring school personnel for training on school management**

| | **Frequency** | **%** |
|---|---|---|
| Deputy head teachers | 60 | 66.7 |
| Teachers | 17 | 18.9 |
| Subordinate staff | 9 | 10.0 |

| | | |
|---|---|---|
| Prefects | 4 | 4.4 |
| **Total** | **90** | **100.0** |

In this item head teachers were asked to indicate whether they sponsored different categories of employees in their schools to attend training courses on school management. Table 4.13 indicates that apart from deputy head teachers represented by 66.7%, the majority of head teachers did not sponsor other categories of school personnel to attend training. The findings contradict those by Fellgy (1999) in a survey carried out in Canada which showed that 76% of employees agreed that their departments supported them in career development, and that planning and support for training is ingrained into organizational plans and activities at all levels. Given that teachers and prefects oversee the use of facilities on daily basis, it is important that they get exposed to training to acquire the relevant skills on management such as: supervision, mobilization and record keeping among others.

Deputy Head teachers are charged with the responsibility of supervision of school programmes including maintenance of the school plant (RoK, 2011). They are also in charge of supervision of school workers. In order to perform their duty effectively, they require constant training to update their knowledge and also supplement that which they could have attained in their pre-service training. The attendance of seminars and workshops should also be regular because of the new discoveries and technology. To collaborate head teachers' response on sponsorship of the deputy head teachers for management courses, table 4:14 gives the deputy head teachers' responses when they

were asked to indicate whether they were sponsored by their head teachers to attend training courses.

**Table 4.14 Attendance of training by deputy head teachers**

| | **Frequency** | **%** |
|---|---|---|
| No response | 66 | 73.3 |
| Yes | 24 | 26.7 |
| **Total** | **90** | **100.0** |

In table 4.13 while 66.1% of the head teachers reported that they sponsored their deputy head teachers to attend training courses on management in table, the responses from deputy head teachers themselves in table 4.14 differs, for only 26.7% of the deputy head teachers agreed to have been sponsored for training. The disparity may be assumed to imply that the majority of head teachers did not sponsor their deputy head teachers to attend training. There was an interest to inquire about the frequency of attendance of training courses by the deputy head teachers. Table 4.15 indicates the frequency of workshops on school management attended by deputy head teachers in the two previous years before the study.

**Table 4.15 Frequency of workshops attended by deputy head teachers**

| | **Frequency** | **%** |
|---|---|---|
| No response | 68 | 75.6 |
| One | 14 | 15.6 |
| Two | 5 | 5.6 |

| | | |
|---|---|---|
| More than two | 3 | 3.3 |
| **Total** | **90** | **100.0** |

In Table 4.15 the findings revealed that only 24.4% of the deputy head teachers had attended workshops at least once in two previous years before the study. This indicates that head teachers in the majority of schools were not keen to sponsor their deputy head teachers for training on school management yet the Ministry of Education through KEMI and even private consultancy services has been organizing training courses for deputy head teachers. Some of the deputy head teachers who were interviewed reiterated that they were never informed by their head teachers about such training while some reported that they were aware about the courses but did not attend since the head teachers did not sponsor them due to lack of funds. The few who attended expressed a high appreciation on the relevance of the content during the workshops on maintenance of school physical facilities as shown in table 4.16

**Table 4.16 Rating of content of training courses by deputy head teachers**

| | **Frequency** | **%** |
|---|---|---|
| Very relevant | 2 | 9.1 |
| Relevant | 18 | 81.8 |
| Not response | 2 | 9.1 |
| **Total** | **22** | **100.0** |

Results from table 4.16 indicate that 20 out of 22 or 91% of deputy head teachers who attended workshops on management rated the content of the workshops on maintenance of physical facilities as relevant. This underscores the importance of training workshops for those charged with the responsibility of management of schools so as to equip them with the necessary skills. Given that the majority of deputy head teachers that is 73.3% as indicated by none response in Table 4.14 had not attended training workshops on management, implies that they missed valuable knowledge on maintenance of physical facilities for their schools.

Apart from head teachers and deputy head teachers, class teachers play an equally important role in maintenance of physical facilities in schools. However, the pre-service training for teachers may not be adequate enough to enable them to perform management duties effectively, especially due to the technological changes and innovations. This therefore requires teachers to attend training courses so as to widen their knowledge and enable them to carry out their duties effectively. Such duties include provision of adequate guidance to students and other school personnel on the care for school facilities. This ranges from the buildings such as classrooms, offices, dormitories to teaching and learning materials. It is therefore necessary that they possess relevant knowledge on how to manage these facilities. The introduction of new technology such as computers and other ICT gadgets also require constant training so as to enable those in charge of facilities know how to handle and track them so as to lengthen their lifespan. They should hence equally attend training courses on management of physical facilities. The responses

on the class teachers' attendance of training on school management gave the values in table 4.17

**Table 4.17 Attendance of training courses by Class teachers**

| | **Frequency** | **%** |
|---|---|---|
| Not attended | 78 | 86.7 |
| Yes | 12 | 13.3 |
| **Total** | **90** | **100.0** |

The findings in Table 4.17 revealed that only 12 or 13.3% of class teachers had attended training courses on school management in two previous years before the study. This is worrisome since some of them received their pre-service training before the introduction of new technologies such as computers in the school system. Training is an act of increasing the knowledge and skills of employees for doing specific jobs. It helps develop capacities and capabilities of employees by upgrading their skills and knowledge for the benefit of the school. Given that the majority of class teachers did not attend regular training means that they may not possess skills in maintenance of facilities.

The other school personnel: stores clerks, artisans and librarians who are in charge of various facilities in schools also require adequate training. The responses from store clerks on whether such school personnel attended training courses on management in the previous five years yielded results in table 4.18

**Table 4.18 Sponsoring personnel for training on maintenance**

| **Responses** | **Type of personnel** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Store clerk** | | **Librarian** | | **Grounds men** | | **Total** | |
| | **Freq.** | **%** | **Freq.** | **%** | **Freq.** | **%** | **Freq.** | **%** |
| Yes | 3 | 3.3 | 2 | 2.2 | 2 | 2.2 | 7 | 2.6 |
| No | 87 | 96.7 | 88 | 97.8 | 88 | 97.8 | 263 | 97.4 |
| **Total** | **90** | **100** | **90** | **100** | **90** | **100** | **270** | **100** |

Results in Table 4.18 revealed that on average only 7 or 2.6 % of head teachers sponsored maintenance personnel for training on maintenance. Given that the majority of personnel did not have any professional training as shown in previous sections, it implies that support staff in the majority of schools lack the relevant knowledge and skills in maintenance of school facilities. However, maintenance of physical facilities is not managed by teachers and support staff alone. Prefects also play a vital role in supervision and maintenance programs especially cleanliness. If trained, they can discharge their services better and add value to the life span of facilities in schools. Responses on whether head teachers facilitate prefects to attend training courses on management are captured in Table 4.19

**Table 4.19 Attendance of training courses on school management by prefects**

| | **Frequency** | **%** |
|---|---|---|
| Yes | 4 | 4.4 |
| No response | 86 | 95.6 |
| **Total** | **90** | **100.0** |

Table 4.19 shows that only 4.4% of the head teachers sponsored their prefects for training courses on school management. This is discouraging since prefects play an important role in supervision of maintenance activities such as cleaning class rooms, laboratories, dormitories, workshops, offices, pitches, flower beds, and the school compound in general. Head teachers should support them to improve on their knowledge and skills in management of school activities. Apart from sponsoring personnel to attend external training courses and workshops, head teachers may also organize internal workshops or facilitate bench marking in maintenance of school facilities. The research sought to find out if head teachers in sampled schools organized such workshops. Responses from class teachers indicated that no school made such an initiative. This however, contradicts the head teachers' responses which showed that, 9 or 10.0% of them organised the training as shown in table 4.20

**Table 4.20 Organizing internal workshops on maintenance**

| | | **Frequency** | **%** |
|---|---|---|---|
| Valid | Yes | 9 | 10.0 |
| | No | 81 | 90.0 |
| | **Total** | **90** | **100.0** |

Apart from organizing workshops and seminars for their personnel, head teachers can also invite experts from, the Ministry of Works and the Ministry of Public Health and sanitation to sensitize them on maintenance of school facilities. From the responses in Table 4.20 none of the class teachers indicated that their head teachers invited experts to talk to school personnel on maintenance. Given that most of the school personnel did not

possess technical knowledge on infrastructural facilities, they could greatly benefit if their head teachers invited experts to guide them in this area. Findings indicated that there is no school that did this. Head teachers play supervisory roles in their day to day functions in schools. Apart from curriculum supervision, they also supervise other activities, including maintenance. An attempt was made to determine how head teachers supervise maintenance of facilities in schools.

### 4.4 Supervision of Maintenance of Facilities by Head Teachers

The third objective of the study was to determine the extent to which head teachers supervise maintenance of physical facilities in schools. This was done by finding out whether head teachers: plan and involve other school personnel in planning for facility maintenance, assign maintenance duties to school personnel, provide maintenance materials, set school policies on maintenance, and whether they motivate school personnel on maintenance. The responses are captured in table 4:21 to 4:37.

The success of activities in schools just like in any other organizations begins with adequate planning. In schools this can be done by formulation of school development and infrastructure plans, preparation of school maintenance schedules and budgeting. In Kenya, the Ministry of Education policy on infrastructure requires all public schools to have School Infrastructure Committees (SICs) which are charged with the responsibility of management of school development projects (ROK, 2007). Responses on whether schools had school infrastructure committees are captured in table 4.21

**Table 4.21 Formation of school infrastructure development committees**

| | | Frequency | Percent |
|---|---|---|---|
| Valid | Yes | 28 | 31.1 |
| | No | 62 | 68.9 |
| | **Total** | **90** | **100.0** |

Table 4.21 reveal that only 28 or 31.1% of the schools in the study had infrastructure development committees in place**.** This small percentage is contrary to the Ministry of Education's policy requiring all schools to form infrastructure committees to oversee all school development projects. It was established during the study that the few schools that had set up infrastructure committees are those that were under the economic stimulus programme or those that received various government or donor funding, and therefore had formation of these committees as a pre-requisite for getting the funding. Observation during the study showed that schools that had school infrastructure committees in place possessed facilities that were rated as good compared to those in the schools that did not. The study also sought to find out whether schools formulated infrastructure development plans.

**Table 4.22 Formulation of school infrastructure development plans**

| | | Frequency | % |
|---|---|---|---|
| Valid | Yes | 35 | 38.9 |
| | No | 55 | 61.1 |
| | **Total** | **90** | **100.0** |

The findings on formulation of school infrastructure plans in Table 4.22 were no different from those of infrastructure committees for only 38.9% had infrastructure development plans. These results indicate that most schools did not plan for their facilities and hence ran a risk of carrying out development and maintenance haphazardly. This is likely to cause delays in repairs, renovations and even cleanliness due to non- provision of maintenance of materials. It is equally important to involve all persons who will be affected by the plan in its formulation so as to foster a sense of ownership of the intended plan. The items in table 4.30 required head teachers to indicate members that participated in the preparation of development plans in their schools.

**Table 4.23 Participants in preparation of school infrastructure development plans**

| | **Frequency** | **%** |
|---|---|---|
| BOG | 48 | 53.3 |
| PTA | 36 | 40.0 |
| Teachers | 4 | 4.4 |
| Support Staff | 2 | 2.2 |
| **Total** | **90** | **100.0** |

Table 4.23 revealed that, in the majority of schools, the BOG were the most involved at 53.3%. Other school personnel; teachers, subordinate staff and students that are direct beneficiaries and users of the facilities were not involved much in the planning.

Exclusion of these stakeholders, in the planning process, may demoralize and make personnel fail to embrace the culture of maintenance and hence lead to possession of poorly maintained facilities. Review of development plans is also important since it enables organizations gauge the extent to which they are meeting objectives set in the plan. In this item head teachers were asked to show how often development plans were reviewed in their schools. Results are presented in table 4.24

**Table 4.24 Frequency of reviewing school infrastructure development plans**

| | **Frequency** | **%** |
|---|---|---|
| No response | 25 | 71.4 |
| 1-3 years | 3 | 8.6 |
| 3-5 years | 2 | 5.7 |
| Over 5 years | 5 | 14.3 |
| **Total** | **35** | **100.0** |

Out of the 35 head teachers that indicated that they formulated development plans, only 10 or 28.6% agreed that they reviewed them. Of the 10 head teachers that reviewed the plans, only 30% did so yearly, while 50%% did so after five years and above. This is not good since the plans made may be overtaken by events and hence lead to non-implementation, a case that was confirmed by most of the head teachers who were interviewed and cited lack of funds as an impending factor in maintenance of facilities in schools. Financial management is one of the key skills expected of persons in management positions. Since head teachers are the chief executives of schools, they are required to have adequate knowledge on financial management and maintenance of facilities. Table 4.25 presents results on head teachers' efforts to solicit for funds from various sources for maintenance and improvement apart from those from the Ministry of Education RMI vote head under the free day secondary education programme.

**Table 4.25 Sourcing for funds for maintenance of facilities**

| Sources of funds | Frequency | % |
|---|---|---|
| PTA | 64 | 71.1 |
| School alumni | 2 | 2.2 |
| Local business community | 1 | 1.1 |
| CDF | 7 | 7.8 |
| Donors | 3 | 3.3 |
| Fundraising | 5 | 5.6 |
| Income generating activities | 8 | 8.9 |

Apart from MOE funds the majority of schools represented by 71.1% depended on PTA funds. However interviews with head teachers revealed that the RMI allocation of Ksh.400 per student per year in the free day secondary education programme was not adequate for maintenance of facilities. Schools therefore borrowed from the PTA funds

which were meant for new development projects. The results also show that head teachers did not explore other sources of funds for maintenance. Apart from sourcing for funds, head teachers also need to supervise programmes in schools to ensure their success. In table 4:26, class teachers were asked to show whether head teachers assigned supervisory roles to teachers for maintenance of facilities such as administration blocks, classrooms, laboratories, flower beds, pavements, and playgrounds.

