**An investigation on the effects of poor hygiene to urban residents: Case study of Cueibet Town, South Sudan.**

By

Marik Abraham Malok.

Admission number: ACPM/DIP/197/2019.

A MANAGEMENT PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DIPLOMA OF PUBLIC HEALTH- AFRICA CENTRE FOR PROJECT MANAGEMENT (ACPM) INSTITUTE.

SEPTEMBER 2019.

Declaration:

This research project is my original work and it has not been presented for a

Diploma in other institute.

Admission number: Name: Signature: Date:

ACPM/DIP/197/2019: Marik Abraham Malok. …………….. ……………

SUPERVISOR.

This research project has been written under my supervision and submitted for examination with my approval as the institute supervisor.

Name: Signature: Date:

Ratemo Fredrick ……………. ……………..

**Dedication:**

I dedicate this research project to my lovely wife Rebecca Ayen Meen, my son Akim Arik, Ayen-junior and not forgetting my dearest Dad Abraham Malok and Mum Mary Ayen Tem-tong for their warmly financial support and encouragements during my studies. May almighty God protect their lives Amen?

**Acknowledgment:**

I wish to register my most sincere gratitude to all WFL techniqical team led by **Mr. Theo Hendersen** for the valued scholarship, capacity building and knowledge. He and his technical team mate like Ms**. Jacqueline Mathura**, (WASH expert water for lakes project), **Mr. David Karari and Eng.Sunday Benjamin Chol** I had acquired from them.

I would also want to thank ministry of physical infrastructure of Gok State, and more especially director of WASH **Mr. Angelo Wantok** for technical and social support I received from him.

I am grateful for the support provided by **GVN** (Green Village Network) staffs of the department of Hygiene, people like **Mr. Abraham Mayuom** known by his nick name **Muor-ajak** and **Santino Manyiel Mading** for giving me more information about hygiene in Cueibet Town of Gok state.

Lastly my appreciations go to the respondents for their collaboration and their time during the interview.

Last but not least, am most grateful to my family for the encouragement and support through the exercise of writing this research. Am particularly grateful to Madam Rebecca Ayen and our little children Akim Arik and Ayen- junior and their friends who took special interest in my writing exercise and provided all body needs during my writings.

**Table of Contents**:

DECLARATION .........................................................................................................................1

DEDICATION ............................................................................................................................ 2

ACKNOWLEDGEMENT........................................................................................................... 2

LIST OF ABBREVIATIONS...................................................................................................... 3

\*Key Words used in the research\* .............................................................................................. 4

ABSTRACT................................................................................................................................. 4

CHAPTER ONE……………...................................................................................................... 5

1.1Introduction……………........................................................................................................ 5

1.2 Profile of Cueibet town...........................................................................................................6

1.3 Problem statement.................................................................................................................. 7

1.4 Objective……………….........................................................................................................7

1.5 Specific objective…................................................................................................................7

1.6 Research questions…………………………………………………………………………..7

1.7 Research hypotheses…………………………………………………………………………8

1.8 Justification of the Study…………………………………………………………….………8

1.9 Scope and Limitation………………………………………………………………………..8

CHAPTER TWO...........................................................................................................................8

LITERATURE REVIEW ............................................................................................................8

2.1 Introduction ...........................................................................................................................8

**2**.2 General effects of poor hygiene……………………………………………………………...9

**2**.3 Conceptual framework………………………………………………………………….…..10

2.4 The gap to be filled ...............................................................................................................11

CHAPTER THREE: METHODOLOGY.....................................................................................11

3.1 Philosophical Paradigm………………………………………………………….………….11

3.2 Study design........................................................................................................................... 11

3.3 Study site…….. .................................................................................................................... 11

3.4 Research Approach………………………………………………………………………… 11

3.5 Research Method and analysis ............................................................................................. 12

3.6 Data needs types and sources..........................................................................................…...12

3.7 Primary Data ......................................................................................................................... 12

3.8 Secondary Data...................................................................................................................... 12

3.9 Population, sampling procedure and Data collection………………………………………..12

3.9.1Target Population…………………………………………………………………………..12

3.9.2 Data analysis………………………………………………………………………………13

3.10.0 Data Presentation………………………………………………………………………...13

3.10.1Validity and Reliability……………………………………………………………..........13

3.10.2Ethics…………………………………………………………………………………….13

CHAPTER FOUR .............................................................................................................14

4.1. Presentations of findings, Analysis and interpretation………………………….…………14

4.2 Presentation of findings........................................................................................................ 14

CHAPTER FIVE...................................................................................................................... 30

5.1Discussion……………………………………………….………………………………….30

5.2. Limitations of the study…………………………………………………………………………………………....31

5.3. Recommendations…………………………………………………………………..……31

5.4. Conclusion………………………………………………………………………………..32

5.5. Suggestion for Further Study………………………………………………………………32

REFERENCES ..........................................................................................................................32

APPENDIX ...............................................................................................................................34

**Abbreviation and Acronyms:**

.

ACPM - Africa centre for project management.

CSO - Civil society organization.

DIP - Diploma.

GVN - Green village network.

HIV/AIDS - Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome.

JMP - Joint Monitoring Programme.

NGOs - Non-governmental organizations.

SPARC - Society for Promotion of Area Resource Centre.

SSNBS - South Sudan National Bureau of Statistics.

UNICE - United Nation International Children Emergency Funds.

WASH - Water, hygiene and sanitation.

WFL - Water for lakes.

WHO - World Health Organization.

**Key Words used in the research\***

**Disease** is any illness or sickness characterized by specific signs and symptoms. (By *medical author: William C.Shiel Jr., MD, FACP, and FACR)*

**Health** is the state of complete physical, mental and social wellbeing, not merely absence of disease or infirmity (WHO, 1946)

**Sanitation** is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage or wastewater..

**Hygiene**is a set of practices performed for the preservation of health. According to the World Health Organization (WHO), "**Hygiene**refers to conditions and practices that help to maintain health and prevent the spread of diseases."

**Abstract:**

The purpose of this research project was to identify the effects caused by poor hygiene practice in urban area of Cueibet and how these poor hygiene practices affect the community in relation to health. The research further focused on how these unhygienic practices can be prevented in the community.

In this case, the researcher targeted population of one hundred (100) respondents from Cueibet town and they were comprised of people of different education background, race, age groups, religion and social status. The target population was chosen at random, some were gotten in the shops, at tea place, at school, hospital and in public clinic.

The sampling technique used was stratified random sampling method. The researcher used this method because it is free from biasness of population; it considered all levels of population, yet Sample size was100 respondents representing fifty percent of the population.

The study was carried out in Cueibet town located at the centre of South Sudan, on the main road connecting Rumbek and Wau in an area formerly known as Lakes State of Bhar el ghazal region. The main aim was to aware the community of common diseases caused by poor hygiene practices and management in urban areas, the effects of poor hygiene to the people and how to prevent them and the importance of good hygiene practice to urban residents. The study was undertaken within a period of one month that is September 2019.

The approach used in this study is mixed methods research approach for collecting, analyzing and presenting data using tables, pie charts, graphs and figures. Because the assumption of the mixed methods research approach is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone.

