A SURVEY OF THE SANITATION AND HYGIENE SITUATION IN PUBLIC PRIMARY SCHOOLS IN THIKA MUNICIPALITY

BY

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E55/13295/05

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A survey of the sanitation and
DECLARATION

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

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DEDICATION

To my husband, Benson,

Who inspired me to begin this course and supported me in all ways up to its completion. Your love and affection will always be appreciated.

To my children, Antony, Gladys and Alison,

You missed my presence while I was away pursuing this course.
ACKNOWLEDGEMENTS

While writing this study, I enjoyed a lot of support, co-operation and contributions from my supervisors Prof. F. Q. Gravenir and Prof. Grace Bunyi, both of the Department of Educational Management, Policy and Curriculum Studies. I am deeply indebted to them for offering me useful pieces of advice coupled with immense encouragement. Their tolerance and patience during our discussions helped me a lot when writing this project. I sincerely thank my lecturers who taught me coursework, all of the Department of Educational Management, Policy and Curriculum Studies, Kenyatta University. I indeed enjoyed their lectures.

I appreciate the information given to me by my respondents - teachers and pupils, of Thika District without which this work would not have been completed.

Finally, I humble myself at the feet of the Almighty God for giving me the strength to overcome many challenges encountered during the study. Thank you for enabling me accomplish this mission. Glory be to God.
ABSTRACT

Research findings indicate that poor hygiene and sanitation may lead to numerous diseases, most of which are life-threatening. There is therefore need for emphasis on hygiene and sanitation in schools. After the family home, schools have a central place in the community as most important places of learning for children, because that is where they spend most of the day. The study therefore investigated the sanitation and hygiene situation in public primary schools in Thika Municipality. This study employed the descriptive survey design to find out the sanitation and hygiene situation in public primary schools. The target population for the study was all teachers and pupils of all the 24 public primary schools in Thika Municipality, Thika District; from which 10 schools were randomly selected. Forty teachers and 200 pupils took part in the study. Two research tools were employed for data collection: questionnaires for teachers and pupils, and an observation checklist. Quantitative data was analyzed descriptively using frequency counts and percentages and presented using frequency tables, bar graphs and pie charts. Qualitative data was reported in narrative form and where possible percentage of cases reported. The study established that public primary schools in Thika Municipality are in a poor state of sanitation and hygiene. The study found that: most of the basic sanitation resources are lacking. Schools do not meet the required ratio of pupils per toilet, which is a result of over-enrolment as a result of free primary education. The schools have not provided hand washing facilities, and even where they are available, they are not suitable for use by lower primary school pupils. Pupils do not wash hands before meals and after visiting toilets, meaning that they are at risk of contracting diseases such as cholera, diarrhoea, and worm infections. While the attitudes of pupils towards sanitation and hygiene practices were positive, the schools had not provided the enabling factors, that is, resources like adequate latrine facilities and safe water supply that would enable pupils to transform acquired knowledge, attitudes and beliefs into desirable behaviours. The study recommends that: schools should provide more toilets in line with the ministerial guidelines and ensure that they are always functional and that the toilets are suitable for use by younger pupils; schools should provide running water and toilet ball in the urinals; while setting up sanitation facilities such hand washing facilities, schools should ensure that the resources are suitable for use by all pupils including lower primary pupils, girls, and those with disabilities; the school administration should play a lead role in mobilizing resources from the community such as detergents; teachers should be vigilant in ensuring that pupils clean their hands before meals and after visiting the toilet; the school administrators and teachers should organize life skills training for the pupils in order to correct misconceptions about hygiene and sanitation; the community should play a role by mobilizing resources for improvement of hygiene and sanitation situation in public primary schools; and that officials from the public health ministry should take it upon themselves to pay impromptu visits to schools and assess the hygiene and sanitation situation.
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<td>Arid and Semi Arid Lands</td>
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<td>Environmental Health and Hygiene Policy</td>
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<td>FPE</td>
<td>Free Primary Education</td>
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<td>HIV</td>
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<td>ITDG</td>
<td>Intermediate Technical Group</td>
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1.1 Background to the Study

Sanitation is the hygienic means of preventing human contact with the hazards of wastes to promote health. Robinson (1986) states that hazards can be either physical, microbiological, biological, or chemical agents of disease and wastes such as human and animal faeces, solid wastes, domestic wastewater and industrial or agricultural wastes that can cause health problems. Hygienic means of prevention of health problems can be by using simple technologies such as latrines, personal hygiene practices such as use of handkerchiefs and engineering practices such as sewerage and wastewater treatment. In the school situation, sanitation can be defined as all health-affecting factors within the school such as waste disposal, ventilation of classrooms, water supply, condition and adequacy of toilets/urinals, and general cleanliness. On the other hand, hygiene refers to the general state of cleanliness of pupils, physical facilities and the school compound. Access to Sanitation and hygiene is a concern in the Millennium Development Goals. The seventh Millennium Development Goal is to ensure environmental sustainability. Under this MDG, target 10 is to halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation. The indicators for this target are (i) proportion of population with sustainable access to an improved water source, urban and rural, and, (ii) proportion of the population with access to improved sanitation, urban and rural.

The National Environmental Sanitation and Hygiene Policy (Ministry of Health, 2007) notes that, as a basic human right, all Kenyans should enjoy a quality of life with dignity in a hygienic and sanitary environment. However, according to the Ministry of Health (2007), approximately 80% of the hospital attendance in Kenya is
Ministry of Health (2007), approximately 80% of the hospital attendance in Kenya is due to preventable diseases and about 50% of these illnesses are water, sanitation and hygiene related. The Kenya Health Sector Strategic Plan (1999-2004) identifies environmental sanitation as one of the six essential priority health packages for implementation in the health sector. The current Health Sector Strategic Plan (2005-2010) has identified sanitation as an important component in delivery of health care in all levels and age cohorts (Ministry of Health, 2007) and has paid particular attention to school sanitation and hygiene. The National Environmental Sanitation and Hygiene Policy (Ministry of Health, 2007), articulating the Ministry of Health’s vision, states:

By the year 2015, as a contribution to Kenya attaining the Millennium Development Goals we aim to ensure that all households will be made aware of the importance of improved Environmental Sanitation and Hygiene (ESH) practices for improved health; and that 90% of households will have access to hygienic, affordable and sustainable toilet facility, improved housing, food safety, usage of safe drinking water and the means to safely dispose of waste products. In particular, every school will have hygienic toilets and hand-washing facilities - separate for boys and girls. Attainment of these goals is expected to drastically reduce the incidence of sanitation-related diseases.

According to (Burgers 2000), good sanitation and hygiene practices in schools are important for a number of reasons. First, good sanitation and hygiene practices reduce incidences of disease such as cholera, diarrhoea, and worm infections. Diseases related to poor sanitation cause many people to fall ill or even die, with children being the most vulnerable to health hazards and consequently are affected the most. Ekeh & Adeniyi (1988) argue that it is important to emphasize good sanitation and hygiene practices in schools because children are future parents and what they learn at school is likely to be passed on to their peers and to their own children. As future responsible parents, children should be given information on the importance of practising hygiene and the need to provide sanitation facilities. With this knowledge,
pupils should be actively involved in cleaning of the toilets, classrooms and the compound as well as being encouraged to adopt good grooming practices.

Another reason for concern about sanitation and hygiene is that sanitation and hygiene are indicators of the quality of education in schools. According to Lezotte (2001), one of the correlates of effective schools is safe and orderly schools, seen through high quality facilities. In schools where toilets are adequate, pupils do not waste time queuing at the expense of class time, hence teachers are able to cover the syllabus, resulting to improved learners achievement. Healthy pupils are able to concentrate in class as compared to unhealthy pupils hence perform better. Unhealthy pupils absent themselves from school thus do not complete their syllabus in time therefore their performance is affected negatively. Yet, as Dierkx (2002) found out, most schools in urban settings in Kenya do not meet basic standards of health.

Burgers (2000) notes that the sanitary conditions of schools in developing countries are often appalling, creating health hazards and other negative impacts, thus schools are not safe for children. Although water and sanitation facilities are recognized as fundamental for hygienic behaviour and children’s well-being, in practice, the sanitary conditions in most schools are inadequate. Water supply, sanitation and hand washing facilities are either non-existent, too few or inadequate due to poor maintenance of water systems and toilets or latrines. Lack of facilities is only part of the problem because pupils tend to create a negative attitude towards hygienic practices and sanitation facilities. Where they are present, facilities are not adapted to the needs of children, in particular girls. Snel (2004) states that motivation of teachers and head teachers to offer skills-based hygiene education is not always evident.
1.2 Statement of the Problem

In Kenya, the legal provisions and policies governing education are spelt out in the School Management Guide (Ministry of Education, 2003) which outline the number of sanitation facilities required in primary schools. According to this guide, sanitation facilities in primary schools should be in the ratio of 1:30 for boys; 1:25 for girls; at least a urinal pit for boys; and at least one toilet for staff. Studies carried out before Free Primary Education (FPE) was introduced, for example Motuka (1999), indicated that most primary schools in Kenya did not have adequate sanitation facilities. The introduction of FPE in 2003 could have aggravated the problem because many public primary schools registered over-enrolment. According to Ministry of Education (2005) schools experienced over enrolment from 5.9 million in 2002 to 7.2 million in 2004, an increase of 18%. At the same time, there were no funds to improve the facilities because parents were not expected to pay anything. If school sanitation and hygiene facilities are absent, or are badly maintained and used, schools become risky places where diseases are transmitted. It is therefore important that schools have proper facilities, as well as proper sanitation and hygiene practices. This study sought to investigate the adequacy and appropriateness of sanitation and hygiene facilities and practices in public primary schools in Thika municipality.

