

PROBLEMS OF SEWERAGE DISPOSAL IN URBAN  
SETTLEMENTS: A CASE STUDY OF NAMUWONGO SLUMS  
KAMPALA CITY.

BY

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**DECLARATION:**

I Kauma, Pamela, declare that this work evolved as a result of my original independent investigation and has never been submitted to any university or institution for any academic award.

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DATE.....

**APPROVAL:**

This research report has been submitted for examination with my approval as a University supervisor.

Signature.....

Supervisor: Madam Sidonia

.....

Date

**DEDICATION:**

I would like to dedicate my work to my brother Christopher Wakiraza, my friend Lydia Nassali, and my Dad Major Christopher Kibenge. Thanks for your support and encouragement may God bless you all.

## **ACKNOWLEDGEMENTS:**

I would like to thank God for the gift of life and opportunity such as this to achieve education in campus and to overcome all my other challenges. I'm also grateful to the academic staff and my faculty supervisor for their support to my academic programme. Without their assistance my study would have been difficult.

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**ABBREVIATIONS:**

<b>LC</b>	:	Local Council
<b>NW &amp; SC</b>	:	National Water and Sewerage Corporation
<b>UNICEF</b>	:	United Nations International Children's Fund
<b>VIP</b>	:	Ventilated Improved Pit Latrines.

## **CHAPTER ONE:**

### **1.0. INTRODUCTION.**

Sewerage waste disposal is a major sanitation component with a direct relationship with health, well-being and prospering of a nation through it has not been given much impetus.

Right at primary level, proper sewerage disposal is neglected by community members. This has led to frequent epidemics of diarrhea, dysentery, typhoid and worms common among the under fives in both urban and rural poor communities. World wide, 80% of the diseases realized are related to wastes (Wanyira, 1989: 23). This implies that most diseases can be prevented if individual house holds in communities respond positively to proper waste disposal campaigns.

This study, there fore explores the problems of sewerage disposal in urban settlements and the steps that can be taken to encourage active participation in proper sewerage disposal.

The chapter covers the back ground of the study, the statement of the problem and research questions, purpose of the study, specific objectives, and significance of the study and the scope of the study.

### **1.1. BACK GROUND OF THE STUDY.**

In the 1960's sewerage disposal and sanitation as a whole was safe both in rural and urban areas of Uganda. The urban areas had organized refuse collection and sewerage where as the rural areas had at least some form of pit latrines. The environmental sanitation and rector control programmes fully functioned along side a very active health inspectorate.

The trend has however changed over the past 36 years; sewerage disposal has become so unhygienic in slums of urban areas. Many house holds lack any proper means of excreta disposal. Indiscriminate disposal of excreta has become common coupled with garbage

heaps in the drainage systems especially in major towns and their suburbs, for instance, in Kampala town, major drainages like Nakivubo drainage is full of sewerage both liquid and solid yet its original purpose is to drain off rain water. This has thus led to a high percentage of infant deaths due to sewage related diseases, according to Mulago out patient records (1990); 30% of infant deaths were due to waste related diseases.

Such high figures rendered it necessary to investigate the sewerage disposal problem at community level.

Despite government efforts to ensure sound sanitation coupled with the need for a health environment as required by the 1995 constitution Article 39. Over half added into the poor sanitation era. Uganda is yet to see a reduction in poor sanitation especially poor sewerage in urban setting. Reported cases of diseases due to poor sanitation especially related to sewerage disposal are always shooting up in informal setting implying a high percentage increase.

Kalosky (1998) hinted that water, sewerage and sanitation are responsible for the killing of three million children a year and hundreds of millions of infectious diseases like Malaria, Dysentery, Diarrhea and Typhoid among others all result from improper sewerage disposal which is mainly characterized of urban settlements.

However, Prost (1978) responded that, the infections in industrial communities greatly reduce as a result of the sanitation revolutions. Because of un planned settlements- coupled with increasing urban population yet hand resources are fixed. There is a shortage of facilities that people need of which sewerage disposal facilities are part like poor sewerage disposal in urban settlements.

The most unfortunate feature is that waste generation is always increasing due to population increase and this seriously threatens health and can result into increased mortality especially child mortality not addressed.

Thus the sewerage disposal problem especially in urban settlements presents serious threat to human life and the environment in general as all Ugandans are entitled to a health environment.

Given the country's historical experience and political economy, land impoverishment among others, people were forced to move to urban areas with informal urban settlements with characterized sewerage disposal problems were formed. This leads to increase insufficiency of facility resulting to improper sewerage disposal.

As the sewerage disposal problem in urban settlements seeks greater heights, the need understand circumstances surrounding the problem is crucial. As such interest is focused on the people living in the area hit most by the problem (slums) not only as a source of all circumstances surrounding the problem but also as path way for the message geared towards reducing the sewerage disposal problem. The people in slum areas (urban settlement) there fore form a good source of circumstance surrounding the sewerage disposal problem.

## **1.2. PROBLEM STATEMENT.**

The sewerage disposal has become a universal problem in developing countries as justified by the UNICEF (1994), which reported that by 1990, 2.6 billion people worldwide were without proper means of excreta disposal facilities. The gap widened in 1994 to 2.7 billion people.

This gap is attributed to lack of active involvement of communities in proper sewerage disposal handling with every coming year in Namuwongo community.

In line with UNICEF findings, studies which have been conducted in different parts of Uganda reveal that a quarter of the population covered in the studies lack proper sewerage disposal facilities.

Fore instance a survey by Mbale school of Hygiene (1993) discovered that 20% of the studied population in Masindi lacked any form of pit latrines. Among those who had pit latrines, only 7% of the pit latrines were in good conditions similarly, RUWASA (1994) revealed that 20% of homesteads in the districts of Kamuli, Iganga and Mbale had scattered faeces. This was contrary to the knowledge statistics which showed that 92% of the people in the 3 districts were knowledgeable about the dangers associated with indiscriminate sewerage disposal of faeces. This symbolizes that there are certain hindrances to the practicing of hygiene sewerage disposal regardless of the sensitization campaigns, which are worth investigating.

