
MINING AND INFRASTRUCTURE DEVELOPMENT IN MUBENDE DISTRICT:

A CASE STUDY OF MUBENDE MUNICIPALITY

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ABSTRACT

The major objective of this study lied in finding out whether there was a relationship between Mining and infrastructure development in Mubende municipality, Mubende district. Other objectives included: to find out the extent of mineral extraction in Mubende municipality, Mubende district and to find out the level infrastructure development in Mubende municipality Mubende district. In order to obtain a sample size of 56 participants from Mubende Municipality using Solvin's calculation, the study used a descriptive and empirical methodology. In Mubende municipality, data were gathered from participants using surveys and interviews guides. Of those who participated, 11 were farmers, 33 were miners, 8 were investors, one was the LCI Chairperson, and one was the district organizing officer. Microsoft Excel was used to analyze the data, and graphs, frequency distribution tables of information, and pie charts were used to illustrate the results. The study's data were analyzed using SPSS software. The investigator came to the conclusion regarding this objective based on the results that there is a greater level of mineral extraction (74.0%), which is caused by a number of factors including a strong demand for plentiful substances like gold and trained labor supplied by the young population. The development of infrastructure and mining have a strong positive association. The researcher came to the conclusion that the high degree of mineral extraction observed in the study area put public pressure on the government to upgrade the area's network. To fully and efficiently carry out mining tasks, the investigator advises the miners to adopt some advanced mining techniques as well.

Key words: mining and infrastructure development

Background of the study

The removal of valuable gemstones or other geological elements from the earth, typically from an ore body, lode, vein, seam, reef, or placer deposit, is referred to as mining by Vishny (1989). Mining is defined by Ravallion (2003) as the activity or business of excavating mines to find minerals, metals, jewels, etc. Shibata (1993) defined extraction as the process of removing metals and minerals from the earth, such as gold, silver, diamonds, copper, aluminum ore, tantalum, cassiterite, and manganese.

Infrastructure development, according to Pedroni (2008), is the raising of the quality of the many infrastructure elements in the nation, including the roads, power, ICT, water, and sanitization systems. Building and enhancing the fundamental services that underpin an economy is known as developing infrastructure (Jacoby, 2000). Buildings, roads, and power supply are examples of essential physical and organizational structures and facilities that must be improved for a community or business to function (Lokshin, 1996).

A wide range of mineral deposits, including both high value minerals (such as gold, limestone, uranium, marble, graphite, gypsum, iron ore, wolfram, nickel, copper, cobalt, tin, rare earth elements) and low value minerals like industrial minerals, building materials, category stones, and semi-precious stones, are present in Uganda due to the country's geological endowment. Mining reserves and operations are common in Kabale, Hoima, Buliisa, Kasese, Ntoroko, Masaka, Kabong, Kisoro, Busia, Tororo, Ntungamo, Mubende, Kotido, Bushenyi, Rukungiri, Moroto, Amudat, Kanungu, Bugiri, Gulu, Buhweju, Namutumba and Mayuge districts (kigozio Adam, 2017).

Women are prevented from taking part in making decisions that may affect their lives in the Mubende and Buhweju districts by structural hurdles (Global rights alert, 2007).

Though 35%¹ of the people employed in artisanal and small-scale mining are women, they rarely participate in making decisions that shape the sector. Thus, they are exposed to poor working conditions often characterized by exploitation.

Statement of the problem

The problem lied in finding out whether there was a relationship between Mining and infrastructure development in Mubende municipality Mubende district.

Specific objectives

- 1. To find out the extent of mineral extraction in Mubende municipality Mubende district.*
- 2. To find out the level infrastructure development in Mubende municipality Mubende district*
- 3. To find out the relationship between Mining and infrastructure development in Mubende municipality Mubende district.*

Research questions

- 1. What is the extent of mineral extraction in Mubende municipality Mubende district?*
- 2. What is the level of infrastructure development in Mubende municipality Mubende district?*

3. *What is the relationship between Mining and infrastructure development in Mubende municipality Mubende district?*

Methodology

Research Design

The study used a descriptive research design because of the nature of the variables that were at hand, to produce data, required for qualitative and quantitative analysis to allow simultaneous description of views, perceptions and beliefs at any single point in time (white, B, 2000).

