

**ROADS AND FOOD SECURITY IN KISORO DISTRICT: A CASE STUDY OF KISORO
MUNICIPALITY**

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ABSTRACT

Finding out whether there was a connection among roads and food security in Kisoro Municipality, Kisoro District, was the main goal of this study. The level of road improvement in Kisoro Municipality and the level of food security in Kisoro Municipality, Kisoro District, were among the other goals. To obtain a sample size of eighty participants from Kisoro Municipality, Kisoro District using Solvin's formula, the study utilized a case study research design, cross-sectional in qualitative, and statistical designs. Additionally, simple random chance sampling and deliberate sampling methods were used. The study's target populations were 38 road builders, 40 landowners, the chairman of LC 5 and the district management officer. Microsoft Excel was used to analyze the data, which was then displayed as the distribution of frequencies tables and pie charts. The study's data were analyzed using SPSS software.

When the level of road transport expansion is high, the level of food security is also high because agricultural goods can be shipped safely to markets and from landscaping, whereas when the level of road transport expansion is low, the level of food security is also low. This was discovered to be an extremely significant positive connection between roads and food security at $r = 0.708$. The researcher recommended the government to provide food storage stores in different parts of Kisoro District to store food and use it in times of food scarcity. The researcher also recommended the government to construct tarmacked roads to ease transport of

people and agricultural produce in Kisoro District.

Key words: roads and food security

Background of the study

The Food and Agriculture Organization of the United Nations (FAO) was established as a result of the United Nations Conference on Food and Agriculture, which was called by President Franklin D. Roosevelt at Hot Springs, Virginia, USA, in May/June 1943 during the Second World War. Before the United States entered the war, President Roosevelt outlined "four fundamental freedoms" in his State of the Union address on January 6, 1941: freedom of speech, freedom of worship, freedom from want, and freedom from fear "anywhere in the world" (Rosenman, 1950).

Around 805 million people worldwide, according to estimates from the FAO (2014), lack access to enough food for a healthy, active life. This equates to around 1 in 9 people on the planet. In underdeveloped nations, where 13.5% of the populace is underweight, more than half of the world's hungry people reside. The area with the highest rate of hunger is Sub-Saharan Africa. Every fourth person is malnourished. The global economic crisis has resulted in higher domestic food prices, reduced earnings, and rising unemployment rather than poor harvests as the source of the increase in hunger. Many people in poverty are unable to buy the nourishment they require. In actuality, the rise in food insecurity has an impact on every part of the world.

Tanzania's largest food source for the majority, as reported by URT (2006) and FAO (2014), is crop production. Notwithstanding the fact that the nation is not prone to drought, shortages of food can be both temporary and persistent. Arusha, Kilimanjaro, Manyara, Singida, Shinyanga, Tabora, some sections of Tanga, and the central and northern regions of Dodoma, Singida, Shinyanga, and Tabora are examples of marginal regions that frequently encounter temporary food shortages.

Statement of the problem

Road networks continue to be Uganda's primary means of transportation and serve as its principal entry point into its neighbors' nations. Therefore, the country's economic operations are highly impacted by the amount and quality of roadways. The manufacturing of goods and services is negatively impacted by inadequate road infrastructure, which raises prices and reduces the country's ability to compete internationally through exports. Governments must discourage improper allocation of resources if it is to be effective in promoting a quicker growth rate (Mengistu, D., 2019).

Sh9 trillion, utilized by UNRA to build 1500km of roads in 7 years, was adequate to build at least 5147km, according to (Kisoro District Local Government, 2015). This suggests that there is a lack of efficiency leading to a low output relative to the input. As a result, comparable to the money put into it, the expansion in kilometers of roads, both paved and unpaved, has been modest throughout time. There is not enough empirical information on the relationship among road construction and the availability of food in Uganda, but this delayed growth has an impact on the nation's ability to move agricultural products to manufacturing facilities. Therefore, the study set out to determine how roads and food security related in Kisoro Municipality and Kisoro District.

Specific objectives

- 1. To establish the level of Road transport development in Kisoro Municipality.*
- 2. To find out the extent of Food Security in Kisoro Municipality, Kisoro District.*
- 3. To find out the relationship between Roads and Food Security in Kisoro Municipality, Kisoro District.*

Research questions

- 1. What is the level of Road transport development in Kisoro Municipality?*
- 2. What is the extent of Food Security in Kisoro Municipality, Kisoro District?*
- 3. What is the relationship between Roads and Food Security in Kisoro Municipality, Kisoro District?*

Methodology

Research design

During data gathering for the study, both qualitative and quantitative methods were used. While a quantitative strategy allowed the researcher to build mathematical models in an effort to explain the findings, a qualitative strategy allowed the investigator to give a thorough, detailed explanation of the phenomenon concerning the study for in-depth data collection. Comparative analysis and data from statistics aggregation were also given by the quantitative method.

Additionally, a cross-sectional survey methodology was used in the study. The cross-sectional methodology was chosen because it allows for the collection of data from a variety of participants in a sizable number of distinct categories all at once. A cross-sectional survey design collects data to make inferences about a population of interest at one point in time. The advantage of a cross-sectional survey is its flexibility in that it can be conducted using any mode of data collection.