On the other hand, sewerage related diseases have become prominent in Uganda. These are mainly concentrated in urban slummy areas like Namuwongo, holding many people per Sq. km unlike in rural areas. Fore instance, in Oct 1996, Makerere, Kivulu was evaluated of its residents due to an epidemic of dysentery like wise in January 1997 Walukuba estates were almost evaluated of their residents due to poor sanitation standards that threatened the health of about 120.000 people, such occurancies indicate that sewerage disposal has become a serious problem in developing countries, this requiring measures to be undertaken to stimulate maximum responses.

However, the internal sewerage systems have broken down both national water and sewerage cooperation and city council have been made to replace these by standing pipes and out side latrines. In some instances there have been efforts by the people to construct their own toilets mainly the pit latrines, VIP latrine flush toilets and septic tanks which are properly served with water and they have flushing toilets inside their houses.

Therefore, the issue that needs to be understood is the nature of sewerage produced in this area, the technique of disposing this sewerage and the problems associated with this sewerage and its disposal in urban settlements.

### **1.3. RESEARCH QUESTIONS.**

1. What is the type of sewerage generated in high density housing areas?
2. Which methods of sewerage maintenance are in use?
3. What problems are experienced by the local authorities in sewerage maintenance and disposal?

### **1.4. PURPOSE OF THE STUDY.**

The general purpose of the study was to analyze the current sewerage disposal problems in relation to the human and biophysical environment in Namuwongo Kampala.

#### **1.4.1. SPECIFIC OBJECTIVES.**

1. To identify the nature and the type of sewerage that is generated in high density housing area.
2. To examine the different techniques that is used for improving sewerage disposal in high density housing area.
3. To find out how the communities in Namuwongo area maintain the sewerage disposal facilities as well as investigate the role of urban authorities like city council and national water and sewerage cooperation in maintenance of sewerage facilities in such urban settlements.

### **1.5. SIGNIFICANCE OF THE STUDY.**

This study was important because it helped in improving the apparently poor sewerage disposal methods in urban settings. In the urban communities in the case study area, the study provided a basis for proper planning sewerage disposal.

Above all, the study created awareness, through helping people to know about the types of sewerage and how to better dispose off the sewerage range.

### **1.6. STUDY SCOPE/ GEOGRAPHICAL SCOPE.**

The Namuwongo slum which was the study area for the research was found in Makindye East Division, Kampala urban District. The area was located between longitudes and latitudes. Namuwongo slum covers a small portion of Makindye East Division which was approximately 24 square Kilometers.

Namuwongo slums were situated on the central Uganda plateau having gentle slopes characterized of the land scape. The gentle slopes are separated from each other by broad uniform valley slopes, which descended into papyrus swamps before the area was reclaimed for settlements. The underlying rocks are generally the Buganda- Toro systems of central Uganda rising between 1219-1524 meters above sea level (long hands 1974).

### **1.7. SAMPLING SCOPE.**

The study was carried out in Namuwongo a suburb in Kampala city, among these people in slummy house holds and self contained residential houses of the area.

The study used house hold aged 18 and above, LC1 chairman, the health inspector and city council officials as key informants.

## CHAPTER TWO: LITERATURE REVIEW.

### 2.0. INTRODUCTION.

This chapter presents literature review on the following;

1. The nature and type of sewerage generated
2. Methods of sewerage handling and disposal.
3. Problems experienced in sewerage handling and disposal.

In essence of the literature review, it was noted that the previous researchers identified the need to involve community members in community development programmes, though they did not carry out on in depth investigation on the limitations to active participation in these programmes.

Most studies deal with community participation and sanitation programmes are general. They do not specifically focus on a particular component of sanitation.

Fore instance Kaburungi (1995) Kabasomi, (1996) Muhwezi (1994) all focus on sanitation in general and specifically in rural settings. this necessitates carrying out studies in urban slum are with bigger numbers of people exposed to social problems such as improper sewerage disposal and the related consequences within areas of the same Kilometers in rural setting.

Given the above gaps in the existing literature, the researcher embarked on a study that focused on problems of sewerage disposal.

Previous studies have revealed that improvement in sanitation has been limited by people's attitudes towards sanitation.

Fore instance, UNICEF (1990); mentioned that, people in Tanzania did not perceive ventilated improved pit latrines as better and hygienic means of excreta disposal as compared to the bucket latrines which they preferred. They argued that the bucket latrines



were cheaper than the VIPs and yet they served the same purpose. Such views held by community members may influence their participation in sanitation projects.

In Uganda, views held by community members about sanitation are not different from those identified in other countries, for instance, the same happened in Karamoja where the people were provided with a pit latrine and they used it as a granary for keeping in their harvested crops for storage purposes.

A survey report by Mbale school of Hygiene, (1991) revealed that excreta disposal in Masindi District was so poor especially in Kibiro and Buhanka areas, due to the fact that people in these areas attached very little importance to latrine construction and use 32% of the population that was studied did not have pit latrines while only 7% had good ones. Similarly, Asingwire (1993:2) discovered that some people in the district of Kamuli, Mbale, Iganga did not see any advantage of having san plat latrines while a sizeable number of people attributed them to only dressing away bad smell. This limited their participation in RUWASA sanitation project.

### **2.1. The Nature and Type of Sewerage Generated.**

According to the glossary of useful wetland terms and definitions wetland booklet No. 15 efficient is Liquid waste produced by human population domestic animals and industries, when effluent is conveyed in a sewer then it is called sewerage. In this case we are concerned about excreta water drainage, waste water disposal and waste from livestock and poultry premises.

