ADEQUACY AND UTILISATION OF SANITATION FACILITIES IN SECONDARY SCHOOLS IN MPIGI DISTRICT

BY

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Declaration

I Nansereko Fatuma, declare to the best of my knowledge that this is my original work entitled “Adequacy and Utilisation of Sanitation Facilities in Secondary Schools in Mpigi District” and has never been presented to any higher institution of learning for any award.

Signed:……

Date ……..

Approval

This is to certify that this dissertation entitled *"Adequacy and utilisation of Sanitation facilities in Secondary Schools in Mpigi District"* has been submitted for the award of masters of Science Education (biology) with my approval as the university supervisor.

Signed: ……

Dr. Oonyu Joseph

Supervisor

Date…….

Dedication

This work is dedicated to the Belgian Government through the Belgian Technical Cooperation (BTC), who sponsored my studies through out. May the almighty God reward abundantly

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I am grateful to my supervisor Dr. Oonyu Joseph for his intellectual guidance, counselling, encouragement and appropriate supervision ensured to the accomplishment of this study. Many thanks go to you Doctor. I also acknowledge the efforts of my lecturers from DOSATE. Your lectures formed the basis for enlightenment within which this research falls.

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CHDP	-	Child Health Development Programme
DWD	-	Directorate of Water Development
IMR	-	Infant Motility Rate
LGDP	-	Local Government Development Programme
NGO	-	None Government Organisation
NWP	-	National Water Policy
PEAP	-	Poverty Eradication Action Plan
PHC	-	Primary Health Care
RWSS	-	Rural Water Supply and Sanitation
SFG	-	School Facilitation Grant
SSHE	-	School Sanitation and Health Education
STP	-	Strategic Investigate Plan
UPE	-	Universal Primary Education
USE	-	Universal Secondary Education
VIP	-	Ventilated Improved Pit latrines
WES	-	Water Sanitation and Environment
WHO	-	World Health Organisation

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Abstract

Inadequate sanitation has been found to be a major problem in primary schools and now as UPE begins to offload pupils into the secondary school system, the same problem might begin to affect the secondary schools. This study therefore sets out to investigate the adequacy and utilisation of sanitation facilities in secondary schools in Mpigi District. Four objectives were considered in this study namely:

- To find out the different kinds of sanitation facilities available in selected secondary schools in Mpigi district
- To assess the adequacy of sanitation facilities in selected secondary schools in Mpigi district.
- To assess the utilisation of sanitation facilities in selected secondary schools in Mpigi district
- To examine students' awareness of the consequences o f poor sanitation

The required information was gathered using four methods namely in-depth interviews, survey, focus group discussions and observation. Four categories of respondents were used including head teachers, teachers, health inspector and students. It was found that although the secondary schools in Mpigi District own variety of sanitation facilities, there is generally inadequate coverage of sanitation facilities in the schools in the District and this is particularly worse-off in rural based schools and the phenomenon is exacerbated by the ever increasing student population due to increase in enrolment for secondary education resulting from Universal Primary Education. Additionally, the available sanitation facilities are poorly utilized which is a result of many factors including students' background and up bringing,

discipline regarding personal hygiene and school and weakness in implementation of sanitation and hygiene policies.

The cleanliness of the available sanitation facilities is not at its best and this forms part of the reasons why some of the students ignore using the facilities and instead opt for use of bushes around the schools.

It was recommended that there is need to develop sanitation programs under which the challenge should be tackled right from the root rather than attempting to manage the resultant unpleasant consequences. School administrations need to prioritize the aspect of sanitation and hygiene.

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.0 Introduction

Poor health of children affects their ability to learn and therefore influences their prospects in life. A study by Protos (2005), for example, shows that children with worm infections have higher absenteeism than non-infected children. Basically, this means that children with worm infections spend less time and are disadvantaged in the learning process. Effective school sanitation and hygiene education should help reduce these infections. In light of the above, this study undertook an investigation into the adequacy and utilisation of sanitation facilities in selected secondary schools in Mpigi District as a case study for this inquiry. This chapter highlights the historical, conceptual and sector background to the study. It also gives the problems statement, objectives, significance, scope and conceptual framework of the study.

1.1 Background to the study

1.1.1 Historical perspective

Uganda's population as of 2005 was estimated at 26.8 million, of which 88% or about 24 million lived in rural areas (ADF 2005). Access to safe water facilities was estimated at 57% for rural and 80% for urban areas and for sanitation it was estimated at 56% for both urban and rural areas which means almost half of Uganda's rural population does not have adequate water and sanitation facilities. It is one of the countries with high Infant Mortality Rate (IMR), 86 per 1000. Water borne diseases, including malaria followed by diarrhea have been identified as the main causes of infant mortality.

Among the pre-urban population of the developing countries only about 65% have house connections and additional 20% have access to public taps, about half of these are intermittent. Of the rural population only about 60% have access to safe water and few of these have house connections. Population growth particularly in urban areas means that capacity must be increased simply to prevent the percentage served from falling (Nyamwaya, 1994).

Over the years, government will support from multilateral and bilateral agencies, NGOs and the private sector has supported programmes aimed at improving sanitation situation. However, emphasis has mainly been on the provision of safe and clean water, with less emphasis on latrine construction and virtually no emphasis on other sanitation facilities. (Ministry of Health, 1997).

In 1997, Uganda formulated the Poverty Eradication Action Plan (PEAP) as the core of the government's strategies towards its goals of poverty alleviation and poverty-focused growth, and improved water supply and sanitation services were identified among the key priority areas for poverty eradication. PEAP was revised in 2001 and 2004 using a consultative process that involved the private sector, development partners, NGOs, civil society, central and local governments.

Government of Uganda has made some strides in developing the water sector and the requisite policies and strategies for the sector are embedded in the country's PEAP. In 1999

a National Water Policy (NWP) was formulated with a mission of "integrated and sustainable management, development and use of water resources in Uganda for present and future generations". PEAP has recognized adequate water supply and improved sanitation as necessary ingredients in promoting economic growth and hence fighting poverty.

In order to operationalise the National Water Policy and to achieve the MDG targets for water supply and sanitation, GOU carried out a number of sector reform studies. The final outputs included the Rural Water Supply and Sanitation (RWSS) program with annual targets, called Strategic Investment Plan for 2000-2015 (SIP). The RWSS program has been under implementation since 2001/2 and resulted in improved access to safe water from 49% to 57% and for sanitation from 46% to 56% by the year 2004. Following the PEAP review, a consolidated Sector Investment Plan (SIP) for the water sector was developed in 2004. The revised SIP aims at reaching 77% coverage for rural water supply and sanitation by 2015. To reach this target, an additional 13 million rural people in the country would be provided with water and sanitation services.

1.1.2 Conceptual perspective

By "good sanitation" at school is meant that every student should have ready access to a convenient and well maintained facility for the safe disposal of human waste, suitable anal cleansing materials, most important the means to effectively wash hands with soap after defecation must be provided and used (Anthony Waterkay, 2000).

Sanitation encompasses the isolation of human excreta from the environment, maintenance of food and personal hygiene, safe disposal of solid and liquid wastes, safe drinking water chain and vector control (Ministry of Health, 1997). The National Sanitation guidelines (2000) define sanitation as a process where people demand, develop, and sustain a hygienic and health environment for themselves erecting barriers to prevent the transmission of disease. The process thus involves building, use and maintenance of latrines and other sanitation facilities; such as construction of urinals, hand washing facilities, anal cleansing materials and safe water supply. It also involves learning, behaviour change, organisation, and collective action with other community members.

Utilisation involves proper human waste disposal, water handling form the source to the point of consumption and effective washing hands with soap after using the toilet. (Waterkayn, 2000). National sanitation guidelines (2000) defines adequacy of sanitation facilities as the state of cleanliness of the facilities, it involves presence of clean latrines and urinals, functioning hand washing facilities with soap and water.

Lack of sanitation facilities can cause distress. Women and girls in particular face problems of distance, lack of privacy and personal safety. Poor sanitation is also a serious threat to the cleanliness of the environment and the water resources used for the supply of drinking water. But beyond being just an issue of convenience, children have a right to basic facilities such as school toilets, safe drinking water, clean surroundings and basic information on hygiene. In addition if sanitary conditions are created children will be more enthusiastic to come to school, they will enjoy their school experiences and will learn better; and can bring

concepts and practices on sanitation and hygiene back to their families (Protos 2005). Schools can play an important role in bringing about behavioural changes and promoting better health as children are potential agents of change in their homes through their knowledge and use of sanitation and hygiene practices learned at school.

More critically, improved hygiene practices are essential if transmission routes of water and sanitation-related diseases are to be cut and contagious diseases prevented. Diseases such as diarrhoea, parasitic worm infections, skin and eye diseases, need to be tackled by making improvements to water and sanitation facilities. These improvements in facilities must go hand in hand with hygiene behaviour change and practice, if the transmission of disease is to be prevented.

According to WHO (2008), pit latrines are the most commonly used facilities for disposing human waste in developing countries. Studies indicate that the percentage of people using latrines as a means of sanitation in some part of East Africa is as follows: Kenya 30%, Uganda 60%, Tanzania 77%, and Ethiopia 7%. Sanitation service is much lower when compared with corresponding coverage on other African countries which ranges between 30-50%.

It has been observed that in situations where sanitation facilities are inadequate or absent, hand washing is very crucial in terms of interrupting faecal oral disease transmission routes (UNICEF/NETWAS 2005). Diarrhoea, worm infections and eye and skin infections are diseases related to water and sanitation. About three million children die from diarrhoea

each year (IRC 2004). Each of the three common worms (roundworms, whipworms and hookworms) is estimated to infect more than 500 million people. Roughly 6 million people have become blind from trachoma, an eye disease.

In view of the above the IRC (2004) counsels that good hygiene can help prevent much of this, saving lives and preventing illness. For example, it is estimated that washing hands with soap can reduce the risk of diarrhoea by more than 40%. Simple hygiene behaviours – that is what people do, their practices for cleanliness – are key to improving health. Hygiene promotion must therefore be recognised as an essential part of water and sanitation programmes if the maximum health benefits are to be gained from provision of improved facilities.

Sanitation in Uganda has been traditionally accorded low priority in national development. It has been often marginalised and rarely talked about in national debates. Equally, individuals and the private sector have not accorded sanitation priority. Other consequence, sanitation has previously suffered inadequate political and public support, lack of legislative and policy guidelines, poor technology choice, inadequate resources allocation (human, financial and material) as well as inadequate corroboration and coordination among all concerned parties (Ministry of Health, 1997).

1.1.3 Contextual perspective

It has been noted that the high expectations of school health and hygiene education programmes have not always been fulfilled (WELL, 2003). In many countries, schools are

not safe for children due to neglect of the operation and maintenance of sanitation facilities. In addition hygiene education given to children has not always been relevant or effective. Schools too often suffer from:

- Non-existent or insufficient water supply, sanitation and hand-washing facilities;
- Toilets or latrines that are not adapted to the needs of children, in particular, girls;
- Broken, dirty and unsafe water supply, sanitation and hand washing facilities;
- Unhealthy and dirty classrooms and school compounds;
- Children with poor hand washing habits and practices

In Uganda Schools, like the rest of Uganda's infrastructure, suffered a great deal of neglect during the 1970s and 80s – because of wars and political and economic mismanagement at every level, from central government down to the community (Rugumayo 2002). National latrine coverage was 90% in the 1960s, but dropped to 30% in the 1980s and only rose to 47% in the 1990s. Uganda has a sanitation history that many people are rightly proud of. In the 1960s, the country was well covered with good deep pit latrines, and the prevailing culture and law dictated that a pit latrine was a necessity for all households (DANIDA, 2000).

In 1995, national enrolment in Primary School was 2.5 million but the introduction of Universal Primary Education (UPE) resulted in a rapid increase in the number of children in the primary schools to 5.3 million in 1997 and 7.3 million in 2002 (CHDC 2006, Rugumayo 2002). This trend has continued in subsequent years and this number is set to double to 13 million school children by 2015. For most schools (especially rural) schools this means that

within the last decade there has been a doubling or tripling of pupils at school despite the fact that the infrastructure of classrooms, latrines etc. simply has not been adequate to cope with the sudden surge in numbers (Protos, 2005).

As a result the inadequate sanitation situation in schools had been exacerbated by the implementation of this education policy which entitles all school age children to free primary education, causing the number of students per latrine stance to exceed 700:1 when in 1995 it was 328:1 (Rugumayo, 2002). The Ministry of Education recommendation on sanitation requires a ration of 40:1. A UNICEF study found that over 1,200 school children died because of poor sanitation conditions at school during the 1997 cholera outbreak (UNICEF, 2002). Consequently, 560 primary schools around the country were closed because they lacked acceptable latrine facilities. A good percentage of the UPE pupils are now entering the secondary schools in Mpigi district and the increased numbers of students in secondary schools could have the same impact on sanitation facilities in this section as well.

1.2 Statement of the research problem

Inadequate sanitation has been found to be a major problem in primary schools especially since the introduction of UPE in the mid 1990s. Now as the UPE programme begins to offload these pupils into the secondary school system and the Universal Secondary Education programme also rolls out, the same problems might begin to afflict the secondary schools. Moreover, nearly all studies that have been done on sanitation facilities in schools have been done on primary schools, leaving out secondary schools.

