
POPULATION GROWTH AND SEWAGE DISPOSAL IN WAKISO DISTRICT:

A CASE STUDY OF BUSUKUMA SUB-COUNTY

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ABSTRACT

The major objective of this study lied in finding out whether there was a relationship between Population Growth and Sewage Disposal in Busukuma Sub- County, Wakiso district. Other objectives included: To find out the extent of Population Growth in Busukuma sub-county, Wakiso District and to find out the level of Sewage Disposal in Busukuma Sub- County, Wakiso District. The study employed a qualitative and quantitative research design and simple random probability sampling and purposive sampling techniques were used to obtain a sample size 80 respondents of from Busukuma Sub- County using solvin's formula. Data was analyzed by use of Microsoft excel and presented in form of frequency distribution tables and pie chart. SPSS Software was used to analyze data in the study. Since the highest level of importance required to declare an important connection among population growth and sewage disposal was far less than 0.01, the investigator discovered that there is a significant positive correlation between population growth and sewage disposal at $r = 0.798$. This suggests that when the level in population improvement is high, the level of sewage elimination is projected to also be high, and when the level of population. The mean, which was 4.7400 and is close to code 5 of the Likert Scale, was used for evaluating and interpreting the rate of population increase in the Busukuma sub-county, indicating a high rate of population expansion.

Key words: population growth and sewage disposal

Background of the study

Population growth, as defined by Wilmoth (2010), is an increase in the local population. Additionally, Haub (2012) defined population growth as an increase in the number of any

living species' humanity, including humans. Population explosion is the term for the increase or decrease in the size of a population through time, depending on the ratio of births to deaths (Didymus, 2013). According to Muraguri (2011), population increase is the change in a species' total number of its members over time.

According to 2008 research in Uganda by Mustafah Kagwa, Kampala District's population increased from 0.8 million in 1991 to 1.2 million in 2002. According to estimates, the population might 2, 2 million by 2033. From the numerous hills to the lower lying regions on the banks of the drainage channels within the floodplains, human habitation and industrial growth are spreading. For the project horizon of 2033, the existing Kampala District has been chosen as the project area. Less than 10% of Kampala inhabitants have access to a public sewer, leaving the vast majority dependent on a variety of on-site sanitation methods of varying quality and efficiency. Even the few sewerage and sewage treatment plants now in place do not offer an appropriate level of service in terms of protecting Kampala's urban environment and water supplies due to a lack of necessary finances for both initial investment and routine maintenance and operation over the years.

Statement of the problem

The problem lied in finding out whether there was a relationship between Population Growth and Sewage Disposal in Busukuma Sub- County, Wakiso district.

Specific Objectives

1. *To find out the extent of Population Growth in Busukuma sub-county, Wakiso District.*
2. *To find out the level of Sewage Disposal in Busukuma Sub- County, Wakiso District.*
3. *To find out the relationship between Population Growth and Sewage Disposal in Busukuma Sub- County, Wakiso district.*

Research questions

1. *What is the extent of population growth in Busukuma sub-county?*
2. *What is the level of Sewage Disposal in Busukuma sub county?*
3. *What is the relationship between Population Growth and Sewage Disposal in Busukuma Sub- County, Wakiso district?*

Methodology

Research design

The study employed descriptive research design and was used to obtain information concerning the current status of the phenomena and to describe what exists with respect to variables or conditions in a situation (Anastas & Jeane W, 1999). The researcher used this design to obtain and describe answers to some research questions in order to collect

a more in-depth data from the field.

Target population

This grouping of components is where the sample is really drawn from (Babbie, 2004). 100 people from the Wakiso district of Busukuma sub-county were the study's target population. This was used in conjunction with Slovenes' technique for calculating sample size to create an 80-person sample group for the study.

Community residents, farmers, the LC 3 Chairperson, and the district participated in the study.

Sampling procedures

Sampling procedure refers to choosing part of a population to use to test hypotheses about the entire population (Jowin, 2003). The procedures included simple random sampling and purposive sampling and they was used to select respondents in the study.

Sample size

The investigator used a sample size of 80 participants, of which 40 were residents, and 38 were farmers, the LC 3 Chairperson, and the District Environmental Officer. The investigator had a target population of 100 inhabitants.

Sampling methods

Ahuja Ram (2010) defines sampling as the act or process of choosing an appropriate sample of the population in order to determine the variables and features of the entire population. These sampling approaches can be probability-based or non-probability-based.

Simple random sampling

The respondents in this study were community members and farmers, LC 3 Chairperson and the District Environmental Officer were used as the key informants in the study. Simple random sampling was used to select respondents in the group of members and farmers and specific attention was paid to inclusion of both male and female respondents in the study area.