It was alleged that some of these means of sewerage disposal include use of polythene bags which are later emptied in banana plantations and business. The common practice of women wrapping faeces in polythen bags and throwing in heaps was an alternative of latrines. To make matters worse, children in this area were not allowed to use latrines but defecate in home yards.

In Uganda, the cultural beliefs of people have been found out by several researchers to perpetuate improper excreta disposal. This is a concern of Zerembezi (1987) who asserted that, people maintain their cultural beliefs and practices even as far as excreta are concerned and these beliefs are firm and different to alter the same view. She noted that children's faeces in the central region are not thrown in latrines, instead girls faeces are heaped on the banana stem of Nakitembe (Banana stem) while boys faeces are heaped on banana stem of "Embidde".

However, there could have been too much generalization in their study for it may not be that all people in the central region practice them. She is further supported by Savannah (1989) whose findings in Northern Uganda and some parts of Eastern Uganda revealed that a woman who has never given birth to a child was not allowed to use pit latrines for fear of dying still barren if she violated that cultural belief. In the same study, expectant mothers who were due to deliver were found out to use latrines for fear of the baby falling in the latrine while squatting. Therefore, it is clear that cultural beliefs affect people to respond to proper methods of sewerage disposal for example, in pit latrines it is worth nothing that even cultural beliefs block construction of latrines in some areas.

On analyzing the quality and quantity of excreta disposal facilities. Muhumuza et al (1986) found out that 25% of the homes had pit latrines but the majorities 75% were of very poor quality. Some had fallen into dis-use and filled up, others were poorly ventilated or too small to provide reasonable space for the use.

## **2.2. Problems Experienced in Sewerage Handling and Disposal.**

On possession and use of latrines at home, the situation outside Uganda exemplified by findings in rural Bangladesh (Rahman et al 1985) found out that around 11% of the households had fixed latrines, water sanitary or pit which would be used by the adult and into which excreta for children would be thrown. Among households without latrines, they observed faeces would be left where first deposited whether in business for adults. In the courtyard for children. That is why as a solution to ill health they suggested that effects should be directed towards improvement of house cleanliness through the use of low cost

latrines with community health. Education being applied to motivate people to use these technologies.

A similar situation is reported to have been typical in a village by Ecmordorfal (1981) while looking at the role of women as participants and beneficiaries in water supply and sanitation programmes. They observed that small children might be the greatest promoters of house holds because they defecate indiscriminately. They say that such practice was a risk to health as clean up after that yet spoiled fingers and clothes help to spread pathogens.

As partial safe guard facility, they observed that special sewerage disposal facility possession and high risks of diseases contraction in such independent societies. This is yet confirmed in another independent study in Bangladesh by molfressrt (1977: 2) who argued that: "Hygiene disposal of human excreta is one of the most pressing public health problems and that of wastes (excreta) and the state of health, the level of wellbeing and prosperity of the population".

Poorly disposed excreta and waste water lead to a lot of health problems fore instance, Bagonza (1992) observed that the garbage thrown in the channels creating stagnate water pools which become breeding points for vectors like mosquitoes that cause Malaria. This is supported by Niagara A (1995) Kanya S (1992) and Halsan (1986) in Dar-es-salaam who asserted that " the open drainage system, which is the clogged, created a fertile breeding ground for Malaria spreading mosquitoes Halsan (1986:98)".

Poorly disposed excreta also lead to many health problems. For example, Oluka (1996) pointed out that hook worms spread through fiscal pollution of soil. According to her the worms eggs enter the soil after a person's through the skin especially hands.

Basing on the above findings from previous studies it is deemed necessary to examine if different perceptions held by community members especially in urban areas have an impact on their participation in proper methods of sewerage disposal.

## **CHAPTER THREE:**

### **3.1. METHODOLOGY.**

This chapter presents the methods which I used to accomplish the study. They include sampling and data collection techniques which were employed in the study. It entails the methods by which the researchers used to process and analyze data plus the expected problems which were encountered during data collection and ethical issues.

### **3.2. RESEARCH DESIGN.**

The research was conducted following the general survey technique. The basic aspect of the research was sewerage disposal in urban settlements of Namuwonge. The variables to be investigated upon were the type and nature of sewerage, techniques of sewerage disposal and the problems associated with sewerage and its disposal. Also possible solutions to these problems. Examination and analysis were done in the process and stages of sewerage right from generation to final disposal.

### **3.3. SAMPLING FRAME WORK.**

This technique relied on cluster sampling design in which Namuwongo area was divided into three depending on the nature of housing i.e. shanty/ slum built houses as well as residential areas. House holds and L.C officials from the three natures of house holds and concern of the people in the area from different levels were used to give information.

### **3.4. OBSERVATION AND RECORDING.**

Apart from the questionnaire and interviews, the researcher used direct observation. This method involved variables like types of sewerage, wastes techniques. Sewerage disposal for example the nature of toilets, broken pipes, bathrooms facilities, drainage channels, and animals shades and wastes.

### **3.5. LIBRARY RESEARCH.**

This was used basically to collect secondary data or information about sewerage disposal. Technical staff and administrators, among these the city planner in charge of Makindye division treasure, the water officer and town agents were used as key informants.

### **3.6. DATA COLLECTION.**

A number of methods were employed in collecting data.

#### **3.6.1. SELF ADMINISTERED QUESTIONNAIRE.**

Here the researcher constructed three sets of questionnaire, one for the policy maker another for the technical staff and the last for the house holds. In these techniques both open and closed ended questions were used. The researcher distributed the questionnaires to the respondents who filled them at their own time and this type of questionnaire was used on these people who knew how to read and write these people included the policy makers like L.C.1 chairman and technical staff like the city planners of the areas

#### **3.6.2. INTERVIEW.**

This method was administered on those who lacked knowledge that is to read and write and even those whom the researcher expected to have information but do not want questionnaires. The respondents to be interviewed using this method were chosen on the level of education. This was virtually due to the fear that most of them can not read or write.