Despite the efforts that have been directed towards addressing the issue of poor sanitation facilities in schools in Mpigi District for example the UNICEF Water, Environment and Sanitation (WES) programme 1995-2000 and The UNICEF School and Community Hygiene and Water Programme (2001-2005); and the fact that the Ministry of Education encourages and provides guidelines for sanitation in schools, little is known about the adequacy and utilisation of the facilities in the secondary schools in Mpigi district.

1.3 Scope of the study

Geographically, the study was restricted to Mpigi district and was conducted among selected secondary schools in Mpigi District. Within the broader field of sanitation which encompasses several aspects like solid waste disposal and human excreta disposal, this study focused on human waste disposal with specific attention on adequacy and availability of the facilities and the practices.

1.4.0 Objectives of the study

1.4.1 General purpose

The overall purpose of this study was to find out the adequacy and utilisation of sanitation facilities in secondary school in Mpigi district.

1.4.2 Specific objectives

- To find out the different kinds of sanitation facilities available in selected secondary schools in Mpigi district

- To assess the adequacy of sanitation facilities in selected secondary schools in Mpigi district.
- To assess the utilisation of sanitation facilities in selected secondary schools in Mpigi district
- To examine students' awareness of the consequences o f poor sanitation

1.5 Research questions

1. What kind of sanitation facilities are present in schools?
2. How adequate are the sanitation facilities in the schools?
3. How do the students use the sanitation facilities to prevent the spread of disease?
4. How aware are students of the consequences of poor sanitation?

1.6 Significance of the study

It has been noted that although water supply has over the past two decades increased in term of coverage, sanitation facilities have lagged far behind. Nonetheless, there is some effort being made to improve the situation. By investigating the adequacy and utilisation of the sanitation facilities in schools, this study was set to provide valuable insights into what remains to be done. This is important to education policy makers and government funding agencies concerned with sanitation in schools given that this study was a form of evaluation of their work and to awaken them to put in more effort. The findings and the subsequent recommendations may be useful for schools policy guidelines particularly in relation to requirements for opening up new schools. The study highlights the divergence between

schools sanitation policy guidelines and what is actually in place and this should help the concerned schools to address the shortfalls.

The findings are also expected to be useful to other school stakeholders like parents in the sense that the parents will be able to know whether their children are studying in schools with sanitary conditions or not. In case of unsanitary conditions, this may lead parents to demand better facilities or encourage them to be more involved in contributing to the provision and maintenance and utilisation facilities in the schools of their children.

1.7 Conceptual framework

The conceptual frame work in Figure 1 suggests that, independent variables were conceptualised into sanitation facilities, adequacy and practices. In addition, Figure 1 illustrates the intermediate variables namely; availability, functionality and behaviour change which affect the dependant variables illustrated into positive outcomes and negative outcomes. The positive outcomes include; health environment, higher students achievement in class and higher school attendance while the negative outcomes were conceptualised into irregular attendance, high disease risk and negative impact on learning.

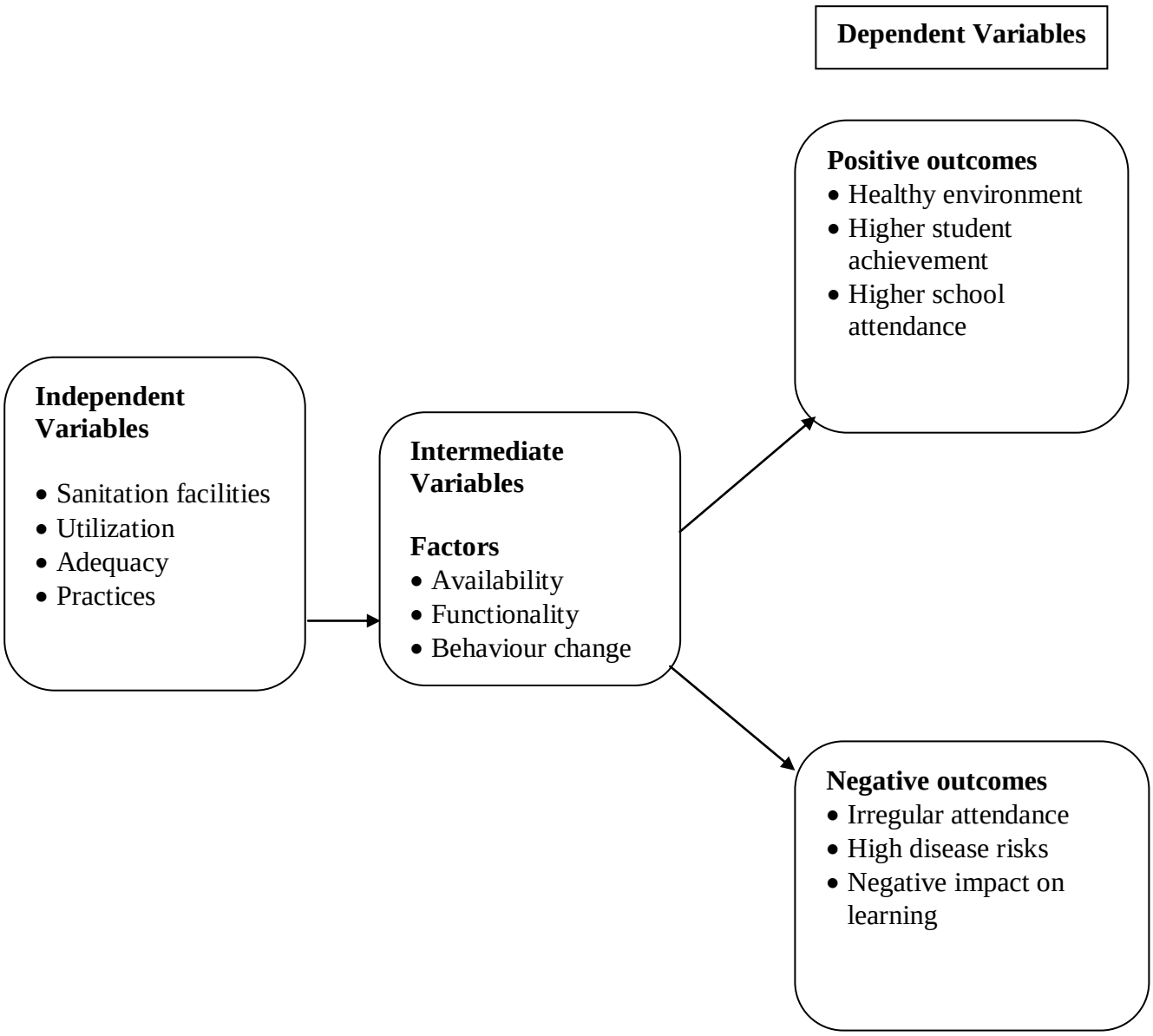


Fig. 1: Conceptual framework

Source: Social science research on Conception, Methodology, and Analysis. Kampala Makerere University printery. (Amin M.E, 2005).

CHAPTER TWO

Ui8LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literal materials that have been written on the subject area of job rotation with a view to examining what has been researched/written before delineating what the current study is going to accomplish.

2.2 Availability of sanitation facilities

Hand washing facilities in rural schools has not been considered important. Yet from a preventive health perspective hand washing is absolutely crucial. Without hand washing, all investment in fancy latrine construction is a complete waste of time and resources as faecal contamination from hand to mouth, food, friends etc is virtually guaranteed (Waterkayn, 2000).

Three types of latrines are encountered in Uganda. The traditional pit latrine is one whose floor is made of rammed earth. The walls are usually composed of mud and wattle and roofing may be accomplished by temporary thatch materials like grass. These are temporary structures which are abandoned on filling. They have a disadvantage of being difficult to keep clean and free from flies although they are cheap to construct. The wittiness of the area near the squat hole renders them clammy and lucrative places of hook warm transmission and houseflies bleeding. Improved traditional pit latrines have concrete platform (the sun plat) surrounding the squat hole. This renders them easier to keep clean than the traditional

ones but for a higher cost. The ventilated improved pit latrines (VIP) have a concrete slab covering the whole floor, and a vent communicating from just under the slab to the atmosphere. At the atmospheric end the vent is covered with a fly screen. Bad smells are led away from the pit into the atmosphere. Flies which are attracted fro the pit into the atmosphere by light are attracted by the screen and die of heat and gases in the vent. VIPs therefore have least smells and the slab could be re-used or the pit emptied by a cesspool emptier. They are however more expensive to construct.

Male urinals are important as they reduce pressure on the use of latrine pits and are very convenient to use and easy to construct. They also have the advantage that they tend to help reduce the urine build up in the pits which is essentially helpful when considering the optimum requirements for good compost production where moist conditions are better than saturated ones. Female urinals are less common but still relative cheap to construct and are very well worth installing as they provide the same benefits as with the male.

Safe water and sanitation and knowledge of hygienic behaviour are the greatest of all public health breaks through. And the priority of human health and development in the early years of the 21st century must be to make sure that their benefits are finally made available to all (Water Sanitation and Hygiene, 1999). Studies on water handling during collection, storage and use have shown that there is progressive contamination from source to the point of consumption due to poor sanitation and inadequate/inappropriate hygiene. A rural water and sanitation study showed that only 9% of 57 household surveyed were consuming acceptable quality of water (WHO, 1999).

There is lack of up-to-date statistics on the level of coverage of water supply in Uganda and what is available is somewhat differing. The State of Environmental Report for Uganda (1998) reports that there is low level of domestic water supply in the country with only 40% and 75% coverage for rural and urban areas respectively. In the urban areas of Kampala, Entebbe, Mpigi and Jinja the current water demand is 27.5 millions cubic metres per year. And according to the WHO (2008), in the last decade access to water supply rose from 61% to 71% in Uganda, but during the same period, the proportion of people with access to sanitation means of excreta disposal declined from 36% to 34% as funding for sanitation decreased and population increased. But even the water supply to which access has increased, its quality of water has been degraded. According Lake Victoria Environmental Programme report (1998), there has been drastic deterioration of water quality ecology of the lake during the last two decades which in turn has affected the quality of water, further leading to disease to the urban population.

Across the world, billions of people still lack back sanitation unless it is controlled and safely disposed off. Human excreta pose a major treat to health, particularly infectious disease. But basic sanitation such as latrines can protect health, waste can also be a useful resource, for example human excreta and waste water are used and recycled in many countries for example in Agricultural and aquaculture and this can be done safely.

Despite continued effort to promote sanitation, 40% of the world's population is still without basic sanitation. This number does not tell the whole story. Sanitation coverage is often

much lower in rural areas than in urban areas for example in Africa 84% of urban, 45% of rural residents have access to basic sanitation. The number is similar in Asia where 78% of urban and 31% of rural residents has access to basic sanitation (WHO, 2008).

It is stated that 2.6 billion people lack access to basic sanitation. According to world health organisation (WHO, 2002) assessment, it concluded that if the 1990/2002 trends hold, the world will miss the sanitation target by half a billion-nearly 2 billion people should gain access to basic sanitation by 2015.

Africa is one of the worst performing continents in sanitation and is sure to miss target by wide margins unless urgent radical action is taken to turn things around rapidly (U.N) Global sanitation coverage. It further states that, sanitation coverage in Sub-Sahara Africa is only 35% and that sanitation coverage in Sub-Sahara challenge world wide.

In Africa today, more than two thirds (2/3) of the population lack sanitary means of excreta disposal (WHO, 2002). It further states that lack of access to safe drinking water and poor sanitation remains one of the causes of mortality especially among children and women who suffer most due to poor living conditions.

Birley (1995) observed that sanitation conditions in rural Venezuela a developing country, infectious diseases like cholera and dysentery to escalate, was attributed to peoples' lack of access to clean water and inadequate facilities for excrement disposal.

In Africa, lack of clean water and basic sanitation is the main reason for diseases transmitted by fasces to escalate (World Bank Report, 1993) faecal matter deposited near homes and on open ground normally contaminates drinking water. This accounts for the ten percent disease burden in developing countries. In Uganda the Ministry of Health (1997), stated that inadequate facilities combined with unhygienic practices and the general lack of clean water supply as well as safe disposal of domestic waste water and solid waste present sanitation problems.

In Uganda the huge backlog in sanitation coverage indicated by the current national coverage of about 57% in both rural and urban areas is a challenge (state of environmental report for Uganda 2000/2001). It further states that many urban settings in Uganda do not have access to adequate sewerage facilities. It adds that piped water and sewerage services are available to only ten of the eleven towns covered by National Water and Sewerage Corporation and that even in these towns; it's only a small proportion of the population (approximately 10%0 that has access to this service.

Birley (1995) states that in many cities, disposal of wastes is a major problem. Garbage and rubbish tends to be dumped, burnt and converted into landfills at a minimum distances commensurate and converted into landfills at a minimum distances commensurate with public opinion. As long as the process removes refuse and as long the disposal site is not a health hazard and does not affect aesthetic values too greatly; the operation is considered successful. However, the side effects on health, atmosphere, soil, water bodies and the

appearance of the of the landscape may be considerable especially in terms of pests, smoke, odours, litter paper polythene bags and water pollution.

Rejaepalan (1999), writes that according to studies, the external assistance variables influence participation of a community in waste management, for example, community members become motivated to participate in sanitation programmes if they are being aided with external resources in form of labour, funds and materials.