Purposive sampling

Approach known as "judgmental sampling," in which specific situations, people, or events are purposefully chosen in order to convey crucial information that cannot be learned from other options, is known as "purposeful sampling."

In order to choose the LC 3 Chairperson and the District Environmental Officer as sample units, a technique known as "purposive sampling" was adopted. This method was employed by the investigator because it is extremely helpful in circumstances when you must quickly achieve a specified sample and where sampling for proportionality is not the major issue.

Data collection methods and Instruments

According to Syed Muhammad Sajjad Kabir (2016), data collection is the process of acquiring data and analyzing information on relevant variables in a predetermined organized manner that allows one to respond to specified research questions, test hypotheses, and assess results. The researcher employed both secondary and primary data methods to get information about quantitative as well as qualitative information. In order to gather data, various techniques including questionnaires and interviews were used. These were used to gather information from all farmers and locals in the Busukuma sub-county of the Wakiso District.

Data analysis

The statistical package for social science (SPSS) tool was used by the investigator to compute percentages, frequency, and tabulate reactions, as well as to employ a variety of qualitative and quantitative types of data. To find and correct mistakes made by respondents, data was modified. The responses to the questions were then coded into several categories. The data were analyzed using descriptive statistics like distribution of frequencies and proportions. The replies were all grouped accordingly to their theme categories and their contents were evaluated for qualitative data using content analysis techniques. Presentation materials included tables, charts, and figures. Software from the Statistical Package for Social Sciences (SPSS) was employed to assist in data analysis.

RESULTS

Response rate

Questionnaire return rate

40 of the 44 questionnaires were returned, providing a 91% response rate.

The study was hampered by the Covid 19 outbreak, which prompted the government to declare a total lock down throughout Uganda. Many people got back to their villages, and some of the four participants who were required to complete the surveys but went to the village were among them. Due to transportation being only available to a small number of people due to the Corona Virus outbreak, the investigator was also compelled to use mail-delivered surveys. Based on Peil (1995), a study is deemed successful if it has a survey return rate of at least 50%.

Personal information of respondents

Information regarding to the personal background of the respondents included their age, gender, marital status, occupation, education level and time spent in the area.

Age of the respondents

Information regarding the age of the respondents was added to questionnaires during the piloting process. The following information regarding the ages of the respondents was analyzed and presented in form of grouped data as shown in the table 1

Table 1: Age of the respondents

Class (Age)	Class mark (x)	frequency (f)	fx	Percentage (%)
0-10 years	5	5	25	12.5
10-20years	15	10	150	25
20-30 years	25	20	500	50
30-40years	35	2	70	5
40-50years	45	3	135	7.5
TOTAL		$\Sigma f=40$	$\Sigma fx=880$	100

Source: (Primary data, 2022)

From table 1, it was deduced that most of the respondents who participated in the study were from a mature group i.e., were within the age range of 20-30 years with 50% and this was because such people within that age group of 20-30 years are still youths and have a lot of energy to do work and reason very well. This led to the conclusion that the researched adult brains were responsible for the correctness and dependability of the information that was gathered. Additionally, the investigator

discovered from table 1 that 12.5% of the participants in Busukuma sub-county were among the ages of 0 and 10, 25% were among the ages of 10 and 20, 5% were among the ages of 30 and 40, and 7.5% were among the ages of 40 and 50.

Gender of Respondents

The study investigated the gender of the respondents and the findings were as shown in the table 2

Table 2: Gender of respondents

Gender	Frequency (No. of Respondents)	Percentage (%)
Males	15	37.5
Females	25	62.5
TOTAL	40	100

Source: (Primary data, 2022)

From table 2, it was found out that, majority of the respondents were females with 62.5% compared to males with 37.5%. This shows that females produce a lot of girl children than the boy babies. The simple random sampling technique offered each member of the population an equal and non-zero chance of participation in the study.

Occupation of the respondents

Information regarding the occupation of the respondents in Busukuma sub-county Wakiso district was collected and presented in table 3

Occupation	Frequency (No. of Respondents)	Percentage (%)

<i>Farmer</i>	20	50
<i>Civil servant</i>	5	12.5
<i>Trader</i>	15	37.5
<i>Total</i>	40	100

Source: (Primary data, 2022)

The bigger percentage of the respondents lied in farming (50%), 37.5% were traders and followed by civil servants (12.5%).

Marital status

Information regarding the marital status of respondents in Busukuma sub-county Wakiso district was obtained and tabulated as shown in table 4

Table 4: Marital status of respondents

Marital status	Number of respondents (f)	Percentage (%)
<i>Single</i>	22	55
<i>Married</i>	10	25
<i>Divorced</i>	8	20
<i>Total</i>	40	100

Source: Primary data (2022)

The major percentage of the respondents in the study was single. This was because the mean average age was 22years and people in this age range are still young to get

into serious marriage and these were 22 (55%). Only 25% of the sampled population were married and 8(20%) were divorced.