Study population

The target population for the study comprised of 100 residents from Kisoro

Municipality. This was correlated with solvin's formula of sample size determination to obtain a sample population of 80 respondents for this study. The target population in the study included 60 farmers, 38 road constructors, LC5 Chairman and Kisoro district planning officer. All these groups constituted the study population because the researcher is interested in divergent views from all people concerned with the problem.

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 was used to select respondents in the study.

Sample size

The study sample comprised of 80 respondents out of 100 of the total population where 40 respondents were Farmers, 38 were Road constructors, LC 5 Chairman and District Planning 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

Farmers, residents of the neighborhood, the chairman of LC5 and the district development officer participated in this study as responders. Key participants for the study included a District Planning official and the LC5 Chairperson. In order to choose responders from the group of farmers and community people, simple random sampling was used. The study comprised the participation of 38 farmers and 40

neighborhood residents, who were chosen using simple random sampling with special care devoted to including both male and female respondents in the study region.

Purposive sampling

Units were chosen for the sample using a deliberate sampling procedure, including LC 5.

Kisoro District's chairman and a district planning officer. This method is founded on the study's goal and the characteristics of a population. This method was employed by the researcher because it is extremely helpful in circumstances when you must quickly achieve a specified sample and where sampling 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 sample is actually representative of the population, thus the investigator's ability to evaluate the components of the sample is given additional weight.

Data collection methods and instruments

Both the use of secondary and primary data methods was used by the researcher to collect qualitative and quantitative data information. Thus, different two methods were used to collect data which included questionnaire and interview method. These were used to collect data from all farmers and road constructors in Kisoro Municipality, Kisoro District.

Questionnaire

The questionnaire was the main primary data collection tool employed by the investigator in this study. To accompany the key informant interview and document review, the investigator created 22 surveys for neighborhood people, 20 for farmers, and other for key participants, including the LC5 Chairperson and district environmental officer. Since the surveys followed the format of established

objectives and succeeding research inquiries, they were all instructed. Everyone who participated received guarantees regarding the privacy of the data they supplied to the researcher, which was only utilized for academic purposes.

Interviewing method

The instrument employed a key informative guide which included questions on the specific objectives of the study. This helped in capturing of qualitative information needed in this study.

Interview guides

There are many different types of interviews, including one-on-one and group interviews that take place in person. The use of the telephone or other technological devices, such as computers, can mediate queries and answers. Unstructured, semi-structured, and organized interviews are all possible. The investigator used face-to-face interviews in addition to surveys to gather information on the connection between roads and food security in Kisoro Municipality.

Data analysis

The statistical package for social science (SPSS) tool was used by the investigator to compute percentages, 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. The answers given to the questions were then coded into several categories. The data were analyzed using descriptive statistics like frequency distribution and proportions. The answers were all grouped accordingly to their theme categories and their contents were evaluated for qualitative information using content analysis. Presentation materials included tables, charts, and figures. Software from the Statistical Package for Social Sciences (SPSS) was used to assist with data analysis.

RESULTS

Response rate**Questionnaire return rate**

All the 80 questionnaires were given out, 60 were returned, thus representing 75% response. The study was considered good because according to Peil (1995), questionnaire return rate above 50% is considered good for a study.

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

The following information regarding the ages of the respondents was analyzed using SPSS Software and presented in form of grouped data as shown in the table 1

AGE OF RESPONDENTS					
Frequency		Percent		Valid Percent	Cumulative Percent
Valid	0-10	3	5.0	5.0	5.0
	10-	1	1.7	1.7	6.7
	20-	7	11.7	11.7	18.3
	30-	28	46.7	46.7	65.0
	40-	12	20.0	20.0	85.0
	50+	9	15.0	15.0	100.0
	Total	60	100.0	100.0	

Therefore, from the mean (4.2000) 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 30-40 years with 46.7% and this was because such people within that age group of 30-40 years have can grow crops and improve on food security. This led to the

conclusion that the researched adult brains were responsible for the correctness and dependability of the information that was gathered. In addition, the investigator learned from table 4.2.1 that 5.0% of the participants in Kisoro Municipality were between the ages of 0 and 10, 1.7% were between the ages of 10 and 20, and 20.0% were between those ages.

15.0% of people in the 40-50 age range and over were over 50. The standard deviation was 1.417, the mean was 4.00. It differed by 1.19036. 4.0000 is the median.

Gender of Respondents

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

2

GENDER OF RESPONDENTS

Frequency		Percent	Valid Percent	Cumulative Percent
Valid	FEMALE	23	38.3	38.3
	MALE	37	61.7	100.0
	Total	60	100.0	100.0

From table 2, it was found out that, majority of the respondents were males with 61.7%

compared to females with 38.3%.

Occupation of the respondents

Information regarding the occupation of the respondents in Kisoro Municipality, Kisoro District was collected and presented in table 3.