As per recommendations ,there needs to educate the community on the basic ways of managing and preventing poor hygiene-related diseases among people living in Cueibet town e.g. hand washing at five critical moments as well as campaigning for safe drinking water and increase improve sanitation facilities.

In summary, the researcher confirmed the causes of poor hygiene in Cueibet town, identified common diseases caused by poor hygiene as well as the effects and the ways of preventing them which are all important in dealing with improvement of public’s health in town.

**Chapter one**:

* 1. **Introduction:**

According toUSLEGAL, (1997-2019) hygiene refers to a set of practices associated with keeping things clean in order to fight against illness and disease. The term hygiene is derived from the Greek word **'Hygeia'**, which means **goddess of health**, cleanliness and sanitation. It also refers to actions and practices that ensure health and healthy living. Though the term hygiene is most commonly associated with cleanliness, it is originally an old concept closely related to medicine, person and professional care practices. It can also refer to body hygiene, mental hygiene, domestic hygiene, dental hygiene, and occupational hygiene among others.

The term hygiene also refers to the name of a branch of science called hygienic that study about health promotion and health preservation.

Good hygiene practice is an important barrier to many infectious diseases, including the faecal-oral diseases, and it promotes better health and well-being. And to achieve the greatest health benefits, improvements then hygiene should be made concurrently with improvement in the water supply and sanitation and also to be integrated with other interventions such as improving nutrition.

Poor hygiene is a major public health challenge, not only globally but also in South Sudan. If one of the WASH components like improved sanitation is not given priority, diseases like acute diarrhea both watery and bloody, cholera and acute respiratory infections are highly spread especially among children which at times lead to death.

In South Sudan, the official statistics indicate that only 15% of household use sanitary means of excreta disposal, and 55% has access to improved drinking water. It is poorer in rural areas of the South Sudan as well as in the overcrowded urban areas of South Sudan like Juba, Wau and Rumbek among others (South Sudan Household Survey).

The preface of Feachem et al. (1983) cited a 1975 statistic from the World Health Organization (WHO) that: “…75% of urban dwellers did not have sewerage….and 25% had no disposal system of any kind. “ Feachem et al. (1983) called for “major national and international initiatives” if any “substantial improvement in sanitation systems in the developing world is to be made in the next few decades” (Feachem et al., 1983). Several decades later there have been many national and global initiatives to reduce the number of people in the world without access to basic sanitation. Unfortunately, 2.4 billion people still lack access to adequate sanitation (WHO/UNICEF JMP, 2015).

South Sudan is and has been characterized by poor hygiene and sanitation conditions; open urination and defecation are the common practices, improved sanitation rates is between 6 and 15 percent. Almost two thirds of households in towns of South Sudan do not have access to clean and improved sanitation facilities, and as a result, open defecation is the habit in practice. Only 10% of people have access to both improved water and sanitation facilities, thus perpetuating cycles of venerable people ( **children, old people, pregnant mothers people living with diseases such as HIV/AIDS etc)** suffering from diarrhea, other water borne diseases and pneumonia (South Sudan Household Survey).

Diarrhea still remained among the top five causes of mortality and morbidity in South Sudan, particularly in infants and children aged below five years – among whom the death rate is 104/1000 live births. The prevalence of diarrhea among children aged less than five years is 42.9% in South Sudan, compared to Kenya where it is 17.0%. In addition 202 medical records of children admitted with acute diarrhea in Juba Teaching hospital between March and June 2014 were examined, the majority being children between 6-24 months old with (75.74%); the commonest sign assessed was sunken eyes (75.12%) as the results of dehydration and the least assessed was ability to drink/breastfeed (34.32%).

According to report made by the **Cueibet state hospital (2018),** 10%-25% of infant death in rural and pre-urban centers was associated with diarrheal diseases. Although CLTS and hygiene promotion campaign which is being funded by **Water for Lakes project** under **MOTT MACDONALD** and sub-contracted **OXFAM-GB** in the first place and later taken over by **CHADO** in Mayath county (a county in Cueibet) still impact was very low because there were more pit latrines being dug but people were not using them due to the bad approach of subsidy used by **OXFAM-GB**. For hygiene campaign targeted parts of **Cueibet town** and some rural areas with beneficiaries being mothers and care givers in their households and later equipped them with quality training using PHAST methodology approach where they gained new knowledge and skills on how to prevent diarrheal disease at their households, like safe water handling that is right from the source by washing and covering fetching drinking water container and to consumption by using two cups, one for drawing water and the one for drinking in order to prevent contamination, washing hands at critical moments; (**after cleaning child’s bottom, after defecation, before eating, before feeding the child and before preparing food)** using good hand washing facility with soap for example Jerri- cane or bucket with tap and other hand washing facilities which doesn’t contaminate hands during hand washing practice like tippy-tap and finally construction and proper use of pit latrines but it was not enough because it did not cover the whole town of Cueibet and the time was very short.

**1.2 Profile of Cueibet town-Gok state, South Sudan**:

**Cueibet** is the capital town of Gok states which make **up 33 states of South Sudan**. It is located in the central **Bahr el Ghazal region**, on the main road connecting Rumbek and Wau; it was formerly part of **Lakes state**. Gok state border Tonj state to the west and Western Lakes to the east. The state had a population of **117755** according to 2008 censes.

Before the creation of Gok as a state, Cueibet was a county under former Lakes state headed by a commissioner as the highest authority of the government in a county (Paanluel wel media.Ltd, 2017).

With the regard to Administrive division, Gok state is currently consisting of nine counties Cueibet county the capital of the state, Abiriu county, Duony county, Anyar-nguan county,Waat-adol county, Malou-pech county, Joth-mayar county, Ngap county and Cueibet county and at the same time, the capital of the state (Gok) and it is where am conducting this research.

**1.3 Problem statement:**

Identification of common diseases caused by poor hygiene practices and access to enough and improved sanitation facilities as a way to prevent common diseases caused by poor hygiene practices as well as to make awareness to public on hygiene issues actually lead to good health in venerable and entire public of Cueibet town. Base on hygiene campaign conducted by **Water for Lakes programme** in some parts of the state, there is very clear evidence showing the importance of good hygiene behavior, especially hand-washing with soap at five critical moments( **after defecation, before eating food, before preparing food, after cleaning baby’s bottom and before feeding the baby**) reduce faeco- oral diseases like dysentery and diarrhea which is the leading cause of death amongst children under five years old in the world and South Sudan particularly. In fact, studies suggest that regular hand-washing with soap at critical times can reduce the number of diarrheal diseases by almost 50 per cent. It is also true that without good hygiene and sanitation there is no good health.

In order for the unhygienic situations like ours to become normal the following measures have to be taken;

1. To educate the community on the basic ways of managing and preventing poor hygiene-related diseases as well as campaigning for safe drinking water and increase improve sanitation facilities.

2. Town council headed by town clerk should prioritize hygiene in Cueibet town concurrently with improvement in the water supply and sanitation and also to be integrated with other interventions such as improving nutrition.

3. Enough public toilet/pit latrines to be constructed in the market in order to minimize open defecation and the spread of fecal-oral diseases because human faeces are the primary transmission route of many waterborne diseases. Latrine design should be according to the space and material available, the culture and traditions of the beneficiaries and urgency.