### **3.7. DATA ANALYSIS.**

Data analysis involved analysis based on quantitative and qualitative means involving the development of a simple statistics including a pie-chart percentage while qualitative and descriptions. After collection were edited, coded, analyzed and interpreted.

### **3.8. ETHICAL ISSUES.**

The researcher team considered hygiene an important issue in the welfare of the citizen. As an ethical consideration, the researchers endeavored to seek informed consent from the local authorities before data collection. Respondents were also assured of confidentiality.

### **3.9. LIMITATIONS/ ANTICIPATED PROBLEMS.**

When carrying out research, the researcher faced the following challenges as below.

#### **3.9.1. TRANSPORT COSTS.**

The researcher spent money while moving from one place to another looking for information correspondence. The respondents were not willing to reveal information of the organization.

#### **3.9.2. TIME.**

The time given to the researcher was not enough for her to get information.

#### **3.9.3. INADEQUATE REQUIREMENTS.**

In most cases the requirements to be used were not enough for the researcher to collect the data.

## CHAPTER FOUR:

### 4.0. DATA PRESENTATION AND ANALYSIS

#### 4.1. Introduction

As already indicated, the primary aim of this study was to find out how sewerage is disposed in an urban settlement of Namuwongo. This chapter presents the results. The presentation is organized around the objective of the study, which constitute the themes under which the results are presented and discussed. However, the presentation begins with a report concerning the general observations that presentation that has been made on sewerage and sanitation in the study community.

#### 4.2. An overview of Sewerage disposal and sanitation in Namuwongo.

This study was carried out in response to the act that despite the deteriorating sewerage disposal facilities in Namuwongo; no efforts have been made by the concerned department of National Water and Sewerage Corporation in form of proper planning to improve the sanitation.

The deterioration sewerage disposal and sanitation especially in the slums of this area was confirmed by many respondents.

Residents expressed lack of toilets. There was a general blockage of what used to be toilet channels. Almost 20 houses in some causes used one pit latrine.

This state of poor sanitation is left more during the wet season when the places are dump and latrines surrounded by human feaces all over. As can be seen from the above study, there is sufficient evidence that, there has been deterioration state of sewerage disposal and sanitation facilities in Namuwongo. This gave enough justification and impetus for the researcher to carry out this study to establish the factors and techniques involved in sewerage disposal in this area and to see what effect it has on the residents of the area.

#### 4.2.1. Major Research Findings.

This is a presentation of the findings; it provides explanation to the research questions on the basis of which the study was conducted. Objectives of the study are mainly met in this part of the study.

#### 4.2.2. Form of Waste Generated from various activities in Namuwongo Area.

This study was set out to establish the types of sewerage wastes produced in Namuwongo to ascertain this, the following information was established.

An attempt was made to identify the major forms of wastes generated in Namuwongo. Frequency counts for the precoded responses were tabulated as below;

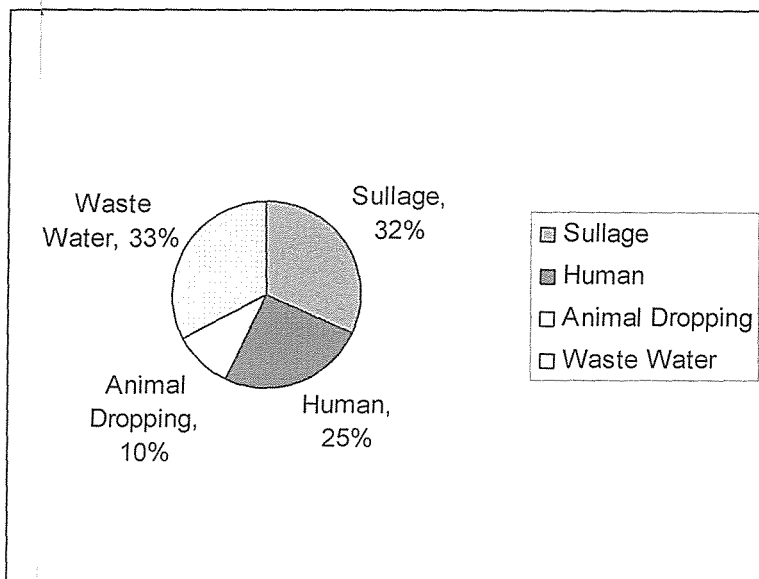
##### Forms of waste generated from various activities in Namuwongo area.

Form	No. of Respondents	Percentage
Human excreta	15	25
Animal droppings	06	10
Waste water	20	33
sullage	19	32
<b>Total</b>	<b>60</b>	<b>100</b>

Thirty three percentage of the respondents reported waste water as the major form of wastes generated while 32% reported sullage. A quarter for the respondents reported human excreta, which put man's health at risk. Few latrines exist compared to the latrine facilities. Only 10% of the respondents reported animals droppings as a major form of waste generated from animal dropping of cows and hens were majority reported, the area being dense, animals are few and 10% that reported so are likely to be coming from those small position of the Namuwongo area, hence the low percentage response.



