

**POLLUTION AND ENVIRONMENTAL CONSERVATION IN KISORO DISTRICT: A CASE
STUDY OF KISORO MUNICIPALITY**

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ABSTRACT

The main goal of this study was to determine whether environmental conservation and pollution were related in the Kisoro municipality. Other goals included determining the amount of safeguarding the environment in the Kisoro municipality and the degree of pollution there. Using Solvin's method, a sample size of forty-four participants from the intended sample of fifty people who live in the Kisoro municipality was obtained for the study using a simple random sampling with probability technique. There were twenty surveys for farmers, 22 for residents, one for the LCI Chairperson, and one for the district used to gather information from participants about the connection between pollution and environmental conservation. Both structured and semi-structured surveys were used. From the findings, there was a very strong positive relationship between pollution and environmental conservation at $r = 0.775$ and since the sig. value (.000) was far less than 0.01, which is the maximum level of significance required declaring a significant relationship between pollution and environmental conservation, this implies that the level of pollution greatly affects the rate of environmental conservation. The study came to the conclusion that the area's high level of industrialization and contaminants from farmhouses were to blame for the pollution. The investigator came to the additional conclusion that human activities like deforestation, bush burning, marsh reclamation, and inadequate sewage disposal contributed to the minimal amount of environmental protection in the Kisoro municipality. The investigator came to the conclusion that in the Kisoro district, pollution and environmental preservation are positively correlated. This was due to the

fact that the degree of sustainability preservation is significantly influenced by the level of pollution in the area.

The researcher recommended the government to carry out enough sensitization of people about the importance of environmental conservation.

Key words: *pollution and environmental conservation*

Background of the study

Pollution is defined as the infiltration of toxins into the natural environment that result in negative change by Dr. Yashpal Singh Narwaria in 2007. Chemical substances or energy, such as sound, heat, or light, can be pollutants. The two types of pollutants and imported substances/energies can be considered pollutants, which are the elements of pollution.

Similar to the rest of the African continent, Southern Africa has made significant progress in the areas of commercialization, urbanization, and economic development overall as it transitioned from a rural to a complex civilization. Environmental issues that were practically nonexistent at the turn of the 20th century have emerged as a result of economic growth and increasing numbers of people. One of the parts of Africa that has been growing the quickest is Southern Africa. Energy is a necessity for economic development, and in the Southern African Development Community (SADC) nations, coal and fuel wood are the main energy sources. The state of pollution in the air in southern Africa was revealed in country studies on the situation in seven southern African nations (Botswana, Malawi, Mozambique, South Africa, Tanzania, Zambia, and Zimbabwe) that APINA requested in 2002.

In accordance to research done in Nigeria by Okali (1979), it was discovered that the primary concern of conserving natural assets in Nigeria has been on the availability of forests, with wildlife and aquaculture receiving less attention. Forest reserves were established to hold timber "in reserve" in order to achieve the first goal, but

native peoples' rights to collect minor products were also acknowledged. Despite attempts, only about 10% of the nation's total land area is designated as a forest reservation, a long cry from the recommended area of 25%.

Statement of the problem

The problem lied in finding out the relationship between pollution and environmental conservation in Kisoro municipality, Kisoro district.

Specific Objectives

- 1. To find out the level of pollution in Kisoro municipality.*
- 2. To find out the extent of environmental conservation in Kisoro municipality.*
- 3. To find out the relationship between pollution and environmental conservation in Kisoro municipality, Kisoro district.*

Research questions

- 1. What is out the level of pollution in Kisoro municipality?*
- 2. What is the extent of environmental conservation in Kisoro municipality?*
- 3. What is the relationship between pollution and environmental conservation in Kisoro municipality, Kisoro district?*

Methodology

Research design

When gathering data for the study, both qualitative and quantitative methods were used. While a quantitative strategy allowed the investigator to build statistical models in an effort to explain what was discovered, the use of qualitative methods allowed

the investigator to give a thorough, detailed explanation of what was happening concerning the study for in-depth data collection. Comparative analysis and data from statistics aggregation were also given by the quantitative approach.