**1.4 Objective:**

The main objective of the study was to investigate the effects of poor hygiene to urban residents: Case Study of Cueibet town, South Sudan.

**1.5** **Specific Objectives:**

* To identify common diseases caused by poor hygiene among children and adult in urban areas.
* To define the effects of common diseases caused by poor hygiene to residents of Cueibet town.
* To determine prevention measures of common diseases related to poor hygiene in town.

**1.6 Research Questions:**

1. What are the causes of poor hygiene in town of Cueibet today?
2. Mention some common diseases caused by poor hygiene to urban residents of Cueibet.
3. In your opinion suggest ways in which common diseases caused by poor hygiene can be prevented from urban residents.

**1.7 Research hypotheses:**

The null hypotheses for this study is to identify causes of poor hygiene in town of Cueibet, it does not life-saving intervention and lives can be saved as long when there is good hygiene practices, clean and safe water for drinking and bathing and improved sanitation facilities. They will be tested against the alternative hypotheses for these study i.e. water, hygiene and sanitation is an important life-saving intervention contributes to poor hygiene prevention, improved sanitation facilities and access to clean and safe water consumption.

**1.8 Justification of the Study**:

This research will benefit Cueibet County, Gok state and South Sudan Departments of health in general by getting awareness of common diseases caused by poor hygiene to people living in town, causes of poor hygiene in towns and how good hygiene and sanitation practices can improve the lives of the community and how these diseases related to poor hygiene can be managed and prevented in urban areas. It will also assist government when prioritizing humanitarian intervention and humanitarian organizations dealing in water safety and aquatic rescue, ice rescue, flood and river rescue, swimming pool rescue among others in third world countries.

**1.9 Scope and Limitation.**

During survey, one of the limitations was that some respondents reluctant to bring back questionnaires and others demanded cash from the researcher in exchange of information. And as a researcher I managed these challenges by convincing them through a letter of introduction which was attached to the questionnaires. This assured them the purpose of the study and that the information they give shall be considered confidential.

Another limitation was that the respondents were not cooperative because they restricted themselves to their responsibilities and duties. This led the researcher to be ignored when getting relevant information; however, the researcher informed the respondents on the importance of the study and cited the top beneficiaries.

The study was carried out in Cueibet town located at the centre of South Sudan, on the main road connecting Rumbek and Wau in an area formerly known as Lakes State. The main aim was to aware the community of common diseases caused by poor hygiene in urban areas, the effects of poor hygiene to the people and how to prevent them and the importance of good hygiene practice to urban residents. The study was undertaken within a period of one month that is September 2019.

**CHAPTER TWO: LITERATURE REVIEW**.

**2.1 Introduction.**

In all fields of enquiry the important part of the objective approach is the review. It aims at identifying the research gaps to the existing literature and emphasizing on the need to carry out this study which is concerned with examining the importance of preventing common diseases caused by poor hygiene in urban areas. The purpose of this literature review is to provide the researcher with means of getting knowledge of the issue under investigation. To this point, the chapter covers a review of theoretical literature, review of analytical literature of analysis, gaps to be filled, a summary of the chapter and the conceptual framework.

**2.2 General effects of poor hygiene**.

According to Perkins (2018) many viruses and bacteria infect people only when they enter the nose or mouth. People with diseases transmitted via the fecal-oral route can spread the disease to nearby objects or food if they don’t wash their hands well after using the toilet. Airborne illnesses spread through droplets in the air, which land on nearby objects. Touching an infected object transmits germs to your hands; touching your nose or mouth with your unwashed hand infects you with the virus or bacteria.

Poor hygiene and sanitation may be associated with a number of diseases e.g. Diarrheal diseases, causing an estimated 1.4 million deaths annually in the World (Lozano et al., 2012; Pruss-Ustun et al., 2014) or 19% of all under-five deaths in low-income countries (Boschi-Pinto et al., 2008).

Also diseases linked to poor hygiene and sanitation has a significant impact on children’s health and education. 38% of school children are infected with parasitic worms (Mahmud et al. 2015). These infections contribute to malnutrition because the parasites prevent the child’s body from absorbing nutrients from the food that they eat. Long-term malnutrition retards children's physical and intellectual development. The Young Lives survey (2014) reported that around 30% of children are stunted, which is a sign of long-term malnutrition. (Stunted means that a child’s height is less than expected for their age)

Children are frequently ill as a result of parasites and other infections, which leads to poor school attendance and performance. Furthermore, if the school attended by an infected child does not have good sanitation and hand washing facilities as good hygiene practice the infections are likely to spread to healthy children.

There are social impacts of poor hygiene and sanitation provision in schools and public places. An absence of latrines with separate facilities for girls and boys for instance in schools means that post-pubescent girls are more likely to stop attending schools, especially when menstruating. When healthy children attend a school with well segregated sanitation facilities, they are present more regularly and are better learners. This, in turn, makes them better able to find jobs that demand.

According to other reviews, sanitation has been found to be protective against diarrhea (Pruss-Ustun et al., 2014).

Thevos et al. (2000) found an increase in knowledge that contaminated water causes diarrhea (factual knowledge) and knowledge that diarrhea can be avoided by boiling or treating water (action knowledge)

The studies included in these reviews were mainly observational or small-scale trials, most of which combined sanitation with water supplies or hygiene. While some of these reviews assess the methodological quality or risk of bias of the included studies, none seek to assess the quality of the overall body of evidence. Moreover, several of the more rigorous trials to assess the impact of sanitation on diarrhea, Many of the more recent, rigorous trials have found more effect, or mixed effects for these outcomes, and so the research explore in this review the role of sanitation coverage and use across this study.

Because many of the outcomes of this review share transmission mechanisms, there is merit in assessing and reporting on these out comes together. This study updated several previously published systematic reviews and conducted additional sub-group analyses including assessing the health impact of different levels of sanitation services as defined by the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (JMP) (WHO/UNICEF, 2015).

**2.3 Conceptual framework.**

This section prospects a schematic interpretation of the conceptual framework as shown in the figure below.

Independent variables.

|  |
| --- |
| Identification of common diseases caused by poor hygiene in town. |
| Effects of diseases caused by poor hygiene to people living in town. |
| Prevention of diseases caused by poor hygiene in town people. |

|  |
| --- |
| Common diseases caused poor hygiene practices in town. |

Dependent variables.

**2.4 The gap to be filled.**

The study therefore aimed at filling the gaps identified in identifying common diseases caused by poor hygiene in urban areas and how they affect urban residents by investigating a very concept through creating problems, while explaining the effects of poor hygiene in urban areas

Good hygiene and sanitation leads to improved health standard of people because nobody will be left behind during cultivation or any other field work and even there will be no waste of property or wealth which could be used in treating the family members.

**Chapter three: Methodology**.

**3.1 Philosophical Paradigm.**

The methodology used in the research study includes research design, target population, sampling design and data collection and analysis procedures.

**3.2 Study Design.**

The research design used during conducting the study was descriptive research. It (descriptive research) was used to obtain information concerning the current status of the phenomena to describe "what exists" with respect to variables or conditions in Cueibet Town. This method involved range from the survey which describes the state of things, the comparable study which investigates the relationship between variables. Descriptive studies are not only restricted to fact finding but may often result in the formation of important principles of knowledge and solution to significant problems. They are more than just a collection of data since they involve measurement, classification, analysis and interpretation (David, 2005).