**Table 4.26 Assignment of maintenance duties to teachers**

| | **Agree** | | **Disagree** | | **Total** | |
|---|---|---|---|---|---|---|
| | **Freq.** | **%** | **Freq.** | **%** | **Freq.** | **%** |
| Administration Block | 8 | 8.9 | 82 | 91.1 | 90 | 100 |
| Classrooms | 81 | 90.0 | 9 | 10.0 | 90 | 100 |
| Laboratories | 68 | 75.6 | 22 | 24.4 | 90 | 100 |
| Dormitories | 25 | 27.8 | 65 | 72.2 | 90 | 100 |
| Furniture | 12 | 13.3 | 78 | 86.7 | 90 | 100 |
| Sanitation facilities | 3 | 3.3 | 87 | 96.7 | 90 | 100 |
| Playfields | 23 | 25.6 | 67 | 74.4 | 90 | 100 |
| Water facilities | 2 | 2.2 | 88 | 97.8 | 90 | 100 |
| **Total** | **232** | **32.2** | **488** | **67.8** | **720** | **100** |

Findings in Table 4.26 revealed that on average only 32.2% of the class teachers agreed that their head teachers assigned the cited facilities to them to supervise in maintenance while 67.8% did not. Given the important role played by physical facilities in the

teaching and learning process, it is important that teachers ensure that they are well maintained so as to enhance learning. It is therefore necessary that they are allocated supervision duties. Apart from allocation of supervision, head teachers need to motivate students and all school personnel so as to foster a positive culture on maintenance. Responses on motivation of school personnel by head teachers for best maintenance practices are presented in tables table 4.27 and 4. 28

**Table 4.27 Motivation of students for maintenance**

| | **Frequency** | **%** |
|---|---|---|
| No response | 60 | 66.7 |
| Awarding marks for best maintenance | 12 | 13.3 |
| Giving trophies for best maintenance | 6 | 6.7 |
| Giving certificates on prize giving days | 9 | 10.0 |
| Verbal praises during assemblies | 3 | 3.3 |
| **Total** | **30** | **100** |

From all of the schools in the study, only 30 or 33.3% of prefects indicated that their head teachers motivated them in one way or another as shown in table 4.27. Interviews with deputy head teachers in those schools confirmed that recognition for best maintenance practices fostered a positive attitude towards maintenance and also encouraged competition. In the school setting it is not only students who are involved in maintenance of facilities. There are other school personnel such as grounds men, stores clerks, librarians and other community members. All these categories of personnel also need to

be recognized for their contributions. This was captured through class teachers' responses on recognition of school personnel for best maintenance practices as shown in table 4.28.

**Table 4.28 Recognition of other school personnel for maintenance**

| | **Frequency** | **%** |
|---|---|---|
| No response | 79 | 87.8 |
| Verbal praises | 2 | 2.2 |
| Giving trophies for best maintenance | 6 | 6.7 |
| Giving certificates on prize giving days | 3 | 3.3 |
| **Total** | **30** | **100.0** |

Just as the case was in table 4.27 on motivation of students, on average only 11 or 12.2% of the head teachers recognized their personnel for best maintenance as shown in table 4.28. In order for employees to embrace certain practices, it is important for them to be recognized because this makes them feel valued. The study was interested in finding out whether schools foster maintenance spirit by involving their personnel in the care for the environment around the school by marking the world environment and cleanliness days,

cleaning campaigns, picking litter around the school or carrying out any other cleaning activities. Responses on this item are captured in Table 4.29

**Table 4.29 Involvement of students in cleaning the environment around the school**

| | **Frequency** | **%** |
|---|---|---|
| No response | 25 | 27.8 |
| Agree | 5 | 5.6 |
| Disagree | 60 | 66.7 |
| **Total** | **90** | **100.0** |

Findings in table 4.29 shows that only 5.6% schools participated in cleaning the environment around the schools as captured from prefects' responses. This is not encouraging since such practices save for ensuring possession of a clean environment they may also foster school-community relationship and encourage the community members to provide security for school facilities. Besides taking part in cleaning the environment, schools can also involve the surrounding communities in maintaining facilities through hired labour. The deputy head teachers were asked to show how head teachers involved communities around their schools in maintenance activities and results are as shown in table 4.30

**Table 4.30 Involvement of the community in maintenance**

| | Frequency | % |
|---|---|---|
| No response | 64 | 71.1 |
| Use artisans from community to sensitize students on maintenance | 1 | 1.1 |
| Parents provide labour to pay school fees for students | 8 | 8.9 |
| Holding joint cleaning activities | 1 | 1.1 |
| Community provides maintenance materials | 2 | 2.2 |
| Hiring labour from community | 14 | 15.6 |
| **Total** | **90** | **100.0** |

Results in table 4.30 revealed that on average only 26 or 28.9% of the head teachers involve the neighbouring community in maintenance. Most of the contribution from the neighbouring communities is through hired labour at 15.6%. Schools would greatly benefit by involving community members in maintenance. This could be done by encouraging them to provide maintenance materials, jointly carrying out maintenance activities such as picking litter around the school compounds, and even inviting artisans to sensitize school personnel on simple repairs and maintenance. Maintenance of facilities begins with preparation of relevant plans and records. In schools just like in any other organization, such records could include maintenance schedules which indicate the dates of purchase, maintenance instructions as well as the date when the facility was serviced or repaired last. The study attempted to find out whether head teachers kept

maintenance programmes for different facilities in their schools. Responses are as shown in Table 4.31.

**Table 4.31 Document analysis on preparation of facility maintenance schedules**

| | **Frequency** | **%** |
|---|---|---|
| Non existent | 72 | 80.0 |
| School buildings | 2 | 2.2 |
| Utility facilities | 2 | 2.2 |
| School machines | 2 | 2.2 |
| School bus | 12 | 13.3 |
| **Total** | **90** | **100.0** |

Analysis of documents on maintenance yielded findings in Table 4.31 which revealed that the majority of schools do not prepare facility maintenance schedules. This was also confirmed from the interviews with head teachers, in most of the schools visited. The higher percentage of records kept by schools was those for maintenance of school buses at 13.3%. The other facilities did not have clear maintenance schedules. Maintenance schedules are vital because they indicate information such as maintenance requirements and procedures, especially for machines and accessories like computers, lighting, and plumbing and sanitation facilities. Apart from maintenance schedules the study sought to find out from head teachers whether they budgeted for maintenance of damaged facilities. Results are captured in table 4.32

**Table 4.32 Budgeting for maintenance Head teachers**

| | **Frequency** | **%** |
|---|---|---|
| No response | 78 | 86.7 |
| Agree | 8 | 8.9 |
| Disagree | 4 | 4.4 |
| **Total** | **90** | **100.0** |

Results on this item indicated that only 8.9% of the head teachers budgeted for potential breakages or damage to facilities. This attests to the low emphasis that head teachers lay on the area of maintenance, in spite of the vital role that facilities play in the teaching and learning process. Maintenance work requires adequate cleaning materials such as soap, brooms, and disinfectants, and hoes such as slashes and jembes for weeding flower beds. An inquiry was done on the students as to whether their head teachers provided them with adequate equipment and materials for maintenance of the school plant. The results are presented in table 4.33.

**Table 4.33 Provision of equipment and materials for maintenance**

| **Responses** | **No response** | | **Adequate** | | **Not adequate** | | **Total** | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** |
| Soap | 3 | 3.3 | 24 | 26.7 | 63 | 70.0 | 90 | **100** |
| Mopes | 5 | 5.6 | 19 | 21.1 | 66 | 73.3 | 90 | **100** |
| Buckets | 4 | 4.4 | 9 | 10.0 | 77 | 85.6 | 90 | **100** |
| Brooms | 12 | 13.3 | 13 | 14.4 | 65 | 72.2 | 90 | **100** |
| Water | 29 | 32.2 | 12 | 13.3 | 49 | 54.4 | 90 | **100** |
| jembes | 25 | 27.7 | 18 | 20.0 | 47 | 52.2 | 90 | **100** |
| Slashes | 11 | 12.2 | 15 | 16.7 | 64 | 71.1 | 90 | **100** |
| Disinfectants | 16 | 17.8 | 10 | 11.1 | 64 | 71.1 | 90 | **100** |
| **Total** | **105** | **14.6** | **120** | **16.7** | **495** | **68.8** | **720** | **100** |

The majority of head teachers did not provide their students with adequate materials for cleaning as shown in table 4.33 on the high percentage of prefects who rated the provision of all the materials for cleaning as inadequate at an average of 68.8%. This agrees with a study by Snell (2003) which found that provision of enabling factors and materials enhances maintenance of facilities in schools. These findings also confirm findings observed in table 4.32 which revealed lack of budgeting for maintenance by head teachers. The inadequacy of cleaning materials makes the work of maintenance difficult, and subsequently affects the standards of cleanliness.

Provision for waste disposal is another important factor in maintenance of physical facilities. When there are no proper mechanisms for waste disposal, this may lead to pillage of litter which becomes an eye sore to the users of the facilities and visitors to the school. One way of enabling students maintain cleanliness is by provision of dust bins in strategic places for waste disposal. Provision of litter bins is also assumed to be a constant reminder to the users about the need to keep their premises clean and also saves them time that would otherwise be taken to get to the litter pits that may be distant from the areas of operation such as classrooms, laboratories among others. In table 4.34, the an observation was made on provision of litter bins at strategic points in the school compound for disposal of litter

**Table 4.34 Observation checklist on provision of litter bins**

| | **Frequency** | **%** |
|---|---|---|
| Not provided | 58 | 64.4 |
| Provided at the offices | 17 | 18.9 |
| Provided at class rooms | 4 | 4.4 |
| Provided at laboratories | 5 | 5.6 |
| Provided at other strategic areas | 6 | 6.7 |
| **Total** | **90** | **100.0** |

The observation checklist in Table 4.34 revealed that there was lack of litter bins at strategic places in school compounds of the majority of schools in the study for on average, only 32 or 35.6% of the schools had litter bins located at various points in their compounds. This observation was confirmed through the interview with the deputy head

teachers, who indicated that they disposed litter in pits which were situated at designated points in the school compounds with varied distances from the areas of operation such as classrooms, laboratories and dormitories. It was observed that the distance between users and the pits was long and this was likely to discourage the users, especially students from reaching the pits, leading to haphazard disposal of litter. The study also sought to find out whether head teachers provided pavements in schools. An observation checklist was used to determine whether schools provided footpaths or pavements for the users and the nature of the pavements as shown in table 4.35

**Table 4.35 Observation checklist on provision of pavements**

| | **Frequency** | **%** |
|---|---|---|
| Not provided | 53 | 58.9 |
| Concrete | 8 | 8.9 |
| Murram | 14 | 15.6 |
| Earth | 15 | 16.7 |
| **Total** | **90** | **100.0** |

Table 4.35 shows that 58.9 % of the schools did not have demarcated footpaths or pavements. Pavements play an important role in a school setting because apart from acting as a guide, they also reduce the amount of mud in the school compound and especially school buildings. Lack of demarcated pavements may affect cleanliness since users are not restricted in their movements within the school compound. Deputy Head teachers who were interviewed expressed the challenges in maintaining standards of cleanliness and that they can only avoid dirt through washing of the buildings, which was

time consuming, and also wearing out of walls due to constant washing. In order to carry out supervision of maintenance of school facilities, there is need for head teachers to come up with policies to guide personnel on the maintenance practices. Such policies would include: the type of maintenance used by head teachers in school, whether corrective or preventive. This is shown by the period it takes to repair broken or damaged facilities, painting of school buildings, and upkeep of the school compound, as well as penalties imposed on those who damage school facilities. The responses to these items are captured in tables 4.36 to 4.40.

**Table 4.36 Periods taken before servicing tuition facilities**

| Responses | No response | | End of term | | End of year | | Upon | | Total | Breakdown |
|---|---|---|---|---|---|---|---|---|---|---|
| Tuition facilities | Freq | % | Freq | % | Freq | % | Freq | % % | | Freq. |
| Students furniture | 12 | 13.3 | 3 | 3.3 | 19 | 21.1 | 56 | 62.2 | 90 | **100** |
| Lab equip. | 9 | 10.0 | 3 | 3.3 | 22 | 24.4 | 56 | 62.2 | 90 | **100** |
| Black boards | 6 | 6.7 | 10 | 11.1 | 13 | 14.4 | 61 | 67.8 | 90 | **100** |
| Storage materials | 10 | 11.1 | 5 | 5.6 | 19 | 21.1 | 56 | 62.2 | 90 | **100** |
| Office furniture | 13 | 14.4 | 3 | 3.3 | 5 | 5.6 | 74 | 82.2 | 90 | **100** |
| Library materials | 11 | 12.2 | 4 | 4.4 | 10 | 11.1 | 65 | 72.2 | 90 | **100** |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Total** | **6** | **11.3** | **28** | **5.2** | **88** | **16.3** | **368** | **68.1** | **540** | **100** |

Deputy Head teachers' responses in table 4.36 show that, repairs of tuition facilities are done upon breakdown as represented by an average of 68.1%. These results show that very few schools did routine maintenance of facilities at the end of year as expected. This was likely to lead to depreciation of facilities due to lack of servicing. Head teachers interviewed attributed this to financial constraints. There was an attempt to find out how often head teachers serviced utility facilities such as electric and water gadgets

**Table 4.37 Periods taken to service utility facilities**

| **Responses** | **No response** | | **End of term** | | **End of year** | | **Upon breakdown** | | **Total** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq. | % |
| Water tanks | 16 | 17.7 | 3 | 3.3 | 20 | 22.2 | 51 | 56.7 | 90 | **100** |
| Water taps | 12 | 13.3 | 3 | 3.3 | 17 | 18.9 | 58 | 64.4 | 90 | **100** |
| Lighting facilities | 11 | 12.2 | 5 | 5.6 | 3 | 3.3 | 71 | 78.9 | 90 | **100** |
| Drainage facilities | 6 | 17.7 | 10 | 11.1 | 13 | 3.3 | 61 | 67.8 | 90 | **100** |
| **Total** | **45** | **12.5** | **21** | **5.8** | **53** | **14.7** | **241** | **66.9** | **360** | **100** |

Just like in the other two categories of facilities, the findings in table 4.37 indicated that repair and maintenance of utility facilities in the majority of schools were done upon

breakdown at an average of 66.9%. While in the field broken and leaking water taps were observed in almost all areas ranging from the kitchens to the dormitories. There were hanging or missing fluorescent tubes and bulbs for lighting in buildings such as classrooms, dormitories, kitchens and dining halls. In most of the schools the drainage trenches were overgrown with grass, showing signs of neglect, while in others there were broken drainage pipes. The most affected areas were the kitchens and the dormitories. The other area of concern on maintenance is the protection of the wall surfaces against the weather conditions through painting. Table 4.38 show the results obtained from schools on when painting was done last.