1.3 Purpose of the Study

The purpose of the study was to find out whether public primary schools in Thika Municipality have proper sanitation and hygiene facilities and whether they promoted proper sanitation and hygiene behaviour among pupils, and find out the support needed to improve school sanitation and hygiene.
1.4 Objectives of the Study

Specifically, the study aimed at meeting the following objectives:

(a) To find out the adequacy and condition of sanitary resources like toilets, waste disposal facilities and safe water supply in public primary schools in Thika Municipality.

(b) To describe the hygiene practices engaged by pupils in public primary schools.

(c) To find out how public primary school teachers teach hygiene practices to pupils.

(d) To identify what kind of support schools receive from communities to enhance their sanitation and hygiene conditions.

1.5 Research Questions

The study was guided by the following research questions:

(a) What is the status of the following sanitation facilities in public primary schools in Thika Municipality?

   i. Latrines
   ii. Urinals
   iii. Water supply

(b) What is the status of hygiene in public primary schools in Thika Municipality with regard to:

   i. Waste disposal
   ii. Cleanliness of the compound
   iii. Classroom conditions
   iv. Pupils hygiene practices

(c) How do public primary teachers teach sanitation and hygiene practices to pupils?

(d) What are the pupils’ attitudes towards sanitation and hygiene practices?
What support do public primary schools receive from the community in enhancing sanitation and hygiene?

1.6 Significance of the Study

Research findings indicate that poor hygiene and sanitation may lead to numerous diseases, most of which are life-threatening. According to the Centre for Disease Control (AMREF, 1993), Hepatitis A occurs in families and institutions with poor hygiene. Poor personal hygiene, overcrowding and poor sanitation increase the transmission which is mainly via the faeco-oral route. Most children in African countries are infected at a young ages. Other diseases that can be prevented through emphasis on hygiene and sanitation include cholera, dysentery, diarrhoea, and typhoid, just to mention a few. There is therefore need for emphasis on hygiene and sanitation in schools.

The findings of this study could benefit education planners, school head teachers and the government in various ways. The government, through the Ministry of Education, could gain data that could guide in designing programmes to assist primary schools improve sanitation and hygiene. With the introduction of FPE, the government and other stake holders would need to know how sanitation and hygiene have been affected. The study could provide data that may help to achieve this. The study findings could assist primary school administrators to see how they are doing in ensuring that pupils learn in safe and secure environments.
1.7 Scope and Limitations of the Study

The study investigated the sanitation and hygiene situation in public primary schools in the municipality. The researcher carried out observations in the schools on the general state of hygiene and sanitation. Study variables were sanitation and hygiene. Sanitary resources that were studied included latrines, urinals, waste disposal facilities and safe water supply. Hygiene factors included pupils’ hygiene practices and the extent to which hygiene was taught in schools.

The study was limited to public primary schools in Thika Municipality. Due to financial constraints and time limitations, a larger population would not be targeted for the study.

1.8 Assumptions of the Study

The study was based on the following basic assumptions:

1. That the information given by the respondents was correct and a true reflection of the situation in the schools.

2. That the teachers who participated in the study had stayed in their current work stations for a period long enough to be fully aware of the sanitation and hygiene situation in their schools.

1.9 Theoretical Framework

Bush and Iannotti (1990) describe health behaviour as any behaviour which affects an individual’s condition of health. Much research has been devoted to establish relationships between certain health practices (behaviours) and health status.
Once behaviours are established to be either health enhancing or health risky, efforts are often made to examine motivational factors involved in the continuance of such behaviours. Educational interventions are then developed to create awareness and encourage individuals to adopt healthier behaviours as well as to eliminate the behaviours which have been determined to be disease risk factors.

As a part of this process, social scientists gather data about beliefs, attitudes, and motivational factors related to performing or abstaining from health risky behaviours. These researchers evaluate educational resources available to research participants as well as studying parental or peer influences on behaviour. The social scientist's goal is to develop programs to facilitate a positive change in health behaviour. Due to the numerous variables effecting health behaviour, a number of theories have arisen in this area of research. These theories are not always incompatible with each other, but often offer complimentary views which are useful to our understanding of health behaviour. This study employed the Theory of Planned Behaviour by Icek Ajzen (1991). Figure 1.1 is a diagrammatic presentation of the theory of planned behaviour.
According to (Ajzen, 1991) a central factor in this theory is the individual’s intention to perform a given behaviour. Intentions are assumed to capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour. As a general rule, the stronger the intention to engage in behaviour, the more likely should be its performance. It should be clear, however, that a behavioural intention can find expression in behaviour only if the behaviour in question is under volitional control, i.e., if the person can decide at will to perform or not perform the behaviour.
Although some behaviours may in fact meet this requirement quite well, Azjen 1985 argues that the performance of most depends at least to some degree on such non-motivational factors as availability of requisite opportunities and resources (e.g., time, money, skills, co-operation of others etc). Collectively, according to (Azjen 1991), these factors represent people’s actual control over the behaviour. To the extent that a person has the required opportunities and resources, and intends to perform the behaviour, he or she should succeed in doing so.

Whether public primary school teachers and pupils exercise proper sanitation and hygiene practices depends on their attitudes toward sanitation and hygiene, and their perceived control of the practices.

1.10 Conceptual Framework

The Theory of Planned Behaviour (Ajzen, 1991) discussed above has shown the role of attitudes, perceived behavioural control and motivation/willingness on performance of a certain behaviour. As far as sanitation and hygiene is concerned, three factors have to be addressed if lasting changes in behaviour are to occur. These are:

- Predisposing factors - knowledge, attitude and belief;
- Enabling factors - availability of resources like latrine facilities and safe water supply, enabling pupils to transform newly acquired knowledge, attitudes and beliefs into desirable behaviours;
- Reinforcing factors - factors affecting the pupils’ ability to sustain a certain behaviour, like support and cooperation received from teachers, parents, guardians and peer groups.

These three factors are captured in Figure 1.2, which is a diagrammatical representation of the researcher’s conceptual framework.
Figure 1.2  Factors that affect school sanitation and hygiene

Predisposing Factors
- Knowledge
- Attitudes
- Beliefs

Enabling Factors
- Availability of facilities like toilets and water

Reinforcing Factors
- Support from parents, teachers and community

Sanitation and Hygiene Practices in Schools

Safety and conduciveness of the learning environment

Source: Researcher (2009)

Increasing pupils' knowledge about health and disease prevention should therefore only be part of the story. When knowledge is supported by enabling and reinforcing factors, desirable changes may occur in the school setting and in the community. This stresses the importance of combining hygiene education with the construction of water and environmental sanitation facilities and involving the community and health institutions in School Sanitation and Hygiene.
1.11 Definition of Operational Terms

**Attitude:** Refers to a learned, positively enduring predisposition to respond to a given object (sanitation and hygiene) in a constantly favourable or unfavourable way.

**Belief:** Refers to a firm opinion or acceptance of a concept.

**Enabling factors:** Factors that allow pupils to engage in positive hygiene practices, including availability of resources like latrine facilities and safe water supply, enabling pupils to transform newly acquired knowledge, attitudes and beliefs into desirable behaviour.

**Hygiene:** The general state of cleanliness of pupils, physical facilities and the school compound.

**Knowledge:** Information received and internalized by a pupil regarding hygiene and sanitation.

**Predisposing factors:** Factors that influence pupils to engage in positive hygiene practices, including knowledge, attitudes and beliefs.

**Reinforcing factors:** Factors affecting the pupils’ ability to sustain positive hygiene practices, including support and cooperation received from teachers, parents, guardians and peer groups.

**Sanitation:** All health-affecting factors within the school such as waste disposal, ventilation of classrooms, water supply, condition and adequacy of toilets/urinals, and general cleanliness.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, focus is turned to a review of literature related to the study. The chapter covers the following:

- Rationale for School Sanitation and Hygiene
- Importance of School Sanitation and Hygiene
- The Link between Health and Learning
- Health Perspectives of School Hygiene and Sanitation
- Learning Perspectives of School Hygiene and Sanitation
- Gender Perspectives of School Hygiene and Sanitation
- Children Perspectives on School Hygiene and Sanitation
- Local Literature on School Sanitation and Hygiene

2.2 Rationale for School Sanitation and Hygiene

Despite all the progress reported world-wide in recent decades, (Burgers, 2000) states that more than 2.3 billion people still live without access to sanitation facilities and are unable to practice such basic hygiene as washing their hands with soap and water. Diseases related to poor sanitation and water availability cause many people to fall ill or even die. Children are the most vulnerable to health hazards and consequently are affected the most. In 1998 2.2 million people died because of diarrhoeal diseases, of which the vast majority were children. In addition poor sanitation has led to the infestation of nearly a billion people - largely children - with a variety of worm infections, with its corresponding costs in health and energy.
While the impact of poor sanitation and hygiene is known to be disastrous for small children, it also has an important impact on the health of school-age children including adolescents. It is obvious that lack of sanitation and hygiene is a public disaster that deserves the highest priority.

According to (Burgers, 2000), when children survive beyond their fifth birthday, they still face major problems of ill-health and malnutrition. Over 1.4 billion children between the ages of 5 and 14, approximately 87% of all children, live in developing countries. Children in this age group are 14 times more likely to die between their 5th and 14th birthdays than their counterparts in industrialized countries. It is widely recognized that schools could play an important role in bringing about behavioural changes and promoting better health.

One of the major problems faced by hundreds of millions school aged children as indicated by (Almendom, Anila, and Francis, 1996) is infection by parasites and flukes. These parasites consume nutrients from children they infect, bringing about or aggravating malnutrition and retarding children’s physical development. They also destroy tissues and organs in which they live causing pain and various health problems. Water and sanitation related diseases affecting children include diarrhoea, trachoma, schistosomiasis, scabies and Guinea worm. All of these compromise children’s attendance and performance at school and, not uncommonly, can result in death. Most of these infections are preventable.