**3.3 Study Site.**

The study was conducted in Cueibet town the capital of Gok states which is located in central **Bahr el Ghazal region**, Cueibet has covered an area of **4866 km2** it is on the main road connecting Rumbek and Wau it was formerly part of **Lakes state**. According to South Sudan National Bureau of Statistics (C 2008) Cueibet has a population of **117755.**Also the population projection in 2017 which does not consider migration and displacement stated that Cueibet as a population of **177,987** (South Sudan National Bureau of Statistics,2017).

**3.4 Research Approach**

The approach used in this study is mixed methods research approach for collecting, analyzing and presenting data using tables, pie charts, graphs and figures. Because the assumption of the mixed methods research approach is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone (Patton ,1990).

Qualitative research approach in this study has been used for exploring and understand­ing the meaning individuals or groups ascribe to a social or human problem. Meanwhile quantitative approach in this the same study has been used for testing objective theoriesby examining the relationship among variables and in turn, these variables can be measured, typically on instruments, so that numbered data can be ana­lyzed using statistical procedures. The final written report has a set struc­ture consisting of introduction, literature and theory, methods, results, and discussion (Morgan, 2007).

**3.5 Research Method and Analysis:**

Data analysis step is the process of packaging the collected information putting in order and structuring its main components in a way that the findings can be easily and effectively communicated, Kothari (2004. After the fieldwork, before analysis, all questionnaires were given enough time for proper checking for reliability and verification. Editing, coding and tabulation were carried out. The data collected will be analyzed using simple qualitative and quantitative methods and presented using tables, figures and charts.

**3.6 Data needs types and sources**:

During study, questionnaires were used to collect the data and they were structured in a way that it obtained both qualitative and quantitative data.

**3.6.1 Primary Data:**

According to Webfinance Inc (2019), primary data is the data observed or collected directly from firsthand experience.

Therefore in this study Questionnaires were sent to a number of persons seeking their responses that can be tabulated and treated statistically. It is a form for securing answers to questions from respondents. The researcher used both structured and unstructured questionnaire which have both structured and semi-structured questions. There was a pre-determined question whereby respondents were served with the questionnaire and are given a chance to fill. The types of questions used were both open and closed ended. Closed ended questions were used to ensure that the given answers were relevant. The researcher phrased questions clearly to make dimensions along which respondents were analyzed. In open-ended questions, space shall be provided by the respondent, thus giving him/her freedom to express their feeling.

**3.6.2 Secondary Data:**

Secondary data is the published data and data collected from other parties or in the past (Webfinance Inc (2019).

Materials available in Cueibet like magazines, newspapers, journals and World Wide Web in relation to this study were used. And before the use of available materials the researcher wrote a letter of permission to the administration concern such as South Sudan National Bureau of Statistics (SSNBS) asking for permission to have access to their published data.

**3.8 Population, sampling procedure and Data collection:**

**3.8.1 Target Population:**

Schindlers (2003), define target population as the complete set of individual’s area of objects with some common characteristics to which the researcher wants to generalize the result of the study. Target population is a universal set of the study of all members of real or hypothetical set of people, events or objects to which an investigator wishes to generalize the result, Kothari (2004).

In this case, the researcher targeted population of one hundred (100) respondents from Cueibet town. They were comprised of people of different education background, race, age groups, religion and social status. The target population was chosen at random, some were gotten in the shops, at tea place, at school, hospital and in public clinic.

The sampling technique used was stratified random sampling method. The researcher used this method because it is r free from biasness of population; it considered all levels of population. The sample size was100 respondents, representing fifty percent of the population.

**3.8.2 Data analysis.**

Quantitative data questionnaires were transferred from manual form to a central system at the end of each day of data collection. The files were verified and checked for errors before being encoded and transferred to Microsoft Excel data Analysis software. The analyzed data were letter presented in form of tables and graphs to make interpretation and comparison easier. And for qualitative data was analyzed by coding and shifting into themes before inferences are drawn. Results within and across different groups of people interviewed and from various methods will be collated and Triangulated.

**3.9. Data Presentation**:

**3.9.1 Validity and Reliability.**

According to Kothari (2004), validity is the accuracy and meaningfulness of inferences which are based on the research results. It is the degree through which results obtained from the analysis of data represent the phenomenon under study while reliability is a measure of the degree to which a research instrument yields consistent results after repeated trials. It involved administering the same instrument a number of times to the same group of subject.

The researcher gets authorization from relevant departments of the Cueibet town to circulate questionnaires. To ensure reliability and validity questionnaires were pre-tested on 45 respondents. These respondents were included in the final study. The questionnaires were then corrected before the final distribution is done.

**3.9.2 Ethics.**

The researcher wrote an introduction Letter to the town authority which gave permission and wrote back acceptance letter to the researcher in order to get relevant information needed in the available materials such as magazines, newspapers, journals and World Wide Web. The respondents also accepted and participated fully in data collection.

**CHAPTER 4: Presentations of findings, Analysis and interpretation:**

**4.1. Analysis and interpretation.**

According to Shamoo and Resnik (2003), data analysis/interpretation is the process of systematically applying statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate data.

Data analysis is a process of inspecting, cleansing, transforming and modeling data with the goal of discovering useful information, informing conclusions and supporting decision-making.

In this chapter the researcher analyzed and discussed the data collected from the respondents in relation to research objectives and questions. Analysis was presented using frequency tables and percentages, presented in graphs, pie charts and interpreted thereafter. For example the open ended questions were analyzed in qualitative nature through making sense of open-ended question and closed ended questions analyzed in quantitative nature.

**4.2 Presentation of findings**.

**4.2.1 Respondents given questionnaires.**

**Table 4.1 Respondent analysis**

|  |  |  |
| --- | --- | --- |
| **Respondent category.** | **Frequency.** | **Percentage.** |
| response | 100 | 100 |
| Non-response | 0 | 0 |
| Total | 100 | 100 |

**Source: the author (2019).**

**Figure 4.1 Response analyses:**

**Source: the author (2019).**

The above table4.1 and figure4.1 show the respondents who were given questionnaires; one hundred percent of total respondents filled and return the questionnaires for analysis. This indicate that high percentage of the community participate in research study.

**4.3 Gender response**:

**Table 4.2 gender analysis:**

|  |  |  |
| --- | --- | --- |
| Gender | Frequency | Percentage |
| Male | 58 | 58% |
| Female | 42 | 42% |
| Total | 100 | 100% |

**Source: the author (2019).**

**Figure4.2 gender response**

**Source: The author (2019).**

The table 4.2 and the figure4.2 indicate the responses on gender. The analysis clearly shows that the community had a higher number of males then females. The males being represented by 58% respondents while the females being the minority were represented by 42% of the total respondents.