**Table 4.38 Period of painting tuition facilities**

| Period of painting | No response | | 1-4 years | | 5 years | | Over 5 years | Total | |
|---|---|---|---|---|---|---|---|---|---|
| | Freq. | % | Freq | % | Freq | % | Freq | % | % |
| Administration block | 15 | 16.7 | 16 | 17.8 | 51 | 56.7 | 8 | 8.9 | 90 |
| | | | | | | | | **100** | |
| Class rooms | 6 | 6.7 | 12 | 13.3 | 15 | 16.7 | 59 | 65.5 | 90 |
| | | | | | | | | **100** | |
| Science laboratories | 12 | 13.3 | 4 | 4.4 | 11 | 12.2 | 63 | 70.0 | 90 |
| | | | | | | | | **100** | |
| Workshops | 32 | 35.6 | 3 | 3.3 | 3 | 3.3 | 52 | 57.8 | 90 |
| | | | | | | | | **100** | |
| Departmental offices | 4 | 4.4 | 3 | 3.3 | 3 | 3.3 | 80 | 88.9 | 90 |
| | | | | | | | | **100** | |
| **Total** | **69** | **15.3** | **38** | **8.4** | **83** | **18.4** | | **58.2** | **450** |

| | | |
|---|---|---|
| | **262** | **100** |

The responses from deputy head teachers in table 4.38 revealed that almost all categories of facilities were painted over five years before the study, at an average of 58.2 %. This may explain the dilapidated state of most of the tuition facilities observed during the study. Such facilities may not be attractive to the users as found out by Bowers and Burkhet (1987) in their studies that attractive schools are sources of pride and generate good will for education. The studies also found out that schools with well maintained facilities lead to higher student scores on test scores, less absenteeism, less turnover of teaches and enhanced feeling of security and emotional well being. The study also tried to find out when sanitation facilities were painted last and results are presented in table 4.39.

**Table 4.39 Period of painting sanitation facilities**

| **Responses** | **No response** | | **1 year** | | **2-5 years** | | **Over 5 years** | | **Total** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | Freq | % | Freq. | % |
| Students' toilets | 2 | 2.2 | 5 | 5.6 | 4 | 4.4 | 79 | 87.8 | 90 | 100 |
| Teachers' toilets | 6 | 6.7 | 4 | 4.4 | 6 | 6.7 | 74 | 82.2 | 90 | 100 |
| **Total** | **8** | **4.4** | **9** | **5.0** | **10** | **5.6** | **153** | **85.0 100** | | **180** |

Deputy Head teachers' responses on when sanitation facilities were last painted indicated that all categories of facilities were painted over five years before the study at an average

of 82.2% and 87.8% respectively. This indicates that head teachers were not putting much emphasis on maintenance of school facilities such as toilets despite the important part they play in the school programme. The observations revealed the poor surfaces of most of the facilities in the schools. For facilities to be kept in optimum condition, precautionary measures need to be taken into account by the users. An inquiry was made to determine whether head teachers had policies regarding penalties imposed on students or personnel who damage school facilities.

**Table 4.40 Penalties for damaging school facilities**

| | **Frequency** | **%** |
|---|---|---|
| No response | 41 | 45.6 |
| Replacement of item | 4 | 4.4 |
| Suspension | 7 | 7.8 |
| Manual punishment | 5 | 5.6 |
| Other punishments | 33 | 36.7 |
| **Total** | **90** | **100.0** |

Results in table 4.40 revealed that most of the schools as indicated by 50.1% of the class teachers on average gave varied punishments to students for damaging school facilities. Only 4.4% indicated that students were required to replace the damaged facilities. This was confirmed through the interviews with class teachers who reiterated that replacement of damaged facilities was a more effective method of discouraging students from wanton destruction of school facilities and fostering maintenance culture. Good maintenance practice involves reporting of damages or breakages to the school administration on time,

while late communication may lead to delay in taking mitigation measures and hence possession of poor facilities by the schools. Table 4.41 gives responses on where prefects report cases of breakages or damages.

**Table 4.41 Reporting procedures for damaged facilities**

| | **Frequency** | **%** |
|---|---|---|
| No response | 65 | 72.2 |
| Teacher on duty | 18 | 20.0 |
| Class teacher | 4 | 4.4 |
| Class prefect | 3 | 3.3 |
| **Total** | **90** | **100.0** |

Results in table 4.41 revealed that, only 25 or 27.8 % of the prefects reported cases of breakages or damage of school facilities to the school authority. This implies that in the majority of the schools there were no clear structures on reporting of damage to school properties. This is not encouraging since breakages may go unnoticed and hence lead to piling of broken facilities to alarming rates. The schools will in the long run bear the burden of major repairs or replacement of facilities which would have been saved through early detection. Apart from penalties imposed for damage of school facilities, it was found necessary to find out from the school prefects how long it took for the school administration to repair the damaged facilities. Results are captured in table 4.42.

**Table 4.42 Period taken to repair damaged facilities**

| Duration | Can't remember | | Immediate | | End term | | End year | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Facilities | Freq | % | Freq | % | Freq | % | Freq | % | Freq. | % |
| Textbooks | 3 | 12.5 | 2 | 8.3 | 4 | 16.7 | 15 | 62.5<br>**100** | | 24 |
| Furniture | 17 | 70.8 | 0 | 0.0 | 2 | 8.3 | 5 | 20.8<br>**100** | | 24 |
| Window panes | 16 | 66.7 | 2 | 8.3 | 2 | 8.3 | 4 | 16.7<br>**100** | | 24 |
| Games equip. | 15 | 62.5 | 2 | 8.3 | 2 | 8.3 | 5 | 20.8<br>**100** | | 24 |
| Library materials | 3 | 12.5 | 1 | 4.2 | 4 | 16.7 | 16 | 66.7<br>**100** | | 24 |
| Laboratory equip. | 12 | 50.0 | 1 | 4.2 | 2 | 8.3 | 9 | 37.5<br>**100** | | 24 |
| Farm equip. | 13 | 54.2 | 2 | 8.3 | 4 | 16.7 | 5 | 20.8<br>**100** | | 24 |
| **Total** | **79** | **47.0** | **10** | **6.0** | **20** | **11.9** | **59** | **65.6**<br>**100** | | |

Findings in table 4.42 showed that on average 47.0% of the prefects could not remember specific periods when damaged facilities were replaced. Interviews with class teachers revealed that schools lost lots of facilities through damage by students. Some of the students who were expected to replace damaged facilities did not do so since some

transferred to other schools before the end of the year. Timely replacement of damaged facilities could save schools the losses incurred. Apart from replacement and repair of damaged facilities, it is also necessary to ensure cleaning of facilities so as to keep them in an optimum state. This study tried to find out from prefects how students were involved in various cleaning activities in schools and findings are as presented in table 4.43

**Table 4.43 Involvement of students in cleaning facilities**

| | **Frequency** | **%** |
|---|---|---|
| Cleaning classrooms | 42 | 46.7 |
| Cleaning office | 6 | 6.7 |
| Weeding flower beds | 8 | 8.9 |
| Cutting grass | 7 | 7.8 |
| Cleaning pavements | 11 | 12.2 |
| Cleaning play grounds | 8 | 8.9 |
| Cleaning other facilities | 8 | 8.9 |
| **Total** | **90** | **100.0** |

Prefects' responses in table 4.43 indicated that most of the schools represented by 46.7%, involved students in cleaning of class rooms, but did so to a small extent on other facilities. Students are the users of the facilities and need to be involved in maintenance so as to inculcate a maintenance culture. Interviews with head teachers revealed that in some of the schools, students were involved in cleaning works in virtually all the areas.

The head teachers of such schools reiterated that students became more responsible when they participated in maintenance. The head teachers further said that to ensure that all the students are involved, every student is assigned an area to clean and prefects are equally assigned areas to supervise either on term or yearly basis. Observations during the study showed that facilities in these schools appeared better than those in schools that relied on grounds men for cleaning. This observation was corroborated with the class teachers' responses which are presented in table 4.44.

**Table 4.44 Involvement of students in minor repairs of facilities**

| | **Frequency** | **%** |
|---|---|---|
| No response | 84 | 93.3 |
| Repair of furniture | 3 | 3.3 |
| Covering text books | 3 | 3.3 |
| **Total** | **90** | **100** |

Findings on this item showed that only 6 or 6.6% of schools involved students in minor repairs of school facilities. However through interviews during the study it emerged that it was only in schools that offered technical subjects as an area of study that minor repairs were done by students for practical purposes. However observations revealed that even in such schools, the amount of broken facilities was equally large. In one of the schools, formerly a technical school, despite possessing many machines for engineering, electricity and carpentry it emerged that they are not being utilized for repairs due to lack of a technical teacher, as revealed by the head teacher during the interview.

Maintenance of facilities also requires frequent sweeping, dusting and mopping of the floors. Sweeping reduces litter levels and effect of rodents and insects which would otherwise destroy facilities leading to early depreciation. It also reduces dust which affects facilities such as books, furniture and teaching-learning materials. Constant sweeping likewise makes facilities appealing to the users. Data in tables 4.45 to 4.47 gives the responses by the prefects on frequency of carrying out different maintenance works by the students on weekly basis.

**Table 4.45 Frequency of sweeping classrooms**

| | **Frequency** | **%** |
|---|---|---|
| Daily | 85 | 94.4 |
| Twice a week | 3 | 3.3 |
| Once per week | 1 | 1.1 |
| No specific period | 1 | 1.1 |
| **Total** | **90** | **100.0** |

In the majority of schools sweeping of classrooms was done daily as given by 94.4% response from prefects. This is gozod because sweeping reduces the amount of dust which would otherwise be hazardous both to users and even the facilities hence reducing their lifespan.

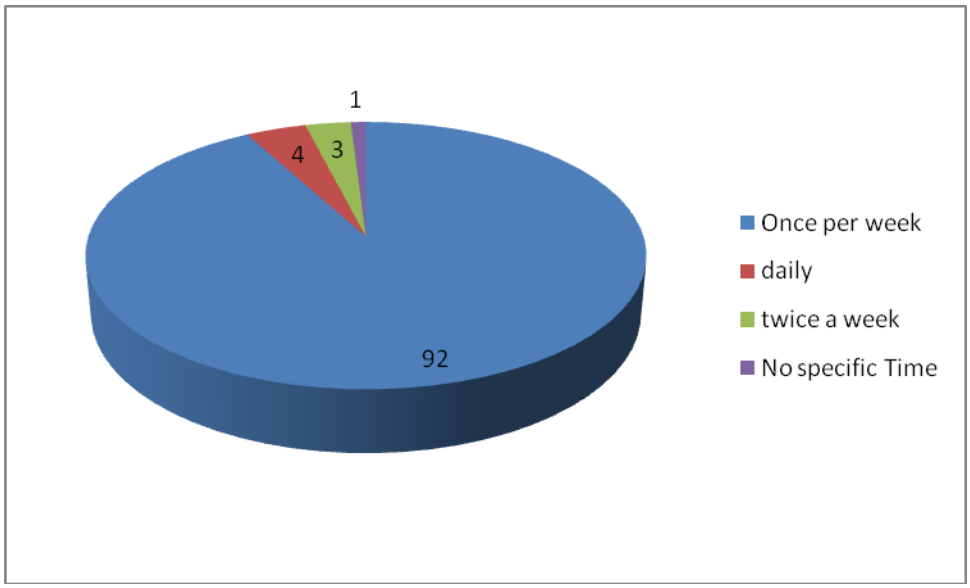


**Figure 4.3 Frequency of mopping classrooms**

In figure 4.3, in the majority of schools represented by 92.0%, mopping of classrooms was done only once per week. The deputy head teachers who were interviewed cited lack of time as the reason for not mopping classrooms on a daily basis. However, in the few schools where this was done daily, the deputy head teachers reported that they had clear schedules indicating the time for mopping. In boarding schools this was done before the

beginning of classes, while in day schools it was done in the evenings before students left for their homes.

The other concern was on dusting of class rooms. Prefects were further asked to indicate how often this was done. School buildings and other facilities such as furniture need to be dusted regularly so as to reduce the damage caused by dust as well as increasing their lustre. Head teachers can ensure this by setting aside specific and regular periods for dusting each category of facilities. This will ensure longer lifespan for school facilities and also act as a motivation to the users. The responses on the frequency of dusting of classrooms are given in table 4.46

**Table 4.46 Frequency of dusting classrooms**

| | **Frequency** | **%** |
|---|---|---|
| No response | 72 | 80.0 |
| Weekly | 2 | 2.2 |
| Monthly | 5 | 5.6 |
| Term | 11 | 12.2 |
| **Total** | **90** | **100.0** |

The responses in table 4.46 show that dusting of facilities is not taken seriously in most of the schools, for only 2 or 2.2% schools dusted their facilities weekly. Most parts of western province are wet and therefore vegetation and grass grow very fast. If the grass is not cut regularly, the compounds become bushy and unattractive, and also may attract harmful rodents like rats and insects. It was therefore considered necessary to keep the

grass in their lawns low. This study sought to find out how often the grass is cut and the findings are tabulated in table 4.47

**Table 4.47 Frequency of slashing around the school compound**

| | **Frequency** | **%** |
|---|---|---|
| Weekly | 2 | 2.2 |
| Once per month | 4 | 4.4 |
| Once per term | 9 | 10.0 |
| No specific time | 75 | 83.3 |
| **Total** | **90** | **100.0** |

Findings in Table 4.47 show that the majority of schools represented by 83.3% did not have specific times for slashing the grass. It was observed in most of the schools visited during the study that compounds were overgrown with grass, especially in playgrounds confirming the responses from the prefects. However it is commendable to note that in schools where slashing was done at least once per month, the facilities such as playgrounds and areas around buildings and the lawns had short grass and appeared appealing. Data on frequency of weeding flower beds yielded results in Table 4.48

**Table 4.48 Frequency of weeding flower beds**

| | Frequency | % |
|---|---|---|
| No response | 7 | 7.8 |
| Monthly | 4 | 4.4 |
| Term | 10 | 11.1 |
| no specific times | 69 | 76.7 |
| **Total** | **90** | **100.0** |

Findings in table 4.48 revealed that only 4.4% of the schools in the study weeded flower beds on monthly basis, while the majority represented by 76.7% did not have specific time for doing this. Deputy Head teachers who were interviewed reported that they no longer used manual work as form of punishment to students since it has been outlawed by the government. This left the exercise to school grounds men. However, there was one school that had organized a programme which involved students in what was referred to as "community work" where students took part in cleaning works such as slashing, mopping and dusting of school facilities. This was done at games time and was alternated with games. Facilities in this school appeared very clean. The research also attempted to find out whether schools give students opportunities to form maintenance clubs. The responses are shown in table 4.49

**Table 4.49 Formation of maintenance clubs by students**

| | Frequency | % |
|---|---|---|
| No response | 4 | 4.4 |

| | | |
|---|---|---|
| Disagree | 86 | 95.6 |
| **Total** | **90** | **100.0** |

Findings from table 4.49 revealed that schools don't allow students to form maintenance clubs as shown from 86 or 95.6% prefects who did not agree to this assertion. In schools students form clubs such as health, scouting, geographical, and debating among others. Participation in club activities makes them become creative by sharing ideas on various issues. Allowing students to form maintenance clubs, could assist students develop a sense of ownership of the facilities and embrace the maintenance culture. Since head teachers did not give students this opportunity it means that schools missed out on tapping the abilities of students on maintenance.