Study participants

A group of individuals within the study's geographical region is its target. 22 people from the community, 20 farmers, the chairwoman of LC1 and a district conservation officer from the Kisoro municipality made up the study demographic.

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 will be used to select respondents in the study.

Sample size

A sample is a small subset of the total population (George & Mallery, 2003).

The study sample comprised of 44 respondents out of 50 of the total population where 20 respondents were farmers, 22 respondents were community members, LC1 Chairperson and a district environment officer.

Sampling techniques

Ahuja Ram (2010), defines sampling as the act or process of selecting a suitable sample of the population for the purpose of determining parameters of characteristics of the whole population, and these can be either probability or non-probability sampling techniques.

Simple random sampling

According to simple sampling methods, each member of the overall population has a comparable and distinct likelihood of being chosen for the sample (Orodho, 2004).

Farmers, residents of the neighborhood, the LC1 Chairperson, and the district conservation officer participated in the study as responders. Key responders for the study were a district conservation officer and the president of LC1. In order to choose responders from the group consisting of farmers and community people, simple random sampling was used. A simple random sampling was used to choose the 20 farmers and 22 neighborhood residents who took part in the study. Special attention was given to including both male and female respondents in the study region.

Purposive sampling

The units in the sample, including LC1, were chosen using a deliberate sampling procedure.

The district's environment officer and the chair. This method is founded on the study's goal and the distinctive features of a population. This method was employed by the investigator because it is extremely helpful in circumstances when you must quickly achieve a specified sample and were selecting for symmetry is not the major issue.

Only those people who are pertinent to the research design are chosen through purposeful sampling, which is less expensive, more easily available, and more comfortable. In addition, there is no way to guarantee that the group being studied is actually accurately representing the general population, and therefore the investigator's ability to evaluate the population's constituent parts is given additional weight.

Data collection methods and instruments

According to Syed Muhammad Sajjad Kabir (2016), data collection is the process of acquiring data and analyzing data pertaining to relevant variables in a predetermined systematic way that allows one to respond to specified inquiries, examine hypotheses, and assess results. The investigator employed both secondary and primary data

methods to gather quantitative as well as qualitative information. In order to gather data, various techniques including questionnaires and interviews were used. These were employed to gather information from all the residents and farmers of the Kisoro municipality and Kisoro area.

Data analysis

The statistical package for social science (SPSS) tool was used by the investigator to compute proportions, frequency, and tabulate responses, as well as to employ both quantitative and qualitative types of data. To find and correct mistakes made by participants, data was modified. To categorize the answers to the questions, coding was done. The data were analyzed using statistical techniques like frequency distribution and percentages. The submissions were all grouped according to their theme categories and their contents were evaluated for qualitative data using content analysis. Presentation materials included tables, charts, and figures. The analysis of data was aided by the use of Microsoft Excel and the Statistical Package for Social Sciences (SPSS). Linkert fashion was used to establish the between pollution and environmental conservation.

RESULTS

Response rate

Questionnaire return rate

All the 44 questionnaires were given out, 40 were returned, thus representing 91% response. The

4 unreturned questionnaires were not returned because the study was disturbed by the outbreak of Covid 19, this forced the government to declare a total lock down all over Uganda and many people went back to villages and among those included some of the 4 respondents who had to fill the questionnaires but went to village.

Personal information of respondents

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

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 determined that 50% of the individuals who took part in the survey belonged to a mature group, meaning they were between the ages of 20 and 30. 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 Kisoro municipality were aged among 0 and 10 years, 25% were aged among 10 and 20 years, 5%

were among 30 and 40 years old, and 7.5% were among 40 and 50 years old.

Gender of Respondents

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

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Table 2: Gender of respondents

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

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

Table 3: Occupation of respondents

Occupation	Frequency (No. of Respondents)	Percentage (%)
Farmer	15	37.5
Civil servant	7	17.5
Industrial worker	10	25.0
Trader	8	20.0
Total	40	100

Source: Primary data (2022)

The bigger percentage of the respondents lied in farming (37.5%), 17.5% were civil servants,

25% were industrial workers and 20% were traders.