**4.4 The age brackets**.

**Table 4.3 age bracket analysis:**

|  |  |  |
| --- | --- | --- |
| **Age bracket** | **Frequency** | **Percentage** |
| 16-30 | 35 | 35% |
| 31-45 | 49 | 499% |
| 46-60 | 05 | 16% |

**Source: The author (2019).**

**Figure 4.3 age bracket analysis:**

**Source: The author (2019).**

The table 4.3 and figure 4.3 from the analysis 49% of the total respondents being the majority were ages between 31-45 years, 16-30 years were represented by 35%, and 46-60 years were 16% while those above 60 were not included in the research. From the analysis it indicates that the majority of the respondents were between the ages of 31-45 years respondent greatly.

**4.5 Level of education.**

**Table 4.4 Respondents analysis on level of education**.

|  |  |  |
| --- | --- | --- |
| **category** | **Frequency** | **Percentage** |
| Primary | 05 | 5% |
| Secondary | 15 | 15% |
| college | 25 | 25% |
| University | 50 | 50% |
| Postgraduate | 05 | 5% |
| Total | 100 | 100% |

**Source: The author (2019).**

**Figure 4.4 response analysis:**

**Source: The author (2019).**

The above table4.4 and figure4.4 indicate the response base on level of education. From the analysis, the response from primary level was 2**5%**, secondary level was **50%** while the response of college level was **5%**and **15%** were from university level and those who had post graduate qualification were **5%**. From the analysis therefore it can be concluded that the minority had post Graduate qualification while majority of the respondents had secondary qualification indicating moderate level of literacy at the community.

**4.6The causes of poor hygiene to urban residents**.

**Table 4.5 response analysis on causes of poor hygiene**.

|  |  |  |
| --- | --- | --- |
| **Causes** | **Frequency** | **Percentage** |
| Lack of enough public toilet/latrine | 40 | 40% |
| Lack of health education | 20 | 20% |
| Cultural practice | 8 | 8% |
| Lack of waste disposal site(s). | 32 | 32% |
| **Total** | **100** | **100%** |

**Figure 4.5 Analysis on causes of poor hygiene:**

**Source: The author (2019).**

**Source: The author (2019).**

The above table 4.5 and figure 4.5 show the response on causes of poor hygiene to urban residents. Therefore from the analysis it is indicated that 40% response for lack of adequate public toilet/latrine, 32% talked of lack of waste disposal site(s), 20% response was lack of health education and 8% responded that cultural practice for example Dinka belief that you cannot build a house for feaces and what if you fall in the pit latrine.

From the analysis, it indicates that the most causes of hygiene in Cueibet town are: lack of adequate public toilet/pit latrine and lack of waste disposal sites with the percentage of 40 and 32 respectively. Meanwhile the least cause of poor hygiene in Cueibet town is cultural practice with 8%.

**4.7 Common diseases caused by poor hygiene to urban residents**.

**Table 4.6 response on common diseases caused by poor hygiene**.

|  |  |  |
| --- | --- | --- |
| **Diseases** | **Frequency** | **Percentage** |
| Diarrhea | 30 | 30% |
| Typhoid | 22 | 22% |
| Malaria | 25 | 25% |
| cholera | 21 | 21% |
| others | 2 | 2% |

**Source: The author (2019).**

**Figure 4.6 response analyses on common disease caused by poor hygiene:**

**Source: The author (2019).**

The above table 4.6 and figure 4.6 indicate the response on common diseases caused by poor hygiene. The response for diarrhea was **30%**, malaria was **25%**, typhoid was **22%**, cholera was **21%** while the response for others diseases was **2%**, From the analysis, it can be concluded that most respondents mentioned Diarrhea with big percentage while the **2%** mentioned other diseases like Bilharza,Schistasomiasis and so many others.

**4.8 Rating on the effects of poor hygiene in Cueibet town.**

**4.7 response on rating the effects of poor hygiene:**

|  |  |  |
| --- | --- | --- |
| **Rate** | **Frequency** | **Percentage** |
| Very high | 30 | 30% |
| High | 40 | 40% |
| Fair | 20 | 20% |
| Low | 10 | 10% |
| **Total** | **100** | **100%** |

**Figure 4.7 response analyses:**

**Source: The author (2019).**

**Source: The author (2019).**

The above table 4.7 and figure 4.7 indicate the response on rating the effects caused by poor hygiene. The response for very high rate was **30%**, high **40%**, fair **20%**, low was **10%.** From the analysis, it can be concluded that most respondents mentioned very high with big percentage.

**4.9. Brief explanation on how the effects of poor hygiene affect urban residents.**

**Table 4.8 response on how the effects of poor hygiene affect urban residents.**

|  |  |  |
| --- | --- | --- |
| **Effects of poor** | **Frequency** | **Percentage** |
| Acute watery and bloody diarrhea. | 45 | 50% |
| Trachoma in children. | 12 | **7%** |
| Skin diseases | 10 | 10% |
| Malnutrition | 33 | 33% |
| **Total** | **100** | **100%** |

**Source: The author (2019).**

The table 4.8 and figure 4.8 above indicate the response onhow the effects of poor hygiene affect urban residents of Cueibet town. The analysis show that acute watery and bloody diarrheas are the leading common infectious diseases with **45%** follow by malnutrition with **33%**. Meanwhile skin diseases and trachoma in children are the least effects of poor hygiene affecting urban residents of Cueibet their percentages are **12%** and **10%** respectively.

**4.10. Do people know how to prevent common diseases caused by poor hygiene?**

**Table 4.9 response on knowledge of prevention of common diseases caused by poor hygiene:**

|  |  |  |
| --- | --- | --- |
| **Respondent category** | **Frequency** | **Percentage** |
| Yes | 25 | 25% |
| No | 75 | 75% |
| **Total** | **100** | **100%** |

**Source: The author (2019).**

**Figure 4.9 response analyses on knowledge of prevention of common diseases caused by poor hygiene:**

**Source: The author (2019).**

The table 4.9 and figure 4.9 indicate the responses on knowledge of prevention of common diseases caused by poor hygiene and according to analysis it has indicated that 75% has no knowledge of prevention from hygiene-related diseases. Only 25% has knowledge of prevention.

**4.11. How would you rate the prevention of hygiene-related diseases affecting people in urban areas?**

**Table 4.10. Response on prevention rate of hygiene-related diseases affecting people in urban areas:**

|  |  |  |
| --- | --- | --- |
| **Prevention rate** | **Frequency** | **Percentage** |
| Very high | 9 | 9% |
| High | 15 | 15% |
| Fair | 27 | 27% |
| Low | 49 | 49% |
| Total | 100 | 100% |

**Source: The author (2019):**

**Figure 4.10 response analyses**

**Source: The author (2019).**

The table 4.10 and figure 4.10 indicate the responses on prevention rate of hygiene-related diseases caused by poor hygiene and according to analysis it has indicated that 49% has rated hygiene-related diseases to be very low follow by 27% of being fair.In conclusion it indicates that number of people do not know how to prevent themselves.