**Forms of Waste generated.**



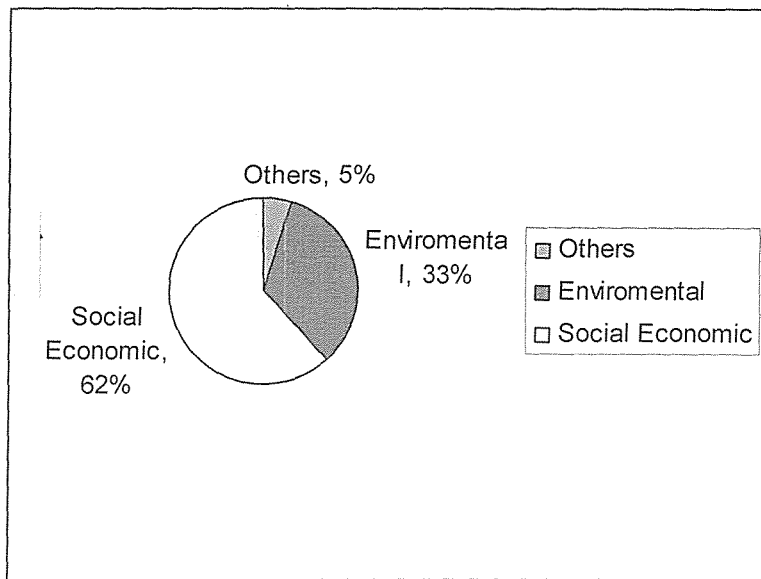
**Problems associated with sewerage disposal in Namuwongo.**

An attempt was made to investigate / find out the major problem associated with sewerage disposal in Namuwongo area.

Frequency counts for precoded responses were tabulated as below:

Problem	NO. of Respondents	Percentage
Social economic	37	62
Environmental	20	33
Others	3	05
<b>Total</b>	<b>60</b>	<b>100</b>

**Chart 3: Problems associated with sewerage disposal.**



Sixty percent of the respondents reported social-economic problem emanating from inappropriate sewerage disposal. Diseases like dysentery, diarrhea and much other water borne diseases were reported to have attacked people, through not a very serious note. The respondents argued that some diseases when got reduce the individual's capacity to work in additional to causing economic stress, as medical expenditure increase to protect health.

Respondents pointed out many other social economic problems but mainly drained on the health problem. The high proportion of respondents reporting this problem is probably due to the fact that socio- economic problem. (health problems mainly) directly affects human health and the basic requirements of man hence most people see them as the major problem on third of the respondents (3%) reported environmental problem, in which they cited problems like bad odour, polluting the air, polluting of surface water sources when it rains, flies and insect thus making the whole generally un inhabitable.

Another finding which demonstrates that the community in Namuwongo realized that poor sewerage disposal affects their health pointed out the dangers of using the already filled up latrines. Bathing from latrines and toilets and using the road side, bushes as

another source of excreta facility. Other participants had reported that they use latrines and toilets for bathing.

Ten percent of the respondents “other” problems and these mainly rotate around conflicts amongst neighbors whereby some latrines are constructed near other people residents, hence putting them at a risk of bad odour and other problems when such latrines get time conflicts seldom occur hence the low proportion of respondents that reported problems at the time of study.

Some participation however argues that social awareness of health and sewerage disposal is hampered by low levels of education among the residents and their cultural beliefs. In fact the following extracts are quotations from what was said by the key information. In fact the low level of education of most people in this area doesn’t pause them to see the dangers of poor sewerage disposal to their health, that is why we see people using filled up latrines (Buveera” the bush, and also bathing from toilets and pit latrines also allowing waste water to flow.....(Mariam from Kiwafu Zone LC).

Although ethnic harmony exists in this area, it should be noted that this ethnic diversity is associated with different cultural benefits which in turn influence people’s practices as for excreta is concerned. For example, here in Namuwongo, some tribes don’t share latrines with in-laws. This practice is common with the Basoga and Baganda. Also some tribes like those from Northern Uganda do not use latrines especially pregnant women for fear of unborn baby falling into pit latrine while squatting and dying barren cone.

It was further observed that study participants who did not perceive any problem with sewerage disposal methods (poor) were those who owned standard flushing toilets with water in their houses.

It was also found out that, s one resident’s perceived lack of bathing shelters as a sanitation problem and some places were logging because of poor drainage system. This

resulted into mosquito's breeding grounds and it is well known that mosquitoes spread malaria.

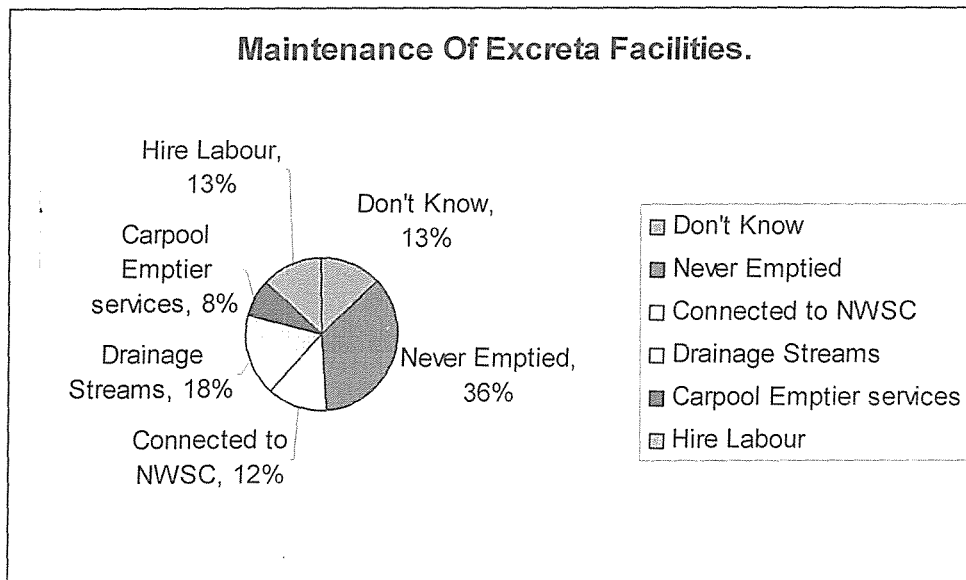
No wonder sickness due to malaria was widely reported during the discussion.

**Maintenance of sewerage disposal facilities in Namuwongo.**

After establishing how people of Namuwongo expose off sewerage and after realizing the facilities used in sewerage disposal, the researcher was interested to know how people maintain these disposal facilities. To get this information, the researcher asked her questions to the respondents. How do you maintain excreta disposal facilities?