Study population

Study population as defined by Babbie, (2004) is aggregation of elements from which sample is actually selected. The study targets a population with in the research geographical area. The study population comprised of farmers, miners and traders found in Mubende Municipality

Table 1: Shows the statistics of the study population

Statistics

OCCUPATION OF RESPONDENTS

N	Valid	50
	Missing	0

OCCUPATION OF RESPONDENTS

Frequency		Percent	Valid Percent	Cumulative Percent
Valid	FARMER	1122.0	22.0	22.0
	MINER	3162.0	62.0	84.0
	TRADER	816.0	16.0	100.0
	Total	50100.0	100.0	

Sampling procedures

Sample size

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

The study sample comprised of 50 respondents from the study area where 11 respondents were farmers, 33 were miners and 8 were traders. The LC1 Chairperson and District Planning Officers acted as key respondents for the study.

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 random sampling, each member of the general population has an equal and independent chance of being chosen for the sample (Orodho, 2004).

Farmers, miners, traders, the chairperson of LC1 and a district development officer

were those who participated in this study. A district planning officer and the chairperson of LC1 will serve as the study's primary participants. To choose participants from the group of farmers, miners, and traders, simple random sampling was utilized. 33 miners, 11 farmers, and 8 traders in all took part in the study. Simple random sampling was used in their selection, and special emphasis was devoted to including both male and female respondents in the study region.

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."

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

a district planning officer and the chair. This method is founded on the study's goal and the 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 where sampling for proportionality 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 convenient. In addition, there is no other way.

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 systematic way that allows one to respond to specified inquiries, investigate hypotheses, and assess results. The investigator employed both secondary and primary data methods to get information about qualitative as well as quantitative data. In

order to gather data, various techniques including questionnaires and interviews were used. All community members in Mubende Municipality, Mubende District, were surveyed using these.

Data analysis

The statistical package for social science (SPSS) tool was used by the investigator to compute percentages, frequency, and tabulate answers, as well as to employ both quantitative and qualitative types of data. To find and correct mistakes made by participants, data was modified. The responses to the questions were then coded into several categories. The data were analyzed using descriptive statistics, including frequency distribution, means, standard deviations, graphs, pie charts, and proportions. The comments were all grouped accordingly to their theme categories and their contents were evaluated for qualitative data using the method of content analysis. Presentations were made using charts, tables, and graphs. Software from the Statistical Package for Social Sciences (SPSS) was employed to assist in data analysis.

RESULTS

Response rate

Questionnaire return rate

All the 56 questionnaires were given out, 50 were returned, thus representing 89.3% 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 and the time spent in mining.

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 using SPSS Software and presented in form of grouped data as shown in the table 1

Statistics
AGE OF RESPONDENTS

<i>N</i>	<i>Valid</i>	<i>50</i>
	<i>Missing</i>	<i>0</i>
<i>Mean</i>		<i>3.7600</i>
<i>Median</i>		<i>3.5000</i>
<i>Std. Deviation</i>		<i>1.06061</i>
<i>Range</i>		<i>4.00</i>

AGE OF RESPONDENTS

Frequency		Percent	Valid Percent	Cumulative Percent
Valid	10-20	3	6.0	6.0
	20-30	22	44.0	50.0
	30-40	13	26.0	76.0
	40-50	8	16.0	92.0
	60+	4	8.0	100.0
	Total	50	100.0	

Therefore, from the mean (3.7600) 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 44.0% and this was because such people within that age group of 30-40 years have a lot of energy to do work and practice mining activities which leads to high mining activities like sieving the mixture of soil which contain gold. 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 researcher learned from Table 1 that 8.0% of respondents in Mubende Municipality were among the ages of 10 and 20 years, 26.0% were among the ages of 30 and 40 years, and 8.0% were 50 years or older. 4 and Standard were the ranges. It was 1.06061 off. 3.5000 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	MALE	30	60.0	60.0
	FEMALE	20	40.0	100.0
	Total	50	100.0	