**4.12. Opinion on ways in which common diseases caused by poor hygiene can be prevented.**

**Table 4.11. Opinion response on preventive ways from poor hygiene related diseases:**

|  |  |  |
| --- | --- | --- |
| **Preventive ways** | **Frequency** | **Percentage** |
| Regular hand washing before and after eating and visiting the toilet/pit latrine. | 9 | 9% |
| Provision of adequate waste pits | 36 | 36% |
| Construction of public toilets/latrines | 20 | 20% |
| Sensitization of the public about the benefits of good hygiene | 35 | 35% |
| **Total** | **100** | **100%** |

**Source: The author (2019):**

**Figure 4.11 response analysis on preventive ways:**

**Source: The author (2019).**

The table 4.11 and figure 4.11 show the different opinions on the ways in which common diseases caused by poor hygiene can be prevented. According to analysis it indicates that both provision of adequate waste pits and Sensitization of the public about the benefits of good hygiene are the leading ways suggested by the number of participants to be the most preventive ways to reduce hygiene-related diseases with the percentage of 36 and 35 respectively.

**4.13. Do you have public toilets/pit latrine in the market?**

**Table 4.12. Response on having public toilet in the market.**

|  |  |  |
| --- | --- | --- |
| **Respondent category.** | **Frequency.** | **Percentage.** |
| Yes | 32 | 32% |
| No | 68 | 68% |
| **Total** | **100** | **100%** |

**Source: The author (2019).**

**Figure 4.12. Response analysis of having toilet in the market:**

**Source: The author (2019).**

The table 4.12 and figure 4.12 above indicated that 68% of the participants said that there were no public toilets in the market while 32% talked of having toilet in the market. This concludes that the most caused of open defecation is inadequate of public toilet in the market.

**4.14. How do you rate the usage of public toilet/pit latrine?**

**Table 4.13. Response on the usage rate of public toilet.**

|  |  |  |
| --- | --- | --- |
| **Usage rate** | **Frequency** | **Percentage** |
| Very high | 11 | 11% |
| High | 24 | 24% |
| fair | 45 | 45% |
| poor | 20 | 20% |
| **Total** | **100** | **100** |

**Source: the author (2019).**

**Figure 4.13 responses on usage rate.**

Source: The author (2019).

The table 4.13 and figure4.13 above indicated that the usage rate of public toilet is fair with 45% and 24% high, 20% poor and 11% very high. This concludes that many people do not use few public toilet instead the practice open defecation as the part of cultural practice in the villages where people go to the bushes for defecation.

**4.15. Justify your reason(s) in question 9 above.**

**Table 4.14. Response on justification of your reasons in question 9 of the questionnaire**.

|  |  |  |
| --- | --- | --- |
| **Justification of reasons.** | **Frequency** | **Percentage** |
| Only two to three people found using the public toilet in Cueibet. | 30 | 30% |
| I have never seen sewage tanker(s removing waste for the last two years I have been using public toilet of Cueibet. | 45 | 45% |
| Open defecation is common in the whole of the town | 25 | 25% |
| **Total** | **100** | **100%** |

**Source: The author (2019).**

**Figure 4.14 response analyses on justification.**

**Source: The author (2019).**

**Th**e table4.14 and figure4.14 above indicate the responses on the justification of the usage rate of public toilet. And from the analysis 25%, 30 and 45% response on justification of usage that in everyday visit only two to three people are found using the toilet, that no sewage tankers seen for the last 2 years by the users and finally open defecation is rampant in the town. This comes to conclusion that 45% of the people give open defecation to justify rate of usage to be faired because many people are not using public toilet.

**4.16. What are the reasons that some people defecate in the bush?**

**4.15. Response on the reasons some people defecate in the bush.**

|  |  |  |
| --- | --- | --- |
| **Reasons** | **Frequency** | **Percentage** |
| No toilet**.** | 03 | 3% |
| Toilets are dirty | 29 | 29% |
| Toilet smell bad | 30 | 30% |
| Long waiting | 04 | 4% |
| Others(cultural practice) | 34 | 34% |
| **Total** | **100** | **100%** |

Source: The author (2019).

**Figure 4.15. Response analysis on reasons some people defecate in the bush**.

**Source: The author (2019).**

The table 4.15 and the figure4.15 above indicate the responses on the reasons that some people defecate in the bush. And according to the analysis 4% said no toilet, 29% said toilets are dirty, 30% said that toilets smell bad, 4% said that long waiting is the reason some people defecate in the bush and the last response was that of cultural practice where people defecate in the bushes with 34%. In conclusion it indicates that 34% which is the highest number said the reason to why people use bush for defecation is that they are still practicing traditional methods of going to the bush for defecation.

**4.17. Where do the children defecate?**

**Table 4.16. Response on where the children defecated.**

|  |  |  |
| --- | --- | --- |
| **Response category** | **Frequency** | **Percentage** |
| In an open area. | 69 | 69% |
| In nappies/underwear. | 22 | 22% |
| In designated location. | 7 | 7% |
| Potty-added. | 2 | 2% |
| **Total** | **100** | **100%** |

**Source: The author (2019).**

**Figure 4.16 response analysis on where children defecate.**

**Source: The author (2019).**

The table 4.16 and figure 4.16 above indicate the responses on where the children defecate. From the analysis 69% said children defecate in an open areas, 22% said that children defecate in nappies and 7% talked of children defecated in designated location and finally 2% said children defecate in potty-added. This concluded that most of children defecated in an open area hence lead to serious open defecation.

**4.18. What happens to the faeces of children in the market?**

**Table 4.17. Response on where do faeces of children in the market taken.**

|  |  |  |
| --- | --- | --- |
| **Response category** | **Frequency** | **Percentage** |
| Thrown in the latrine**.** | 00 | 0% |
| Left lying on the ground. | 25 | 25% |
| Taken to the garbage. | 40 | 40% |
| Left to dogs to eat. | 35 | 35% |
| Dig a hole and cover. | 00 | 00% |
| **Total** | **100** | **100%** |

**Source: The author (2019).**

**Figure 4.17 response analysis on where feaces of the children taken.**

**Source: The author (2019).**

Table 4.17 and figure 4.17 shows the response on where feaces of children in the market of Cueibet are taken and according to the analysis 40% of respondents are saying the feaces of the children are taken to the garbage, 35% said that feaces are left to dogs to eat and 25% said the feaces left lying on the ground. This comes to the conclusion that big number of feaces are taken to garbage while second to big number which is 35% left to dogs to eat.

**4.19. How satisfied are you with human waste disposal, garbage disposal and general sanitation of town (Cueibet)?**

**Table 4.18. Response on how one is satisfied with human waste disposal, garbage disposal and general sanitation of Cueibet town.**

|  |  |  |
| --- | --- | --- |
| **Response category** | **Frequency** | **Percentage** |
| Very satisfied | 9 | 9% |
| Satisfied | 24 | 24% |
| Unsatisfied | 67 | 67% |
| **Total** | **100** | **100%** |

**Source: The author (2019).**

**Figure 4.18.Response analysis on how one satisfied with human waste disposal.**

Source: The author (2019)

The table4.18 and figure 4.18 indicate the response on how one is satisfied with human waste disposal, garbage disposal and general sanitation of Cueibet town. From the analysis 9% very satisfied, 24% satisfied and 67% unsatisfied. This indicates that 67% of the respondents are not satisfied with how waste and garbage disposal and general sanitation of Cueibet has been handled.

**Chapter 5: Discussions.**

The aim of this chapter is to discussion on the relationship between the objectives of the study and whatever that is found out incorporating the literature reviewed.