**Maintenance of excreta disposal facilities.**

Method used	No. of Respondents	percentage
Hire labour	8	13
Carpool emptier services	5	8
Drainage streams	11	18
Connected to NWSC	7	12
Never emptied	21	35
Don't know	8	13
<b>Total</b>	<b>60</b>	<b>100</b>



According to the respondents, it was realized that most people with a big percentage don't empty their excreta disposal facilities. They said that their toilets never emptied. Even if they are filled to capacity (to the brim) what they do is just to stop using the facility again. Most of the respondents in the slum areas were tenants and therefore said that their so called landlords and house owners hire labour to maintain the facilities and they explain that for them they are not bother with because it is the work of the house owner to ensure that such facilities are maintained. A relatively bigger percentage of the respondents indicate that their facilities direct the products to the drainage streams. These drainage streams are made and maintained by the National Water and Sewerage Corporation.

They said that according to the city plan, people who use flushing toilets are supported to know the planning of how the NWSC main pipes directed and they are supposed to direct the excreta from their household to the main streams pipes and channels.

A very small percentage 0.3% of the respondents were seen to be of the service of the cesspool emptier which is used to empty most of these toilets even those aware of the services expressed the worry about the higher costs charges for the services.

According to the observation of the researcher, it was the duty of each household to maintain its toilets and bathrooms facilities. It was observed that for those in slummy built areas, the toilets and bathrooms are locked every after use and it's the duty of each house to provide proper maintenance cleanliness due to lack of bathroom facilities, the respondents said that they bath at right in front of their houses and leave the waste water to find its way or join trenches provided as the Drainage system.

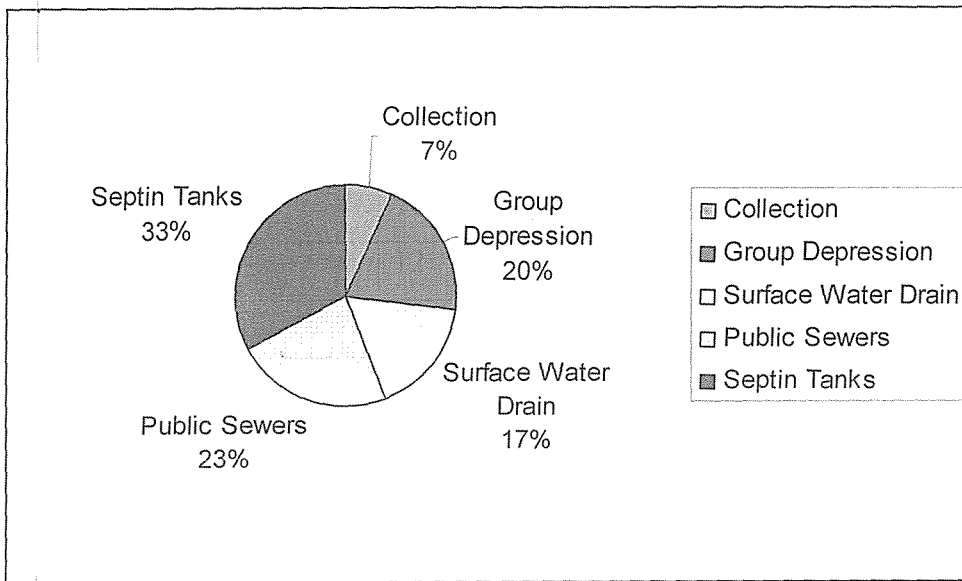
On sullage disposal, respondents were asked to show whether they dispose off their sullage in septic tanks, public sewers, surface water drains or whether it is left to collection the ground depression. This question was asked to those from the self-contained residential houses and flats.

**The Means of Sullage Disposal.**

Sullage disposal means	No. of Respondents	Percentage
Septic tanks	20	33
Public sewers	14	23
Surface water drain	10	17
Ground depression	12	20
Collection	04	7

**Source:** from the field by the researcher.

**Means of sullage disposal in Namuwongo.**



Because most of those self contained houses are built on city council plans and because they use flushing toilets, the sullage from these houses is disposed off in septic tanks. This was realized as a big percentage according to the respondents.

Most of this sullage these houses join the public sewers, which are constructed and maintained by the National Water and Sewerage Corporation in Gaba.

It was also realized that a reasonable amount to this sullage is felt to join the surface water drainage and end up in the main drainage channel (Nakivubo) while a very small percentage use the ground depression mentioned of sullage.

#### 4.3.2. The role of NWSC disposal in Namuwongo.

Some of the respondents interviewed in the study showed awareness of activities of NWSC as to help the residents rectify the problems of sewerage disposal. These selected respondents were established to be mainly those in the flat area and a few from the slum built areas (mainly those working in).

Frequency of the presence of NWSC workers	No. of Respondents	Percentage.
Daily	3	69
Once a week	12	20
Once in month	2	03
After one month	0	-
Do not come at all	43	70.1

#### 4.3.3. The Role of city council and other policy makers in sewerage disposal in Namuwongo.

The respondents revealed that in addition to NWSC, it's the role of city council to ensure proper sanitation in the city. Most of the respondents revealed that city council has a health inspection team, which ensures that sewerage is properly disposed and it also has to ensure the technique of sewerage disposal those which are e proper.

Majority of respondents revealed that the city council is properly executing their duties in ensuring that there is proper sanitation in the area. However, the rest (28.7%) of the house holds revealed that it is their duty not the city council to ensure that there is proper sanitation in homes. These respondents were mainly those in self-contained official help

them whenever there is a problem. For example, the technical (breakdown of pipes) they report to the LC1 official is who also supposed to immediately rectify.

Seventy percent of the respondents reported never to have seen any NWSC officials only once a week. No respondent reported seeing a NWSC after every month.