2.3 Adequacy of sanitation facilities

Adequate sanitation is the foundation of development but it has been found a half of the people in the world do not have access to toilets or latrines. The percentage of those with access to hygiene sanitation facilities has declined slightly over the 1990's, as construction has fallen behind population growth (UNICEF, 1997). Each method of waste disposal has its drawbacks. Reusing glass bottle can require more energy than in their initial manufacture, as they have to be sterilized. Incineration is a source of green house gases and toxic chemical like dioxins and produce large qualities of methane gas. They must be managed so that pollutants do not sleep into ground therefore be kept dry, but this slows down the rate of decomposition.

Good sanitation and improved hygiene means of disposing their waste. This is a growing nuisance for heavily populated areas, carrying the risk of infectious diseases, particularly from diseases that lower their resistance. Poorly controlled waste also means daily exposure to unpleasant environment. The build up of faucal contamination in rivers and waters is not

just a human risk; other species are also infected threatening the ecological imbalance of the environment. The disadvantages of untreated waste water and excrete into the environment affects human health by several routes;

- By polluting dinking water
- Entry into food chains for example via fruits, vegetables and fish
- Bathing, recreation and other contact with contaminated water.
- By providing bleeding sites for flies and insects that spread diseases.
- Poor nutrition from loss of important fish protein source due to environmental pollution.

It has been noted by WELL (2003) that the combination of adequate facilities, correct behavioural practices and education is meant to have a positive impact on the health and hygiene conditions of the community as a whole. The success of a school hygiene programme is therefore not determined only by the number of latrines constructed and the number of hand pumps installed or water connections built. Nor is the success of a programme determined simply by what children know. Knowledge that is not applied to hygiene behaviour in practice has no impact on health. WELL therefore recommends that School Sanitation and Health Education (SSHE) programmes should not end when the water and sanitation facilities have been constructed.

Moeller (1992), noted that the increasing level of poor sanitation in Europe is as a result of many combinations of factors. These factors include lack of environmental awareness, high population, land shortage, poor waste management and negligence. He further observes that

affordability and self-esteem or responsibility heavily influences the waste management system adopted. Many societies of average per capita income such as landing sites are accustomed to pit-latrine for human excreta, open dumps/landfills garbage, burning (combustion) for wastes whose proper maintenance leaves much to be desired.

The Directorate of Water Development (DWD) (1992), reported that despite the launching of the international drinking water supply and sanitation decade in 1980, sanitation and water in Uganda has not received adequate attention from health care providers and policy implementers in spite of focusing on Primary Health Care (PHC). For instance, only fifteen to twenty percent (15% - 20% 1998) of the rural population in Uganda has improved water supply but even its management still remains a matter of great concern.

Grove (1988), observed that population growth is the major cause of poor sanitation in Africa. This argument bases on the fact that if a highly populated area like the slums is compared with a les populated area, the difference in the sanitary levels will cleanly show that the highly populated area has very poor sanitation compared to the low populated area. This is also attributed to the housing situation in such areas like landing sites and other temporary settlements. Viessman and Hammer (1990), did assert that population changes affect a locality's water requirements and the capability for providing the water needed to meet their demands. They further said that the population of a given area influences the water quality and the nature of water facilities, which are indicators of sanitation coverage.

Moeller (1992), noted sewerage and sewerage as two important environmental issues with a direct bearing on the health and well being of human beings. The state of environment report of 1996 attributes variations in accessibility to sanitation to be based on spatial distribution and socio-economic stratification. In urban areas, the sanitation coverage is 73.6% while in the rural areas it is 75.8% as noted in 1996 due to lack of socio-economic facilities. Only 4.1% of the households headed by someone who has attained an advanced level of education did not have access to adequate sanitation facilities while the corresponding figure for households headed by non-educated people was 39%. Therefore sanitation has a direct effect on all sectors of the economy.

Rejaepalan (1999) states that lack of community awareness and participation in the promotion of sanitation influences the level of sanitation. It further points out that health education in essential if pole are to learn how to live a sanitary life. It helps people to care about their heath and take part in organising sanitary services and disease control programmes.

Birley (1995) noted that, the existence of inadequate sanitary systems affects the level of sanitation and that inadequacy systems affect the level of sanitation and that inadequacy of the system is due to the increasing population. He observes that domestic water supplies are often installed before attention is given to provide adequate measure for sewerage water disposal. He points out that single bucket from distant stand pipes can be disposed off on to soil but as the water increases specific methods of disposal must be panned to prevent pooling and contamination with sewage.

In a concept paper entitled "promotion of sanitation" Uganda's Ministry of Health (1997) stated that inadequate sanitary facilities combined with unhygienic practices and general lack of formal water supplies as well as safe disposal of domestic waste water and poor solid waste management, present sanitation problems in Uganda.

National economies are weakened by the need to spend significant amounts of funds on health care and medicines. Many working days are lost to ill-health resulting form poor water, inadequate sanitation and low investments in water quality and quantity.

Bireey (1995) observes poor sanitation as having a serious effect on the environment. He further states that faecal do pollute undergoing wat4wer matter sources and degrades the surrounding environment. Rajaepalan (1999) explains that community liquid wastes can pose serious health problems in urban crowded areas unless they are properly collected and disposed off. Sewage facilities are ideal for such purposes but are not easily attainable in many developing countries. He observed that communities are faced with dangers from unprotected water sources and unsanitary liquid waste (sullage) where only water supplies are available. The problems of insanitation are intensified by increased sullage. Where some facilities are provided inadequacies in their planning, faulty operation and improper disposal of the sewage create health hazards to the community they serve.

2.4 Utilization of sanitation facilities

Improving water and sanitation facilities does not necessary lead to a decrease in water and sanitation related diseases. To bring about real improvement in health, the installation of facilities has to go hand in hand with their proper use and maintenance, hygiene promotion aims to ensure the proper use and maintenance of facilities by motivating people to change their behaviour (IRC 2004).

Proper latrine use is a behaviour much beyond structures. Using a latrine, hand washing after latrine use, maintaining a latrine in an adequately sanitary state, is in many cases, more of factors of attitude and habit than existence of structures. In Hoima district 24% of studied subjects normally used the bush (Burfaederi et al, 1993) while in Tororo 36% did so (Karamagi & Aboda, 1993). In Kwale and South Nyanza districts of Kenya only 30 – 35% of people had access to adequate excreta disposal facilities.

According to Abwoka (1998), over 70% of children in primary schools in Mpigi district knew washing hands before meals and after latrine use and brushing teeth were important fro disease prevention and also that indiscriminate disposal of excreta caused diseases. Cholera count result from drinking contaminated water and that water can be made safe to drink by boiling it. A less of children knew the qualities of a good latrine.

In many cases improving sanitation can be as simple as installing a well designed ventilated pit latrine (VIP) or compositing latrine. However in other cases improving sanitation will be more challenging particularly in rapidly growing urban slums; moreover, while building

improved sanitation facilities is a crucial intervention, the full health benefit will not be realized without proper used and maintenance of the facilities and good personal and domestic hygiene (Carr and Stauss, 2001).

The provision of safe water and sanitation facilities in schools is a first step towards a healthy physical learning environment benefiting both learning and health. However, the mere provision of facilities does not make them sustainable or produce the desired impact (WELL, 2003). It is the use of technical facilities and the related appropriate hygiene behaviours of people that provide health benefits. In schools, hygiene education aims to promote those practices that will help prevent water and sanitation-related diseases as well as promoting healthy behaviour in the future generation of adults (Burgers, 2000 cited by WELL, 2003).

A study conducted by Child Health and Development Centre, Makerere University (CHDC, 2006), found that almost all schools surveyed did not meet the minimum sanitation and hygiene school standards. Government efforts have focused on construction of toilet facilities in government-aided schools through the School Facilitation Grant (SFG), UPE funds and Local Government Development Programme (LGDP). As such the, emphasis has been on facility development with less focus on changing practices in sanitation and hygiene in schools.

With regard to sanitation practices in schools, a study done by UNICEF/NEWAS (2005) revealed that the practice of hand washing after using a latrine was not being done by the

pupils in the camp schools in northern Uganda. The study however noted that this could be because latrines in most camp schools do not have hand washing facilities, except for those camps that have benefited from *"mobilets"* (crest tank latrine superstructures) that are supplied with hand washing facilities.

Feachem (1982), asserts that much as the majority of the population living around lake shores and river banks do realise the importance of water in life, minority do actually ensure its quality before use. This has greatly led to poor sanitation in many regions especially landing sites. Govdie and Brum (1986), noted that wastes dumped in open areas or indiscriminately in surrounding environs are major source of surface and ground water sources contamination due to washing down of contaminants and deposition into water sources such as wells, streams and rivers.

UNICEF (1994), reported that improper waste disposal is a universal problem. Worldwide 2.6 billion people were without proper means of excreta disposal facilities by 1990 and the gap widened in 1994 to 2.9 billion people. A study by RUWASA (1997), revealed that twenty percent (20%0 of the homesteads in the districts of Kamuli, Iganga and Mbale had scattered faeces. The study further revealed that sanitation problems have been reported to be a result of Uganda's sanitation related bodies. The reasons that were given are lack of funds and inadequate space. Because of the above reasons, residents decided to dump garbage where they desired. This is an indicator of the sanitation problem in Uganda.

Viessman and Hammer (1990), stated that sanitation in also a very culture specific issue. Defecation is in most cultures, an extremely personal practice and controlled by strict taboos. Because is in most cultures, an extremely personal practice and controlled by strict taboos. Because of its strong cultural dependence sanitation improvements are very difficult to introduce to the general public, since improving sanitation in practice means intervention to the persons and personal life habits. More so fishermen and pastoralists have beliefs attached to waste disposal. That they may not catch enough fish or their cows will not produce enough milk if they use latrines.

Moeller (1992) stated that until World War II, most solids or municipal wastes (leaves and grass droppings) newspapers, cans, bottles, coal and ashes street sweepings and discarded materials. Such waste was not considered hazardous and was simply transported to the local land disposal facility and set on fire to reduce its volume and discourage the breeding of insects and rodents. In Mpigi town this system is used to a certain extent but mainly the wastes are collected and dumped in pits which have been dug.

2.5 Students' Awareness of the consequences of poor sanitation

Richford (1995), argues that in Uganda today, diarrhoea diseases rank second among the five killer diseases being transmitted mainly through swallowing faecal germs. This has been mainly because of the poor disposal of faecal and unprotected water source. He further reveals that the provision of safe water resource and sanitation is very important, but constructing latrines and digging wells would have little effect on health unless people use these facilities.

One gram of faeces can contain ten million virus, one million bacteria, one thousand parasite cysts and a hundred warm eggs, that is what makes the safe disposal of faeces the most important of all public health priorities. Still today, the majority of illnesses in the world is caused by the fact that faecal matter enters the human body because of lack of safe sanitation and lack of hygiene. To prevent this huge burden of illness, safe water and sanitation are only half of the answer. The other half is getting people to use them wisely and well. Millions of people have still not been adequately informed about the link between faeces and diseases (Water, Sanitation and Hygiene, 1999).

Sanitation reduces or prevents human faecal pollution of the environment thereby reducing or eliminating transmission of diseases from the source. Effective sanitation isolates excreta and inactivates the pathogens or within faeces. High technology solutions are not necessarily the best. Some simple latrines can be very effective while untreated sewage distributes pathogens in the environment and can be a source of diseases. Interventions that work in rural areas may not be very different from those in urban areas.

The majority of the people living in developing countries are suffering from diseases, hunger and ignorance. In most cases problems are interlinked. Due to lack of knowledge the people are exposed to hunger while having enormous resources around them. Over half of the population suffers from diseases caused by poor sanitation when simple sanitary measure can make a big difference. Poor sanitation, hygiene and inadequate water supply are also related to the spread of other diseases, including tropical diseases such as schistosomiasis (sometime called Bilharzias) rank second in terms of socio-economic and

public health importance in tropical and subtropical areas (Esrey 1994). The diseases are endemic in 74 developing countries Uganda inclusive, infecting more than 200 million people of these, 20 million suffer severe consequences from the disease. 40% of the world population still have no basic sanitation; many people do no realize the health benefit to individuals, community and to the society from improving sanitation. The high cost of improving sanitation is often cited as a barrier to implementing sanitation projects.

Sanitation facilities interrupt the transmission of faecal–oral disease at the most important source by preventing human faecal contamination of water and soil. Poor waste disposal practices are responsible for significant proportion of world's infectious disease burden. Diseases due to poor tap water supply, sanitation and personal and domestic hygiene cause 4.0% of all deaths and 5.7% of all disability or ill health in the world. This burden distributed equally, water born illness predominantly affect the poor and the young. However, when basic water, sanitation and hygiene interventions are applied, water born illness can be effectively reduced low cost interventions such as compositing latrines can be used to reduce the transition of many diseases. This study therefore investigated the sanitation and hygiene practices of students in secondary schools; by establishing the availability, the adequacy and utilization of the facilities as well as the consequences of poor sanitation.

According to out-patient records in 1990 available with the Health Planning Unit through Health Information System (HIS), mortalities in under fives due to waste related diseases are still prominent for instance.