Educational level of the respondents

Information regarding the academic background of respondents in Busukuma sub-county Wakiso district was obtained and tabulated as shown in table 5

Table 5: Educational background of the respondents

<i>Educational level</i>	<i>Number of Respondents</i>	<i>Percentage (%)</i>
<i>Primary and below</i>	5	12.5
<i>O' Level</i>	15	37.5
<i>A' Level</i>	8	20

<i>Certificate</i>	7	17.5
<i>Diploma</i>	4	10
<i>None</i>	1	2.5
<i>TOTAL</i>	40	100.0

Source: Primary data (2022)

According to table 5, nearly all of the people who responded only graduated from their common level of education (37.5%) and didn't have any experience with any higher

education; 12.5% had only finished primary school; 20% were done with their A' Levels; 17.5% had finished their certificate levels; 10% had concluded their diploma levels; and 2.5% had never participated in any level of education. The figures show that the Busukuma Sub County in the Wakiso District needs and lacks education.

The extent of population growth in Busukuma Sub County, Wakiso District

This Section describes the independent variable (population growth). Information regarding the extent of population growth in Busukuma sub-county, Wakiso District was tabulated in table 6 below.

Table 6: The extent of population growth

Descriptive Statistics

	Descriptive Statistics					
	N	Range	Minimum	Maximum	Mean	Std. Deviation
The extent of population growth	40	2.00	1.00	3.00	4.7400	.70595

Source: SPSS Output page

The extent of population growth in Busukuma sub-county was analyzed and interpreted using the mean which was 4.7400, the mean is close to code 5 of the Likert Scale, hence declaring a high extent of population growth in Busukuma sub-county. This is attributed to the availability of market for goods which attract people to come and sell their produce, political stability,

abundant food, reliable health facilities, and abundant land for settlement.

The level of sewage disposal in Busukuma sub-county

This Section describes the dependent variable (sewage disposal). The dependent variable was addressed in Section C of the questionnaire for respondents.

Table 7: Level of sewage disposal

Descriptive Statistics

	<i>N</i>	<i>Range</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
<i>The extent of sewage disposal</i>	40	2.00	1.00	3.00	3.6840	.70595

Source: SPSS Output page

The mean, which was 3.6840 and is near to code 4 on the Likert Scale, was used for evaluating and interpreting the degree of sewage disposal in the Busukuma sub-county, leading to the conclusion that it is excessive. Massive population expansion, sewage from homesteads, clustered patterns of development, slum developments nearby, and the town council's inadequate rubbish collection in Busukuma sub-county are all blamed for the.

The relationship between population growth and sewage disposal***Table 8: Showing Pearson Correlation between population growth and sewage disposal***

		Correlations	
		Population growth	Sewage disposal
Population growth	Pearson Correlation	1.00	.798
	Sig. (2-tailed)		.000
	N	40	40
Sewage disposal	Pearson Correlation	.798	1.00
	Sig. (2-tailed)	.000	
	N	40	40

**** Correlation is significant at the 0.01 level (2-tailed).**

Source: SPSS output page

Population increase and economic development have a very significant positive correlation, as shown in Table 8. Sewage disposal at $r = 0.798$ and since the sig. value (.000) was much lower than 0.01, which is the highest level of importance needed to declare an important connection between population expansion and sewage disposal, this suggests that when the level of overall population development is high, the level of sewage disposal is projected to be high as well, and when the level of population improvement is low, the level of sewage disposal is also low.

Conclusion of the findings

The investigator came to the conclusion that this goal would be achieved by building

sewage treatment plants in the Busukuma sub-county area. Additionally, densely populated areas always have poor waste disposal, this is because of traffic, as opposed to smaller towns where people always have little sewage from farmhouses that they discharge to the environment and which have almost no negative effects on the surroundings.

The investigator came to the conclusion that there is a statistically significant connection among increase in population and sewage disposal at $r = 0.798$ and since the sig. value (.000) was far below the threshold level of significance threshold 0.01, which is required to declare such a connection.

Recommendations of the study

The issue of poor trash dumping into the environment by residents of Busukuma sub-county needs to be addressed. In order to treat sewage before it is released into the atmosphere, the National Water and Sewage Cooperation (NWSC) should build sewage treatment facilities nearby. Additionally, the government must establish and uphold strong rules in the region to penalize those who improperly dispose of waste.

Inhabitants of the Busukuma sub-county need to be made aware of the risks associated with releasing waste that has not been processed into the environment because doing so results in the spread of infectious illnesses like cholera, ebola, dysentery, and other conditions linked to poor sanitation. As a result, citizens need to be made aware of their rights through conferences and seminars that are hosted by NWSC or NEMA members.

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