The success of organizations depends on implementation of management functions such as monitoring and evaluation. Head teachers as managers of schools need to monitor and evaluate maintenance activities in schools. This led to the fourth objective of the study.

### 4.5 Monitoring and Evaluation of Maintenance in Schools

Apart from supervision of the school personnel on maintenance of facilities, it is similarly essential for head teachers to establish appropriate ways of monitoring and evaluating activities in schools. The fourth objective of the study was to establish how head teachers monitor and evaluate maintenance activities in schools. Monitoring and evaluation entails checking facilities so as to identify faults in time and address them accordingly. Such

checks involve frequent inspection, regular preparation of reports about the state of facilities and suggestions about mitigation factors.

Monitoring and evaluation of school programmes begins with possession of relevant data on the activity that is being monitored. In maintenance, head teachers need to have facts about the state of facilities, when they were constructed or bought, maintenance requirements, as well as identified defects, so as to enable them plan for their maintenance. Information on whether head teachers take such actions is captured in table 4.50 to 4.51.

**Table 4.50 Preparation of maintenance reports**

| | **Frequency** | **%** |
|---|---|---|
| No response | 3 | 3.3 |
| Prepared | 8 | 8.9 |
| Did not prepare | 74 | 82.2 |
| **Total** | **90** | **100.0** |

The findings in Table 5.50 revealed that only 8 or 8.9% schools prepared maintenance reports. These findings contradict requirements from the ministry of education requiring schools to maintain evaluation reports on performance and quality of physical facilities (RoK, 2011). There is need for schools to prepare regular and accurate maintenance reports since this encourages accountability on the part of users, supports future planning and facilitates accurate costing of future maintenance activities. This will in turn help schools save funds which they would otherwise loose due to deferred maintenance.

Consequently, an inquiry was done to establish whether head teachers carried out regular checks on the state of facilities in schools. The findings are in table 4.51.

**Table 4.51 Frequency of inspection of facilities by head teachers**

| | **Frequency** | **%** |
|---|---|---|
| Once a term | 6 | 6.7 |
| Once a month | 8 | 8.9 |
| Once a year | 12 | 13.3 |
| Can't remember | 64 | 71.1 |
| **Total** | **90** | **100.0** |

The findings in Table 4.52 revealed that only 26 or 28.9% of the head teachers personally checked school facilities at varied periods. These findings contradict findings from a study by Grauwe (2007) which found that head teachers need to make periodic checks on facilities to ensure that they are continuously operating within certain pre-established tolerance so as to prevent defects by making timely adjustments. The findings of this study imply that head teachers rely on reports given by other school personnel and therefore lack first hand information on the state of facilities. Sometimes such reports may not reach the head teachers on time, leading to delays in taking corrective measures. This may result into losses that could have been avoided if regular checks were done by head teachers in person. Monitoring of maintenance requires holding the users of the facilities accountable. This can be done by allocating facilities to individuals. Table 4.53 presents the responses from class teachers to confirm if facilities assigned to students are signed for as a commitment.

**Table 4.52 Signing for facilities by the students**

| **Responses** | **Don't sign** | | **Term** | | **Yearly** | | **Total** | |
|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | | |
| Library materials | 15 | 16.7 | 22 | 24.4 | 53 | 58.9 | 90 | **100** |
| Text books | 23 | 25.6 | 18 | 20.0 | 49 | 54.4 | 90 | **100** |
| Laboratory equipment | 68 | 75.6 | 10 | 11.1 | 12 | 13.3 | 90 | **100** |
| Furniture | 84 | 93.3 | 1 | 1.1 | 5 | 5.6 | 90 | **100** |
| Cleaning materials | 82 | 91.1 | 0 | 0.0 | 8 | 8.9 **100** | | 90 |
| Beds | 88 | 97.8 | 0 | 0.0 | 2 | 2.2 **100** | | 90 |
| **Total** | **360** | **66.7** | **51** | **9.4** | **129** | **23.9 100** | | **540** |

The responses in table 4.52 indicate that on average, 66.7% of the schools did not require students to sign for the facilities issued to them. It is only library materials and school text books that are signed for by the students on term basis as represented by 24% and 20% of the class teachers respectively. Interviews with class teachers revealed that in most of the schools, it was the class prefects or dorm prefects who received the other types of facilities and committed themselves through signing. However there were no clear mechanisms of ensuring that the students who used these facilities returned them. Neither were the states of the facilities ascertained. This may make students have a non-chilling attitude towards school facilities.

This research attempted to find out whether head teachers carry out regular stock taking of school facilities. This was done by asking store clerks to indicate how often they did stock taking of physical facilities in schools. Responses to this item are in the tables 4.53

**Table 4.53 Frequency of carrying out stock taking of facilities**

| **Responses** | **Term** | | **Yearly** | | **Can't remember** | | | **Total** |
|---|---|---|---|---|---|---|---|---|
| | **freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq.** | **%** |
| Library materials | 12 | 13.3 | 23 | 25.6 | 55 | 61.1 | 90 | **100** |
| Text books | 24 | 26.7 | 53 | 58.9 | 13 | 14.4 | 90 | **100** |
| Laboratory equipment | 9 | 10 | 23 | 25.6 | 58 | 64.4 | 90 | **100** |
| Chairs | 2 | 2.2 | 11 | 12.2 | 77 | 85.6 | 90 | **100** |
| Lockers/desks | 2 | 2.2 | 11 | 12.2 | 77 | 85.6 | 90 | **100** |
| Others | 3 | 3.3 | 22 | 24.4 | 65 | 72.2 | 90 | **100** |
| **Total** | **52** | **9.6** | **143** | **26.5** | **345** | **63.9** | **540** | **100** |

The findings in table 4.53 showed that apart from text books where majority of schools at 58.9% did stocktaking every end of year, the case was different for other facilities. Without regular stock taking of facilities, schools may not be in a position to know the actual situation and state of facilities and plan for their maintenance. Another method of monitoring what goes on in schools just like in other organizations is by way of personal inspection. This can be done by delegation of supervisory roles to other members of staff by the head teachers. Such roles can be played by HODs or class teachers. The study therefore made an inquiry on the people involved in stock taking and results are captured in Table 4.54

**Table 4.54 Personnel involved in stock taking of facilities**

| **Personnel** | **Frequency** | **%** |
|---|---|---|
| Store clerk | 52 | 57.8 |
| Head teacher | 12 | 13.3 |
| HODs | 10 | 11.1 |
| Class teachers | 3 | 3.3 |
| Other school personnel | 13 | 14.4 |
| **Total** | **90** | **100.0** |

Findings in table 4.54 revealed that only 12 or 13.3% of head teachers took part in the stock taking of facilities in schools. This shows that schools relied on subordinate staff for stock taking of facilities. The direct users of facilities such as class teachers, subject teachers and heads of departments were not involved much. However, these groups would have been the most appropriate in tracking the availability and state of facilities.

Heads of departments, for example, are better placed to do stock taking of facilities in their departments since they understand facilities under their care better. For proper maintenance of facilities it is also important to consider their storage through provision of storage rooms. Results on this item are presented in Table 4.55

**Table 4.55 Provision and state of storage rooms for facilities**

| **Responses** | **Good** | | **Fair** | | **Poor** | | **Unavailable** | | **Total** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Freq | % | Freq | % | Freq | % | freq | % | Freq | % |
| Stores for TLMs | 5 | 5.6 | 8 | 8.9 | 12 | 13.3 | 64 | 71 | 90 | **100** |
| Maintenance facilities | 5 | 5.6 | 4 | 4.4 | 23 | 25.6 | 58 | 64.4 | 90 | **100** |
| Broken facilities | 8 | 8.9 | 5 | 5.6 | 13 | 14.4 | 64 | 71.1 | 90 | **100** |
| Boarding Facilities | 8 | 8.9 | 6 | 6.7 | 40 | 44.4 | 36 | 40.0 | 90 | **100** |
| Foodstuff | 9 | 10.0 | 12 | 13.0 | 21 | 23.3 | 48 | 53.3 | 90 | **100** |
| Utility facilities | 11 | 12.2 | 7 | 7.8 | 6 | 6.7 | 66 | 73.3 | 90 | **100** |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **46** | **8.5** | **42** | **7.8** | **115** | **21.3** | **336** | **62.2** | **540** | **100** |

Findings on this item as shown in table 4.55 indicate that on average only 37.8% of the schools provided special storage rooms for different facilities which also varied in the outlook. The states of the available stores were rated as poor. Observations made during visits to the study schools showed piles of broken facilities ranging from chairs, desks, lockers, beds and building materials all lumped together in the same rooms. In other schools, the materials were piled in open spaces in the school compounds. From the observation, some of the abandoned facilities dumped in the stores or in the open were in repairable condition and only required some little funds for them to be refurbished into functional state. To ascertain the general state of physical facilities an observation schedule appendix C was filled by the researcher for each school visited guided by the following key: Poor: items were not observed, were missing or were worn out, Fair: the items were observed but some were missing, broken or dirty, Good: items were observed appeared clean and were almost in their original state, Very Good: facilities appeared very clean and had no faults or breakages. The results from the observation schedule are tabulated in table 4.56.

**Table 4.56 Rating of state of physical facilities from the observation checklist**

| **Facilities** | **Good** | | **Fair** | | **Poor** | | **Total** | |
|---|---|---|---|---|---|---|---|---|
| | **Freq** | **%** | **Freq** | **%** | **Freq** | **%** | **Freq.** | **%** |
| Offices | 25 | 27.8 | 4 | 4.4 | 61 | 67.7 | 90 | **100** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Classrooms | 12 | 13.3 | 18 | 20.0 | 60 | 66.7 | 90 | **100** |
| Laboratories | 2 | 2.2 | 11 | 12.2 | 77 | 85.6 | 90 | **100** |
| Storage facilities | 10 | 11.1 | 22 | 24.4 | 58 | 64.4 | 90 | **100** |
| Furniture | 11 | 12.2 | 23 | 25.6 | 56 | 62.2 | 90 | **100** |
| Utility facilities | 8 | 8.9 | 18 | 20.0 | 64 | 71.1 | 90 | **100** |
| Sanitation facilities | 7 | 7.8 | 22 | 24.4 | 61 | 67.8 | 90 | **100** |
| Playfields | 5 | 5.6 | 17 | 18.9 | 68 | 75.6 **100** | | 90 |
| **Total** | **80** | **11.1** | **137** | **19.1** | **505** | **70.1 100** | | **720** |

In Table 4.56, various physical facilities in the majority of schools were rated as poor at an average of 70.1%. The observations made in some of the schools visited showed facilities such as, ceiling boards, floors and facia boards were in deplorable states, with some showing signs of rotting. In the majority of the schools floor surfaces were in bad states, with most of the surface areas having peeled or chipped off. Most of the buildings especially class room had missing doors, windows and broken furniture. These findings concur with those by the Tennessee Advisory Commission on Inter-Governmental Relations Staff Information Report which found that 26% of the state's schools were rated fair, poor or in need of replacement. Such a state is likely to affect user as argued by Earthman and Lemaster (1996) in their study on working conditions in urban schools in Britain which concluded that physical conditions have direct positive and negative effects on teacher, morale, feelings of effectiveness and the general learning environment.

**4.6 Relationship between head teachers' gender, type of school, administrative experience, training and maintenance of physical facilities.**

The fifth objective of the study was to determine if there is a relationship between head teachers' characteristics such as gender, type of school, administrative experience, training in management and maintenance of physical facilities. This objective was examined by testing four hypotheses. The dependent variable was maintenance of physical facilities, while the independent variables were: gender, administrative experience, type of school and exposure of the head teacher to training in management. The results on these items are shown in tables 4.57 to 4.60.

**Table 4.57 Rating of facilities as per the gender of the head teacher**

| Type of facility | Rating of facilities per gender | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Very good | | Good | | Fair | | Poor | | Very poor | | |
| | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | |
| Offices | 1 | 10 | 3 | 10 | 4 | 7 | 19 | 10 | 21 | 5 | **90** |
| Classrooms | 0 | 0 | 2 | 2 | 4 | 4 | 4 | 3 | 38 | 33 | **90** |
| Laboratory | 1 | 10 | 3 | 10 | 4 | 7 | 19 | 10 | 21 | 5 | **90** |
| Storage facilities | 3 | 0 | 0 | 0 | 3 | 0 | 30 | 30 | 12 | 12 | **90** |
| Furniture | 0 | 4 | 2 | 7 | 14 | 18 | 20 | 10 | 12 | 3 | **90** |
| Water facilities | 2 | 1 | 0 | 0 | 1 | 3 | 30 | 26 | 15 | 12 | **90** |
| Sanitation facilities | 2 | 2 | 0 | 0 | 1 | 3 | 37 | 33 | 8 | 4 | **90** |
| Play fields | 4 | 1 | 4 | 2 | 9 | 3 | 5 | 2 | 26 | 34 | **90** |
| **Total** | **13** | **28** | **14** | **31** | **40** | **45** | **164** | **124** | **153** | **108** | **720** |
| **Percentage** | **1.8** | **3.9** | **1.9** | **4.3** | **5.6** | **6.3** | **22.8** | **17.2** | **21.3** | **15.0** | **100** |

The cross tabulation between gender of the head teachers and rating of state of various facilities in Table 4.57 revealed that more schools headed by female head teachers possessed facilities that were rated as fair and above as compared to those headed by male head teachers, at 14.4% and 9.3% respectively. However, generally majority of schools possessed facilities that were rated as poor and below regardless of whether they were headed by males or females, at, 44.4% and 32.2% respectively. It was found necessary to run a chi-square statistic to establish whether there is a significant relationship between gender of head teacher and maintenance of physical facilities.