Marital status

Table 4: Marital status of respondents

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

The major percentage of the respondents in the study was single (55%). This was because the

mean average age was 22years and people in this age range are still young to do many human activities 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 Kisoro municipality, Kisoro district was obtained and tabulated as shown in table 5

Table 5: Educational background of the respondents

Educational level	Number of Respondents	Percentage (%)
Primary and below	5	12.5
O' Level	15	37.5
A' Level	8	20
Certificate	7	17.5
Diploma	4	10
None	1	2.5
TOTAL	40	100.0

Source: Primary data (2022)

From table 5, it was found out in an analysis of interviews and questionnaire that majority of the respondents had only completed their ordinary level of education (37.5%) and never, 12.5% had completed primary and below, 20% had completed their A' Level of education, 17.5% had finished their certificate level of education, 10% had completed their diploma level and 2.5% had not attended any level of education in their lives. From the statistics, it's indicating that the education of Kisoro district is lacking and needing.

The level of pollution in Kisoro municipality, Kisoro District

This Section describes the independent variable (Pollution). The independent variable was addressed in Section B of the questionnaire for respondents.

Information regarding the level of pollution in Kisoro municipality, Kisoro district was tabulated in table 6 below.

Table 6: The level of pollution in Kisoro Municipality

<i>Descriptive Statistics</i>						
	<i>N</i>	<i>Range</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
LEVEL OF POLLUTION	40	2.00	1.00	3.00	4.2800	.85809
Valid N	40					

Source: SPSS output page

The level of pollution was analyzed and interpreted using the mean which was 4.280, the mean is close to code 5 of the Likert Scale, hence declaring a high level of pollution in Kisoro District. This is attributed to congestion in the municipal town which leads to air, water, land and noise pollution and pollutants mainly come from homes.

The extent of environmental conservation in Kisoro municipality, Kisoro District

This Section describes the dependent variable (Environmental conservation). The independent variable was addressed in Section C of the questionnaire for respondents.

Table 7: The extent of environmental conservation

Descriptive Statistics						
The extent of environmental	N	Range	Minimum	Maximum	Mean	Std. Deviation
al	40	2.00	1.00	3.00	1.4400	.70595
	40					

Source: SPSS Output page

The extent of environmental conservation in Kisoro Municipality was analyzed and interpreted using the mean which was 1.4400. The mean is close to code 2 and it is very low, hence indication a low extent of environmental conservation in Kisoro Municipality. This is attributed to because of increased deforestation, swamp reclamation and poor sewage disposal in the area

*The relationship between pollution and environmental conservation***Table 8: Showing Pearson Correlation between pollution and environmental conservation**

		Correlations	
		Pollution	Environmental Conservation
Pollution	Pearson Correlation	1.00	.775
	Sig. (2-tailed)		.000
	N	40	40
Environmental Conservation	Pearson Correlation	.775	1.00
	Sig. (2-tailed)	.000	
	N	40	40

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

Source: SPSS output page

Table 8 indicates that there is a very strong positive relationship between pollution and

environmental conservation at $r = 0.775$ and since the sig. value (.000) was far less than 0.01, which is the maximum level of significance required declaring a significant relationship between pollution and environmental conservation, this implies that the level of pollution greatly affects the rate of environmental conservation.

Conclusion of the findings

The researcher concluded that the extent of environmental conservation in Kisoro municipality is small and this was due to human activities like deforestation, bush burning, swamp reclamation and poor sewage disposal.

The researcher concluded that there is a strong positive correlation ($r = 0.775$)

between pollution and environmental conservation in Kisoro district. This was because the level of pollution in the area greatly influences the extent of environmental conservation.

Recommendations of the study

The researcher recommended the government to carry out enough sensitization of people about the importance of environmental conservation.

The researcher also recommended farmers to use good methods of farming like afforestation, agro-forestry and mulching.

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