**5.1 Discussion:**

**5.1.1. What are the causes of poor hygiene in town of Cueibet today?**

From the analysis it was indicated that 40% of the respondents mentioned inadequate public toilet/latrine, 32% talked of lack of waste disposal site(s), 20% response was lack of health education and 8% responded that cultural practice for example defecating in the bushes.

This shows that the most causes of poor hygiene in Cueibet town are:

1. Lack of adequate public toilet/pit latrine and

2. Lack of waste disposal sites which is second in ranking 32 percentages.

3. And the least cause of poor hygiene in Cueibet town is cultural practice with 8% and ranking third as the cause of poor hygiene.

**5.1.2. Mention some common diseases caused by poor hygiene to urban residents of Cueibet.**

The response for diarrhea was **30%**, malaria was **25%**, typhoid was **22%**, cholera was **21%** while the response for others diseases was **2%**, From the analysis, it can be concluded that most respondents mentioned Diarrhea with big percentage while the **2%** mentioned other diseases like Bilharza,Schistasomiasis and so many others. Therefore the first and most common disease found to be caused by the poor hygiene to people living in town according to respondents is diarrhea, seconded by typhoid and follow by others as indicated above.

**5.1.3. In your opinion suggest ways in which common diseases caused by poor hygiene can be prevented from urban residents.**

According to analysis it founded that both provision of adequate waste pits and Sensitization of the public about the benefits of good hygiene are the leading ways suggested by the number of participants to be the most preventive ways to reduce hygiene-related diseases with the percentage of 36 and 35 respectively.

**5.2. Limitations of the study:**

The hiccups that were encountered when doing the research were as follows,

Firstly delay of questionnaires because most of respondents were working class who got little time to work on questionnaires.

Secondly some people were thinking that the researcher was taking information from them (respondents) and to be given to water for lakes technical team who are hygiene implementers in the part of Cueibet town as a part of betrayal.

This problem was addressed by showing the letter of declaration which stated that, information that is going to be obtained from you (participants) will be kept confidential. Your name will not be mentioned or identified in any report”.

**5.3. Recommendations**:

Based on evidence founded to be the cause and effects of poor hygiene-related diseases, the following are the recommendation given by the researcher:

There needs to educate the community on the basic ways of managing and preventing poor hygiene-related diseases among people living in Cueibet town as well as campaigning for safe drinking water and increase improve sanitation facilities.

State government should prioritize hygiene in Cueibet town concurrently with improvement in the water supply and sanitation and also to be integrated with other interventions such as improving nutrition.

Inadequate water supply and inadequate sanitation, together with poor personal and domestic hygiene are the cause of hygiene-related disease, therefore both water and sanitation facilities should be increased for the people to have access to adequate water for personal and domestic hygiene as well as sanitation facilities.

There need to construct latrine in the market in order to minimize open defecation and the spread of fecal-oral diseases because human faeces are the primary transmission route of many waterborne diseases. Latrine design should be according to the space and material available, the culture and traditions of the beneficiaries and urgency.

In high-density low income urban area like Cueibet town, often the only viable sanitation system is community managed sanitation block of the type promoted by the **Society for Promotion of Area Resource Centre (SPARC) it is an Indian organization**. These sanitation blocks are designed, built, owned and managed by the community themselves. They are in no sense public facilities although casual use may be allowed on payment of per-use fee for its upkeep.

**5.4. Conclusion:**

**5.4.1. The effects of poor hygiene to urban residents.**

Based on the findings, the researcher confirmed the causes of poor hygiene in Cueibet town, identified common diseases caused by poor hygiene as well as the effects and the ways of preventing them which are all important in dealing with improvement of public’s health in town.

**5.5. Suggestion for Further Study:**

The researcher suggested a need for further research because the survey had not exhausted all the hygiene-related diseases, their effects and how to prevent them in urban areas. Areas suggested for further research include the use of variables such as improved living standard through improved sanitation and both hygiene education and hygiene promotion in urban settings, government interaction and any other variables benefiting under research.

**References.**

A comparative risk assessment of burden of disease and injury attributable to 67

activities. Educational and psychological measurement, 30, 607-610.

Alfonso, Masi, Dr. P.H. F.A (1965, P 662) Potential uses and limitations of Hospital Data in Epidemiology.

ALMAZROA, M. A., AMANN, M., ANDERSON, H. R. &amp; ANDREWS, K. G. 2012.

American public health association.

Amit (2019) *what are the determinants of Health?* Colleaga, Retrieved from https//www.colleaga.org.

Analysis for the Global Burden of Disease Study 2010. The lancet, 380, 2224-

and-hygiene-wash/ [Accessed 28-Sep-2018 2018].

Available: https://www.nrc.no/what-we-do/activities-in-the-field/water-sanitation-

Bohning (2011) *Lecture 1: Introduction to Epidemiology*. Statistical Services Centre, University of Reading, UK.

BORGHI, J., GUINNESS, L., OUEDRAOGO, J. &amp; CURTIS, V. 2002. Is hygiene

BRISCOE, J., FEACHEM, R. G. &amp; RAHAMAN, M. M. 1986. Evaluating health impact:

BRYANT, J. &amp; CAMPBELL, L. 2014. Urban WASH in emergencies. ALNAP and RedR

Cairn cross S (2003) Sanitation in the developing world: current status and future solutions.

CARTER, R. 2007. Rapid assessment of groundwater opportunities for displaced and

Clasen T, Roberts I, Rabie T, et al. Interventions to improve water quality for preventing diarrhea (review). The Cochrane Library, 2006 (3); (<http://thecochranelibrary.com>).

Coggon (2003) Case-control and Cross-sectional studies .Epidemiology for the uninitiated four editions.

composition of the adult human body and its bearing on the biochemistry of

CURTIS, V., KANKI, B., COUSENS, S., DIALLO, I., KPOZEHOUEN, A., SANGARE, M.

DANERT, K., CARTER, R., ADEKILE, D. &amp; MACDONALD, A. 2009. Cost-effective

DEGABRIELE, J. &amp; MUSA, A. 2009.

An emergency response to humanitarian WASH-

DODOS, J. 2017. WASH’Nutrition: A practical guidebook on increasing nutritional

Drake L, et al. (2006) Helminthes infections: soil transmitted helminthes infections and schistosomaiasis. In: Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, et al., editors. Disease control priorities in developing countries. 2ndedition. New York: Oxford University Press and the World Bank. pp. 467–82.

Effects of improved water supply and sanitation on ascariasis, diarrhoea, dracunculiasis, hookworm infection, schistosomiasis, and trachoma. Bulletin of the World Health 25

enteropathy, nutrition, and early child development: making the links. Annals of

Esrey SA, Potash JB, Roberts L, Shiff C. (1991)Effects of improved water supply and sanitation On ascariasis, diarrhea, Dracunculiasis, hookworm infection, schistosomaiasis, and trachoma. Bull World Health Organ 69: 609–621.

Fewtrell L., et al. (2005) Water, sanitation, and hygiene interventions to reduce diarrhea in less developed countries: a systematic review and meta-analysis. *Lancet Infectious Diseases* 5: 42-52 [This is a Cochrane review of studies conducted before June 26, 2003 that assessed the impact of water, hygiene, and sanitation interventions on disease prevention].