**Ho1: There is no significant relationship between gender of the head teacher and maintenance of facilities**

To test the null hypothesis it was found necessary to specify the dependent variable and independent variables. The dependent variable was maintenance of facilities while the independent variable was gender of head teachers. Maintenance was inferred from the rating of state of various physical facilities found in school. These included offices, classrooms, laboratories, storage facilities furniture, plumbing, sanitation and playgrounds. Results are as shown in Table 4.58

**Table 4.58 Chi-square on relationship between gender of head teachers and maintenance of facilities**

| **Gender** | **Chi-square** | | |
|---|---|---|---|
| **Factors** | **Value $X^2$** | **df** | **Asymp. Sig. (2-sided)** |
| State of offices | 8.318(a) | 4 | .006 |
| State of classrooms | 10.848(a) | 4 | .001 |
| State of laboratories | 28.931(a) | 4 | .000 |
| State of storage facilities | 11.030(a) | 3 | .002 |
| State of furniture | 16.445(a) | 4 | .002 |
| State of water facilities | 13.656(a) | 3 | .000 |
| State of sanitation facilities | 15.386(a) | 3 | .000 |
| State of playgrounds | 25.441(a) | 4 | .000 |

The findings indicated that the p value for all categories of facilities was less than 0.05 ($p<0.05$) showing a relationship between gender of the head teacher and maintenance of

facilities. Therefore we reject the null hypothesis that states that there is no significant relationship between gender of the head teacher and maintenance of physical facilities and accept the alternate. The administrative experience of the head teacher can be a factor in maintenance of the school plant. The assumption made here is that a head teacher who has served for a longer period has been exposed to various administrative experiences that include challenges, ways of soliciting for funds, penalties for wanton damage of facilities, as well as planning for facility maintenance. The findings on this inquiry yielded the data in table 4.59

**Table 4.59 Rating of physical facilities as per the head teachers' experience**

| HT Experience | Rating | **Type of facility** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Offices | classrooms | Labs. | storage facility | furniture | water facility | Sanit. facility. | Play field | Total | % |
| 1-5 years | V.G | 7 | 0 | 7 | 3 | 2 | 2 | 3 | 3 | 27 | 3.7 |
| | G | 10 | 5 | 10 | 0 | 7 | 0 | 0 | 3 | 35 | 4.9 |
| | F | 7 | 8 | 7 | 2 | 21 | 3 | 12 | 8 | 68 | 9.4 |
| | P | 20 | 24 | 20 | 26 | 20 | 30 | 20 | 7 | 167 | 23.2 |
| | V. P | 17 | 20 | 17 | 30 | 11 | 26 | 26 | 40 | 187 | 26.0 |
| 6-10 years | V. G | 3 | 0 | 3 | 0 | 1 | 1 | 1 | 2 | 11 | 1.5 |
| | G | 4 | 0 | 4 | 0 | 2 | 0 | 0 | 3 | 13 | 1.8 |
| | F | 1 | 1 | 1 | 1 | 7 | 0 | 3 | 2 | 16 | 2.2 |
| | P | 10 | 2 | 10 | 0 | 8 | 10 | 6 | 1 | 47 | 6.5 |
| | V. P | 2 | 17 | 2 | 19 | 2 | 9 | 10 | 12 | 73 | 10.1 |
| 11 years& above | V. G | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 4 | 0.6 |
| | G | 1 | o | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0.3 |
| | F | 2 | 2 | 2 | 0 | 4 | 1 | 1 | 2 | 14 | 1.9 |
| | P | 4 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 10 | 1.4 |
| | V. P | 2 | 7 | 2 | 9 | 4 | 8 | 8 | 6 | 46 | 6.4 |
| **Total** | **90** | **90** | **90** | **90** | **90** | **90** | **90** | **90** | **90** | **720** | **100** |

Findings in Table 4.59 revealed that on average most of the schools headed by head teachers who had served for less than 5 years in headship positions possessed facilities that were rated as poor and below, at 49.2% compared to those who had served for 11 years and above at 16.7%. It is assumed that long administrative experience exposes heads to challenges and equips them with necessary knowledge on application of relevant mitigation measures leading to better maintenance of facilities. A chi-square test was run to test hypothesis on whether there is a significant relationship between administrative experience of a head teacher and maintenance of physical facilities.

**Ho3: There is no relationship between administrative experience of the head teacher and maintenance of the school plant.**

Before testing the null hypothesis, the dependent and independent variables were identified. The dependent variable was maintenance of physical facilities which was inferred from rating of the state of physical facilities, while the independent variable was head teacher's administrative experience which was inferred from the number of years a teacher had served in headship capacity. The results from the chi-square test are presented in Table 4.60

**Table 4.60 Chi-square on relationship between administrative experience of the head teacher and maintenance of facilities**

| Head teacher experience | Chi-square | | |
|---|---|---|---|
| | Value | | Asymp. Sig. |
| Factors | $X^2$ | df | (2-sided) |
| State of offices | 6.164(a) | 8 | .504 |
| State of classrooms | 17.384(a) | 8 | .567 |
| State of laboratories | 8.880(a) | 8 | .690 |
| State of storage facilities | 21.123(a) | 6 | .012 |
| State of furniture | 8.055(a) | 8 | .692 |
| State of water facilities | 10.289(a) | 6 | .171 |
| State of sanitation facilities | 14.529(a) | 6 | .003 |
| State of playgrounds | 7.056(a) | 8 | .639 |

The chi- square on relationship between administrative experience of the head teacher and maintenance of facilities in Table 4.60, the p value for all facilities apart from sanitation facilities was greater than 0.05 ( $p>0.05$). Therefore we accept the null hypothesis that states that there is no relationship between administrative experience of the head teacher and maintenance of the school plant and reject the alternate.

The study also attempted to find out if there is a relationship between type of school for the head teacher and maintenance of physical facilities. This was done by rating of facilities basing on categories of: boys only, girls only and mixed schools. Cross tabulation of the relationship between type of school for the head teacher and maintenance of facilities yielded results as captured in table 4.61

**Table 4.61 Rating of physical facilities as per the type of school**

| School type | Rating | Type of facility | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Offices | c. rooms | Labs. | Storage facility | furn. | water facility | San. Facility | p. fields | Total | % |
| Boys only | V.G | 7 | 0 | 7 | 3 | 2 | 2 | 3 | 3 | 27 | 3.8 |
| | G | 1 | 5 | 1 | 0 | 6 | 0 | 0 | 3 | 16 | 2.2 |
| | F | 0 | 3 | 0 | 2 | 0 | 3 | 5 | 2 | 15 | 2.1 |
| | P | 0 | 0 | 0 | 3 | 0 | 3 | 0 | 0 | 6 | 0.8 |
| | V. P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Girls only | V. G | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | G | 9 | 0 | 9 | 0 | 1 | 0 | 0 | 0 | 19 | 2.6 |
| | F | 7 | 5 | 4 | 0 | 16 | 0 | 7 | 5 | 44 | 6.1 |
| | P | 1 | 12 | 4 | 17 | 0 | 17 | 10 | 7 | 68 | 9.4 |
| | V.P | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 0.7 |
| Mixed | V. G | 4 | 1 | 4 | 0 | 1 | 1 | 0 | 2 | 13 | 1.8 |
| | G | 5 | 0 | 4 | 0 | 3 | 0 | 0 | 5 | 17 | 2.4 |
| | F | 3 | 3 | 3 | 1 | 16 | 1 | 1 | 4 | 32 | 4.4 |
| | P | 33 | 19 | 30 | 6 | 28 | 20 | 16 | 1 | 153 | 21.3 |
| | V. P | 20 | 42 | 24 | 58 | 17 | 43 | 48 | 53 | 305 | 42.4 |
| **Total** | | **90** | **90** | **90** | **90** | **90** | **90** | **90** | **90** | **720** | **720** |

Results on type of school and rating of facilities revealed that on average, the majority of mixed schools at 53.7%, possessed facilities that were rated as poor and below, while the rating of facilities in single sex schools was almost the same. A chi-square test statistic was run to find out if there was a significant relationship between type of school for the head teacher and maintenance of facilities. Results are as capture in table 4.62

**Table 4.62 Chi-square on relationship between type of school for head teacher and maintenance of facilities**

| **Type of School** | **Chi-square** | | |
|---|---|---|---|
| | **Value** | | **Asymp. Sig. (2-** |
| **Factors** | **$X^2$** | **df** | **sided)** |
| State of Offices | 45.013(a) | 16 | .002 |
| State of Classrooms | 45.399(a | 16 | .000 |
| State of Laboratories | 69.551(a) | 16 | .000 |
| Storage facilities | 24.828(a) | 12 | .000 |
| State of furniture | 39.385(a) | 16 | .000 |
| State of water facilities | 49.186(a) | 12 | .000 |
| State of sanitation facilities | 39.375(a) | 12 | .000 |
| State of playgrounds | 21.720(a) | 16 | .002 |

The chi-square statistic in table 4.62 yielded the p value for all categories of facilities that was less than 0.05 ($p<0.05$) showing that there is a relationship between type of school for head teacher and maintenance of facilities. Therefore we reject the null hypothesis that states that there is no significant relationship between type of school for head teacher and maintenance of physical facilities and accept the alternate.

The study also sought to find out the relationship between training of the head teacher on management and maintenance of physical facilities. This was done by cross tabulating head teachers' attendance of KESI courses and other courses on school management and rating of the state of different physical facilities. Results are as shown in table 4.64

**Table 4.63 Rating of physical facilities as per head teacher training**

| HT Training | Facility rating | Type of facility | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | offices | classrooms | Lab. | storage facilities | Furn. | water fac. | Sanit. Fac. | Playfields | total | % |
| KESI courses | V. G | 2 | 0 | 2 | 2 | 0 | 1 | 1 | 1 | 11 | 1.5 |
| | G | 3 | 2 | 4 | 3 | 3 | 2 | 3 | 4 | 24 | 3.3 |
| | F | 3 | 8 | 2 | 6 | 3 | 7 | 2 | 4 | 35 | 4.9 |
| | P | 2 | 4 | 2 | 0 | 2 | 3 | 11 | 7 | 31 | 4.3 |
| | V. P | 11 | 8 | 10 | 11 | 8 | 9 | 5 | 6 | 72 | 10.0 |
| KESI & others | V. G | 2 | 4 | 2 | 2 | 3 | 3 | 1 | 2 | 19 | 2.6 |
| | G | 2 | 2 | 3 | 5 | 3 | 3 | 4 | 2 | 23 | 3.2 |
| | F | 3 | 1 | 3 | 1 | 3 | 2 | 0 | 1 | 14 | 2.0 |
| | P | 0 | 1 | 0 | 0 | 2 | 0 | 2 | 1 | 6 | 0.8 |
| | V. P | 1 | 0 | 1 | 0 | 9 | 0 | 1 | 1 | 13 | 1.8 |
| Not attended | V. G | 1 | 0 | 1 | 0 | 4 | 0 | 0 | 1 | 5 | 1.1 |
| | G | 3 | 3 | 3 | 1 | 2 | 2 | 3 | 1 | 24 | 3.3 |
| | F | 4 | 5 | 4 | 2 | 2 | 3 | 0 | 2 | 22 | 3.1 |
| | P | 30 | 6 | 30 | 20 | 10 | 20 | 15 | 3 | 124 | 17.2 |
| | V. P | 23 | 46 | 23 | 37 | 36 | 35 | 44 | 53 | 297 | 41.3 |
| **Total** | | **90** | **90** | **90** | **90** | **90** | **90** | **90** | **90** | **720** | **100** |

Table 4.63 revealed that a majority of head teachers who had not attended any training courses on management possessed facilities that were rated as poor and below, represented by 58.5%. A chi-square test was run to find out if there is a relationship between head teacher training and maintenance of facilities.

**Ho5: There is no significant relationship between head teacher training and maintenance of facilities**

Before running the chi-square test statistic the dependent and independent variables were identified. The dependent variable was maintenance of physical facilities which was inferred from the rating of state of physical facilities, while the dependent variable was the head teacher training which was inferred from the training courses attended by head teachers. This included KEMI 1, KEMI II and other courses as captured in Table 4.64

**Table 4.64 Chi-square on relationship between head teacher training and maintenance of facilities**

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 21.720(a) | 16 | .052 |
| Likelihood Ratio | 30.451 | 16 | .016 |
| Linear-by-Linear Association | 10.074 | 1 | .002 |
| N of Valid Cases | 90 | | |

The chi-square statistics in table 4.65 shows a p value for all categories of facilities which is less than 0.05 ($p<0.05$) showing a relationship between head teacher training

and maintenance of facilities. Therefore we reject the null hypothesis which states that there is no significant relationship between head teacher training and maintenance of facilities and accept the alternate. These results revealed that head teachers who had attended training courses on management maintained facilities better than those who had not attended any training.

# CHAPTER FIVE

# SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

This chapter presents a summary of the whole study and a detailed discussion of the findings. In addition, the implications and policy recommendations derived from the study are also stated together with suggestions for further research on maintenance of physical facilities in secondary schools.

## 5.2 Summary of the Findings

The purpose of this study was to investigate secondary school head teachers' preparedness in maintenance of physical facilities. The research was guided by five objectives, four research questions and four research hypotheses. The objectives were; to establish the extent to which secondary school head teachers hired qualified personnel for maintenance of physical facilities in Western Region of Kenya, to examine the extent to which secondary school head teachers facilitate capacity building of school personnel on maintenance of physical facilities, to determine the extent to which secondary school head teachers supervise maintenance of physical facilities, to find out how secondary school head teachers monitor and evaluate maintenance of physical facilities and to determine relationship between secondary school head teachers' maintenance of physical facilities and: Gender, administrative experience, type of school and exposure to management training. The discussions are therefore guided by these objectives.