A manual on school sanitation and hygiene by (UNICEF, 1998) states that diseases such as diarrhoea and parasitic worm infections need to be tackled by making improvements to water and sanitation facilities. However such improvements must go hand in hand with hygiene behaviour change, if the transmission of disease is to be prevented. Access to sanitation facilities is a fundamental right that safeguards health
and human dignity. Providing such facilities at schools not only help to meet that right; it also provides the most favourable setting to encourage behaviour change in the school and in the community.

2.3 Importance of School Sanitation and Hygiene

According to (UNICEF, 1998), in many countries there exists a high prevalence of hygiene and sanitation related diseases, causing many people, children in particular, to fall ill or even die. Improved hygiene practices are essential if transmission routes of hygiene and sanitation related diseases are to be cut. Whereas appropriate hygiene education can bring about the intention to change hygiene behaviour, for most hygiene behaviours appropriate hygiene and sanitation facilities are needed to allow people to transform intention to change into real change.

Literature available on School Sanitation and Hygiene (SSH) deal with both hardware and software aspects needed to bring about changes in hygiene behaviour of students and, through these students, in the community at large. The hardware is the total package of sanitary conditions and facilities available in and around the school compound. The software are the activities aiming to promote conditions at school and practices of school staff and children that help to prevent hygiene and sanitation-related diseases.

However, (World Bank, 2003; Dierkx, 2003). States that the current practice in most Sub-Saharan countries is the focus on the software aspects of education, that is, education policy and curriculum development, learning programmes, training and educational performance, and lowering drop out cases. Hence, the hardware aspects of education - school environment i.e. school buildings, and school environment - is virtually ignored (World Bank, 2003; Dierkx, 2003). Hence, the need of a more
balanced and increased investment efforts to water, environmental and sanitation management and community based school planning in Sub-Saharan Africa.

Dierkx (2003) recommends an integrated approach to school sanitation and hygiene, focusing on the development of the whole child in school and after. Three main aspects of this whole development in school planning are:

- The school as a 3D-text book (Whole Learning) aims to integrate the school, school ground, learning programme, users, wider community and environment. The children learn via different learning processes across body, mind and spirit.

- The school as an Eco-system (Whole settlement) sees the school as part of a wider goal of child-friendly human settlement development. It aims:
  (i) To integrate hygiene and sanitation systems with the landscaping and climate (Eco-garden, eco-orchard, rain water harvesting, water filtering, tree nursery, solid/fluid waste management);
  (ii) It sees school architecture as a tool for learning sustainability principle (outdoor learning, leisure space and sports).

- The school as a Tool of Community Development (Whole society) aims to integrate social, cultural and human resource with learning programme.

The whole approach has implications on how schools are planned and used. Planning the school system via school sanitation, hygiene and environmental education and learning programmes is one important aspect.
2.4 The Link between Health and Learning

As numerous studies show, (Burgers, 2000) asserts that education and health are inseparable: nutritional deficiencies, diarrhoea and helminth infections affect school participation and learning. Importantly, many of these issues can be addressed effectively through health, hygiene and sanitation policies and programmes for students and staff.

Often there are not enough resources and time to address all the health problems at once and to accomplish all the goals of a health promotion or disease prevention effort. Programme planners sometimes must choose between providing a variety of strategies for a given population or focusing their efforts on a smaller number of activities. School hygiene education and sanitation promotion should be considered as a critical area for intervention to address these issues in a more integrated manner.

According to (Burgers, 2000) sanitary conditions of schools in rural and urban areas in developing countries are often appalling, creating health hazards and other negative impacts, thus schools are not safe for children. Although water and sanitation facilities are recognized as fundamental for hygienic behaviour and children’s well-being, in practice, the sanitary conditions in most schools are woefully inadequate. Water supply, sanitation and hand washing facilities are either non-existent, too few or inadequate due to poor maintenance of water systems and toilets or latrines. Lack of facilities is only part of the problem. Where they are present, facilities are not adapted to the needs of children, in particular girls. Also the motivation of teachers and head teachers to offer skills-based hygiene education is not always evident.
Helminth infections are one of the leading causes of disease among young people and adults in the world today. WHO, (1995), indicates that hundreds of millions of school-age children are infected by roundworm, whip-worm, hookworm, schistosomiasis and other flukes and/or guinea worm. Of these, the intestinal worms are most common. These parasites consume nutrients from children they infect. In doing so, they bring about or aggravate malnutrition and retard children's physical development. They also destroy tissues and organs in which they live causing pain and various health problems. They affect the health and well-being of millions of people, especially young people old.

Burgers, Clarke, Laugeri, and Simpson-Hebert, (1994) states that about 400 million school-aged children around the world are infected by roundworm, whip-worm and/or hookworm. In fact, roundworm and whip-worm alone are estimated to affect one quarter of the world's population. Research has shown that controlling these infections in children helps to reduce it in the adult population.

Guinea worm has a dramatic effect on school attendance. UNICEF, (1998) argues that children miss school when they have the disease themselves, and also when they have to stand in for their sick parents, working in the field or at home. Schools in endemic areas often have to close for a month or more each year as a result.

Burgers, Clarke, Laugeri, and Simpson-Hebert, (1994) indicates that diarrhoea diseases are not exclusively a problem of infants; they are also an important cause of morbidity, absence from school and even mortality in older children. As case management of acute diarrhoea has improved and brought down the diarrhoea death
rate, an increasing proportion of the residue is attributable to persistent and bloody diarrhoea, which are particularly susceptible to control by improved hygiene.

Eye infections, especially trachoma, are common among school children. According to Dlangamandla (1985), repeated infection during childhood is a key causative factor in the blindness which trachoma often causes later in life. Seventy percent of the blind people are women, who are most frequently in contact with infected children.

As Cross (1983) noted, all these diseases have long-term consequences for a child's health, compromise children's attendance and performance at school and, not uncommonly, can result in death. As most of the infections are preventable, the emphasis should be on key interventions to break the transmission of these diseases. The essential barriers to most of these infections are (i) isolation of excreta from the environment and (ii) regular washing of hands and faces. UNICEF, (1998) argues that improved sanitation together with hygiene promotion can help control all these infections. Multiple, co-ordinated strategies produce a greater effect than individual strategies, but these strategies need to be selective and targeted. While treatment of parasitic infections may have an immediate short term impact, a programme will only have/show a sustainable effect when combined with training of teachers and administrators, classroom education and the provision of sanitary facilities.

2.6 Learning Perspectives of School Hygiene and Sanitation

Helminth reduction programmes in schools can have a significant impact on health and learning among school children. According to WHO (1993), school children show remarkable spurts in their growth and educational development after de-
worming. Although limited in number, studies show that learning outcomes of healthy children are much higher than children infected with helminthes.

Burgers, (2000), notes that results from de-worming studies provide strong support for sanitation, because periodic use of anti-helminthic drugs can only be justified if at the same time the source of the infections (in most cases poor excreta management and poor excreta related hygiene) are addressed at the same time. Also there is a positive association between education and productivity, so that infections which inhibit educational achievement are also likely to affect production during adulthood.

2.7 Gender Perspectives of School Hygiene and Sanitation

According to (UNICEF, 1998) lack of facilities and poor hygiene affects both girls and boys, although poor sanitation conditions at schools have a stronger negative impact on girls. All girls should have access to safe, clean, separate and private sanitation facilities in their schools. If there are no latrines and hand-washing facilities at school, or if they are in a poor state of repair, then many children would rather not attend than use the alternatives. In particular girls who are old enough to menstruate need to have adequate facilities at school and normally separate from those of boys. If they don’t they may miss school that week and find it hard to catch up, which makes them more likely to drop out of school altogether. Many children, again mainly girls, miss out on time at school because of having to walk long distances in order to fetch water. Also in schools, when the schoolteacher sends children to fetch water, it is predominantly girls who are sent.

Almendom, Anila, and Francis, (1996) notes that when other family members become sick (often due to sanitation related diseases), girls are more likely to be kept home to help. This can lead to reduced school attendance by girls and can result in an
increase in drop-out rates. This situation will become even more critical in communities hard hit by the HIV/AIDS pandemic

2.8 Children Perspectives on School Hygiene and Sanitation

Children spend long hours in schools. According to (Ekeh, and Adeniyi, 1988) the school environment will partly determine these children’s health and well-being by providing a healthy or unhealthy environment. Focusing on schools and the people connected to schools has several additional advantages. Compared to adults, children are more receptive to new ideas and can more easily change their behaviour and/or develop new long-term behaviours as a result of increased knowledge and facilitated practices. Depending on the culture, children and youth, accounting for more than half of the total population in many developing countries, may question existing practices in the household and become agents of change within their families and communities. Teachers as professionals and influential individuals, supported by the school management, can play an important role in the development of pupils through training and providing a role model in the communities.

Ekeh, and Adeniyi, (1988) children are future role models and parents. What they learn at school is likely to be passed on to their peers and to their own children. It is obvious that all sanitation facilities and educational programmes should be adapted to the different physical and cultural needs of girls and boys at different ages, key aspects enshrined in the concept of child friendly schools.

2.9 Local Literature on School Sanitation and Hygiene

The legal provisions and policies governing education in Kenya, as spelled out in the School Management Guide (Ministry of Education, 2003) outline the number of sanitation facilities required in primary schools. According to this guide, sanitation
facilities in primary schools should be in the following ratio: - 1:30 for boys; 1:25 for girls; at least a urinal pit for boys; and at least one toilet for staff. Studies carried out in the past indicate that a number of schools do not meet this requirement. One such study was carried out long before the introduction of Free Primary Education by Motuka (1999). The purpose of Motuka’s study was to investigate the provision of educational facilities in primary schools in Rigoma Division of Nyamira District. Motuka (1999) found out that 5.6% of the schools that were involved in the study had been closed down due to lack of toilets. The closure had been directed by the public health officials until the pit latrines were constructed. He found that in most of the schools the latrines were inadequate and hence more needed to be constructed.