- Diarrhoea 12.0%
- Dysentery Epidemic
- Cholera Epidemic
- Typhoid fever 1.0%
- Bilharzias 7.7%
- Worm of all types 7.7%

Under fives are more at risk of suffering from these diseases. They are also prone to malnutrition and diarrhoea diseases which account for almost 30% of all the infant deaths. It is therefore essential that all wastes are disposed off in a hygienic manner. It is therefore essential that all wastes are disposed off in a hygienic manner.

According to the International Water and Sanitation Center (IRC 2004), the challenge for Uganda is enormous. With a deficit of over 50% is excreta disposal and around 70% for social waste management coupled with inadequate provision and broken down infrastructure for drainage and water management in general, the task of addressing the grave sanitation in the country requires a major effort. The following impact of poor sanitation in Uganda makes the challenge even bigger:

1) Health:
   - Almost 50% of all the diseases are related to poor sanitation
   - Hundreds of thousands of citizens suffer form intestinal worms as a result of poor sanitation.

- High level of stunting among children under 5years of age

2) Economic
   - Expenditure on the cure of sanitation related diseases for outweighs that are spent on prevention
   - Many thousands of schools days are lost from sanitation related illnesses each term. The non availability of toilet facilities is one of the major causes of such drop out among adolescent girls in Uganda.
   - Many thousands of work days are lost from sanitation related sickness every month
3) Environmental:
   - Degradation of the urban environment indiscriminate disposal of solids and liquid wastes
   - Eutrophication of fresh water lakes and rivers is significant by untreated by untreated human waste demonstrated by the human rise in water hyacinth. Impacts on the fishing industry and livelihood in the lake region of phenomenal
4) Social cultural factors
   - Taboos, myths and beliefs
   - In-was should not share a pit latrine
   - A person with diarrhoea is to defecate in the open and must not use pit latrine. If done , it will spread it to others
   - Pregnant women should not defecate in the pit latrine. If they do so, they will get a miscarriage etc
5) Attitude on personal hygiene
   - One should only was hands with soap after eating.

- Hand washing is simply soaking hand in water at meal times
- After eating fatty meat, one should not wash his or her hands because of fear of indigestion.

6) Geographic and technical constraints

- Difficult areas in terms of provision or excreta disposal facilities
- The peculiarities that can be encountered with excreta disposal can arise due to complications related to:
    - Rocky grounds
    - High water table
    - Highly populated area not enough room for pit latrine
    - Terminate damage
    - Loose/ sandy soils
    - Care for the cattle keeper/nomads, fishermen, displaced communicates and refugees.

Birley (1995) noted that, education level is a paramount factor in as far as sanitation is concerned. Education which he defines as an instrument in human capital as it involves passing on preserved values, knowledge and skills from one generation to another whether formal or informal; is important to community members and stimulates change among the beneficiaries.

The global sanitation status coverage (UN) further states that families pay highly to care for children who suffer from diarrhea. Children who suffer from severe early childhood diarrhoeal enter school later than their age mates and perform worse in non-verbal intelligence tests, poor sanitation in schools affects attendance rates. Sanitation and hygiene is one of the factors contributing to the mortality rtes in Uganda (UN). Global sanitation status.

Timberlake (1985), noted that at least 95 people out of every 100 in Europe have piped water. In Africa, 90 out of every 100 are without it. Over Eighty percent (80%) of all illness in the developing world is directly or indirectly associated with a poor water supply and sanitation. He went a head to estimate that the provision of safe drinking water and sanitation could reduce infant mortality by half in much of Africa. But the provision of safe drinking water in the poorest parts of Africa is low even by third world standards hence pausing the sanitation problems.

Moeller (1992), noted that we become afflicted with a disease when there is upset of complex delicate balance that normally exists between our bodies and the environment. He further observed that the upset may result form factors in the physical environment (air, water, food or sun); the biological environment (bacteria, viruses, plants and animals including man), the social environment (work, leisure and cultural habits and patterns such as smoking, diet or excessive drinking) or any combination of these three sources.

Hobson (1990), asserted that Bacillic dysentery is caused by Shigella dysentery, an infectious agent common whenever sanitation is a problem. Two thirds of all cases and most deaths that occur in infants less than 10 months old is unusual. Secondary attack rates in households can be as high as fourty percent (40%). Shigella is commonly present in human faeces and transmission is favoured by crowded conditions, where personal contract is unavoidable. He further states that food handlers can readily spread the infection through contamination of food. Files can also transfer the organisms to non refrigerated food, where they can multiply; ingestion of a relatively large number of organisms is required and on set of the disease is delayed for 1-3 weeks, while the bacteria multiply in the body. Personal cleanliness, particularly in handling food is an important factor in the control of this disease.

UNICEF (1994), noted that water being not just for drinking, its scarcity contributes to illness through bad hygiene and this in turn fosters the spread of infections that affect the eyes, skin and the intestinal tract. According to the study carried out in Bangladesh by the International diarrhoeal diseases research centre, hand washing can cut diarrhea diseases dramatically by fourty percent (40%) in the under five age group, twenty percent (20%) in the five to nine age group and by ten to fifteen percent (10-15%) in the other age groups. Those who wash hands, food or eating utensils in the unclean water risk catching typhoid, cholera, dysentery, gastroenteritis and hepatitis.

Moeller (1992), noted that science of preserving health and preventing disease in rural communities with poor settlements should be taught as one of the most important sciences. General techniques such as housing programmes, development of community facilities and

suitable methods of population control, developed by community effort should be emphasised.

Sanitation in Mpigi district is still not satisfactory. The district has a latrine coverage of 40% safe water coverage of 18.3% (Unicef, 2002). A five year Water and Sanitation Project (WES) has been operating in the district since 1994. It protects water sources, trains community members in the maintaining of the same, and offers demonstration units to some institutions like schools.

The commonest out-patient department illnesses in Mpigi district are malaria, acute respiratory illnesses, diarrhea, malnutrition, skin diseases, eye infections, anaemia, trauma & AIDS-related diseases. These greatly contribute to the poor health situation manifested by the high infant mortality of 94 out of 1000.

Environmental sanitation is the control of factors in the physical environment at may cause disease. It is a Cornerstone in primary prevention of disease. Physical environment comprises water, air, soil and other non-living surroundings to man. Control of environment involves supply of adequate quantities of safe water, proper excreta and refuse disposal and proper personal hygiene and housing (Wood et al, 1990).

Water is essential in life. It is part of all cells and necessary in many basic chemical reactions and functions in the body. It is a good solvent of many substances-both harmful and harmless to life. Bhore et al (1992) described the relationship between water and cholera

for the first time, he demonstrated that typhoid fever was transmitted by water and showed that there was a relationship between water and filariasis, while Wood (1990) demonstrated a relationship between water and malaria. When water is not enough in quantity, water-washed diseases (e.g scabies, diarrhea, trachoma) result. When water drank is contaminated with diseases causing organisms water born diseases result (e.g. cholera, typhoid, dysentery, polio, hepatitis A).

Excreta are a combination of human faeces and urine. Many pathogens leave the body through urine and faeces. These organisms may reach other susceptive individuals through media like water and other fluids, food or directly on fingers or via insect vectors like flies or contaminated soil (Wood et al, 1990). Therefore, an excreta poorly disposed off is not only unsightly, but also gives off offensive smells, and is a source of many diseases. Inadequate sanitation is a major source of diarrhea which kills 2.5 million children yearly and of intestinal warms which cause poor growth and development (Simpson, 1994).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter presents the research design to be used in the study, sample size and selection method, study population, data collection and data analysis methods to be used.

3.2 Research Design

The research was cross-sectional. It utilised both qualitative and quantitative methods of inquiry. The quantitative aspects were used to capture quantifiable patterns and the qualitative aspect was be used to explore in-depth the issues at hand. The study was cross-sectional survey given that the issues involved concern more than one section of the study population. For example, the school authorities must see to the adequacy of sanitation facilities but the issue of utilisation and the practices involved in this rest more with the students.

3.3 Area and population of the study

The study was conducted in 10 secondary schools from 10 sub-counties of Mpigi District. The study population included students and Head teachers from selected secondary schools in the district. For confidential reasons, the names of the schools have not been disclosed in the study.

3.4 Sample size and selection

A total of 211 respondents participated in the study. The breakdown of this was: 1 respondent (an Inspector of Health of the district) and 1 respondent (Head teacher) as a key informant for in-depth interview; 10 students for Focus group Discussion (FGD) and 10 students as respondents for the survey from each school.

The Inspector of Health was purposively selected due to the key position he holds. For the students simple multi-stage sampling technique was used. The names of all the sub counties were written on pieces of paper and put in a box. After this ten sub-counties were chosen by lottery. From each sub county, 1 secondary school was chosen by the same lottery method. In total the study used ten secondary schools and from each school 20 students were chosen (also by lottery: 10 students from Senior 2 and3 and 10 students from Senior 4 and 6). For FGDs 10 students were chosen and 10 were chosen for survey interviews. This is because students from Senior 2, 3, 4 and 6 have been in school for at least two years and therefore they have knowledge on the state of sanitation of the school. Thus they were competent to make independent judgement. The ten Head teachers for the in-depth interviews were got from the selected ten secondary schools. Headteachers were chosen because of the positions they hold in schools.

Table 1: Summary of sample selection

Source o f respondent	Purpose	No.
Head teachers	In-depth interviews	10
Students	10 FGDs (10 Students in each)	100
Students	Survey interviews	100
Health Inspector	In-depth interviews	1
Total		**211**

All in total, the study utilised 211 respondents

3.5 Data collection methods

As already stated the study employed both qualitative and quantitative data collection instruments. And these included:

Survey questionnaires

The sample survey questionnaires constituted the main research instruments because it is easy to use on a large number of subject, ten students from every school. It has an advantage of facilitating collection of a lot of information in relatively short time and can be answered by respondents without explanation.

In-depth interviews

The researcher conducted interviews with key informants like; Headteachers and the District Health Inspector, the researcher adopted this method because it enables her to come across new ideas. This interview method is appropriate as it brings the interviewer and the

interviewee to close to each other. It enables probing and clears ambiguities, generates first hand information, has a high response rate and enables acquisition of data there and then.

Observation checklist

This comprised of items to be observed. Particularly the researcher used this method to observe the adequacy and utilisation of the different sanitation facilities.

Focus Group Discussions (FGDs)

These were group discussions with students from the selected schools. They were adopted so as to compliment the quantitative method by soliciting for explanations that can not be quantified through sampling views.

3.6 Data analysis and management

Quantitative data: After collection, survey data was edited and coded. This is where data was examined for errors and omissions and corrected where necessary and possible. In the coding process, data was organised into categories after which, numerals were assigned to each item before entering them into the computer. After entering using SPSS programme, the computer was used to generate quantitative results including the percentages, frequencies, means and averages.

Qualitative data: After collection, was coded and analysed. Editing involved examining data for errors and omissions after which, corrections were done accordingly where possible. Coding involved organising data into classes/categories in relation to the themes of the study. After this, interpretations were made before making conclusions.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4.1 Introduction

The major findings of the study are presented in this chapter in relation to the objectives of the study. The presentation follows the order by which the specific objectives of the study are stated. Methods that involve graphical illustrations and frequency tables have been used in the presentation to reflect statistics that accompany explanations for better understanding.

4.2 Sanitation Facilities and Materials Available in Secondary Schools

This was the first objective of the study. Through observations and inquiries with administrative authorities, the table below presents data regarding the actual sanitation facilities and materials available in the sampled schools:

The table 2 below indicates that from the ten schools that were sampled by the study, two of the urban schools owned two pit latrines each for the students and one flush toilet which was said to be serving the teachers and other administrative staffs. The other two urban schools had up to three pit latrines with two being for students and one for teachers and the administrative staffs. The pit latrines were divided into different rooms or stances to enable them serve more than one user at once.

Table 2: Sanitation Materials and Facilities

		SANITATION FACILITIES & MATERIALS					
	Secondary Schools	**Pit Latrines**	**Flush Toilets**	**Urinals**	**Hand washing facilities**	**Sources of Water facilities**	**Anal cleansing materials**
Urban	A	3	-	2	2	2	For Teachers
	B	2	1	2	2	2	For Teachers
	C	3	-	2	2	2	For Teachers
	D	2	1	2	2	2	For Teachers
Rural	E	2	-	2	None	3	-
	F	2	-	2	1	2	-
	G	2	-	2	None	3	-
	H	2	-	2	1	2	-
	I	2	-	2	None	3	-
	J	2	-	2	1	2	-
Mean		2.25	0.25	2.0	1.25	2.25	

Source: *Field Data*

On the other hand, the secondary schools sampled from the rural areas also indicated fair availability and distribution of sanitation facilities especially the latrines and urinals. However, through observation, it was clear that the facilities in the rural areas were not in good condition as those in the urban areas. For instance, in two of the rural secondary schools, the walls looked quite old and dirty signalling that the latrines were old. Besides,

some of the doors that had been fixed in the entrance to ensure privacy had been broken and some had been completely removed thus defeating the overall purpose.