### *5.3.1 Employment of Qualified Personnel for Maintenance of Physical Facilities*

The first objective of the study was to establish the extent to which head teachers employ qualified personnel for maintenance of physical facilities in schools. The findings indicated that the majority of head teachers did not employ qualified personnel as revealed in Table 4.10 where only 9 or 10% employed artisans, 32 or 35.6% employed store clerks and 18 or 20% employed librarians. For the few head teachers who employed these categories of employees, majority of them did not have any training apart from artisans, for out of the 9 artisans employed 66.7% had training at certificate level and 22.2% at diploma level. However the case was different for store clerks and librarians where only 31.3% store clerks and 33.3% of librarians had training at both certificate and diploma level. The study also found that out of the 9 artisans employed by schools only 12% had training in masonry and 13% in plumbing. From the artisan employed by schools, was none trained in electrical and carpentry works. These are areas which register breakages almost on daily basis.

### *5.3.2 Capacity Building of School Personnel on Maintenance of Facilities*

The second objective of the study was to establish the extent to which head teachers facilitate capacity building of personnel on maintenance of physical facilities. This item was looked at basing on whether head teachers sponsor school personnel to attend training courses on management, organize internal workshops, invite experts for sensitization talks to school personnel, or involve personnel in planning for facility maintenance. The findings in Table 4.13 indicated that apart from deputy head teachers

represented by 66.7%, the majority of head teachers did not sponsor other categories of school personnel to attend training, for only 18.7% sponsored teachers for training on management, only 10% sponsored subordinate staff, while only 4.4% sponsored their prefects for the same. This implies that the majority of personnel in schools missed out on vital information since they did not attend training workshops and seminars. The study found that the same was the case with organizing internal workshops where only 9 or 10% of head teachers in the study organized such workshops as shown in Table 4.20. An inquiry into whether head teachers invited experts from the Ministry of Works and public Health and Sanitation to sensitize school personnel on best maintenance practices found that there was none. Facilities play an important role in supporting the teaching and learning process in school a reason why they should be well maintained. For this to be achieved, the school personnel who are in charge of the facilities require training so as to equip them with relevant skills such as preparation of maintenance schedules and proper record keeping. Internal workshops on maintenance are an ideal method of sensitizing school personnel on maintenance, since they are cheaper and do not pose many logistic challenges.

### *5.3.3 Supervision of Maintenance of Facilities by Head Teachers*

The third objective was to find out how head teachers supervise maintenance of physical facilities in schools. This was done by establishing whether head teachers prepare and review infrastructure plans, prepare maintenance schedules, allocate supervision duties to teachers, and use various methods to motivate personnel on maintenance. The study found that only 28 or 31.1% of head teachers in the study had infrastructure development

committees in place**.** This small percentage is contrary to the Ministry of Education's policy requiring all schools to form infrastructure committees to oversee all school development projects. It was established during the study that the few schools that had set up infrastructure committees are those that were under the economic stimulus programme or those that received various government or donor funding, and therefore had formation of these committees as a pre-requisite for getting the funding.

The findings on formulation of school infrastructure plans in Table 4.22 were no different from those of infrastructure committees for only 38.9% had infrastructure development plans. These results indicate that most schools did not plan for their facilities and hence ran a risk of carrying out development and maintenance haphazardly. On finding out whether head teachers prepared infrastructure plans, it was found that 38.9% did this as revealed in Table 4.22.The majority of those who prepared infrastructure development plans did not have specific periods of reviewing, for out of the 35 head teachers who indicated that they formulated development plans, only 10 or 28.6% agreed that they reviewed them. Of the 10 head teachers that reviewed the plans only 30% did so promptly, that is yearly, while 50%% did so after five years and above as shown in Table 4.24. This is not good since the plans prepared may be overtaken by events and hence lead to non-implementation, a case that was confirmed by most of the head teachers who were interviewed and cited lack of funds as an impending factor in maintenance of facilities in schools.

The same was the case with maintenance schedules, where only 2.2% of the schools prepared maintenance schedules for school buildings, 2.2% prepared for utility facilities,

while the majority represented by 80% did not prepare as indicated from the deputy head teachers' responses. Planning is one of the functions of management which gives direction to the organization. Since the majority of head teachers did not prepare maintenance schedules, it implies that maintenance is done haphazardly, a reason that may justify the poor state of the school facilities observed in most of the schools visited during the study. Supervision also involves proper identification and delegation of duty to members of the school community by head teachers. The study tried to establish the extent to which head teachers allocated supervision of maintenance duties to teachers. From Table 4.26 it was found that on average only 32.2% of head teachers allocated facilities to teachers to supervise. If teachers were allocated different facilities for supervision they would become more cautious and could ensure proper maintenance since they would be held accountable. It was observed during visits to schools in the study that those which had the policy of allocating facilities to teachers possessed better maintained facilities compared to those that did not.

On motivation of students and other school personnel on maintenance, the findings revealed that only 13.3% of head teachers recognized their students by awarding marks, 6.7 through trophies, 10% through certificates while only 3.3% gave verbal praises during assemblies. The cases were no different for other school personnel as shown in Table 4.28. Best maintenance practices require adequate provision of essential equipment and materials, for these will facilitate efficient and effective maintenance. However in this study the materials provided by head teachers were rated as inadequate by the majority of respondents at an average of 68.8% as shown in Table 4.33. This was

confirmed by findings in Table 4.32, where only 8.9% of the head teachers agreed that they budgeted for maintenance of facilities in their schools.

Findings on observation of head teachers' provision of litter bins revealed that only 18.9% provided at the class rooms, 5.6% at laboratories and 6.7% at strategic points in the school compounds. This was checked with the provision of demarcated footpaths or pavements. The study found from the observation checklist in Table 4.35 that on average 37 or 41.1% head teachers provided pavements that varied in outlook. However, out of the pavements provided only 8.9% were made of concrete. These findings on provision of litter bins and pavements implies that school personnel had a challenge in quick disposal of litter, as well as maintaining cleanliness especially with regard to mud levels, since demarcated footpaths restrict users and also reduce the mud levels.

Effective maintenance requires choosing the right type of maintenance. This is determined by the frequency of cleanliness, servicing and repairing of facilities. Findings on this item revealed that the majority of schools repaired their facilities upon breakdown as shown in Tables 4.36 and Table 4.37 where on average 68.7% and 66.9% of schools repaired their tuition and utility facilities respectively upon breakdown as indicated in Table 4.38 and Table 4.39 respectively. Regular servicing of facilities lengthens their lifespan since faults are identified early enough before the facility breaks down. Among the services needed in the maintenance schedule is painting of surfaces, dusting and sweeping, slashing and cleaning. Findings on types of punishments meted on students who damage school facilities indicated that only 4.4% of schools required such students

to replace the lost item, while 36.7% gave punishments involving manual work. Replacement of damaged facilities would be ideal for schools because it would set standards for personnel and would enable schools replenish their facilities and hence keep them in optimum condition.

### *5.3.4 Monitoring and Evaluation of Maintenance of Physical Facilities*

The fourth objective of the study was to find out the extent to which head teachers monitor and evaluate maintenance of physical facilities in schools. This objective was examined by looking at variables such as: preparation of regular reports on facilities, stock taking of facilities and physical inspection of the facilities by the head teachers.

The study found that only 8.9% schools prepared maintenance reports. These findings contradict requirements from the ministry of education requiring schools to maintain evaluation reports on performance and quality of physical facilities (RoK, 2011). There is need for schools to prepare regular and accurate maintenance reports since this encourages accountability on the part of users, supports future planning and facilitates accurate costing of future maintenance activities. An inquiry was made to establish the frequency of head teachers' personal inspection of facilities in schools. The findings revealed that only 28.9% of the head teachers personally checked school facilities at varied periods, with 2.2 % checking on monthly basis, 6.7% on term basis and 20% on yearly basis as shown in Table 4.52.

The findings on stock taking of facilities in schools revealed that in the majority of schools stock taking was not accorded much priority for only 13.3 head teachers reported that they took stock of library materials on term basis, 25.6% on yearly basis while

61.1% could not remember. The same was the case with furniture, where only 2.2% carried out stock taking at the end of term and 12.2% at the end year. The majority represented by 85.6% could not remember when they did stock taking of furniture in their schools as shown in Table 4.53. An inquiry on whether head teachers provide good storage rooms for various facilities in schools found that the majority did not. For the teaching and learning materials (TLMs) 5.6% of the storage rooms were rated as good, while in the majority of schools represented by 71.1% there were no storage rooms for these facilities. In such schools the TLMs were stored in head teachers' offices. In some the store rooms used for foodstuff doubled as storage for the TLMs too. The case was no different for maintenance materials for only 5.6% had stores rated as good, while 64.4% did not have such stores. The most affected area was that of broken facilities, Where 71.1% of schools did not possess storage rooms. For those that provided only 8.9% were rated as good as shown in Table 4.55. In most of the schools visited piles of broken facilities as chairs, lockers, tables, benches, cooking stoves, plumbing materials among others could be seen in the open air or were mixed up with other facilities. This was likely to aggravate deterioration of such facilities which could have otherwise been repaired and hence save schools the costs involved in major repairs or replacements. Standards of maintained facilities can be seen through their appearance and state. Because of the weak supervision policies in place, the findings from the class teachers' rating of facilities in the majority of schools was indicated as poor as shown in table 4.56. The only item that was rated as good was the facilities located in the school administrative offices at 53.3%. These findings from the class teachers agree with those by the researcher in the observations made during visits in schools in the study.

### *5.3.5 The Relationship between Secondary School Head Teachers'*

i. **gender,**

ii. **administrative experience,**

iii. **type of school and**

iv. **exposure to management training, and maintenance of physical facilities**

This objective was determined by use of hypothesis on each variable. There were four hypotheses to test whether there is any relationship between the variables and maintenance of the school plant; $Ho_1$: There is no significant relationship between secondary school head teachers' gender and maintenance of physical facilities, $Ho_2$: There is no significant relationship between secondary school head teachers' administrative experience and maintenance of physical facilities, $Ho_3$: There is no significant relationship between type of school for head teachers and maintenance of physical facilities, and $Ho_4$: There is no significant relationship between secondary school head teachers' exposure to management training and maintenance of physical facilities.

### *5.3.5a Relationship between secondary school head teachers' gender and* **maintenance of physical facilities**

The first hypothesis stated that there is no relationship between gender of the head teacher and maintenance of physical facilities. This was tested by looking at the relationship between gender of the head teacher and rating of various physical facilities in schools. The chi-square test statistic results showed that the p value for facilities and

gender of head teacher was less than 0.05 ($p<0.05$) showing a relationship between the gender of the head teacher and maintenance of physical facilities. As a result the null hypothesis earlier posited is rejected and the alternate hypothesis accepted.

### *5.3.5b $Ho_2$: Relationship between secondary school head teachers' administrative* experience and maintenance of physical facilities

The second hypothesis stated that there is no significant relationship between secondary school head teachers' administrative experience and maintenance of the school plant. The cross tabulation between administrative experience of the head teacher and employment of personnel for maintenance of facilities or school plant table 4.60 show that most of the head teachers with experience of between 6 to 10 years employed stores clerks and librarians, while very few head teachers employed maintenance artisans regardless of their headship experience. The chi-square test in Table 4.60 revealed that there was no relationship between all the facilities where p was greater than 0.05 ($p>0.05$). Therefore, the null hypothesis stating that there is no relationship between administrative experience of the head and maintenance of physical facilities was accepted and the alternate hypothesis rejected.

### *5.3.5c $Ho_3$: Relationship between type of school for head teachers and maintenance* of *physical facilities*

The third hypothesis stated that there is no relationship between the type of school and maintenance. The findings in Table 4.62 give the chi-square test statistic results on the relationship between the type of school and maintenance of facilities. The p value for all the facilities and maintenance of facilities was less than 0.05 ($p<0.05$) hence the null

hypothesis stating that there is no relationship between type of school for head teacher and maintenance of physical facilities is rejected and the alternate hypothesis accepted.

### *5.3.5d $Ho_4$: Relationship between secondary school head teachers' exposure to management training and maintenance of physical facilities*

Findings in Table 4.64 on the chi-square test statistic on the relationship between training of head teachers and maintenance of physical facilities yielded a p value on all facilities of less than 0.05 ($p<0.05$) therefore the null hypothesis which stated that there is no relationship between head teacher training and maintenance of physical facilities is rejected and the alternate hypothesis accepted.

## 5.4 Conclusions of the Study

From the foregoing findings the study made the following conclusions:

1. That secondary school head teachers do not employ personnel for maintenance of physical facilities in schools. The few who employ personnel for maintenance did not consider their professional qualification at the time of engagement, since most of those who were employed did not possess relevant training skills in their areas of operation.

2. That the majority of secondary school head teachers do not organize for capacity building of their personnel on maintenance by either: sponsoring them for training courses, organizing for internal workshops on maintenance or involving them in planning for maintenance of facilities,

3. The majority of secondary school head teachers do not adequately supervise maintenance of facilities in schools by: preparation of maintenance plans, sourcing for funds for maintenance of facilities, allocation of supervision duties to teachers, provision of adequate maintenance materials and motivation of school personnel on maintenance,

4. The majority of secondary school head teachers do not monitor and evaluate maintenance of physical facilities through preparation of maintenance schedules, stock taking of facilities as well as carrying out personal inspection of facilities in their schools.

5. There is a relationship between gender of the head and maintenance of school plant, whereby schools headed by female head teachers possess facilities that are better maintained as compared to male-headed schools.

6. There is a relationship between exposure of the head teacher to administrative training and maintenance of physical facilities in schools. Head teachers who have attended training on management maintain facilities better than those who have not attended any training

7. There is no relationship between head teachers' administrative experience and maintenance of physical facilities

**5.5 Recommendations**

Based on the foregoing discussions and conclusions, the study makes the following recommendations:

1. There is need for head teachers to employ qualified personnel for maintenance of physical facilities.

2. There is need for head teachers to carry out capacity building of their personnel through planning and supporting them through: training programs, workshops and seminars, sensitization meetings, and involving personnel in planning so as to equip them with skills of maintenance of physical facilities.

3. There is need for head teachers to improve on supervision of maintenance of facilities through: allocation of supervision roles, involvement of personnel in maintenance, timely provision of maintenance materials and rewarding personnel for best maintenance practices so as to cultivate the spirit of maintenance.

4. There is need for head teachers to monitor and evaluate maintenance of physical facilities under their care regularly, by preparing maintenance schedules and regular reports, stock taking of facilities and personally inspecting facilities with a view of identifying those that require replacement or repair.

5. There is need for head teachers to attend management training courses so as to equip them with management skills that are necessary for maintenance of school facilities.