Ford T.E (1999). Microbiological Safety of D growth. Journal of Biological Chemistry, 158, 625-637.

Health line media UK Ltd, Brighton UK.*parasitic infactions*.Retrieved September 20 2016 from <https://www.healthline.com>.

MedProWaste Disposal LLC (2009).Waste disposal. Retrieved from www.medprodisposal.co

MITCHELL, H., HAMILTON, T., STEGGERDA, F. &amp; BEAN, H. 1945. The chemical

Module three (2019) Morbidity Frequency Measures. Epidemiology, Africa Centre for Management (ACPM).

MORIARTY, P., BUTTERWORTH, J., VAN KOPPEN, B. &amp; SOUSSAN, J. 2004. Water,

MUKITALE, M. 2017. The Surface Water Treatment Plant System - SWAT [Online].

NGURE, F. M., REID, B. M., HUMPHREY, J. H., MBUYA, M. N., PELTO, G. &amp;

NRC. 2018. Water, sanitation and hygiene (WASH) promotion [Online]. Oslo: NRC.

Open University (Open Learn) (2018) Types of epidemiological studies. Epidemiology - An introduction.

OXFAM. 2013. Oxfam Minimum Requirements for WASH Programmes (MR-WASH).

PAANLUEL WEL MEDIA LTD- SOUTH SUDAN, 2017, Profile of Cueibet town**.**

Shamoo, A.E., Resnik, B.R. (2003). Responsible Conduct of Research. Oxford University Press.

South Sudan Household Survey Second Round 2010, water and sanitation summary report August, 2011.

Sphere minimum standards and indicators for UNHCR WASH manual*.* Retrieved April 1-2016 from https://[www.spherehandbook.org](http://www.spherehandbook.org).

STOLTZFUS, R. J. 2014. Water, sanitation, and hygiene (WASH), environmental

supplies in Africa. Desalination, 248, 546-556.

The New York Academy of Sciences, 1308, 118-128.Times Now*.* (New Delhi*)* Five reasons why hand washing is so important/health tips and news. Retrieved October 2017, from <https://www.timesnownews.com>.treatment-plant-system-swat [Accessed 28-Sep-2018 2018].

UK.United States: WVI. Available: https://www.wvi.org/video/surface-water-

USLEGAL (1997-2019), Hygiene Law and legal Definitions, air Slate Legal forms, Inc.d/b/a USLEGAL.

VIRTUOUS TRIAD- Food safety consulting.10 good reasons to wash your hands. Retrieved April-30-2015 from www.virtuoustraid.com.

Water Supply and Sanitation for Life: Making it Happen. Geneva, 2005 (WHO/UNICEF Joint

Monitoring Programme).Water supply, sanitation, and hygiene education, IDRC, Ottawa, ON, CA

WebMD medical Reference 2018.Types of lung diseases and their cause. Retrieved from [www.webmd.com](http://www.webmd.com)

WHO (2002) Prevention and control of schistosomaiasis and soil-transmitted helminthiases: report of a WHO expert committee. Contract No.: 912. Geneva: World Health Organization Zimbabwe

**APPENDEX**.

**RESEARCH QUESTIONNAIRES.**

My name is **Marik Abraham Malok**, pursuing a **Diploma in Public Health at Africa Centre for Project Management (ACPM)**.Am undertaking a study on **an investigation on the effects of poor hygiene to urban residents of Cueibet town**. Intellectuals and business people in town of Cueibet have been chosen to participate in this research study to give their opinion on matters of poor hygiene to urban residents.

Am requesting you to participate in the study and If you kindly agree to participate than any information that is going to be obtained from you will be kept confidential. Your name will not be mentioned or identified in any report.

Also you are free to withdraw at any time if you feel uncomfortable with the questions.

**Respondent.**

I have read and understood the entire document (which has further been explained to me) and have agreed to participate in the research conducted by **Marik Abraham Malok**; which will involve me providing my opinion on questions in relation to the effects of poor hygiene to urban residents of Cueibet town.

I voluntarily sign this agreement.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Phone number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Interviewed by:

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature/ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Contact: 0922421178

**GENERAL INFORMATION.**

1. Gender:

Male. { }

Female. { }

2. Age:

Between16-30. { }

Between 31-45. { }

Between 46-60. { }

**Educational level**. 1. Primary. 2. Secondary. 3. College. 4. University.5. Postgraduate (circle one)

.

**Kindly answer the questions by putting a tick in the appropriate box or by writing in the space provided.**

**SECTION A W.A.S.H.**

1. **What are the causes of poor hygiene in town of Cueibet today?**

a) ---------------------------------------------------------------------------------------------------

b) ---------------------------------------------------------------------------------------------------

c) ---------------------------------------------------------------------------------------------------

d) ----------------------------------------------------------------------------------------------------

1. **Mention some common diseases caused by poor hygiene to urban residents of Cueibet.**

a) ----------------------------------------------------------------------------------------------------

b) ----------------------------------------------------------------------------------------------------

c) ----------------------------------------------------------------------------------------------------

d) ----------------------------------------------------------------------------------------------------

e) ----------------------------------------------------------------------------------------------------

1. **How would you rate the effect of poor hygiene in Cueibet town? (Tick one below)**

**Very high.**

**High.**

**Fair.**

**Low.**

1. **Briefly explain how the effects of poor hygiene affect urban residents of Cueibet town.**

--------------------------------------------------------------------------------------------------------------------- ------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

1. **Do people know how to prevent common diseases caused by poor hygiene? (Tick one below)**

**Yes. { }**

**No. { }**

1. **How would you rate the prevention of hygiene-related diseases affecting people in urban areas?**

**Very high { }**

**High { }**

**Fair { }**

**Low { }**

7**. In your opinion suggest ways in which common diseases caused by poor hygiene can be prevented from urban residents.**

**a)……………………………………………………………………………………………………b)……………………………………………………………………………………………………**

**c)……………………………………………………………………………………………………**

**d)……………………………………………………………………………………………………**

**SECTION B SANITATION**

**8. Do you have public toilet in the market?**

**a). Yes**

**b). No**

**9. How do you rate the usage of public toilet/pit latrine?**

**a). very high**

**b). high**

**c). fair.**

**d). poor.**

**10. Justify your reason(s) in question 9 above.**

**---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------**

**11. What are the reasons that some people defecate in the bush? (Circle the right answers).**

**1. No toilet.**

**2. Toilets Are Dirty**

**3. Toilet smells bad**

**4. Long Waiting Time**

**5. Other (specify):**

**12. Where do the children defecate? (Tick appropriate answer).**

**1. in an open area**

**2. In nappies / underwear**

**3. in a designated location**

**4. Potty- added**

**13. What happens to the faeces of children in the market?(tick relevant answers).**

**1. Thrown in the latrine.**

**2. Left lying on the ground.**

**3. Taken to the garbage.**

**4. Left to dogs to eat.**

**5. Dig a hole and cover**

**14. How satisfied are you with human waste disposal, garbage disposal and general sanitation of town (Cueibet)?**

**1. Very satisfied**

**2. Satisfied**

**3. Unsatisfied**

**…….………………………………………..end………………………………………………….**