Through interviews about the same issue of availability of sanitation facilities and materials, students were asked to state the types of sanitation facilities present in their respective schools. As in the previous table, these were grouped into toilets and urinal facilities. The table that follows presents findings from students' responses on this matter:

Table 3: Type of Sanitation Facilities

Toilets	Percentage	
	Rural	**Urban**
Pit Latrines	50	45.0
Flush Toilets	-	5.0
Total	**50**	**50**
Urinals		
Cemented urinals	21	35
Soak Pit	4	10
Nearby Bush	25	5.0
Total	**50**	**50**
Other facilities & materials		
Hand washing containers (Cans with water)	18	48
Anal cleansing tissue (Toilet paper rolls)	6	34

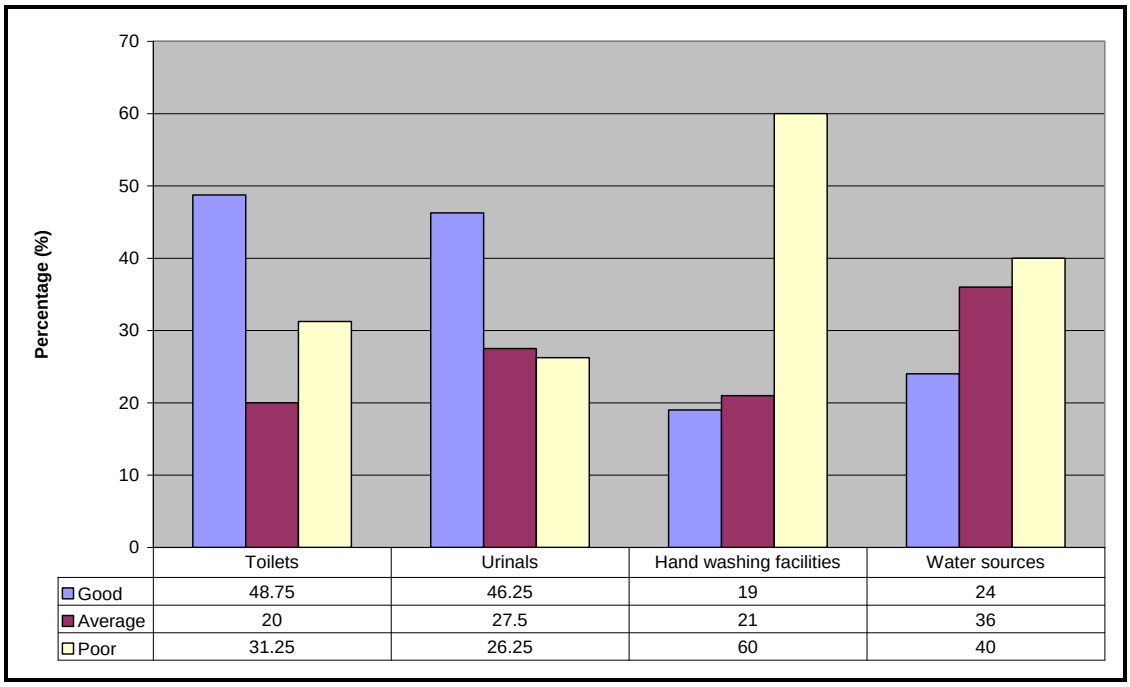
Source: *Field Data*

Majority (45%) of the students in the urban schools indicated that their schools have pit latrines as toilet facilities while only 5% reported the use flush toilets with running water but by teachers as places of convenience. In the rural schools, there were no flush toilets.

As for urinals, majority of schools use cemented type of urinals (21%-Rural and Urban-35%) while 10% in the urban schools have soak pits. However, 30% of the students reported that in their schools, the bush is used as urinals.

Besides the pit latrines and urinals, information from the key informant interviews revealed availability of bathrooms, open rubbish dumping pits and composite pits for solid waste but these were not mentioned by the students. On the same objective, the study went ahead to find out the general level of cleanliness and condition of the available sanitation facilities. The students were asked to rate and the responses are as presented in the figure that follows:

Figure 2: Rating of the Sanitation Facilities and Materials in Schools



	Toilets	Urinals	Hand washing facilities	Water sources
Good	48.75	46.25	19	24
Average	20	27.5	21	36
Poor	31.25	26.25	60	40

Source: *Field Data*

A sizeable proportion of students (48.75%) rated cleanliness of the toilet and urinal (46.25%) sanitation facilities as good. A proportion of 31.25% rated the general condition of the toilets as poor while 20% ranked them at average standards. For urinals, 27.5% indicated a rank of 27.5% while 26.25% ranked them as being poor in cleanness. In average terms

therefore, the sanitation facilities are fairly clean but the unclean part is relatively big and should not be ignored.

More still, a relatively big percentage (40%) of students indicated that the conditions of the water sources at their respective schools are poor. However, 36% of the students rated the water source facilities as average while only 24 mentioned that they are in good condition. Given the big number of users, the researcher realizes that the rate at which these facilities wear out is quite high and this could explain why many of the different sources of water are not in their best condition.

Among the materials mentioned, the hand washing facilities held the worst record where 60% of the students indicated that the condition of the hand washing facilities is poor. Only 19% indicated that the hand washing facilities at their schools are good while 21% indicated that the condition of the hand washing facilities at their school are of average status.

Below are the photographs showing status of some of the sanitation facilities captured during the study.

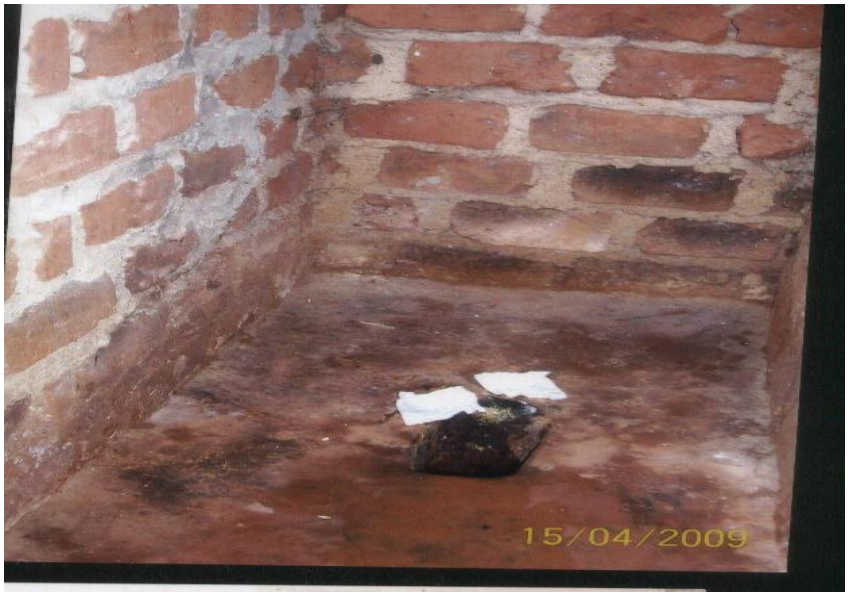


Plate 1: **One of the pit latrines in the sampled schools**

Plate II: A urinal area in one of the sampled schools

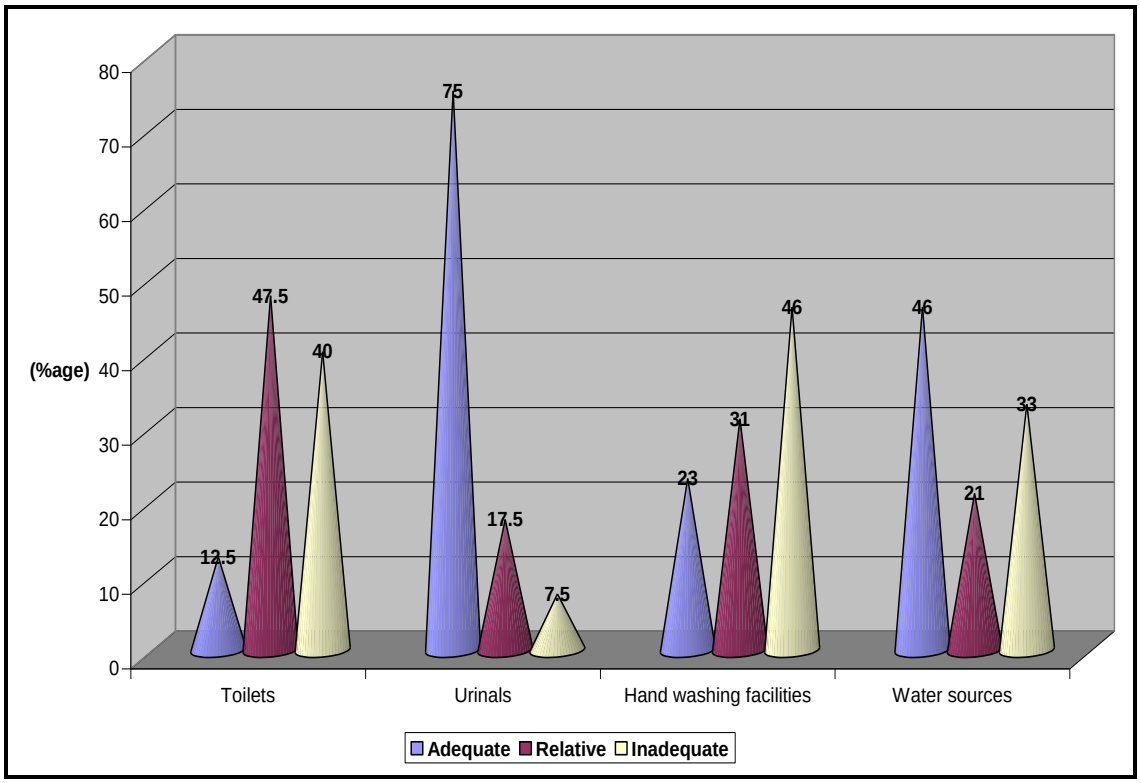
Plate III: The researcher during one of the key informant interviews with Mpigi district Health Inspector

Plate IV: The researcher during one of the Focus Group Discussions with students

4.3 Adequacy of Sanitation facilities in Secondary Schools

This formed the second objective of the study. Under this, the quantity of the available facilities was assessed. Students responded as presented in the figure that follows:

Figure 3: Adequacy of Sanitation Facilities and Materials



Source: *Field Data*

A relatively big percentage (47.5%) indicated that toilets were inadequate while 40% held that the facilities are relatively adequate. Only 12.5% mentioned that toilet facilities are enough. Regarding the urinals, 75% of the students indicated that the facilities are enough while 17.5 indicated that they are inadequate. However, 7.5% indicated that urinal facilities are relatively adequate. Generally, the findings reveal that the toilet facilities are inadequate as compared to the urinal facilities. Additionally, the key informant interviews revealed that schools didn't have enough bathrooms.

These findings are in agreement with Rugumayo's 2002 findings in which he indicated that the National latrine coverage was 90% in the 1960s, but dropped to 30% in the 1980s and only rose to 47% in the 1990s. Given that these figures include infrastructure in educational institutions, secondary schools are not exempt. The study made effort to establish the ratios showing the adequacy of sanitation facilities and materials in the studied schools and the findings are presented in the table as follows:

Table 4: Ratios of sanitation facilities and materials to students

	School	**Pit latrine stances**		**Flush Toilets**		**Urinals**		**Hand washing facilities**	
		Male	female	Male	Female	Male	Female	Male	Female
Urban	A	1:110	1:115	-	-	1:220	1:310	1:220	1:310
	B	1:100	1:140	-	-	1:200	1:280	1:200	1:280
	C	1:99	1:113	-	-	1:212	1:261	1:212	1:273
	D	1:121	1:119	-	-	1:191	1:259	1:201	1:269
Rural	E	1:180	1:162	-	-	1:360	1:224	None	-
	F	1:130	1:136	-	-	1:162	1:172	1:162	-
	G	1:128	1:134	-	-	1:158	1:169	1:158	-
	H	1:142	1:151	-	-	1:162	1:155	None	-
	I	1:137	1:142	-	-	1:159	1:161	None	-
	J	1:129	1:139	-	-	1:160	1:128	1:160	-

Source: Field Data

The values presented above indicate big deficits of sanitation facilities and materials in the ten sampled schools of Mpigi District. The ratios are evidently poorer in the rural schools and there is a lot that needs to be done so as to rectify the situation.

Given that hand washing facilities are part of the sanitation framework, the study went ahead to find out whether the sampled secondary schools have these facilities. The findings are represented in the table that follows:

Table 5: Types of hand washing facilities Available

Response	Percentage	
	Rural	**Urban**
Metallic Cans & Plastic jerricans	12	25
Not available	32	20
No response	6	5
Total	**50**	**50**

Source: Field Data

Half of the students (25%) in urban schools indicated that their respective schools have metallic cans and plastic jerryicans as hand washing facilities followed by 40% who indicated that their schools do not have washing facilities. However, 4% of the students did not respond to this. A proportion of 12% of the students in rural schools reported that metallic cans and plastic jerryicans as hand washing facilities. Therefore, schools are fairly equipped with hand washing facilities but still, more is needed to cover the missing 50% which is quite unsafe.

Given the number of people that frequent sanitation facilities in schools, the hand washing facilities are subject to high rate of wearing out. Students were therefore asked to tell whether the facilities are functional. The findings are tabulated as follows:

Table 6: Whether the Plastic and Metallic hand washing facilities are Functional

Response	Percentage	
	Rural	**Urban**
No water in the cans most of the time	26	27.5
No Soap & Water	23	21.3
Water & Soap available most of the time	1	2.2
Total	**50**	**50**

Source: *Field Data*

Majority (27.5%) of the students in the urban schools and a proportion of 26% students in the rural schools indicated that although the hand washing facilities are in place, there is usually no water in the containers when needed. Another proportion (44.3%) mentioned that there is usually no water and soap at the facilities indicating that they do not serve the purpose for which they were availed. Only a small percentage of 2.2% students in the urban schools mentioned that the facilities are functional and there is water and soap most of the time. Information drawn from the key informant interviews reveals that though the school administration ensures to equip the washing facilities with soap and water, some undisciplined students steal the soap and the general student population suffers for that matter. Others mentioned that some students come from rural and poor backgrounds with

poor upbringing and end up practicing poor hygiene and sanitation just as they were trained as they grew up.