**5.6 Suggestions for further Studies**

1. A similar study on the preparedness of head teachers in maintenance of physical facilities to be done in primary schools

2. Another study to be done on the impact of head teachers' preparedness on maintenance of physical facilities and academic performance of students in secondary schools.

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## APPENDIX B: INTRODUCTION LETTER

Moi University

Department of Educational Management and Policy Studies,

School of Education,

P.O. Box 3900-30100,

Eldoret, Kenya.

Dear Respondent,

I am a Doctor of Philosophy student undertaking a research entitled "*Preparedness of Secondary School head teachers on Maintenance of Physical Facilities: A Case of Western Region, Kenya"*. I kindly request you to fill the questionnaires. Your unreserved responses will be treated with utmost confidentiality and they will be exclusively used for the purpose of this study.

There is no right or wrong answer, therefore, respond to the items as appropriately as specified herein. Do **NOT** write your name anywhere on this paper.

Thank you

Yours faithfully,

Matanda Dorice Lukoye

## APPENDIX C: QUESTIONNAIRE FOR HEAD TEACHERS

**SECTION A. Personal information**

Please indicate the following by ticking the choice that is applicable:

1. What is your gender? Male [ ] Female [ ]

2. Indicate the type of school you are heading:

   Boys [ ] Girls Day [ ] Mixed [ ]

3. What is your highest academic qualification?

   O-Level [ ]

   A-Level [ ]

   University [ ]

4. What is your highest professional qualification?

   Diploma [ ] B. Ed [ ] Masters [ ] PhD [ ]

   Others [ ] Specify.....

5. For how long have you been teaching?

   1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

6. For how long have you stayed in your current school?

   1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

7. For how long have you been a head teacher?

   1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

8. Indicate if you have attended the following training courses on management:

   KESI 1 [ ] KESI 2 [ ] KESI 3 [ ]

Others [ ] Specify.....

.....

9. How would you rate the content of the courses you attended on maintenance of physical facilities?

Very adequate [ ] Adequate [ ] Undecided [ ] Inadequate [ ]

Very inadequate [ ]

**SECTION B: Information on maintenance of physical facilities**

10. Indicate if your school has employed the following personnel in charge of school facilities: Respond by ticking all that apply:

Stores clerk [ ] Librarian [ ] Maintenance officer [ ] School artisan [ ]

11. What is the minimum academic qualification of the personnel mentioned in item 10?

Tick the choice that applies to your school:

| **Statement** | **Responses** | | | |
|---|---|---|---|---|
| | **Standard 8** | **Form 4** | **University** | **Can't remember** |
| Stores clerk | | | | |
| Librarian | | | | |
| Maintenance officer | | | | |
| School artisan | | | | |

12. What is the professional qualification of the personnel mentioned above?

| Statement | Responses | | | |
|---|---|---|---|---|
| | **Certificate** | **Diploma** | **Degree** | **Can't remember** |
| Stores clerk | | | | |
| Librarian | | | | |
| Maintenance officer | | | | |
| School artisan | | | | |

**SECTION C. Capacity Building of School Personnel on Maintenance of Physical Facilities**

13. Indicate if your school sponsors the following personnel to attend training courses on management: Tick all that apply:

Deputy head teacher [ ] Class teachers [ ] Subordinate staff [ ] Prefects [ ]

14. How often do you organize internal workshops for personnel on maintenance of physical facilities?

Very often [ ] Often [ ] Undecided [ ] Not often [ ] Not very often [ ]

15. Does your school have a school Infrastructure Development Plan?

Yes [ ] No [ ]

16. If the answer to item number 15 is yes, indicate if the following groups are represented on the committee. Tick all that apply:

i) BOG [ ] ii) PTA [ ]

iii) Parents [ ] iv) Class teachers [ ]

v) Other teachers [ ] vi) Students [ ]

vii) Experts from the Ministry of Public Works [ ]

viii) Experts from the Ministry of Public Health [ ]

17. Does your school have a school Infrastructure Development Plan?

Yes [ ] No [ ]

18. How often does your school review the school Infrastructure Development Plan?

Tick the choice that applies:

Between 1-2 years [ ] Between 2-3 years [ ]

Between 3-4 year [ ] Over 5 years [ ]

19. How often do you invite experts to sensitize school personnel on maintenance of facilities?

Very often [ ] Often [ ] Undecided [ ] Not often [ ] Rarely [ ]

**SECTION C: Supervision of Maintenance of Physical Facilities in Schools**

20. Has your school employed a maintenance officer/ specific employee in charge

of physical facilities' maintenance? Yes [ ] No [ ]

21. If the answer to item 20 above is yes, indicate the academic qualification of the

Employee: STD 8 [ ] O- level [ ] A -level [ ] University [ ]

22. What is the professional qualification of the employee?

Certificate [ ] Diploma [ ] University degree [ ]

Others [ ] Specify.....

23. Does the employee possess basic training in the following areas?

Masonry [ ] Carpentry [ ] Plumbing [ ]

Others [ ] specify.....

24. Do you assign teachers supervision duties of maintenance of the following facilities in your school? Tick all that apply

**Key - SA**- Strongly Agree **A-** Agree, **SD**- Strongly Disagree, **D-** Disagree, **UN**-Undecided

| **Type of facility** | **Response** | | | | |
|---|---|---|---|---|---|
| | **Strongly agree** | **Agree** | **Strongly disagree** | **Disagree** | **Undecided** |
| Tuition facilities | | | | | |
| Administration facilities | | | | | |
| Playgrounds | | | | | |
| Games facilities | | | | | |
| Flower beds | | | | | |
| Boarding facilities (for boarding schools) | | | | | |

25. Indicate if your school sources for funds for maintenance of physical facilities from any of the following sources? Tick all that apply:

**KEY**: **SA**- Strongly agree **A**- Agree **U**- Undecided **D**- Disagree **SD**-Strongly disagree.

| **STATEMENT** | **SA** | **A** | **U** | **D** | **SD** |
|---|---|---|---|---|---|
| PTA | | | | | |
| CDF | | | | | |
| School alumni | | | | | |
| Fundraising | | | | | |
| Local business community | | | | | |
| Local community | | | | | |
| Donations | | | | | |

Any other.....

.....

**SECTION D: Monitoring Maintenance of Physical Facilities**

26. How do you monitor maintenance of physical facilities in your school: Respond by ticking the choice that applies:

**KEY**: **SA**- Strongly agree A- Agree **U**- Undecided **D**- Disagree SD-Strongly disagree

| STATEMENT | SA | A | U | D | SD |
|---|---|---|---|---|---|
| Preparing facility audits | | | | | |
| Personally inspecting facilities | | | | | |
| Regular stocktaking of facilities in the school | | | | | |
| Preparation of reports on facilities by departments | | | | | |
| Inviting experts to evaluate physical facilities in the school | | | | | |

Any other.....

.....

**END OF QUESTIONNAIRE**

**THANK YOU FOR TAKING YOUR TIME TO ANSWER THE QUESTIONNAIRE**

**APPENDIX E: QUESTIONNAIRE FOR DEPUTY HEAD TEACHERS**

**SECTION A. Personal information**

Please respond to the following questions by ticking what is applicable:

1. What is your gender: Male [ ] Female [ ]

2. What is your teaching experience in years?

1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

3. For how long have you taught in your current station?

1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

4. For how long have you been a deputy teacher?

1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

5. Indicate the type of school you are teaching by ticking as applicable:

Boys [ ] Girls [ ] Mixed [ ]

**SECTION B: Capacity Building of School Personnel on Maintenance of Physical Facilities**

6. Indicate if you have attended the following training courses on management:

KESI 1 [ ] KESI 2 [ ] KESI 3 [ ]

Others Specify.....

7. If the answer to item 8 above is yes, who sponsored you? Tick the choice that applies:

The school [ ] MOE [ ] Self [ ]

Others [ ] Specify.....

8. How would you rate the content of these courses on management of physical facilities?

Very adequate [ ] Adequate [ ] Undecided [ ] Inadequate [ ] Very Inadequate [ ]

**SECTION C. Supervision of Maintenance of Physical Facilities in Schools**

9. Indicate how often the classrooms in your school are cleaned per week by ticking the applicable response:

| **Type of cleaning** | **Daily** | **Twice per week** | **Once per Week** | **No Specific time** |
|---|---|---|---|---|
| Sweeping | | | | |
| Mopping | | | | |
| Dusting | | | | |
| Removing cob webs | | | | |
| Slashing around | | | | |
| Picking litter | | | | |
| Weeding flower beds | | | | |

Others Specify.....

10. Who does the following maintenance work in your school? Respond by putting a tick in the space provided against the statement:

| **STATEMENT** | **Students** | **Grounds men** | **Students &Grounds men** | **Hired Labour** |
|---|---|---|---|---|
| Cleaning classrooms | | | | |
| Cleaning offices | | | | |
| Cleaning dormitories | | | | |
| Weeding flower Beds | | | | |
| Trimming Hedges | | | | |
| Pruning Trees | | | | |
| Slashing | | | | |

Others Specify.....

11. Indicate if students are involved in the following maintenance work in your school?

Respond by putting a tick in the space provided against the statement:

Minor repairs of facilities Yes [ ] No [ ]

Covering text books Yes [ ] No [ ]

12. How often does your school do servicing of the following facilities: Respond by ticking the choice that applies:

| **Facility** | **Frequency** | | | |
|---|---|---|---|---|
| | **Once per term** | **End of term** | **End of year** | **When there is breakdown** |
| Student furniture | | | | |
| Office furniture | | | | |
| Photocopiers | | | | |
| Printing machines | | | | |
| Fire extinguishers | | | | |
| Water pipes | | | | |
| Drainage systems | | | | |
| Sanitation facilities | | | | |
| School vehicles | | | | |
| Cooking stoves | | | | |
| Beds (for boarding schools) | | | | |

13. When were the following facilities in your school painted last? Respond by ticking the choice that applies:

| **Facility** | **Period when facility was painted last** | | | |
|---|---|---|---|---|
| | **One year ago** | **Two-five years ago** | **Over five years ago** | **Can't remember** |
| Administration Block | | | | |
| Classrooms | | | | |
| Science laboratories | | | | |
| Library | | | | |
| Workshops | | | | |
| School Hall | | | | |
| Departmental office | | | | |
| Staffroom | | | | |
| Dining halls | | | | |
| Kitchens | | | | |
| Dormitories | | | | |

4. Please give your view on the state of the following physical facilities in your school by ticking the choice that applies:

**Key: E-Excellent** Painted walls ceiling boards and facia boards, no worn out floors, no leaking roofs, has all doors and windows, no missing glasses, adequate furniture and not broken, playgrounds well kept

**V-Very good** -With at least one of the above missing

**G-Good**-With at least two of the above missing

**F-Fair**-With at least three of the above missing

**P- poor**-With more than three missing

**VP-Very Poor-**With most of the above missing,

**UA**-Unavailable-The facility is missing

| STATEMENT | Response | | | | | | |
|---|---|---|---|---|---|---|---|
| | **E** | **VG** | **G** | **F** | **VP** | **P** | **UA** |
| Classrooms | | | | | | | |
| Laboratories | | | | | | | |
| Offices | | | | | | | |
| Furniture | | | | | | | |
| Games facilities | | | | | | | |
| Storage facilities | | | | | | | |
| Playgrounds | | | | | | | |
| Sanitation facilities | | | | | | | |

**END OF QUESTIONNAIRE**

**THANK YOU FOR TAKING YOUR TIME TO FILL THE QUESTIONNAIRE**

## APPENDIX E: QUESTIONNAIRE FOR CLASS TEACHERS

**SECTION A. Personal information**

Please respond to the following questions by ticking what is applicable:

1. What is your gender: Male [ ] Female [ ]

2. What is your teaching experience in years?

1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

3. For how long have you taught in your current station?

1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

4. Indicate the type of school you are teaching by ticking as applicable:

Boys [ ] Girls [ ] Mixed [ ]

**SECTION B: Capacity Building of School Personnel on Maintenance of Physical Facilities**

5. Indicate if you have been sponsored by your head teacher to attend the any training

courses on management: Yes [ ] No [ ]

6. How often does your head teacher organize internal workshops on maintenance of physical facilities?

Very often [ ] Often [ ] Undecided [ ] Not often [ ] Not very often [ ]

7. How often does your head teacher invite experts to sensitize school personnel on maintenance of physical facilities?

Very often [ ] Often [ ] Undecided [ ] Not often [ ] Not very often [ ]

8. How does your head teacher recognize personnel for best maintenance practices? Tick

All that applies to your school:

Verbal praises [ ]

Tokens [ ]

Awarding certificates [ ]

Giving trophies [ ]

Letters of commendation [ ]

Promotion [ ]

9. After you have reported that an item in your class has been damaged, how long does it take for the school administration to repair the broken/damaged item?

| **Facility** | **Period taken to repair damaged facility** | | | | |
|---|---|---|---|---|---|
| | **Immediately** | **One week** | **End of term** | **End of year** | **Can't remember** |
| Text books | | | | | |
| Furniture | | | | | |
| Window panes | | | | | |

10. What penalties does your school impose to students who damage facilities?

Replacement of the damaged facility [ ]

Suspension from school [ ]

Manual punishment [ ]

Other punishments [ ]

11. Do you write reports about the state of physical facilities in your class every end of term? Yes [ ] No [ ]

12. What penalties does your school impose on students who damage or lose school facilities? Tick all that apply:

Replacement of the item [ ] Paying for the item with money [ ]

Given punishment [ ]

Others.....

12. If the penalty is replacement of the item, when is it effected? Respond by ticking the appropriate choice in the spaces provided:

| **Facility** | **Period of Replacement** | | | |
|---|---|---|---|---|
| | **Immediate** | **End of Term** | **End of Year** | **Can't Remember** |
| Text books | | | | |
| Furniture | | | | |
| Windows panes | | | | |
| Games Equip. | | | | |
| Library materials | | | | |
| Boarding facilities | | | | |
| Games facilities | | | | |
| Laboratory equipment | | | | |
| Farm equipment | | | | |

Others.....

## APPENDIX F: QUESTIONNAIRE FOR STORES CLERKS

**SECTION A. Personal Information**

Please indicate the following by ticking what is applicable:

1. What is your gender?

   Male [ ] Female [ ]

2. What is your highest academic qualification?

   STD 8. [ ] Form 4 [ ] University [ ]

3. What is your highest professional qualification?

   Certificate [ ] Diploma [ ] Degree [ ]

   Others [ ] Specify.....