A recent study by Ng’ethe (2004), which was carried out in Ruiru Division of Thika District, established that 74% of the schools experienced a shortage of latrines. This study further found out that latrine shortages interfered with the school time table.

According to De Vreede (2003), a severe shortage of toilets in many public primary schools is undermining the efforts to provide quality education. Since the introduction of free primary education in 2003, national primary school enrolment has risen from 5.9 million children in 2002 to the current figure of about 7.3 million. According to (Kirimi, 2007), survey conducted in 2004 shows that the drop out rate has remained insignificant. The survey revealed that the expansion of physical infrastructure has been too slow to cope with the influx. School sanitation and hygiene have received least attention in the allocations of free education monetary grants and other resources. Karanja (2005) argues that while the country seems set to achieve the Universal Primary Education goal of ensuring that all boys and girls complete primary education by the years 2015, the school sanitation and hygiene goal may not be achieved. This
goal calls for governments to educate 80% of primary school children about hygiene and equip every school with facilities for sanitation and hand washing by 2015.

Ensuring children are healthy and learning in a friendly environment is—or should be—an essential component of an effective education system. The goal recognizes that school has an important role to play in imparting knowledge about health and changing basic hygiene habits.

According to (De Vreede, 2003), provision of adequate sanitation and hygiene education is found to be especially relevant among the poorest and most disadvantaged children, many of whom are girls. These children are often the least healthy and most malnourished, and they gain most from improved health.


As part of its planned work, the group carried out rapid assessment in a sample of public primary schools in Nairobi, Machakos, Kajiado and Kiambu Districts. In addition, the group talked to sector professionals and policy makers. The main findings, as summarized were:

**School toilet standards were not met** - The Ministry of Health recommends a minimum of 1 toilet to 25 girls and 1 toilet to 30 boys. This assessment found that on average 64 children shared one toilet. Schools in the Arid and Semi Arid Lands (ASALs) were worst hit both by water supply and sanitation provision. Up to 104 children share one latrine in North Eastern Province.
This is reflected in low enrolment, poor school performance and low pupil retention rates. In most schools, the toilets for girls and boys are semi-separated (back-to-back design), shared or constructed close together. Experience shows that when girls reach puberty, they drop out of school due to the embarrassment of having to share latrines with boys, or because the facilities do not give them privacy and dignity. A UNICEF report shows that 1 in 10 school-age girls do not attend school during menstruation. Even where a fair number of latrines existed, their condition was deplorable. Maintenance and proper use were found to be poor. Toilets without proper doors, or means of locking from inside were common.

Pupils' hygiene practices are hazardous - Participatory and promotional hygiene is not emphasized and teachers are not sensitized on these issues. The assessments observed that where school lunch is served, children ate without washing their hands, partly because of ignorance and partly for lack of hand washing facilities. 87% percent of the children interviewed said they did not wash their hands after visiting the toilet.

Schools reported that they did not receive any hygiene promotion materials or teaching aids. All teachers interviewed recognized gaps in their hygiene promotion skills. At the same time, pupils ranked clean latrines second only to friendly teachers in determining the overall friendliness of a school.

Experts are agreed that education is potentially one of the most effective weapons we have to reduce the toll of diseases. Kirumi (2007) notes that regular hand washing with water and soap alone can drastically lower the national health burden.

No flowing water or hand-washing facilities - Over 90% of primary schools in rural Kenya lack a source of safe water and do not have even the simplest hand washing
facility. There is plenty of water during the wet season, but the quality of this water is poor.

Headteachers reported that roof catchment offers the most viable option for a majority of schools. Presently rainwater harvesting and storage capacities are inadequate for large pupil populations. Children spend the time that should be spent learning in fetching water from unimproved sources in the neighbourhood. Often they carry water from home.

According to (Kirimi 2007), schoolchildren need water for cleaning toilets, hand and face washing, preparation of lunches and wiping or reducing dust in the earthen classroom floors. These habits are known to reduce and even eliminate skin and eye diseases, diarrhoeas, intestinal worms and typhoid.

Mandates and efforts are scattered - Various government ministries, development partners, private and civil society organizations have a stake in school sanitation and hygiene. However, there is no structured and sustained national programme to co-ordinate and consolidate their efforts. The survey noted the inter-sectoral nature of school sanitation and hygiene.

Improvement of public sanitation is the mandate of the Ministry of Health. Provision of water is the mandate of the Ministry of Water. Ministry of Education provides teaching and school administration.

Kirimi (2007), further states that a school water and sanitation workshop held in August 2003 recognized the need for a programme to operate in the intersection of the line ministries, the donor community, the private sector and civil society in improving environmental health in schools. Such a programme would provide co-ordination role
in policy formulation, project and implementation plans guidelines, and operate within the concept of the Water, Sanitation and Hygiene for All (WASH).

In 2001, the Ministry of Education reviewed the health and safety standards in all institutions of education. In Circular No. G9/1/169 on Health and Safety Standards in Educational Institutions (Ministry of Education, 2001), the Ministry noted that:

Each student must be made to respect and appreciate his/her body at all times and should provide for personal hygiene and protect themselves from any circumstances of abuse and degradation.

In 2004, the Government of Kenya, through the Ministry of Education, provided Kshs 50,000 per school for school water and sanitation improvement. While all stakeholders have praised this move, they concur that the amount is too little to create a lasting impact.

The Ministry of Health is currently developing an Environmental Health and Hygiene Policy and a School Health Programme to address health issues at school, as outlined in the Education Sector Support Programme 2005-2010 (Republic of Kenya, 2005). In the efforts to reduce the number of people without access to safe water, the Ministry of Water recognizes that schools, being well organized and holding about a third of Kenya's population, offer the best opportunity to achieve the Millennium Development Goals for water and sanitation.

2.10 Summary

Literature reviewed in this chapter has shown the importance of school sanitation and hygiene. Emphasis on sanitation and hygiene will help promote health, school retention, academic performance, and promote proper sanitation and hygiene attitudes and practices among children. Literature has also shown that in Kenya, after the
introduction of free primary education, and the consequential influx of pupils in public primary schools, the facilities available were outstretched.

Much of the local studies done in public primary schools, and especially after the introduction of FPE, had concentrated on challenges faced in implementation and the effects of FPE on education quality (for example Ng’ethe, 2004; Siwolo, 2004; Asyago, 2005; and Mugo, 2006). The area of sanitation and hygiene in schools had not been given much attention. The proposed study hoped to fill this literature gap by finding out the sanitation and hygiene practices in public primary schools in Thika Municipality.
CHAPTER THREE
METHODOLOGY

3.1 Introduction

This chapter covers the methodologies that were used in the study. It discusses the research design, target population, sampling procedures, data collection instruments, validity and reliability of the instruments, and data collection and analysis procedures.

3.2 Research Design

This study used the descriptive survey research design. The design was considered appropriate for the study because according to Kothari (1985) survey is concerned with describing, recording, analyzing and reporting conditions that exist or that have existed. Kerlinger (1973) argues that survey method is widely used to obtain data useful in evaluating present practices and in providing basis for decisions. For this study, the descriptive survey design enabled the researcher to analyze and describe the sanitation and hygiene situation in public primary schools in the study location, for the purpose of making recommendations on what needs to be done to improve sanitation and hygiene in public primary schools.

3.3 Target Population

Kombo and Tromp (2006) define a population as a group of individuals, objects or items from which samples are taken for measurement. For this study, the target population was all teachers and pupils of all the 24 public primary schools in Thika Municipality, Thika District.
3.4 Sampling Procedures and Sample Size

A number of scholars have suggested various ways of arriving at a representative sample size. Orodho (2002), however, posits that the larger the sample, the smaller the sampling error. Out of the 24 public primary schools in Thika Municipality, the researcher randomly selected 10 schools to participate in the study. The 10 schools represent 41.7% of the population. Random sampling was done by writing the names of the 24 schools on different pieces of paper; the pieces of paper were then folded and put into a container. The researcher then picked 10 pieces of paper at random, and the schools whose names appeared on the picked papers comprised the study sample. According to Gay (1992) random sampling is the best form of sampling as it allows all members of the population to have an equal and unbiased chance of appearing in the sample. This was important in order to ensure that the study captured the state of sanitation and hygiene in primary schools in Thika Municipality. It also enabled the researcher to generalize findings to the rest of the schools in the Municipality.

Forty teachers and 200 pupils were selected. Purposive sampling was employed to select 4 teachers from each of the 10 sample schools. Purposive sampling was used to allow the researcher to have teachers from both lower and upper primary classes taking part in the study, so that the study could cover the entire school. Two teachers per school were selected from upper primary classes (Classes 4 to 8) and two from lower primary classes (Classes 1 to 3) randomly. As such, a total of 40 teachers were selected.

Stratified random sampling was used to select 20 pupils from each school. Stratified sampling allowed the researcher get pupils from classes 7 and 8. These two senior classes were used because the pupils can read and write in English as opposed to
those in lower classes. In each sample school, 10 pupils were randomly selected from classes 7 and 8, giving a total of 20 pupils per school, and an overall pupils’ sample of 200.