In addition, the study endeavored to establish whether the sampled schools have anal cleansing facilities / materials like toilet paper. The findings are presented in the table as follows:

Table 7: Availability of anal Cleansing materials

Response	Percentage	
	Rural	**Urban**
Toilet paper	16	22.5
Not Available	34	27.5
Total	**50**	**50**

Source: *Field Data*

Majority of the respondents (27.5%-Urban and 34%-Rural) indicated that there are no anal cleansing materials such as toilet paper in the schools. They said that it is up to the users to find the materials to use when in need. Only 22.5% (Urban) and 16% (Rural) indicated that the materials are present at their schools. This is a big challenge and needs urgent attention to avoid likely unpleasant consequences. Some of the key informants supported this by indicating that students are expected to come along with their own cleansing/cleaning materials. They mentioned that it is quite hard to maintain provision of such materials to the usually big student population.

Still under adequacy of sanitation facilities, the study proceeded to establish whether there were separate facilities for the male and female in the schools. The table that follows reflects the findings:

Table 8: Separate Toilets for Boys and Girls

Response	**Percentage**	
	Rural	**Urban**
Available	23	35
Not Available	27	15
Total	**50**	**50**

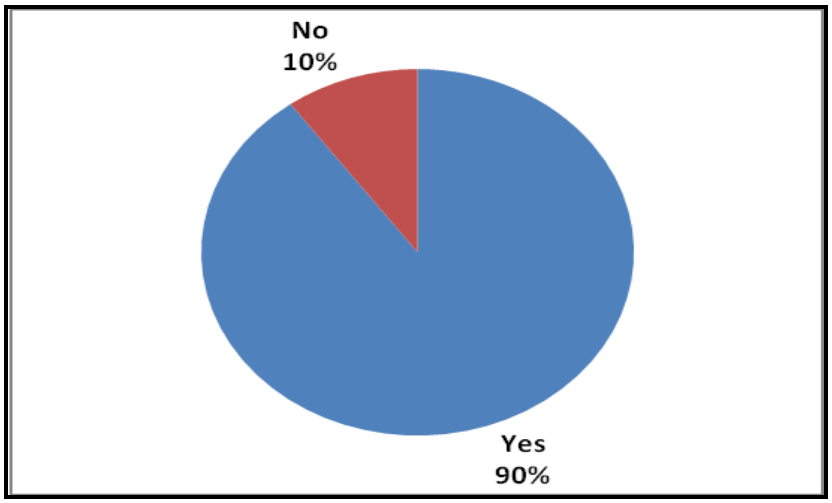
Source: *Field Data*

Majority (35%-urban) indicated that there are separate toilet facilities for the male and female students while 23% (Rural) mentioned the same. They mentioned that this was convenient. However, 15% (Urban) indicated that the facilities are not separated, both male and female students use same toilet facilities. However, participants in some of the focus group discussions conducted by the study indicated that most of the schools have separate facilities for boys and girls but the problem is that some are not clearly marked as so, as a result, students end up using any of the facilities that is closer to then at a given time and with time, this becomes a generally acceptable practice. Generally, the toilet facilities of the male are separated from those of the female in most of the sampled schools.

Besides availability of the facilities, the study endeavored to establish whether the facilities were enclosed for privacy of the users. The pie chart that follows presents the findings on this matter:

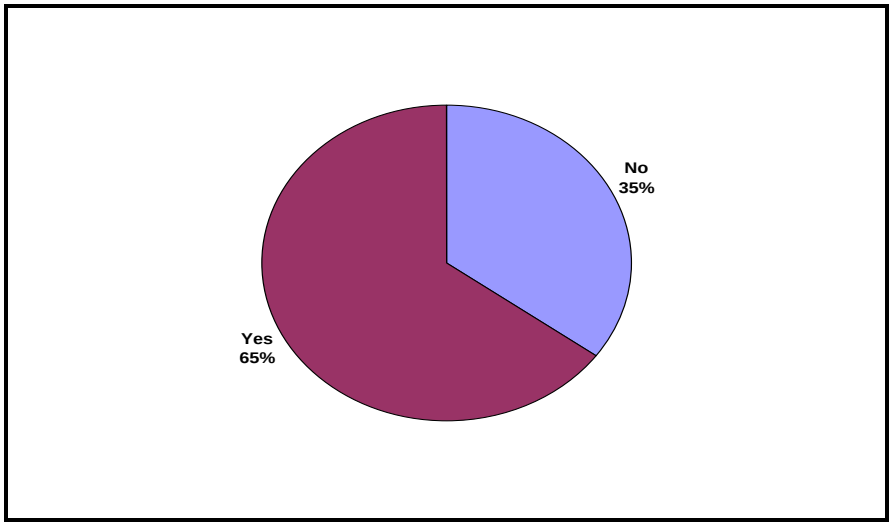
Figure 4: Whether facilities are enclosed for Privacy

Urban Secondary Schools



Source: *Field Data*

Rural Secondary Schools



Source: *Field Data*

Majority (90%-Urban and 65%-Rural) of the students indicated that the facilities are enclosed and the user enjoys privacy when utilizing the facilities. They further added that the facilities are placed a relatively favorable distances from the main building structures. Only 4% (Urban) and 35% (Rural) of the students indicated that the facilities in their respective schools are not enclosed. In general terms, majority of the schools own enclosed sanitation facilities. Information from key informant interviews supported this and was the case with the participants from the focus group discussions. There is therefore desirable level of privacy in the utilization of the sanitation facilities like latrines and urinals in the sampled secondary schools in Mpigi district both in the rural and urban school settings.

4.4 Utilization of the available sanitation facilities

This forms the third specific objective of the study. It aimed at assessing the level by which the facilities are used. Having provided their views about the cleanness of the sanitation facilities (in the first objective), the study went ahead to establish the attitude held by the students towards using the facilities. Responses are presented as below:

Table 9: Attitude towards using the Latrines and Urinals

Response	Percentage	
	Rural	**Urban**
No Problem Using them	5	6.3
Hate using them but have no Choice	33	27.3
I sometimes use the nearby Bush	12	15.4
Total	**50**	**50**

Source: *Field Data*

Considerable percentages (27.3%-Urban and 33%-Rural) hated using the facilities but simply continued doing reasoning that they had no option but to bear with whatever wasn't perfect at the time. Others (12%-Rural and 15.4%-Urban) indicated that they only use the facilities sometimes but go to a nearby bush. Only 6.3% (Urban) and 5% (Rural) indicated that they had no problem with using the facilities. Therefore, most of the students are not satisfied with the cleanness of the facilities yet they go ahead and use them out of absence of alternatives.

However, some of the key informants blamed the poor cleanliness of the facilities to students who they say come from poor backgrounds are not used to safe sanitation and hygiene practices. They said that in some of the latrines, walls are stained with fecal markings revealing poor practices by students especially the boys. And for the girls, urine was said to be flooding the floors of their places of convenience. These practices were said to have led to presence of maggots in and around the sanitation facilities in some of the sampled schools.

Students were also asked to state whether the hand washing facilities are frequently used. The responses are presented in table 10 below:

Table 10: Level of usage of the hand washing facilities

Response	Percentage	
	Rural	**Urban**
Nobody bothers even when water & soap are available	15	10
I do wash sometimes	19	24
Most students do not wash	22	13
Not Sure	4	3
Total	**50**	**50**

Source: *Field Interviews*

A proportion of 10% students (Urban) indicated that there are very few people who do use the facilities even when the water and soap are available though on a positive note, 24% (Urban) of the students indicated that they do wash their hands sometimes. In the rural schools, 19% do wash their hands while 15% do not even when water and soap are available. On the other hand, 22% (Rural) and 13% (Urban) indicated that most students do not wash their hands after leaving the toilets and urinals. Most of the key informants blamed the lack of toilet manners and poor knowledge that lead to such poor usage / utilization of the hand washing facilities provided at the places of convenience.

Table 11: Reasons for having missed some classes

Response	Percentage	
	Rural	**Urban**
Illness (Not related to poor sanitation)	6	3.7
Illness(related to poor sanitation)	2	2.3
Not applicable	42	44
Total	**50**	**50**

Source: *Field Data*

There were more students (6%) in the rural schools than those (3.7%) in the urban schools who missed some classes in the school term due to illness related to water and sanitation while few (2%-rural) and (2.3%-urban) reported illness that was not related to water and sanitation. This could justify the earlier claims that some of the sampled schools do not have adequate sanitation and hygiene facilities thus, poor practices.

Further investigations were made to find out about the safety of the sources where water used by the students at the sampled schools is collected. The table below presents the findings on this matter:

Table 12: Source of Drinking water at School

Response	Percentage	
	Rural	**Urban**
Rain water – Tank	14	12.5
Borehole	6	3.8
Protected water spring	10	27.2
Unprotected water spring	20	6.3
Total	**50**	**50**

Source: *Field Data*

Most of the urban schools use water from protected springs (27.2%) and rain water from tanks/reservoirs (12.5%). Some schools use water from unprotected springs (6.3%) while few urban schools (3.8%) use water from boreholes. In the rural schools, majority (20%) use water from unprotected springs while only 10% use water from protected springs. Most of the sampled schools therefore use water from safe sources. Students were then asked to mention whether they face any problems in getting the water from the said sources:

Table 13 shows a sizeable proportion of students in the urban schools (20%) mentioned that there is overcrowding at the sources where they collect water while 28% of the students from rural schools indicated that the water source is far from the school. Only 4.7% (urban) indicated that the source of water is far from the school. A proportion of 19.3% (urban) and 7% (rural) mentioned that the water they get is of poor quality. Those who collect from the same sources as village community mentioned harassment by the villagers while a small percentage of 5% complained of low yield by the source leading to wastage of time.

Table 13: Problems faced getting water from the Source

Response	Percentage	
	Rural	**Urban**
Far from School	28	4.7
Over Crowding	12	20
Poor Quality Water	7	19.3
Low yield	1	3.5
Harassment by Villagers	2	3.5
Total	**50**	**50**

Source: *Field Data*

4.5 Students' awareness of the consequences of poor sanitation

Reflecting on the fourth objective, the study endeavored to establish whether students have knowledge of the consequences that would arise out of poor sanitation and hygiene practices. The responses are tabulated as follows:

Table 14: Types of Diseases from poor Sanitation and Hygiene

Response	Percentage	
	Rural	**Urban**
Stomach worms	15	21
Diarrhoea	26	18
Other	9	11
Total	**50**	**50**

Source: *Field Data*

Majority of the students from urban schools mentioned that poor sanitation and hygiene practices may lead to contracting of stomach worms while majority of students from schools in the rural areas indicated that poor sanitation and hygiene may lead to diarrhoea. Others (11%-urban and 9%-rural) mentioned that adoption of poor sanitation and hygiene practices like drinking of unsafe water would lead to contracting typhoid fever. Students are therefore knowledgeable of the dangers of poor sanitation and hygiene practices. However, students added that such diseases have not been common in their respective schools of study indicating fair standards of sanitation and hygiene practices in the sampled secondary schools. Efforts were also made to establish whether students have knowledge of the diseases that would arise out of using unsafe water. The findings are tabulated as follows:

Table 15: Knowledge of Diseases acquired through use of unsafe water

Response	Percentage	
	Rural	**Urban**
Eye diseases	4	5
Skin rash	17	22
Diarrhoea	15	18
Scabies	14	5
Total	**50**	**50**

Source: *Field Data*

Most of the students (22%-urban and 17%-rural) mentioned skin rash followed by 18% (Urban) and 15% (rural) who indicated diarrhea. Both scabies and eye infections/diseases were mentioned by 10% and 18% rural and urban schools respectively. This reveals that students are

fairly knowledgeable about the dangers of using unsafe water. Students are therefore less likely to use unsafe water in effort to avoid catching related diseases as mentioned.

In conclusion therefore, as stated in the studies reviewed in chapter two, improving water and sanitation facilities does not necessary lead to a decrease in water and sanitation related diseases. To bring about real improvement in health, the installation of facilities has to go hand in hand with their proper use and maintenance, hygiene promotion aims to ensure the proper use and maintenance of facilities by motivating people to change their behaviour (IRC 2004).

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussion and conclusion on the major findings of the study and gives tailor-made / suiting recommendations basing on what was found out as regards the availability, adequacy and use of sanitation facilities in secondary schools in Mpigi District.

5.2 Discussion

5.2.1 Availability of sanitation facilities

Generally speaking, there is fair availability of sanitation facilities especially in the urban schools as compared to the rural schools (*see Table 4*). However, there is inadequate availability of the related materials such as anal cleansing tissues and particularly for the students both in rural and urban schools as indicated in the table. The average scores of the different sanitation facilities and materials as given in the table reveal fair availability of pit latrines (2.25) and water sources (2.25) in the sampled schools while the availability of flush toilets is very low (0.25). According to the mean values, the hand washing facilities (1.25) are also relatively inadequate and therefore inadequate to effectively serve the population in the sampled schools while the urinals (2.0) also need to be increased in number.