4. What is your working experience in years?

   1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

5. For how long have you worked in your current station?

   1-5 years [ ] 6-10 years [ ] 11 years and above [ ]

6. Indicate the type of school in which you are working:

   Boys [ ] Girls [ ] Mixed [ ]

7. Has your school sponsored you to attend any training course on management?

Yes [ ] No [ ]

**SECTION B. Availability of storage for physical facilities in schools**

8. Please indicate if your school has store rooms for the following facilities by ticking the space that best explains your situation:

| Facility | Response | |
|---|---|---|
| | Yes | No |
| Store for text books | | |
| Store for teaching and learning materials | | |
| Store for laboratory equipment | | |
| Store for cleaning and maintenance materials | | |
| Store for Games equipment | | |
| Store for farm tools and equipment | | |
| Store for foodstuff | | |
| Store for boarding facilities | | |
| Store for used parts of vehicles and other machines | | |
| Garage for vehicles and other machines | | |
| Store for broken furniture | | |
| Store for construction and maintenance materials | | |

**Section C. Records of Physical Facilities in Schools**

9. Indicate if you have facility audit inventories (records) of the following physical facilities in your school by ticking the choice that best explains your situation:

| FACILITY | AVAILABILITY | | |
|---|---|---|---|
| | Yes | No | Can't Remember |
| Classroom materials | | | |
| Library materials | | | |
| Text books | | | |
| Student Furniture | | | |
| Office Furniture | | | |
| Laboratory equipment | | | |

| | | | |
|---|---|---|---|
| Teaching learning materials | | | |
| Office equipment | | | |
| Games equipment | | | |
| Departmental facilities | | | |
| Sanitation facilities | | | |
| Kitchen facilities | | | |
| Maintenance Facilities | | | |
| School motor vehicles | | | |

10. Do you carry out stocktaking of facilities in your school? Yes [ ] No [ ]

11. If the answer to question 14 is yes, how often?

End of term [ ]

End of year [ ]

When need arises [ ]

Can't remember [ ]

12. How do you keep records of the facilities in the school?

Manual [ ]

Computer [ ]

13. Respond to the following statements concerning the care for facilities in your school?

Respond by ticking the choices that apply:

| **Statement** | **Responses** | | | | |
|---|---|---|---|---|---|
| | **SA** | **A** | **U** | **D** | **SD** |
| The school allocates facilities to individuals in the school | | | | | |
| The school allocates facilities to departments | | | | | |
| The school allocates facilities to classes | | | | | |
| The school labels all facilities in the school | | | | | |
| Facilities issued out are collected every end of term | | | | | |
| The head teacher regularly checks facilities | | | | | |
| The head teacher provides storage facilities | | | | | |
| There is regular cleaning of facilities | | | | | |

Others.....

.....

**END OF QUESTIONNAIRE**

**THANK YOU FOR TAKING YOUR TIME TO FILL IN THE QUESTIONNAIRE**

## APPENDIX G: QUESTIONNAIRE FOR STUDENTS

**SECTION A. Personal information**

Please answer the following questions by ticking what applies to you:

1. What is your gender? Male [ ] Female [ ]

2. Indicate the type of school in which you are learning:

Boys [ ] Girls [ ] Mixed [ ]

SECTION B: Capacity Building of Students

3. Have you attended any training course on management?

Yes [ ] No [ ]

4. Does your head teacher invite speakers to sensitize students on maintenance of school facilities?

Yes [ ] No [ ]

5. How are students recognized for best maintenance of facilities in your school? Respond by ticking all that applies: Key: **SA-** Strongly Agree, **A**- Agree, **UN** Undecided **SD**- Strongly Disagree D**-** Disagree

| **Statement** | SA | A | UN | SD | D |
|---|---|---|---|---|---|
| Students are awarded marks for best maintenance | | | | | |
| Students are awarded trophies for best maintenance | | | | | |
| Students are given certificates for best maintenance | | | | | |
| Students are given commendation letters for best maintenance | | | | | |
| Students are given verbal praises during assemblies | | | | | |

**SECTION C: Supervision of Maintenance of Physical Facilities**

6. Does your class have a record of all facilities in your classroom?

Yes [ ] No [ ]

7. Who keeps these records? Put a tick in the box against the choice that applies:

The class teacher Yes [ ] Class prefect Yes [ ] Stores clerk Yes [ ]

Other [ ] Specify.....

8. Who does the following maintenance work in your school? Respond by putting a tick in the space provided against the statement that applies to your school:

| **STATEMENT** | **Students** | **Grounds man** | **Students &Grounds man** | **Hired Labour** |
|---|---|---|---|---|
| Cleaning classrooms | | | | |
| Cleaning offices | | | | |
| Cleaning latrines/toilets | | | | |
| Slashing | | | | |
| Weeding flower Beds | | | | |
| Trimming Hedges | | | | |
| Pruning Trees | | | | |
| Cleaning dormitories | | | | |

9. Does your school supply dust bins for disposal of litter in the following areas of the school compound? Respond by ticking the choice that applies:

| **STATEMENT** | **Yes** | **No** |
|---|---|---|
| Classrooms | | |
| Laboratories | | |
| Social hall | | |
| Playgrounds | | |
| Reception offices | | |
| Staffroom | | |
| Toilets/Latrines | | |

11. Indicate whether the school provides students with adequate cleaning materials by ticking all that apply**: Key: VA**-Very adequate, **A**- Adequate, **U**-Undecided **VI**-Very inadequate **IA**-Inadequate

| **STATEMENT** | VA | A | U | VIA | IA | |
|---|---|---|---|---|---|---|
| Brooms for sweeping | | | | | | |
| Tools for cleaning, such as jembes and slashes | | | | | | |
| Detergents/soap for cleaning | | | | | | |
| Water for cleaning | | | | | | |
| Dust bins for litter | | | | | | |
| Buckets for cleaning | | | | | | |
| Mopes for cleaning | | | | | | |
| Gloves and gumboots for cleaning toilets | | | | | | |

**END OF QUESTIONNAIRE**

**THANK YOU FOR TAKING YOUR TIME TO FILL**

## APPENDIX H: INTERVIEW CHECKLIST FOR HEAD TEACHERS

### SECTION A: Personal Information

1. For how long have you been a head teacher?

3. For how long have you been a head teacher in your current school?

4. What training courses have you attended as a head teacher?

5. How would you rate the adequacy of the content of the courses you attended on maintenance of facilities?

### SECTION B: Information about the School

6. How often do you personally inspect facilities in your school?

7. What are the main sources of funds for maintenance of facilities in your school?

SECTION C: Maintenance of physical facilities

8. Who is in charge of maintenance of facilities in your school?

9. What is the level of education of the person in charge of maintenance?

10. Does the person have any professional qualification in the following areas?

General management

Plumbing

Masonry

Carpentry

Electrical works

Landscaping

11. Do you prepare facility maintenance schedules in your school?

12. Who does the following maintenance records for the following facilities in your school?

Class rooms

Administration offices

Corridors and verandas

School library

Laboratory

Staff room

Pavements

Flower beds

School hedge

Water taps and other accessories

Lighting facilities

Farm equipment

Games equipment

13. What are the main sources of funds for maintenance of physical facilities in your School?

14. What are some of the policies that you have in your school regarding maintenance of facilities?

15. What challenges do you face in maintenance of facilities in your school?

## APPENDIX I: INTERVIEW CHECKLIST FOR DEPUTY HEAD TEACHERS

1 What is your teaching experience?

2. For how long have you been a deputy head teacher?

3. For how long have you been a deputy head teacher in this school?

4. What training courses have you attended as a deputy head teacher?

5. Did the courses you attended address maintenance of facilities?

6. How would you rate the content of the course on maintenance?

**SECTION B: Information about the School**

7. What is your comment about the condition of facilities in your school?

SECTION C: Maintenance of physical facilities

8. Who is in charge of maintenance of facilities in your school?

9. What is the level of education of the person in charge of maintenance?

10. Does the person have any professional qualification in the following areas?

General management

Plumbing

Masonry

Carpentry

Electrical works

Landscaping

11. Do you keep records of the following facilities in your school?

Facility Audit Inventories

Facility Maintenance Schedules

12. Does your school allocate the following facilities to teachers for supervision of maintenance in your school?

Class rooms

Administration offices

School library

Laboratory

Staff room

Pavements

Flower beds

School hedge

Water accessories

Lighting facilities

Farm equipment

Games equipment

13. In case of breakages who does repairs?

## APPENDIX J: INTERVIEW CHECKLIST FOR STORES CLERKS

**SECTION A: Personal Information**

1. For how long have you worked as an accounts clerk?

2. For how long have you worked in your current school?

3. What is your highest academic qualification?

4. Have you trained as stores personnel?

5. In your training did you cover the following areas apart from stores management?

General management

Artisan works

Maintenance of physical facilities

Financial management

6a. Have you attended any other training courses on management?

b. Who organized the training courses?

7. Did the courses you attended cover maintenance of physical facilities?

8. How would you rate the content of the courses you attended on maintenance of facilities?

**SECTION B. Information about the School**

9. In your school do you have departmental store rooms?

10. Do you have storage rooms for the following facilities?

Text books

Teaching learning materials

Games facilities

Boarding facilities

Maintenance facilities

Farm equipment

11. How often do you do stock taking of the following facilities in your school?

Text books and other library materials

Furniture

Boarding facilities

Games equipment

Laboratory equipment

Water facility equipment

Lighting equipment

Farm equipment

Maintenance equipment

12. Who takes part in the stock taking exercise?

13. How often does the head teacher personally inspect facilities in your school?

14. How do you keep records of facilities in your school?

## APPENDIX K: OBSERVATION SCHEDULE

**Key V.G-** Very Good **VG-** Good **F-** Fair **V.P-** Very Poor **P-** Poor **U.N** Unavailable

| **ITEM** | **STATE** | | | | | |
|---|---|---|---|---|---|---|
| | **V.G** | **G** | **F** | **V.P** | **P** | **U.A** |
| Administration block | | | | | | |
| Class rooms | | | | | | |
| Laboratories | | | | | | |
| Libraries | | | | | | |
| School gate | | | | | | |
| School hedge | | | | | | |
| Pathways/pavements | | | | | | |
| Dining hall | | | | | | |
| Kitchen | | | | | | |
| Dormitories | | | | | | |
| Dust/litter bins | | | | | | |
| Potted plants/ flowers | | | | | | |
| State of the walls | | | | | | |
| State of the roofs | | | | | | |
| Painting of buildings | | | | | | |
| Flower beds | | | | | | |
| Play grounds | | | | | | |
| Ornamental plants/ trees | | | | | | |

## APPENDIX L: DOCUMENTS THAT WERE ANALYSED

1. Receipt/ Issue Stock Registers

2. Stores Ledgers

3. Teaching and learning materials issue Registers

4. School accounts reports

6. Staff meeting minutes

7. School calendar of events

8. Ministry of Education circulars on: facilities, FSE, SIC

9. Ministry of Education manuals

10. Punishment books: cases of facility loses, breakages and penalties

11. Schools strategic plans

12. School site plans

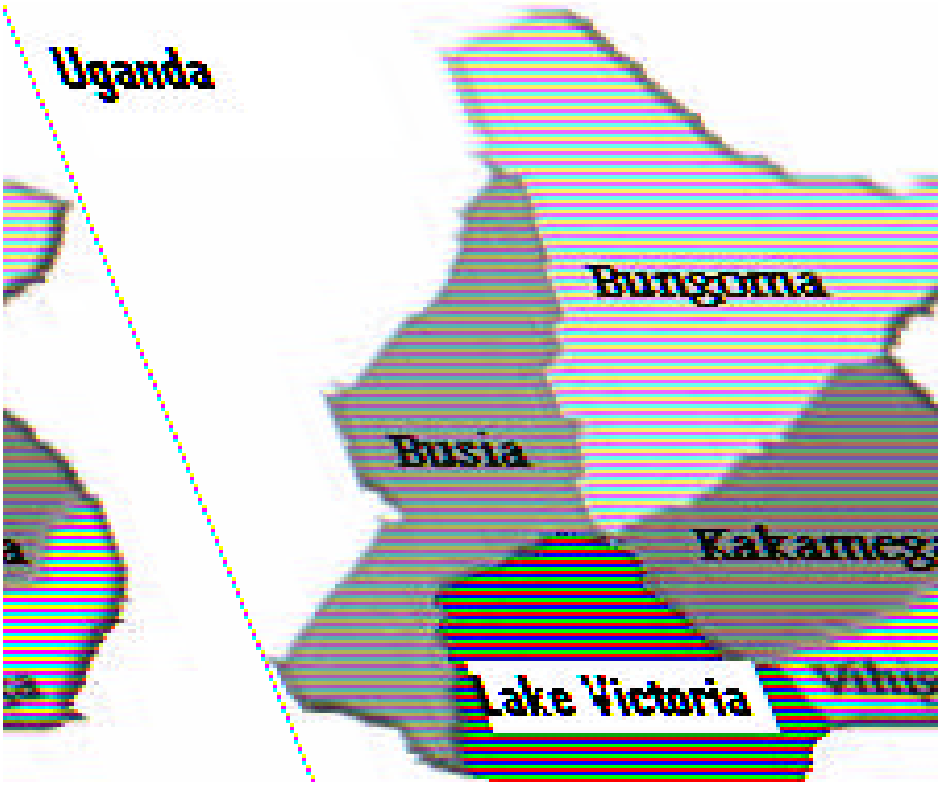
13. Stock taking reports

15. School facility audit reports (if available)

16. Ministry of Public Health inspection reports

17. KESI training manuals

## APPENDIX M: MAP OF THE AREA OF THE STUDY




Source: Western Provincial Director of Education Office

# APPENDIX N: RESEARCH PERMIT

**PAGE 2**

**THIS IS TO CERTIFY THAT:**

**Prof./Dr./Mr./Mrs./Miss.** DORICE LUKOYE MATANDA

**of (Address)** MOI UNIVERSITY P.O BOX 3900 ELDORET

**has been permitted to conduct research in**

.....**Location,**

.....**District,**

WESTERN **Province,**

**on the topic** PREPAREDNESS OF HEADTEACHERS IN UTILIZATION AND MAINTENANCE OF PHYSICAL FACILITIES IN SECONDARY SCHOOLS IN KENYA: A CASE OF WESTERN PROVINCE.

**for a period ending** 30TH SEPTEMBER **20**11

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