3.5 Research Instruments

The researcher employed the following instruments for data collection:

- Questionnaires
- Observation Checklists
- Document Analysis

3.5.1 Questionnaires

The questionnaire was used for data collection because, as Kiess and Bloomquist (1985) observe, it offers considerable advantages in the administration: it presents an even stimulus potentially to large numbers of people simultaneously and provides the investigation with an easy accumulation of data. Gay (1992) maintains that questionnaires give respondents freedom to express their views or opinion and also to make suggestions. Two sets of questionnaires were used: one for teachers and one for pupils. The questionnaire for teachers had four sections. Section one collected demographic information of the teachers and their schools; section two gathered data on the status of sanitation facilities in schools as well as personal and environmental hygiene practices carried out in the schools; section three gathered data on the status of hygiene in the schools, and section four gathered data on the role that the community plays in promoting good sanitation and hygiene practices. The questionnaire for pupils gathered data on their knowledge and feelings about various hygiene practices.
3.5.2 Observation Checklists

The researcher carried out observations in the schools on the following issues, using an observation checklist:

- Pupils were observed during break and lunch time to observe their hygiene practices such as washing hands after visiting toilets and before meals.
- Observations of the general sanitary and hygiene conditions of the schools were made.
- The number and condition of various sanitation facilities such as latrines, urinals and hand washing basins.

3.5.3 Document Analysis

Various documents were analysed, including class registers to find out the number of pupils enrolled in the schools to confirm the actual enrolment in relation to the number of toilets available, and the primary school syllabus to find out the topics and subjects which cover sanitation and hygiene.

3.6 Reliability and Validity

Before the actual data collection, piloting of questionnaires was done on two public primary schools, which did not participate in the final study. Piloting enabled the researcher to test the reliability of the instrument. The researcher used the pilot study to identify any items in the questionnaire that are ambiguous or unclear to the respondents and change them effectively. The pilot study also enabled the researcher to familiarize herself with administration of the instrument.
According to Gay (1992) validity is established by expert judgement. Thus the questionnaire was constructed in close consultation with the university supervisor and other experts.

3.7 Data Collection Procedure

The researcher got an introduction letter from Kenyatta University and a research permit from the Ministry of Education, (MoE). After this, the researcher booked an appointment with the sample schools through the headteachers to visit and administer the questionnaires. The researcher then visited each of the sample schools and administered the questionnaires herself. The respondents were given instructions and assured of confidentiality after which they were given enough time to fill in the questionnaires, after which the researcher collected the filled-in questionnaires. As teachers and pupils filled in the questionnaires, the researcher carried out observations. The data collection process took a period of three weeks.

3.8 Data Analysis Plan

Descriptive statistics were used to analyze the data obtained. Data collected from the field were coded and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS). Data to be collected were of both quantitative and qualitative nature. Quantitative data were analyzed descriptively using frequency counts and percentages, and presented using frequency tables, bar graphs and pie charts. Qualitative data were reported in narrative form and where possible percentage of cases reported.
CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter covers the data analysis procedures employed and the findings of the study. The purpose of the study was to investigate the sanitation facilities and hygiene practices in public primary schools in Thika Municipality. The study had four research questions:

(a) What is the status of the following sanitation facilities in public primary schools in Thika Municipality?

1. Latrines
2. Urinals
3. Water supply

(b) What is the status of hygiene in public primary schools in Thika Municipality with regard to:

4. Waste disposal
5. Cleanliness of the compound
6. Classroom conditions
7. Pupils hygiene practices - washing hands before meals and after visiting toilets, and good grooming

(c) How do public primary teachers teach sanitation and hygiene practices to pupils?

(d) What are the pupils' attitudes towards sanitation and hygiene?

(e) What support do public primary schools receive from the community in enhancing sanitation and hygiene?

In this chapter findings of study are presented and discussed. The chapter is subdivided into five parts, with the first part covering background data of the study.
participants and the other four parts covering study findings in relation to the five research questions of the study.

4.2 Demographic Data of the Respondents

Data for the study was collected from 40 teachers and 200 pupils from ten public primary schools in Thika Municipality. Of the 200 pupils, 100 (50%) were boys and 100 (50%) were girls. Fifty percent of the pupils were in Standard 7 and the other 50% were in Standard 8. Table 4.1 shows the age distribution of the pupils.

Table 4.1 Age distribution of the pupils in the study

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>12</td>
<td>22</td>
<td>11.0</td>
</tr>
<tr>
<td>13</td>
<td>30</td>
<td>15.0</td>
</tr>
<tr>
<td>14</td>
<td>58</td>
<td>29.0</td>
</tr>
<tr>
<td>15</td>
<td>52</td>
<td>26.0</td>
</tr>
<tr>
<td>16</td>
<td>26</td>
<td>13.0</td>
</tr>
<tr>
<td>17</td>
<td>8</td>
<td>4.0</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>200</td>
</tr>
</tbody>
</table>

Table 4.1 shows that the age of the pupils ranged from 11 years to 18 years, with the majority being concentrated in the 12-16 years age bracket.

Among the 40 teachers, 6 (15%) were male and 34 (85%) were female. Twenty (50%) of the teachers taught at the lower primary while another 20 (50%) taught at the upper primary.

Figure 4.1 presents the working experience of the teachers in their current station.
Majority (n=22, 55%) of the teachers had taught for less than three years, 14 (35%) had taught for between 4 and 6 years while 4 (10%) had taught for ten years and above. The researcher concluded that the teachers had stayed long enough in their stations to understand issues related to sanitation and hygiene.

4.3 Adequacy and Condition of Sanitary Resources in Public Primary Schools

The first research question was:

What is the status of the following sanitation facilities in public primary schools in Thika Municipality?

i. Latrines

ii. Urinals

iii. Water supply

Findings on latrines

Through physical counting, the researcher established that the schools had between 4 and 10 toilets for boys, between 6 and 9 toilets for girls, and one urinal per school,
with only one school having two urinals. According to the National Environmental Sanitation and Hygiene Policy (Ministry of Health, 2007), it states that by the year 2015, every school will have hygienic toilets and hand-washing facilities - separate for boys and girls. It continues to state that attainment of these goals is expected to drastically reduce the incidence of sanitation-related diseases. Table 4.2 shows the ratio of pupils per toilet for both boys and girls in the ten study schools.

Table 4.2: Ratio of pupils per toilet

<table>
<thead>
<tr>
<th>School</th>
<th>Boys</th>
<th></th>
<th>Girls</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enrolment</td>
<td>No of toilets</td>
<td>Pupil-toilet Ratio</td>
<td>Enrolment</td>
</tr>
<tr>
<td>A</td>
<td>286</td>
<td>7</td>
<td>40</td>
<td>330</td>
</tr>
<tr>
<td>B</td>
<td>180</td>
<td>6</td>
<td>30</td>
<td>277</td>
</tr>
<tr>
<td>C</td>
<td>457</td>
<td>6</td>
<td>76</td>
<td>383</td>
</tr>
<tr>
<td>D</td>
<td>412</td>
<td>10</td>
<td>41</td>
<td>291</td>
</tr>
<tr>
<td>E</td>
<td>326</td>
<td>8</td>
<td>41</td>
<td>242</td>
</tr>
<tr>
<td>F</td>
<td>257</td>
<td>6</td>
<td>43</td>
<td>377</td>
</tr>
<tr>
<td>G</td>
<td>308</td>
<td>6</td>
<td>51</td>
<td>310</td>
</tr>
<tr>
<td>H</td>
<td>436</td>
<td>7</td>
<td>62</td>
<td>637</td>
</tr>
<tr>
<td>I</td>
<td>442</td>
<td>9</td>
<td>49</td>
<td>496</td>
</tr>
<tr>
<td>F</td>
<td>214</td>
<td>4</td>
<td>53</td>
<td>283</td>
</tr>
</tbody>
</table>

As shown in the table above, for boys the ratio of toilets ranged from 30 pupils per toilet to 76 pupils per toilet. For girls the ratio of toilets ranged from 32 girls per toilet to 71 girls per toilet. For most of the schools the ratio was far way above the recommendations by the Ministry of Education (2003), which states that sanitation facilities in primary schools should be in the following ratio: - 1:30 for boys; 1:25 for girls; at least a urinal pit for boys; and at least one toilet for staff. Only one school (labelled B in Table 4.2) had met this requirement for boys. For girls none of the schools had met the requirement. The findings are consistent with previous research.
by De Vreede (2003) who found out that there is a severe shortage of toilets in many public primary schools.

Observations by the researcher revealed the following about sanitary resources in the schools:

- Six (60%) of the schools had flush-type toilets whose cisterns were not functional. As a result, the toilets were very dirty and smelly, with faeces seen on the floor for 5 (50%) of the schools. Only one school had neat toilets which were cleaned after every break.

- Four (40%) of the schools had pit latrines. In 2 (20%) of the schools, some of the toilets (both boys and girls) did not have doors. In 1 (10%) school a girls’ toilet was situated very close to the boys’ toilets.

- The schools had between two and three teachers’ toilets which were very clean.

- In 9 (90%) of the schools, the distance of toilets from the classrooms was at least 30 metres. In one (10%) school the toilets were adjacent to the classrooms, and their smell could be felt from just outside the classrooms.

**Findings on urinals**

- Nine (90%) of the schools had one urinal each, while one (10%) school had two urinals. The urinals were not clean and were smelly in all the ten schools, further they were without running water.

**Findings on water supply**

- Nine (90%) had running water which was reliable. In one (10%) school the tap was broken and therefore water kept running, leading to a lot of wastage.
• Only one school had provided wash basins for pupils, and even in this school only one sink was provided, which was not adequate for the entire population. Another school had two water points in form of a tap with running water. Six (60%) of the schools had provided wash basins/sinks for teachers, while four (40%) had not made this provision.

• All the 10 (100%) schools had not provided soap/detergent for use by pupils or teachers to wash hands.