In agreement with these findings, the reviewed literature shows that a study conducted by Child Health and Development Centre, Makerere University (CHDC, 2006), found that almost all schools surveyed did not meet the minimum sanitation and hygiene school

standards. This is quite a recent study and the situation couldn't have changed in an instant, thus the authenticity of the current study findings.

Drawing from the reviewed literature, The State of Environmental Report for Uganda (1998) reports that there is low level of domestic water supply in the country with only 40% and 75% coverage for rural and urban areas respectively. In the urban areas of Kampala, Entebbe, Mpigi and Jinja the current water demand is 27.5 millions cubic metres per year. According to the WHO (2008), in the last decade access to water supply rose from 61% to 71% in Uganda, but during the same period, the proportion of people with access to sanitation means of excreta disposal declined from 36% to 34% as funding for sanitation decreased and population increased. This could justify why there is overcrowding at many of the stated sources of water in the findings.

It was further stated that even the quality of water from the sources whose supply to which access has increased has been degraded. According Lake Victoria Environmental Programme report (1998), there has been drastic deterioration of water quality ecology of the lake during the last two decades which in turn has affected the quality of water, further leading to disease to the urban population. This could explain why some of the students reported a problem of poor quality of water collected from the respective sources.

As was presented in chapter four, the hand washing facilities held the worst record (60%) of being in poor condition among the materials and facilities mentioned. The literature that has been reviewed in this study indicates that despite continued effort to promote sanitation,

40% of the world's population is still without basic sanitation. The writer (Wlto, 2000) goes on to state that this number does not tell the whole story because in developing economies, sanitation coverage is often much lower in rural areas than in urban areas. For example in Africa 84% of urban, 45% of rural residents have access to basic sanitation. This includes schools as part of community. It is true that in several cases, cleanness of the sanitation facilities would have been maintained only if the numbers of users do not exceed the capacity of the available facilities to support. As stated in the earlier incidences of facilities like water sources used by the sampled schools, the condition of the toilets, urinals, hand washing facilities is affected by the size of the population using those facilities and determines their rate of wear and tear.

With up to 50% of students indicating that schools have metallic and plastic cans as hand washing facilities, schools are thus fairly equipped with hand washing facilities but still, more is needed to cover the missing 50% which is quite unsafe which is not far from what the reviewed literature shows that a study conducted by Child Health and Development Centre, Makerere University (CHDC, 2006), found that almost all schools surveyed did not meet the minimum sanitation and hygiene school standards. This is quite a recent study and the situation couldn't have changed in an instant, thus the authenticity of the current study findings.

In summary, the sampled secondary schools in Mpigi districts own more-or-less similar sanitation facilities. These precisely include pit latrines as indicated by 95% of the sampled students, flush toilets with running water mentioned by 5%, cemented urinals (80%) and

soak pits (5%). However, 15% of the students reported that in their schools, the bush is used as urinals. In addition, the schools have dust bins, composite pits, bathrooms and covered disposal pits for solid waste as mentioned by the key informants.

Schools also have hand washing facilities as indicated 50% of the students but over half of these reported that the facilities are at most times not functional for absence of water and soap which the key informants said is stolen and misused by undisciplined students.

Substantial proportions of 48.75% and 46.25% of the students ranked cleanness of toilet and urinal sanitation facilities as good respectively. Other relatively sizeable proportions of 31.25% and 20% ranked toilets and urinal facilities at average standards of cleanness respectively. However, 27.5% and 26.25% indicated poor cleanness of the toilets and urinals.

5.2.2 Adequacy of sanitation facilities

With regard to schools and reflecting on Rugumayo's (2002) findings, given the doubling and tripling (in some cases) of enrolment of children in schools, population growth in schools has not matched the development of the necessary infrastructure. As a result, sanitation facilities too have been overloaded as the finding reveal. Additionally, a national study by UNICEF (2002) revealed that over 1,200 school children died because of poor sanitation conditions at school during the 1997 cholera outbreak. Consequently, 560 primary schools around the country were closed because they lacked acceptable latrine facilities. These findings do support by the current study.

The drastic changes in the seasons of sunshine and rain are hoped to have contributed to the reduction in the amount of water released by the protected springs and also those which have completely dried up yet the population in such areas has continued to grow steadily. This is because it takes some lengthy period of time (apparently) to receive good amounts of precipitation. And this is most probably related to what The State of Environmental Report for Uganda (1998) reports indicating that demand for water in the areas of Kampala, Entebbe, Mpigi and Jinja the current water demand is 27.5 millions cubic metres per year yet supply seems not to match the demand.

In summary, the findings revealed inadequacy of both toilets and urinals as indicated by a sizeable proportion of 47.5% for toilets and 17.5% for the urinals. Generally, the findings reveal that the toilet facilities are inadequate as compared to the urinal facilities. These statistics are supported by findings documented by Rugumayo in 2002 and UNICEF in the same year, indicating that the National and specifically school coverage of sanitation facilities is quite inadequate.

5.2.3 Utilisation of sanitation facilities

All in all, despite the view that improving sanitation can be as simple as installing a well designed ventilated pit latrine (VIP) or compositing latrine, improving sanitation could be more challenging particularly in rapidly growing urban slums; given that, while building improved sanitation facilities is a crucial intervention, the full health benefit will not be realized without proper used and maintenance of the facilities and good personal and domestic hygiene (Carr and Stauss, 2001).

The poor cleanness of the facilities was said to be a partly a result of practices of students who they say come from poor backgrounds are not used to safe sanitation and hygiene practices. Despite the general unpleasant condition of the latrines and urinals, when nature calls, the respondents continued to utilize the available facilities simply because they have no option when nature calls not even maggots in and around the sanitation facilities in some of the sampled schools stop the people from utilizing them. However, cases of illnesses related to poor hygiene and sanitation practices were not a common phenomenon in the sampled schools. This shows that although the situation is not at its best, it is neither alarming.

As stated in the literature review, in many cases improving sanitation can be as simple as installing a well designed ventilated pit latrine (VIP) or compositing latrine. However in other cases improving sanitation will be more challenging particularly in rapidly growing urban slums; given that, while building improved sanitation facilities is a crucial intervention, the full health benefit will not be realized without proper used and maintenance of the facilities and good personal and domestic hygiene (Carr and Stauss, 2001).

In summary, the utilization of toilets and urinal facilities was rated at 70% although a considerable percentage (57.5%) of the students had complaints of poor cleanness of the facilities. Others (30%) use the bush at some times as an option to the poor facilities. Regarding the hand washing facilities, very few of the students (20%) bother to wash their hands some times but most of them (80%) do not bother at all. Despite good knowledge of

the diseases that would affect them for poor sanitation and hygiene practices, utilization was generally poor among students of all the sampled schools.

Drawing from the reviewed literature proper latrine use is a behaviour much beyond structures. Using a latrine, hand washing after latrine use, maintaining a latrine in an adequately sanitary state, is in many cases, more of factors of attitude and habit than existence of structures. In Hoima district 24% of studied subjects normally used the bush (Burfaederi et al, 1993) while in Tororo 36% did so (Karamagi & Aboda, 1993). In Kwale and South Nyanza districts of Kenya only 30 – 35% of people had access to adequate excreta disposal facilities.

According to Abwoka (1998), over 70% of children in primary schools in Mpigi district knew washing hands before meals and after latrine use and brushing teeth were important fro disease prevention and also that indiscriminate disposal of excreta caused diseases. Cholera count result from drinking contaminated water and that water can be made safe to drink by boiling it. A less of children knew the qualities of a good latrine.

UNICEF (1994) goes on to state that improper waste disposal is a universal problem. Worldwide 2.6 billion people were without proper means of excreta disposal facilities by 1990 and the gap widened in 1994 to 2.9 billion people. A study by RUWASA (1997), revealed that twenty percent (20%0 of the homesteads in the districts of Kamuli, Iganga and Mbale had scattered faeces. The study further revealed that sanitation problems have been reported to be a result of Uganda's sanitation related bodies. The reasons that were given are

lack of funds and inadequate space. Because of the above reasons, residents decided to dump garbage where they desired. This is an indicator of the sanitation problem in Uganda.

5.2.4 Consequences of poor sanitation

Regarding illnesses related to poor sanitation and hygiene practices, literature reveals that diarrhea diseases in Uganda rank second among the five killer diseases being transmitted mainly through swallowing faecal germs (Richford, 1995). This has been mainly because of the poor disposal of faecal and unprotected water source. As Richford suggested, this study agrees that the provision of safe water resource and sanitation is very important, but constructing latrines and digging wells will have little effect on health unless people use these facilities.

Drawing from the reviewed literature, one gram of faeces can contain ten million virus, one million bacteria, one thousand parasite cysts and a hundred warm eggs, that is what makes the safe disposal of faeces the most important of all public health priorities. Still today, the majority of illnesses in the world is caused by the fact that faecal matter enters the human body because of lack of safe sanitation and lack of hygiene. To prevent this huge burden of illness, safe water and sanitation are only half of the answer. The other half is getting people to use them wisely and well. Millions of people have still not been adequately informed about the link between faeces and diseases (Water, Sanitation and Hygiene, 1999).

The majority of the people living in developing countries are suffering from diseases, hunger and ignorance. In most cases problems are interlinked. Due to lack of knowledge the

people are exposed to hunger while having enormous resources around them. Over half of the population suffers from diseases caused by poor sanitation when simple sanitary measure can make a big difference. Poor sanitation, hygiene and inadequate water supply are also related to the spread of other diseases, including tropical diseases such as schistosomiasis (sometime called Bilharzias) rank second in terms of socio-economic and public health importance in tropical and subtropical areas (Esrey 1994). The diseases are endemic in 74 developing countries Uganda inclusive, infecting more than 200 million people of these, 20 million suffer severe consequences from the disease. 40% of the world population still have no basic sanitation; many people do no realize the health benefit to individuals, community and to the society from improving sanitation. The high cost of improving sanitation is often cited as a barrier to implementing sanitation projects.

According to the International Water and Sanitation Center (IRC 2004), the challenge for Uganda is enormous. With a deficit of over 50% is excreta disposal and around 70% for social waste management coupled with inadequate provision and broken down infrastructure for drainage and water management in general, the task of addressing the grave sanitation in the country requires a major effort.

Timberlake (1985) goes on to state that at least 95 people out of every 100 in Europe have piped water. In Africa, 90 out of every 100 are without it. Over Eighty percent (80%) of all illness in the developing world is directly or indirectly associated with a poor water supply and sanitation. He went a head to estimate that the provision of safe drinking water and sanitation could reduce infant mortality by half in much of Africa. But the provision of safe

drinking water in the poorest parts of Africa is low even by third world standards hence pausing the sanitation problems.

Hobson (1990), asserted that Bacillic dysentery is caused by Shigella dysentery, an infectious agent common whenever sanitation is a problem. Two thirds of all cases and most deaths that occur in infants less than 10 months old is unusual. Secondary attack rates in households can be as high as fourty percent (40%). Shigella is commonly present in human faeces and transmission is favoured by crowded conditions, where personal contract is unavoidable. He further states that food handlers can readily spread the infection through contamination of food. Files can also transfer the organisms to non refrigerated food, where they can multiply; ingestion of a relatively large number of organisms is required and on set of the disease is delayed for 1-3 weeks, while the bacteria multiply in the body. Personal cleanliness, particularly in handling food is an important factor in the control of this disease.

UNICEF (1994), noted that water being not just for drinking, its scarcity contributes to illness through bad hygiene and this in turn fosters the spread of infections that affect the eyes, skin and the intestinal tract. According to the study carried out in Bangladesh by the International diarrhoeal diseases research centre, hand washing can cut diarrhea diseases dramatically by fourty percent (40%) in the under five age group, twenty percent (20%) in the five to nine age group and by ten to fifteen percent (10-15%) in the other age groups. Those who wash hands, food or eating utensils in the unclean water risk catching typhoid, cholera, dysentery, gastroenteritis and hepatitis.

5.3 Conclusions

Although the secondary schools in Mpigi District own variety of sanitation facilities, there is generally inadequate coverage of sanitation facilities in the schools in the District and this is particularly worse-off in rural based schools. The phenomenon is exacerbated by the ever increasing student population due to increase in enrolment for secondary education resulting from output from Universal Primary Education. School administrations seem to find a big challenge with increasing the quantity of the facilities saying that it required relatively large budgets to set-up the facilities.

There is considerable congestion for students trying to access school latrine in most of the secondary schools in Mpigi district. This leads to unhygienic conditions and greatly increases the risk of cross contamination and infection. The useful life of a latrine is reduced to a fraction of what it should be; a ratio of 180 : 1 rather than 40 : 1 which means a feeling rate or five times faster, thus a pit which should have a designed life of five years is reduced to one year. Land availability becomes a problem if latrines need to be replaced so frequently (after every 1 to 5 years).

In addition, the few sanitation facilities are poorly utilized which is a result of many factors including students' background and up bringing, discipline regarding personal hygiene and school and weakness in implementation of sanitation and hygiene policies. For instance, key informant interviews and physical observations revealed poor disposal of solid waste especially where dustbins were ignored but disposed solid materials /waste just outside the bins yet the bins were not necessarily full. The positioning of the facilities it self is not the

one recommended by the Ministry of Health. Key informant interviews revealed that most of the schools have their toilets near classroom structures where students have their lessons from.