The higher number of respondents who reported never to have any official probably due to the fact that such respondents stay in areas that lack portable water facilities. However, the findings overall reveal that NWSC is not doing its supervisory N/C well. This partly explains the inappropriate sewerage disposal problem in Namuwongo.



## CHAPTER FIVE:

### RECOMMENDATIONS AND CONCLUSIONS

#### 5.0. Summary data collections.

One third of the respondents (33%) reported waste water as being the major form of waste generated in Namuwongo while animal droppings were the least generated in Namuwongo waste with a frequency of 10%.

Slightly more than sixty percent of the respondents (63%) reported "Rehabilitation" techniques as the best technique for improving sewerage disposal while communal latrines were the least proposed techniques for improving sewerage disposal as evidence by the 10% reported so.

Also slightly more that (60%) reported social-economic problem while only a third of the respondents (33%) reported environmental problem as the major problem associated with sewerage disposal.

Majority (63%) of respondents reported of septic tanks as the most widely used means of sullage disposal while waste collection was reported as the least means of sullage disposal. (70%).

Majority of the respondents (70%) reported that NWSC had not performed its duties.

Majority of the house holders (60%) reported receiving health information.

Slightly more than sixty percent of the respondents (60%) technical remedies disposal awareness was the least recommended remedy for sewerage disposal.

### 5.1. Recommendations.

Having noted the poor methods of sewerage disposal that exist in Namuwongo, the researcher deemed it crucial to make factual recommendations so that ammonia impending proper sewerage disposal in the area can be rectified high government offices.

#### Whether or not NWSC has performed

Sullage disposal means	No. of Respondents	Percentage
Yes	18	30
No	42	70
<b>Total</b>	<b>60</b>	<b>100</b>

**Source:** from the field by the researcher.

Incidentally most of these respondents (70%) said that NWSC does not properly perform their duties. In the area 30% said that NWSC has helped them in proper sewerage from their areas.

The respondents who reported NWSC workers help is disposal off sewerage properly in their areas revealed that they do not help household workers in their work of disposing sewerage. This shows that the residents of Namuwongo have not greatly complemented the efforts if the NW&SC to manage sewerage disposal properly.

The study established the frequency of the NWSC workers in the area. This is evidence by the following table which shows the frequency of NWSC workers in the areas.

#### Frequency of NWSC workers in the area.

The implementing of the recommendation mainly needs the complementary efforts of the city council and the National Water and Sewerage Corporation, the government and the general community. They will be of great help to the local community, administrators, the policy makers and policy implementers.

The government and other NGOs with interest in environment sanitation should come in among other, construct policy toilets, sensitize masses on indigenous technologies of dealing with actual sound sewerage disposal, therefore, the government should ensure sound waste storage and collection as the first logical starting point so that the problem of sewerage in high density areas is tackled and people's lives ensured.

#### **5.1.1. Physical Planning**

In the light of the problems identified, it is recommended that proper physical planning be observed in the town and their physical plans made therefore strictly be adhered to.

This allows the city council and NWSC workers access to virtually all parts of the town to collect the ammonia. For example, where there has been breakdown in sewerage systems, proper physical planning would cater for access road side lanes, sanitary lanes and drainage channels and pipes.

Also proper physical planning would allow for the provision of public toilets in some destinations there should be proper channeling of waste water and excreta to the main channel which should lead to a treatment like a pond. It would be easier if sewerage ponds were constructed in some places where sewerage is connected for its treatment. In this view, a professional in this field should be employed.

#### **5.1.2. Generation and Commitment of Funds.**

It is also recommended that city council and National Water and Sewerage Corporation commit more funds and personal to manage sewerage disposal. It has already been noted that whereas these two have a will in improving sewerage management they have the capacity to implement proper management systems.

In view of this therefore, it is recommended that first more revenue be raised by sewerage management and that personal be committed to sewerage disposal management. It is hoped that the generation and commitment of more funds to sewerage disposal and management would see more public latrines being constructed, drain channels

constructed and improved upon sewerage pounds being constructed and channels for treatment of this sewerage made available.

In addition, generation of funds can help the city council and NW&SC to employ more personnel for sewerage disposal management as well as motivate them through means like better remunerations and provision of protective clothing. The ponds can be raised locally through taxation as a source of government revenue, fines, attracting donor agencies and donor funds from other countries as well as the private sector.

### **5.1.3. Promotion of Public Awareness.**

It must be noted that population or community participation plays an important role in the success of any project especially if the people themselves are key players in an area where the project interests are vested. In relation to sewerage disposal management, however, for the public to participate constructively, they need to have an adequate knowledge regarding proper sewerage disposal management.

The recommendation therefore is that authorities in KCC and NWSC and the Health Ministry should promote public awareness concerning proper disposal like using polythen bags, open space disposal and the use of filled up latrines for purposed of convenience which are commonly used in the area. In addition, the promotion of public awareness would make community in disposal management (which is the next recommendation) more should since the public would not be participating from a point of ignorance. Public awareness concerning sewerage disposal management can be promoted through holding community meetings, public seminars and workshops or through posters “KEEP NAMUWONGO CLEAN).

### **5.1.4. Community Participation.**

Sewerage disposal can no longer be a sole responsibility of the city council and NWSC. Those generating the sewerage systems, it is first essential that the understanding and cooperation of residents (citizens) is obtained. They should be encouraged to provide

proper way, but also to co-operate by separating sewerage at home and see that sewerage is disposed where it is supposed to be.

The success of any effort in this direction needs the co-operation and participation of the people concerning and much energy has to be invested to raise public awareness of the importance and benefit of public participation.

However, the success of community programmes will also require parallel provision of other services and facilities related to sewerage and drainage systems and services.

Another condition for success could be upgrading of political organization of the country improvements that require active environment and participation of men and women and staff with clear objectives.