Some of the above stated findings indicate that the schools did not have the enabling factors that would enable pupils engage in effective hygiene and sanitation practices. The enabling factors that were lacking included wash basins/sinks, detergent/soap and dust bins. Such resources are necessary to enable pupils to transform acquired knowledge, attitudes and beliefs into desirable behaviours. These findings are supported by findings of studies conducted elsewhere. For example, Burgers (2000) found out that the sanitary conditions of schools in developing countries are often appalling, creating health hazards and other negative impacts, thus schools are not safe for children. He concluded that although water and sanitation facilities are recognized as fundamental for hygienic behaviour and children’s well-being, in practice, the sanitary conditions in most schools are woefully inadequate.

4.4 Status of hygiene in Public Primary Schools.

The second research question was:

What is the status of hygiene in public primary schools in Thika Municipality with regard to:

i. Waste disposal

ii. Cleanliness of the compound
iii. Classroom conditions

iv. Pupils hygiene practices - washing hands before meals and after visiting toilets, and good grooming

The teachers who took part in the study were asked to state the personal hygiene practices that pupils were expected to observe. Their responses are summarized in Table 4.3.

Findings on compound and waste disposal

- The schools had clean compounds apart from one school where the area behind the classrooms was not well managed, with tall grass and compost pit full of litter.

- All the 10 (100%) schools did not have dustbins. Eight (80%) schools had compost pits that were filled with litter which had not been burned. Two (20%) schools did not have compost pits, and there were signs of the points on level ground where litter had been burnt.

Findings on classrooms

- Classrooms in all the ten schools were well ventilated and well lighted. However, one school had classrooms whose floors required renovation.
Table 4.3 shows that the personal and environmental hygiene practices expected to be observed by pupils included washing hands after visiting the toilet (100%), keeping the toilets clean by using them properly (92.5%), keeping the compound clean (82.5%), keeping their hair and nails short and clean (70%), wash their uniforms and bathing regularly (27.5%), brush their teeth at least once in a day (22.5%), using tissue paper when visiting the toilet (12.5%) and always carrying a handkerchief to school (5%). It is however worthwhile to note that although teachers had these expectations, the pupils could not meet them because the enabling factors were missing. For example, hand washing facilities were missing in most of the schools, although all the teachers expected pupils to wash their hands after visiting the toilet. On this, Snel (2004) noted that in most cases the motivation of teachers and head teachers to offer skills-based hygiene education is not evident.

Observations made by the researcher revealed that in 9 (90%) of the schools pupils did not wash their hands after visiting the toilets and before taking meals. In the one school where pupils washed hands before meals and after visiting the toilets, lower
primary school pupils were unable to wash their hands as the hand washing facilities were not suitable for lower primary pupils, since the taps were too high for them to reach.

Thirty (75%) teachers reported that they checked pupils daily to ensure they observed personal hygiene practices while 10 (25%) reported that they checked the pupils weekly. A total of 34 (85%) teachers stated that they assigned cleaning duties as a way of involving pupils in keeping the school compound clean, while 6 (15%) reported that they maintained cleanliness by giving manual punishment to pupils who break school rules and regulations. Those who assigned duties to pupils reported that they preferred this method because of the following reasons:

- Pupils take cleanliness as part of themselves and not as a punishment
- It makes pupils responsible in matters of cleanliness
- Duties are assigned equally amongst pupils
- Pupils clean their own classes but the compound is taken care of by the school workers
- Assigning pupils duties has made them responsible and hardworking

Table 4.4 indicates the teachers’ responses on those who are responsible for various duties related to school cleanliness.
Table 4.4: Persons who perform various school cleanliness duties

<table>
<thead>
<tr>
<th>Duties</th>
<th>Pupils</th>
<th></th>
<th>Workers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>%</td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>Washing classrooms</td>
<td>36</td>
<td>90.0</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>Washing pupils toilets/urinals</td>
<td>8</td>
<td>20.0</td>
<td>32</td>
<td>80.0</td>
</tr>
<tr>
<td>Washing teachers toilets</td>
<td>8</td>
<td>20.0</td>
<td>32</td>
<td>80.0</td>
</tr>
<tr>
<td>Washing the staffroom</td>
<td>20</td>
<td>50.0</td>
<td>20</td>
<td>50.0</td>
</tr>
<tr>
<td>Cleaning the compound</td>
<td>36</td>
<td>90.0</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>Mowing/Cutting grass in the compound</td>
<td>16</td>
<td>40.0</td>
<td>24</td>
<td>60.0</td>
</tr>
</tbody>
</table>

As shown in Table 4.4 above, 36 teachers, representing 9 (90%) of the schools, reported that classrooms were washed by pupils, while in one (10%) school classrooms were washed by workers. Eight teachers, representing two (20%) schools reported that pupils' and teachers' toilets and urinals were washed by pupils, while 32 teachers, representing eight (80%) schools reported that pupils' and teachers' toilets were washed by school workers. Twenty teachers, representing 50% of the schools reported that the staffroom was washed by pupils, while in 50% of the schools the staffrooms were washed by school workers. Four teachers, representing one (10%) school, reported that the compound was cleaned by school workers, while in nine (90%) schools the compound was cleaned by pupils. In six (60%) of the schools, grass in the compound was cut/mowed by workers while this task was carried out by pupils in four (40%) schools.

Schools should involve pupils in cleaning duties not as a way of cutting costs but as a way of fostering desirable behaviour for the future. According to Ekeh and Adeniyi (1988), children are future parents and what they learn at school is likely to be passed on to their peers and to their own children, and therefore it is important to emphasize good sanitation and hygiene practices in schools. Where pupils are engaged in duties
like washing the toilets, schools should provide protective gear such as gloves, disinfectant and detergents.

4.5 **Hygiene Practices Taught to Pupils in Public Primary Schools**

The third research question was:

> How do public primary teachers teach sanitation and hygiene practices to pupils?

The teachers were asked to indicate how they taught hygienic practices to pupils. All the 40 (100%) teachers indicated the methods presented in Table 4.5.

**Table 4.5: Ways in which teachers ensured that pupils observe hygiene practices**

<table>
<thead>
<tr>
<th>Methods employed</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspecting pupils’ nails and hair during assembly</td>
<td>40</td>
<td>100.0</td>
</tr>
<tr>
<td>Ensuring pupils wash hands after visiting toilets</td>
<td>31</td>
<td>77.5</td>
</tr>
<tr>
<td>Observing cleanliness in the school compound</td>
<td>29</td>
<td>72.5</td>
</tr>
<tr>
<td>Impromptu inspections of pupils</td>
<td>14</td>
<td>35.0</td>
</tr>
<tr>
<td>Vigilance by the teachers on duty</td>
<td>13</td>
<td>32.5</td>
</tr>
<tr>
<td>Emphasizing the need for cleanliness during parade</td>
<td>9</td>
<td>22.5</td>
</tr>
<tr>
<td>Requesting parents to emphasize hygiene at home</td>
<td>4</td>
<td>10.0</td>
</tr>
<tr>
<td>Punishing those who do not observe hygiene practices</td>
<td>4</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Apart from the above stated methods issues of hygiene are taught in some sections of the curriculum such as: health education and pollution of the environment in science, life skills in English, usafi wa mwili in Kiswahili, my duties at school and at home in C.R.E.

As shown in Table 4.5, teachers ensured that pupils observed hygiene practices by inspecting their nails and hair during assembly (100%), ensuring that pupils wash their hands after visiting the toilets (77.5%), observing cleanliness in the school compound (72.5%), impromptu inspection of the cleanliness of pupils (35%), and
vigilance by the teachers on duty (32.5%) among others. In addition to these measures, it is important for schools to have hygiene and sanitation education. On this, UNICEF (1998) argues that whereas appropriate hygiene education can bring about the intention to change hygiene behaviour, for most hygiene behaviours appropriate hygiene and sanitation facilities are needed to allow people to transform intention to change into real change. This means that hygiene education is bound to fail if resources to support desirable hygiene and sanitation behaviour are not provided.

Twenty teachers, representing five (50%) schools, reported that there were pupils clubs in their schools that addressed hygiene, sanitation and health issues. When asked to list down the activities that were carried out by the clubs, they listed the following:

- Cleaning the compound weekly
- Ensuring there is water in classrooms for washing hands after eating or visiting the toilet
- Discussing general school cleanliness and hygiene
- Disposing or burning of sanitary towels and litter thrown recklessly in the school compound
- Weeding of flower beds in the school
- Checking one another’s general hygiene
- Advising one another on how to stay healthy by eating a well balanced diet and observing hygiene practices.

Sanitation and hygiene clubs provide an effective way of targeting children as change agents. What children learn at school can be transfer to their homes, communities and to other children at home who are unable to go to school for various reasons. These
children will later become parents and will be duty bound to provide a safe and clean environment for their own children's development. If children are brought into the development process as active participants, they can become change agents within their families and catalysts for community development (Lidonde, 2004).

4.6 Pupils attitudes towards sanitation and hygiene.

The fourth research question was

What are the pupils' attitudes towards sanitation and hygiene practices

The 200 pupils from class 7 and 8 who participated in the study were presented with statements on sanitation and hygiene practices. They were asked to indicate the extent to which they agreed or disagreed with each of the statements. Table 4.6 presents their responses.

Table 4.6: Pupils' attitudes towards various hygiene practices.