The cleanliness of the available sanitation facilities is not at its best. This forms part of the reasons why some of the students ignore using the facilities and instead opting for the bushes around the schools. This exposes the students to illnesses related to poor sanitation and hygiene as evidenced by the cases of students who missed some classes during the school term.

There is a very real and imminent risk of major outbreaks of cholera and other killer diseases. There appear to be high risks of child to child infection taking place every day at a great many rural schools. Such a tragedy will be particularly sad when the whole effort of UPE is to open up better prospects for children and for country's development at large.

Generally, all the issues mentioned regarding sanitation and hygiene depend on the planning and management by the school administrations. They have the power to come up with appropriate policies and programs, design working strategies and they own the resources to change all that may not be right with the schools' sanitation and hygiene for the better.

5.4 Recommendations

There is need to develop sanitation programs under which the challenges should be tackled right from the root rather than attempting to manage the resultant unpleasant consequences.

School administrations need to prioritize the aspect of sanitation and hygiene. The excuse of inadequate financial resources is not genuine enough to explain the inadequacy of the sanitation facilities in the schools. It is expected that the increase in enrolment comes with increase in income to the schools. It is therefore strongly recommended that a separate budget is put aside and strictly observed by the schools to cater for this indispensable service in the schools.

Proper planning for the schools' carrying capacity needs to be considered. This should guide the recruitment of students into the schools where school administrations should not only focus on the income benefits but the wellbeing of the students who enroll. The Ministry of Education it self should conduct regular monitoring and evaluation of school sanitation and hygiene standards as part of its regulatory roles. Schools which do not meet the standards should be closed until they upgrade to desirable and acceptable sanitation standards.

Fundraising drives can be ensured by school administrations especially through school parents, networks of old students associations, sanitation and hygiene program funding agencies, the Ministry of education and several external links that may include friends of the schools and corporate institutions. Fundraising dinners and auctioning can be some of the strategies to be used in this endeavor.

Despite the different backgrounds of the students in the Schools, school administration should design sanitation and hygiene policies and programs to groom students and general school population into practically responsible citizens with good knowledge and practices as

far as sanitation and hygiene are concerned. School administration should conduct regular monitoring and evaluation of the students' wing of toilets and urinals instead of leaving the task to the sanitation prefects and support staff members.

Regular cleaning of the latrines and urinal sanitation facilities should be ensured especially in the morning and evening hours of the day. Regular maintenance should also be ensured by the school administrations to avoid possible break-down of the facilities which would comparatively make repairs more costly than maintenance.

Schools should be encouraged and facilitated to put wall painting, word curving and clay portraits that depict hygiene and sanitation messages. This can be installed in such a manner that there are not easily removed.

There is need to train teachers with suitable sanitation and hygiene strategies while they are still at University or Teachers Training College. This will ensure that by the time they come out, they are already acquainted with sanitation and hygiene issues, strategies for their promotion and the roles they have to play.

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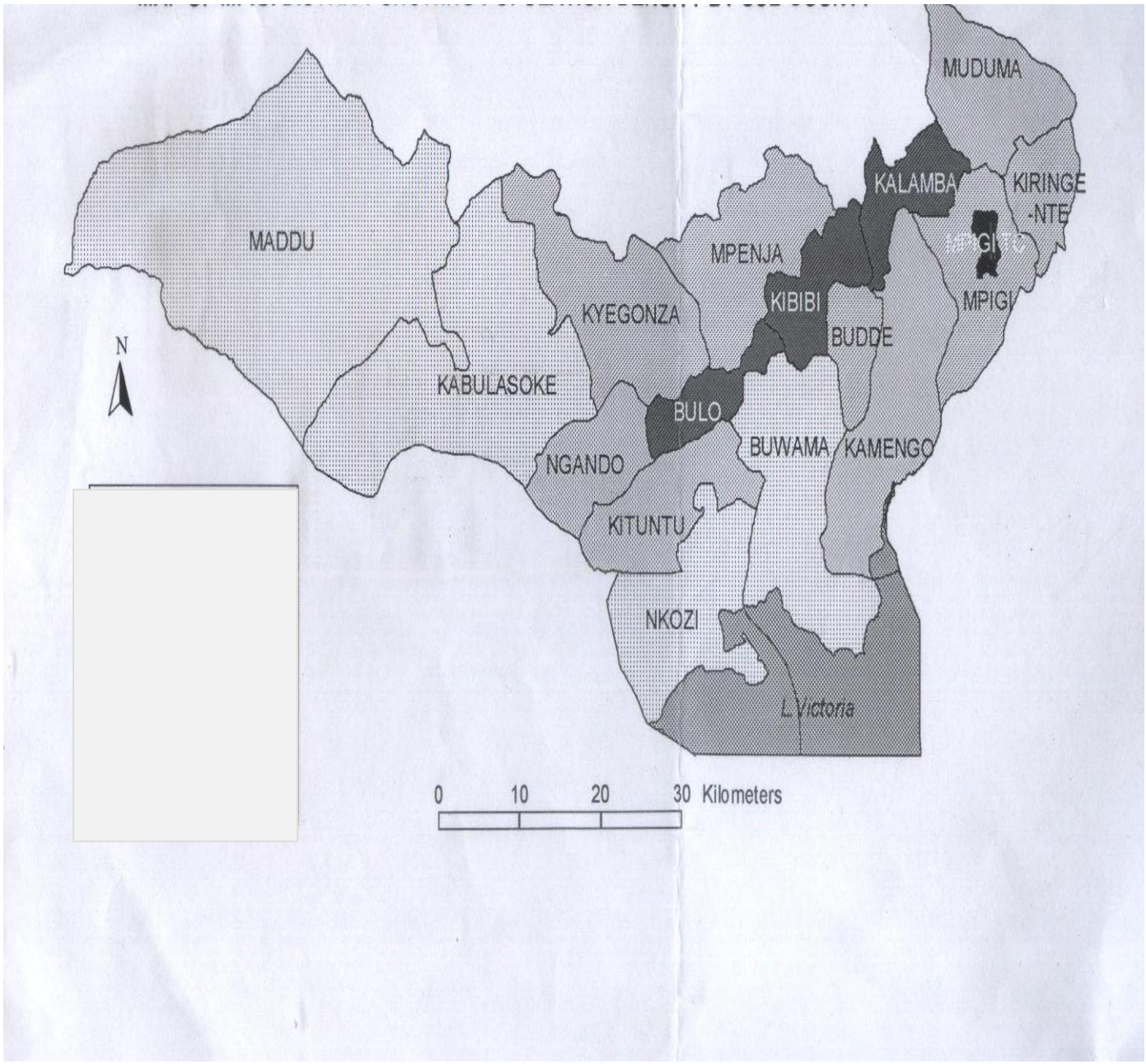
APPENDICES

Appendix 1: A map of Mpigi district showing the sixteen sub-counties



Appendix I1: Questionnaire for students

Dear respondent,

My name is Nansereko Fatuma. I am a student of Makerere University pursuing a Master Degree in Science (Biology of Education). I am currently conducting research on the 'adequacy and utilisation of sanitation facilities in secondary schools'. You have been chosen to be part of this study as a respondent. I therefore request you to kindly give me your honest views on the few questions below. The questionnaire is anonymous because we do not need your name so your views will remain confidential and your school will not be mentioned. Where you feel you can not answer feel free to skip. I thank you in advance.

Location: _____ Urban _____Rural

1. What type of sanitation facilities do you have in your school?

Toilets:	a. Pit latrines	☐
	b. Flush toilets (with running water)	☐
	c. None at all	☐

Urinals	a. Cemented urinals	☐
	b. Soak-pit (a dug hole with stones in it)	☐
	c. We just go to the nearby bush	☐
	d. None, we have only toilets	☐

2. Can give a ranking of the general cleanness of the sanitation facilities in your school by giving a rank of 1 (bad), 2 (average) or 3 (good). Write your ranking in the blank space provided

Toilets:……

Urinals:……...

3. What is your attitude towards using the sanitation facilities?

a. I don't have any problem using them ☐

b. I hate going there but I have no choice ☐

c. Sometimes I use the nearby bush ☐

d. Sometimes I avoid going there ☐

e. I avoid going there altogether ☐

4. Which of the following is true about the sanitation facilities? You may tick more than one answer.

a. Students just *pupu* on top and urinate anyhow ☐

b. The place is never cleaned ☐

c. Even if they clean, the place will be dirty in a short time ☐

d. The place is kept clean as much as possible ☐

5. Tell us about the adequacy of the sanitation facilities

Toilets: a. Enough, there is no overcrowding ☐

b. Not enough but somehow we manage ☐

c. Not enough, there is overcrowding ☐

Urinals: a. Enough, there is no overcrowding ☐

b. Not enough but somehow we manage ☐

c. Not enough, there is overcrowding ☐

7. Tell us whether the following are available

Anal cleansing materials (toilet paper etc) a. Available ☐

b. Not available ☐

Facilities for washing hands after: a. Available ☐

b. Not available ☐

Separate toilets for girls and boys: a. Available ☐

b. Not available ☐

8. Are the hand-washing facilities functional?

a. Most of the time there is no water when we need it ☐

b. There is not water or soap at all, we never use them ☐

c. There is water and soap most of the time ☐

9. Are the facilities enclosed to ensure privacy?

a. Yes, the user is completely not seen from outside while using

b. The user is somehow seen from outside while easing themselves

10. Which of the following is true about the use of hand-washing facilities?

a. Nobody bothers to wash even if there is water

b. Sometimes I wash, sometimes I just go

c. Most students don't bother to wash their hands

11.Have you attended all classes since the term begun?

a. Yes

b. No

12. If no what was the reason you have not attended all classes?

a. Illness, Sanitation and water related (specify)

b. Illness non sanitation and water related (specify)

c. Lack of sanitation facilities

d. Lack of money or scholastic materials

13. Do you know any disease caused by poor sanitation and hygiene?

a. Yes

b. No

14. if yes, what are these diseases?

a. Diarrhoea

b. Intestinal worms

c. Others (specify)

15. Where do obtain water for drinking and other uses at school?

a. Rain water tank

b. Borehole

c. Protected water spring

d. Un protected water spring

c. Others (specify) …….

16. Are there problems you face in getting water from the source mentioned above

a.Yes

b. No

15. If yes what are those problems?

a. Far from school

b. Over crowding

c. Poor quality

d. Low yield

e. Harassment by the villagers

16. What diseases are associated with drinking, bathing and washing using bad or unsafe water?

a. Skin rush

b. Scabies

c. Diarrhorea

d. Eye diseases

e. Others (specify) …….

Appendix III: Interview guide for key informants

1. What types of sanitation facilities do you have in your school?
2. Are these facilities appropriate in the school circumstances or you could do otherwise if you were given more resources?
3. (In case of an affirmative answer to the latter part of the above question) Do you think this inappropriateness of could be affecting how the students use the facilities?
4. Are the facilities you have enough or you could do more if given more resources?
5. Do you provide complementary facilities like hand-washing, anal cleaning?
6. (In the case where they don't have the above) Do you think if you had such complementary facilities they would be fully utilised by the students?
7. Can you comment on the practices of sanitation facilities used by the students; do you think your students have a culture of observing high sanitary standards?
8. What are the major challenges you face in providing sanitation facilities to students?
9. How much blame would place on the side of students in the challenges you face in providing for them sanitation facilities?
10. How do you assess the knowledge/awareness of students with regard to sanitation/hygiene observance and what they actually do in practice?

Appendix IV: Interview guide for FGS

1. What type of sanitation facilities do you have in your school?
2. Comment on the general cleanness of the sanitation facilities in your school
3. What is your attitude towards using the sanitation facilities; is it a place you are happy to go to or you go begrudgingly?
4. What do you have to say about how students use these facilities?
5. Tell me about the adequacy of the sanitation facilities; are they enough?
7. Do you have the following in your school: anal cleansing materials (toilet paper etc) and facilities for washing hands after use?
8. Are the hand-washing facilities functional?
9. Are the facilities enclosed to ensure privacy?
10. What challenges do you face in using the use of hand-washing facilities?

Appendix V: checklist for physical observation of sanitary facilities

Please tick the appropriate box or fill in observation where required. Please tick only one entry unless otherwise stated.

1	**Availability of toilets/urinals**	**a. Available**
		b. Unavailable
2	Number of toilets stances	a. For boys:……
		b. For girls:…….
3	Type of toilets	a. Pit latrines
		b. Flush toilets
4	Anal cleansing material	a. Available
		b. Unavailable
5	Hand washing facilities	a. Available
		b. Unavailable
6	Are hand washing facilities functional	a. There is no water and no signs of recently being used
		b. There is no water but looks recently used
		b. there is water
		c. there is water but no sign of recently being used
7	Are facilities enclosed especially the girls' side	a. doors are there
		b. no doors
8	Privacy guarantee of facilities especially the	a. User can be completely invisible from outside

	girls' side	while using
		b. User can be seen while using
9	Walls are smeared with *pupu*	a. Yes
		b. No
10	There are dropping of *pupu* on top	a. Yes
		b. No
11	General appearance of facilities	a. Generally clean
		b. Generally not clean