OCCUPATION OF RESPONDENTS

Frequency	Percent	Valid Percent	Cumulative Percent
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Valid	FARMER	37	61.7	61.7	61.7
	CIVIL SERVANT	9	15.0	15.0	76.7
	ROAD CONSTRUCTOR	7	11.7	11.7	88.3
	CIVIL ENGINEER	7	11.7	11.7	100.0
	Total	60	100.0	100.0	

From table 3, it was found out that 11.7% of the respondents were civil engineers, 61.7% were farmers, 11.7% were road constructors and only 15.0% of the respondents were civil servants.

Marital status

Information regarding the marital status of the respondents in Kisoro Municipality was collected and presented in table 4

Table 4: Marital status of respondents

MARITAL STATUS OF RESPONDENTS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SINGLE	20	33.3	33.3	33.3
	MARRIED	36	60.0	60.0	93.3
	DIVORCED	4	6.7	6.7	100.0
	Total	60	100.0	100.0	

From table 4, it was found out that, majority of the respondents were married with 60.0%,

33.3% of the respondents were single and only 6.7% had 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**EDUCATION LEVEL OF RESPONDENTS**

	Frequency	Percen	Valid Percent	Cumulative Percent
Valid PRIMARY AND BELOW	19	31.7	31.7	31.7
O LEVEL	18	30.0	30.0	61.7
A LEVEL	6	10.0	10.0	71.7
CERTIFICATE	9	15.0	15.0	86.7
DIPLOMA	8	13.3	13.3	100.0
Total	60	100.0	100.0	

From table 5, it was found out in an analysis of interviews and questionnaire that majority of the respondents (31.7%) had completed primary level of education and never continued with their further studies, 10.0% had completed their A' Level of education, 15.0% had finished their certificate level of education, 30.0 had finished their ordinary level of education and 13.3% of the respondents around Kisoro Municipality had completed diploma level of education. From the statistics, it's indicating that the Education of people around Kisoro Municipality is lacking and needing.

The level of Road transport development in Kisoro Municipality, Kisoro District

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

Table 6: The level of road transport development**Descriptive Statistics**

	N	Range	Minimu	Maximum	Mean	Std.
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Level of road transport development	60	2.00	1.00	3.00	1.8200	.81039
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Source: SPSS Output page

The level of road transport development in Kisoro Municipality was analyzed and interpreted using the mean which was 1.8200, the mean is close to code 2 of the Likert Scale, hence declaring a low

level of road transport development in Kisoro Municipality, Kisoro District. This is attributed to the terrain of the area which is mountainous and this limits road construction, limited land for road expansion in the area, the wet climatic conditions of the area characterized by heavy rains limit road transport on muddy soils and also corruption of road construction and renovation funds is also high hence hindering road transport development.

The extent of Food Security in Kisoro Municipality

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

Table 7: The extent of Food Security

Descriptive Statistics

	<i>N</i>	<i>Range</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
<i>Extent of Food Security</i>	60	2.00	1.00	3.00	3.9700	.82595
<i>Valid N</i>	60					

Source: SPSS Output page

The extent of food security in Kisoro Municipality was analyzed and interpreted using the mean which was 3.9700, the mean is close to code 4 of the Likert Scale, hence declaring a high extent of food security in Kisoro Municipality. This is attributed to the fertile soils of Kisoro District which facilitate crop growing like Irishes, bananas, beans, onions, cassava among others. This in turn ensures that there is abundant food supply in the district to feed the available small population. The reliable rain falls also facilitate the growing of crops, hence high crop production which fosters food security in the area.

The relationship between roads and food security

Table 8: Showing Pearson Correlation between roads and food

security

<i>Correlations</i>				
			Roads	Food Security
Roads	Pearson Correlation		1.00	.708
	Sig. (2-tailed)			.000
	N		60	60
Food Security	Pearson Correlation		.708	1.00
	Sig. (2-tailed)		.000	
	N		60	60

**** 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 roads and food security at $r = 0.708$ 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 roads and food security, this implies that the when the level of road transport development is high, the level of food security is also high because agricultural products are transported safely to the markets and from gardens and when the level of road transport development is low, the level of food security is also low.

Conclusion of the findings

The researcher concluded from the findings that the level is very low and this is attributed to the terrain of the area which is mountainous and this limits road

construction, limited land for road expansion in the area, the wet climatic conditions of the area characterized by heavy rains limit road transport on muddy soils and also corruption of road construction and renovation funds is also high hence hindering road transport development.

Recommendations of the study

The government should provide food storage stores in different parts of Kisoro District to store food and use it in times of food scarcity. The researcher also recommended the government to construct tarmacked roads to ease transport of people and agricultural produce in Kisoro District.

Bibliography

FAO. (2015). The State of Food Insecurity in the World. Rome, Italy: International Hunger Targets: Taking Stock of Uneven Progress.

Kisoro District Local Government. (2015). Uganda: Kisoro District Local Governmen. District Development Plan 2019-2024.

Mengistu, D. (2019). The Effect of Rural Road Access on Household Food Security: Evidence from Ethiopia. Agriculture and Food Security.