<table>
<thead>
<tr>
<th>Statement</th>
<th>SA</th>
<th>A</th>
<th>U</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupils should be involved in washing classrooms and toilets</td>
<td>31.0</td>
<td>33.0</td>
<td>3.0</td>
<td>9.0</td>
<td>24.0</td>
</tr>
<tr>
<td>It is a waste of time to wash hands after visiting the toilet</td>
<td>11.0</td>
<td>6.0</td>
<td>5.0</td>
<td>19.0</td>
<td>59.0</td>
</tr>
<tr>
<td>Pupils should not be involved in cutting grass at school</td>
<td>18.0</td>
<td>19.0</td>
<td>10.0</td>
<td>29.0</td>
<td>24.0</td>
</tr>
<tr>
<td>It is not good to drop papers and other waste in classrooms</td>
<td>53.0</td>
<td>29.0</td>
<td>1.0</td>
<td>4.0</td>
<td>13.0</td>
</tr>
<tr>
<td>Classrooms should not be washed daily</td>
<td>14.0</td>
<td>15.0</td>
<td>4.0</td>
<td>29.0</td>
<td>38.0</td>
</tr>
<tr>
<td>Failure to wash hands before meals can cause diseases</td>
<td>49.0</td>
<td>32.0</td>
<td>3.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Parents should not force children to bathe every day</td>
<td>9.0</td>
<td>15.0</td>
<td>3.0</td>
<td>25.0</td>
<td>48.0</td>
</tr>
<tr>
<td>One cannot concentrate while studying in a dirty room</td>
<td>38.0</td>
<td>34.0</td>
<td>3.0</td>
<td>16.0</td>
<td>9.0</td>
</tr>
<tr>
<td>All work is tiring and a form of punishment</td>
<td>3.0</td>
<td>18.0</td>
<td>13.0</td>
<td>27.0</td>
<td>39.0</td>
</tr>
<tr>
<td>I admire pupils who are always clean and tidy</td>
<td>56.0</td>
<td>22.0</td>
<td>7.0</td>
<td>6.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Being untidy and dirty is a show of courage and strength</td>
<td>3.0</td>
<td>13.0</td>
<td>2.0</td>
<td>20.0</td>
<td>62.0</td>
</tr>
<tr>
<td>I brush my teeth at least once in a day</td>
<td>27.0</td>
<td>38.0</td>
<td>5.0</td>
<td>19.0</td>
<td>11.0</td>
</tr>
<tr>
<td>Cholera and Diarrhoea can be prevented by washing hands before meals and after visiting toilets</td>
<td>65.0</td>
<td>27.0</td>
<td>3.0</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>I always carry toilet paper when visiting the toilet</td>
<td>61.0</td>
<td>26.0</td>
<td>4.0</td>
<td>3.0</td>
<td>6.0</td>
</tr>
<tr>
<td>I never wash my hands before eating</td>
<td>9.0</td>
<td>12.0</td>
<td>4.0</td>
<td>21.0</td>
<td>54.0</td>
</tr>
<tr>
<td>I always wash my hands after visiting the toilet</td>
<td>67.0</td>
<td>27.0</td>
<td>1.0</td>
<td>2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>I enjoy collecting litter in school compound to keep it clean</td>
<td>44.0</td>
<td>41.0</td>
<td>6.0</td>
<td>7.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>
The table shows that over 50% of the pupils agreed with the following statements: -

- It is not good to drop papers and other waste in classrooms (82%)
- Failure to wash hands before meals can cause diseases (81%)
- One cannot concentrate while studying in a dirty room (72%)
- I admire pupils who are always clean and tidy (78%)
- I brush my teeth at least once in a day (65%)
- Cholera and diarrhoea can be prevented by washing hands before meals and after visiting toilets (92%)
- I always carry toilet paper when visiting the toilet (87%)
- I always wash my hands after visiting the toilet (94%)
- I enjoy collecting litter in school compound to keep it clean (85%)

On the other hand, over 50% of the pupils disagreed with the following statements: -

- It is a waste of time to wash hands after visiting the toilet (78%)
- Classrooms should not be washed daily (67%)
- All work is tiring and a form of punishment (66%)
- Being untidy and dirty is a show of courage and strength (82%)
- I never wash my hands before eating (75%)

These responses from the pupils indicate that majority of them had positive attitudes toward hygiene and sanitation practices. It is notable, however that quite a significant proportion of the pupils were of negative opinion regarding various issues. For instance, 33% of the pupils disagreed with the statement that pupils should be involved in washing classrooms and toilets. Another 29% agreed that classrooms should not be washed daily, while 24% agreed with the statement that parents should not force children to bathe every day. There were 16% of the pupils who agreed that being untidy and dirty is a show of courage and strength, meaning that they would
copy untidy and dirty peers. Further, 21% of the pupils conceded that they never wash their hands before eating. This is an indication that a lot still needs to be done to educate pupils on proper hygiene practices.

4.7 Community Support for Enhancing Sanitation and Hygiene Conditions in Public Primary Schools

The fifth research question was:

What support do public primary schools receive from the community in enhancing sanitation and hygiene?

All the 40 (100%) teachers reported that they received some kind of help from the community around the school in enhancing sanitation and hygiene. Asked to indicate the kind of help and support they received from the community, the teachers reported the following:

- Ensuring their children are clean and healthy when coming to school
- Mobilizing one another to build many and adequate toilets
- Initiating water projects for the schools.

Dierkx (2003) sees the school as a tool of community development, aiming to integrate social, cultural and human resource with learning programme. Once children have been equipped with the necessary knowledge about sanitation and hygiene, the community is expected to play a reinforcing role in order to influence the pupils' ability to sustain hygiene and sanitation behaviours. Previous researchers, such as Ng’ethe (2004) and Mugo (2005), have however noted that since the government introduced free primary education, many parents have neglected their roles of supporting schools, arguing that the government should shoulder the entire burden of school improvement. This means that the community does not effectively play the role of supporting schools to improve sanitation and hygiene.
Table 4.7 shows the challenges that teachers face in the provision of sanitation facilities.

Table 4.7: Challenges faced in provision of sanitation facilities

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortage of water</td>
<td>36</td>
<td>90.0</td>
</tr>
<tr>
<td>Shortage of toilets</td>
<td>38</td>
<td>95.0</td>
</tr>
<tr>
<td>Too much workload</td>
<td>20</td>
<td>50.0</td>
</tr>
<tr>
<td>Ignorance by parents and pupils</td>
<td>18</td>
<td>45.0</td>
</tr>
<tr>
<td>Illiteracy of the community</td>
<td>15</td>
<td>37.5</td>
</tr>
<tr>
<td>Shortage of taps</td>
<td>31</td>
<td>77.5</td>
</tr>
<tr>
<td>Lack of funds to buy modern equipment</td>
<td>30</td>
<td>75.0</td>
</tr>
</tbody>
</table>

As shown in Table 4.7, the schools faced a number of challenges in the provision of sanitation facilities. These included shortage of water (90%), shortage of toilets and other sanitation facilities (95%), having too much workload hence no time to concentrate on hygiene practices (50%), lack of funds to buy modern equipment (75%) and lack of taps (75%) among others. With the introduction of free primary education, many additional pupils enrolled in schools, meaning that teachers' workload increased. As a result of the increased workload and the demand to complete the syllabus in time, teachers are left with no time to train pupils on proper hygiene and sanitation practices.

Asked to indicate the measures that could be taken to improve hygiene and sanitation conditions in their schools, the teachers gave the following recommendations:

- The government should allocate funds for construction of adequate toilets and sustain water supply to schools.
- Parents and the community should support the schools by mobilising resources and labour for construction of sanitary units.
• Schools should form hygiene and sanitation clubs for pupils to teach them on effective hygiene and sanitation practices.

• The schools should provide adequate hand-washing resources like basins, sinks and running water for pupils to use before meals and after visiting the toilet.
CHAPTE FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The purpose of this study was to investigate the sanitation facilities and hygiene practices in public primary schools in Thika Municipality. In this chapter, a summary of the study findings is presented. The chapter also presents the conclusions arrived at, as well as recommendations that should be considered in order to improve hygiene and sanitation conditions in public primary schools in Kenya. Suggestions for further research are also given in the chapter.

5.2 Summary of the Study

The study was conducted in ten public primary schools in Thika Municipality, from where data was collected from 40 teachers and 200 pupils. The researcher also made observations on the situation of hygiene and sanitation in the schools, as well as hygiene behaviour of the pupils. Given below is a summary of the key study findings.

The study established that for boys, the ratio of toilets ranged from 30 pupils per toilet to 76 pupils per toilet. For girls the ratio of toilets ranged from 32 girls per toilet to 71 girls per toilet. For most of the schools the ratio was above the recommendations by the Ministry of Education (2003), which states that sanitation facilities in primary schools should be in the following ratio: - 1:30 for boys; 1:25 for girls. Only one school had met this requirement for boys. For girls none of the schools had met the requirement. Toilets and urinals in the schools were dirty and smelly, and the cisterns for flush-type toilets were not functional. Those schools with pit latrines had some of them without doors.
Only one school had provided wash basins for pupils, and even in this school only one sink was provided, which was not adequate for the entire population. Furthermore, the sink could not be used by lower primary pupils as it was too high for them to reach.

Another school had two water points in form of a tap with running water. Six (60%) of the schools had provided wash basins/sinks for teachers, while four (40%) had not made this provision. All the 10 (100%) schools did not have dustbins. Eight (80%) schools had compost pits that were filled with litter which had not been burned. Two (20%) schools did not have compost pits, and there were signs of the points on level ground where litter had been burnt.

The hygiene practices expected to be observed by pupils included washing hands after visiting the toilet (100%), keeping the toilets clean by using them properly (92.5%), keeping the compound clean (82.5%), keeping their hair and nails short and clean (70%), wash their uniforms and bathing regularly (27.5%), brush their teeth at least once in a day (22.5%), using tissue paper when visiting the toilet (12.5%) and always carrying a handkerchief to school (5%). However, pupils did not wash hands after visiting the toilets or before meals because hand washing facilities were lacking. Teachers ensured that pupils observed hygiene practices by inspecting their nails and hair during assembly (100%), ensuring that pupils wash their hands after visiting the toilets (77.5%), observing cleanliness in the school compound (72.5%), impromptu inspection of the cleanliness of pupils (35%), and vigilance by the teachers on duty (32.5%).