Effort should be made to have sewerage disposal management activities once amount to raise awareness and keep the place (Namuwongo) clean. Roles of communities should be clearly spelt out as to what they are supposed to do while failure to perform on part of the community can be reinforced by the law and environmental laws in place. Such that those who inappropriately dispose of sewerage are punished.

#### **5.1.5. Sewerage Waste Recovery.**

Having noted cow dung and poultry as another type of sewerage, their recovery may promote an important source for income for many households especially in terms of economic hardship. The management of this type of sewerage is the primary role of this type of owners of their animals. Therefore, if efforts are made to appeal to those owners of cows and poultry to properly manage the wastes of their animals, it could be a source of income to them. Cow dung can be used as good manure for agriculturists and therefore if well managed and preserved could earn income to ensure cattle keepers mostly keeping them on Zero grazing basis in this area.

In another way Cow dung can be used to generate electricity which is very useful to these people in the area and therefore it should be properly managed and presented. People only need awareness and markets for these materials. For example, the Zabbalea of West Africa derives most of their income from sale of sewerage waste to local industries through network of specialized dealers (Middleton 1990).

#### **5.1.6. Private Sector Involvement.**

From the view point of environmental health managements, the collections, disposal and treatment of sewerage is usually considered to both responsibility of the government through National Water and Sewerage Corporation (NW&SC) of the Kampala City Council (KCC) however, NWSC and City Council in a low income country like Uganda is often unable to cope up with the ever growing volume of sewerage, the growing population and above all the mushrooming of houses and human settlements which are complex. This is because of poor planning of urban centers, inadequate public funds, lack of facilities and equipment and often poor trained staff and rampant corruption of official involved in Sewerage management.

To deal with these problems, Kampala City Council (KCC) often chooses capital intense sewerage options usually over looking at the strong informal and private sector. For example, the introduction of cesspool emptier vehicles bought or donated is expensive but appropriate technology which may work better but the problem only lies on where the content can be deposited or dumped in some countries, the contributions of the internal sector for formal. Sewerage disposal management systems is slowly being recognized and valued and always are being sought to integrate public and private sector, in order to avoided competition but improper service.

Private companies of Community Based Organizations are effective in form of planning and implementation as well as managing of resources to specific targets. Many municipalities and city council are performing public private partnership sometimes under pressure for structural adjustment programmes. And these are delivering in the long run as compared to traditional government departments. Namuwongo could also

explore modalities of involving the private sector by contracting sewerage disposal management.

## **5.2. Conclusions**

This sub topic covers the analysis or observations made by the researcher. The observations made are mainly on the basis of the findings. From the findings of the study area, it was concluded that the main types of sewerage in Namuwongo urban settlements are mainly in three forms. The human excreta which is made of the human faeces including those of the young children. Other types include waste water from the bathrooms and kitchen and also animal droppings like cow dug and poultry droppings.

It was established that the people of Namuwongo consider the main methods of sewerage disposal to include toilets which they all showed knowledge of. However, the forms of sewerage disposal were considered an inefficient and improper and to some extent have been adopted. These mainly include open space, polythen bags and buckets.

It was also conducted that most of those disposal techniques are not properly maintained. The respondents mainly criticized the efficiency of the NW&SC in trying to handle the problems of sewerage in the area. But praised the environmental alert as the reverse.

Also the study findings have shown that the sewerage disposal is a serious problem in highly density areas as it has been a case in Namuwongo area. Most of the respondents reported waste water and sullage as the major forms of wastes generated in highly density areas (Namuwongo).

Sixty three percent (63%) of the respondents cited out rehabilitation in form of emptying filled up latrines and demolition of old pit latrines among others as the major techniques use for improving sewerage disposal. This implies that the sewerage disposal is the big problem since it seems many pit latrines are filling up, yet much can be done a part from rehabilitation.

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## APPENDICES

### APPENDIX 1

#### QUESTIONNAIRE:

Dear Respondent,

I am a student of Kampala International University, Uganda, pursuing a degree in Social Work and Social Administration. The purpose of this Questionnaire is to gather information regarding problems of Sewerage disposal in urban settlements, in Namuwongo slum of Kampala city. Please answer the following questions, for open ended questions, write in the spaces provided but for closed guided questions tick

The appropriate answers. Any information given will be treated with utmost confidentiality.

#### PERSONAL INFORMATION:

##### 1). AGE

Between 15-20

Between 20-30

Between 30-45

##### 2). GENDER

Male

Female

##### 3. MARITAL STATUS

Single

Married

Unmarried

##### 4. Level of education

Primary

Secondary

Tertiary

#### QUESTIONS.

5a) Do you have any excreta disposal facility?

Yes

No

5b) If No, What means do you use to dispose human excreta?

v) Open space

vi) Polythen bags

vii) Buckets

viii) Any other (Specify).....

6. a) Is there any problem associated with the technique of excreta disposal?

Yes

No

6. b) If Yes, What are they?

v) Flies and cockroaches

vi) Found smell

vii) Expensive touse

viii) Any other (specify).....

7. New are (Local Residents) trying to deal with the problems of excreta disposal?

.....  
.....

9. Any other problems associated with water drainage?

Yes

No

8. b) If Yes what are they?

.....  
.....

8. c) How many have the Local Residents/ Community tried to solve or deal with the Problems mentioned above?

.....  
.....

9. What have the Local Community done to improve sewerage disposal?

.....  
.....

10. Is there any Organization dealing with improving sewerage disposal in the area?

Yes

No

10. b) If Yes, What are they?

.....  
.....

10. c) What have they done to improve on sewerage disposal the last three years?

.....  
.....

11. What is your opinion or the status of sewerage disposal over the last three years?

vii) Highly improved. Don't know

viii) Have not improved

- ix) Fairly improved
- x) Deteriorated
- xi) Slightly improved
- xii) Highly improved

12. What do you think should be done by the stake holders to improve on Sewerage Management / disposal?

.....

.....