Five schools had pupils' clubs that addressed hygiene, sanitation and health issues. The activities that were carried out by the clubs, included cleaning the compound weekly, ensuring there is water in classrooms for washing hands after eating or visiting the toilet, discussing general school cleanliness and hygiene, disposing of
burning of sanitary towels and litter thrown recklessly in the school compound, weeding of flower beds in the school, checking one another’s general hygiene, and advising one another on how to stay healthy by eating a well balanced diet and observing hygiene practices.

Majority of the pupils had positive attitudes toward hygiene and sanitation practices. However, 33% of the pupils disagreed with the statement that pupils should be involved in washing classrooms and toilets. Another 29% agreed that classrooms should not be washed daily, while 24% agreed with the statement that parents should not force children to bathe every day. There were 16% of the pupils who agreed that being untidy and dirty is a show of courage and strength, meaning that they would copy untidy and dirty peers. Further, 21% of the pupils conceded that they never wash their hands before eating. This is an indication that a lot still needs to be done to educate pupils on proper hygiene practices.

All the 40 (100%) teachers reported that they received some kind of help from the community around the school in enhancing sanitation and hygiene. The community was involved through the following: participating in environmental and personal hygiene campaigns, ensuring their children are clean and healthy when coming to school, mobilizing one another to build many and adequate toilets, and initiating water projects for the schools.

5.3 Conclusion

The study findings lead to a conclusion that public primary schools in Thika Municipality are in a poor state of sanitation and hygiene. Most of the basic sanitation resources are lacking. Schools do not meet the required ratio of pupils per toilet, a situation which was aggravated by free primary education. The schools have not
provided hand washing facilities, and even where they are available, they are not suitable for use by lower primary school pupils. Pupils do not wash hands before meals and after visiting toilets, meaning that they are at a risk of contracting diseases such as cholera, diarrhoea, and worm infections. While the attitudes of pupils towards sanitation and hygiene practices were positive, the schools had not provided the enabling factors, that is, resources like adequate latrine facilities and safe water supply that would enable pupils to transform acquired knowledge, attitudes and beliefs into desirable behaviours.

5.4 Recommendations

1. Schools should provide more toilets in line with the ministerial guidelines.

2. Schools using flush toilets should ensure that they are always functional and that the toilets are suitable for use by younger pupils.

3. Schools should provide running water and toilet balls in the urinals.

4. While setting up sanitation facilities such hand washing facilities, schools should ensure that the resources are suitable for use by all pupils including lower primary pupils, girls, and those with disabilities.

5. The school administration should play a lead role in mobilizing resources from the community such as detergents. They should also ensure that there are adequate dustbins and compost pits, and that litter is disposed of regularly and safely.

6. Teachers should be vigilant in ensuring that pupils clean their hands before meals and after visiting the toilet.
7. The school administrators and teachers should organize life skills training for the pupils in order to correct misconceptions about hygiene and sanitation. This would change the attitudes of those pupils who believe that they should not be involved in washing toilets and undertaking other sanitation activities.

8. Since education is a joint venture between the government and parents, the community should play a role by mobilizing resources for improvement of hygiene and sanitation situation in public primary schools. The government should also provide funding specifically for sanitation infrastructure in public primary schools.

9. Schools should work hand in hand with government agencies such as the Ministry of Public Health and non-governmental organizations to form hygiene and sanitation clubs in schools.

10. Officials from the public health ministry should take it upon themselves to pay impromptu visits to schools and assess the hygiene and sanitation situation.

5.5 Suggestions for Further Studies

1. A study could be carried out on the link between hygiene and sanitation situation in schools and disease incidents such as cholera, diarrhoea and worm infections.

2. A similar study could be carried out in public secondary schools to find out whether they are faced with the same hygiene and sanitation situation as that established in this study.
3. A comparative study could be carried out on the hygiene and sanitation situation in private and public schools, with a view of identifying best practices that could be adopted countrywide.
REFERENCES


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Ng’ethe, J. M. (2004): Investigation into Challenges the Primary School Headteachers are Facing with the Implementation of Free Primary Education: A Case for Ruiru Division of Thika District. Unpublished MEd Thesis, Kenyatta University


APPENDIX I

QUESTIONNAIRE FOR TEACHERS

This research is meant for academic purpose. It will try to find out the sanitation and hygiene situation in public primary schools in Thika Municipality. Kindly you are requested to provide answers to these questions as honestly and precisely as possible. Responses to these questions will be treated as confidential. Please do not write your name or that of your school anywhere on this questionnaire. Please tick [✓] where appropriate or fill in the required information on the spaces provided.

Section 1 Background Information
1. Gender [ ] Male [ ] Female
2. Which classes do you teach? ...........................................
3. For how many years have you taught in this school? .....................

Section 2 Hygiene and Sanitation Training and Practices
1. Which subjects and topics in the syllabus cover sanitation and hygiene practices?

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

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

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

2. Please describe briefly the personal hygiene practices that pupils in your school are expected to observe.

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

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

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

3. How often do you check pupils to ensure they observe personal hygiene practices?
[ ] Daily [ ] Weekly [ ] Monthly [ ] Once a term
Other (specify) ..............................................................

4. How do you ensure pupils in your class observe personal hygiene practices?

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

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

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

5. What are the sources of water for this school?
[ ] Tapped water [ ] Bore hole [ ] No water source
[ ] Rain water [ ] River water
6. Who is responsible for ensuring that the school compound is clean?

[ ] The headteacher
[ ] The teachers
[ ] The pupils
[ ] The community
Other (specify) .................................................................

7. How do you involve pupils in keeping the school compound clean

[ ] Assigning cleaning duties
[ ] As manual punishment for wrong doers
[ ] Never involves pupils
Other (specify) .................................................................

8. Of the methods given above, which do you think is most appropriate

[ ] Assigning cleaning duties
[ ] As manual punishment for wrong doers
[ ] Never involves pupils
Other (specify) .................................................................

Please explain your answer ........................................................................................................
........................................................................................................................................

Please indicate the persons who perform the following duties in your school

<table>
<thead>
<tr>
<th>Duty</th>
<th>Duty performed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washing classrooms</td>
<td></td>
</tr>
<tr>
<td>Washing pupils' toilets/urinals</td>
<td></td>
</tr>
<tr>
<td>Washing teachers' toilets</td>
<td></td>
</tr>
<tr>
<td>Washing the staffroom</td>
<td></td>
</tr>
<tr>
<td>Cleaning the compound</td>
<td></td>
</tr>
<tr>
<td>Mowing/cutting grass in the compound</td>
<td></td>
</tr>
</tbody>
</table>

9. Is there a pupils' club in your school that addresses hygiene, sanitation and health issues? [ ] Yes [ ] No

If yes, please indicate the activities carried out by the club
........................................................................................................................................
........................................................................................................................................
........................................................................................................................................
10. What support does your school receive from the community in enhancing sanitation and hygiene?

11. What challenges do you face in relation to hygiene and sanitation?

12. What measures can public primary schools take to improve their sanitation and hygiene situation?
APPENDIX II

QUESTIONNAIRE FOR PUPILS

Age ........................................ Class ........................................

Gender ......................................................

Please read each of the statements given in the table below and then indicate whether you agree or disagree with each statement by putting a tick on the appropriate box.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Undecided</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pupils should be involved in washing classrooms and toilets</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. It is a waste of time to wash hands after visiting the toilet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Pupils should not be involved in cutting grass at school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. It is not good to drop papers and other waste in classrooms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Classrooms should not be washed daily</td>
<td></td>
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<tr>
<td>6. Failure to wash hands before meals can cause diseases</td>
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<tr>
<td>7. Parents should not force children to bathe every day</td>
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<tr>
<td>8. One cannot concentrate while studying in a dirty room</td>
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<tr>
<td>9. All work is tiring and a form of punishment</td>
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<tr>
<td>10. I admire pupils who are always clean and tidy</td>
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<tr>
<td>11. Being untidy and dirty is a show of courage and strength</td>
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<tr>
<td>12. I brush my teeth at least once in a day</td>
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<tr>
<td>13. Cholera and Diarrhoea can be prevented by washing hands before meals and after visiting toilets</td>
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<tr>
<td>14. I always carry toilet paper when visiting the toilet</td>
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<tr>
<td>15. I never wash my hands before eating</td>
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<tr>
<td>16. I always wash my hands after visiting the toilet</td>
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<tr>
<td>17. I enjoy collecting litter in school compound to keep it clean</td>
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</tbody>
</table>
APPENDIX III

OBSERVATION CHECKLIST

1. School Sanitary Conditions

<table>
<thead>
<tr>
<th>Facility</th>
<th>Number</th>
<th>Condition</th>
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<tbody>
<tr>
<td>Girls’ toilets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys’ toilets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinals for pupils</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers’ toilets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance of toilets from classrooms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing basins/sinks for pupils</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washing basins/sinks for teachers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soap/detergent for washing hands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The school compound</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dust bins and compost pits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Running water</td>
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<td></td>
</tr>
<tr>
<td>Drainage channels</td>
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<tr>
<td>Classrooms</td>
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</tbody>
</table>

2. Pupils' Hygiene Practices

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washing hands after visiting toilets</td>
<td></td>
</tr>
<tr>
<td>Washing hands before meals</td>
<td></td>
</tr>
<tr>
<td>Littering the compound/use of dust bins</td>
<td></td>
</tr>
<tr>
<td>Grooming</td>
<td></td>
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</tbody>
</table>