From table 2, it was found out that, majority of the respondents were males with 60.0%

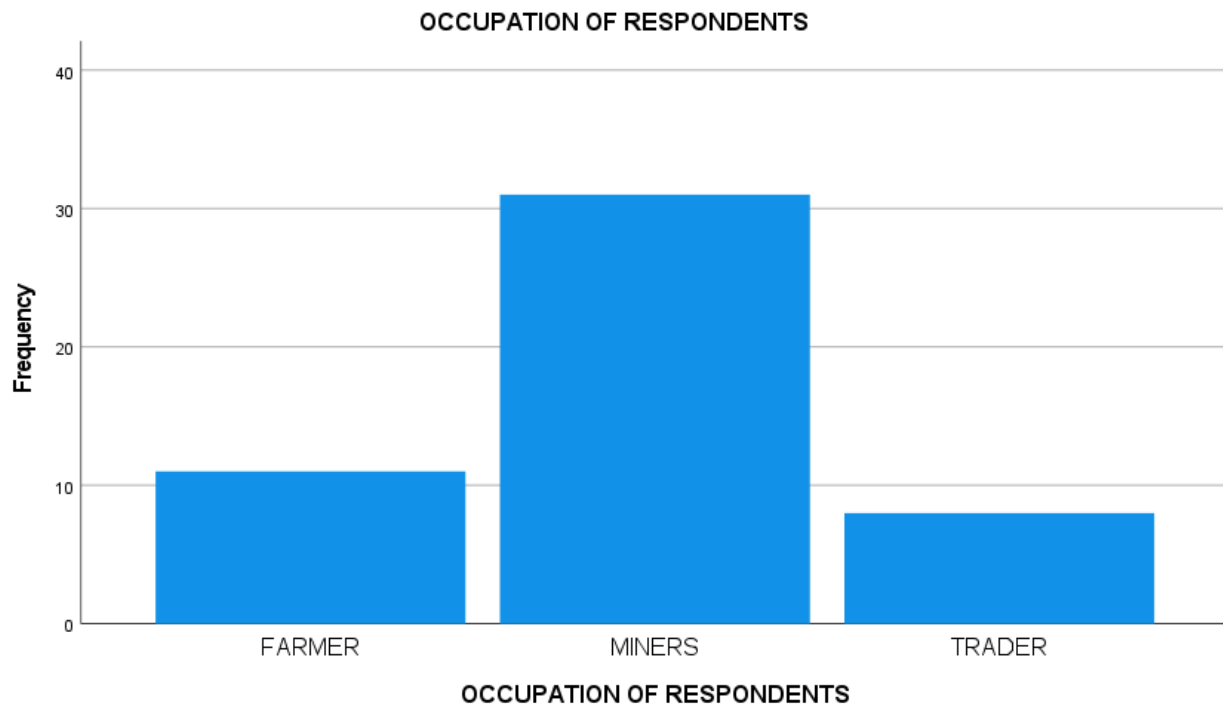
compared to females with 40.0%.

Occupation of the respondents

Information regarding the occupation of the respondents in Mubende District was collected and presented in table 3

OCCUPATION OF RESPONDENTS				
Frequency		Percent	Valid Percent	Cumulative Percent
Valid	FARMER	1122.0	22.0	22.0
	MINER	3162.0	62.0	84.0
	TRADER	816.0	16.0	100.0
	Total	50100.0	100.0	

The bigger percentage of the respondents lied in mining (62.0%), 22.0% were farmers and followed by Traders (16.0%). This indicated that most respondents in Mubende District practice mining to earn income since it's the main economic activity.



Marital status

Information regarding the marital status of the respondents in Mubende Municipality, District was collected and presented in table 4

MARITAL STATUS

quency				
Valid	SINGLE	25	50.0	50.0
	MARRIED	20	40.0	90.0
	DIVORCED	5	10.0	100.0
	Total	50	100.0	100.0

From table 4, it was found out that, majority of the respondents were single with 50.0%, 40.0% of the respondents were married and only 10.0% had divorced.

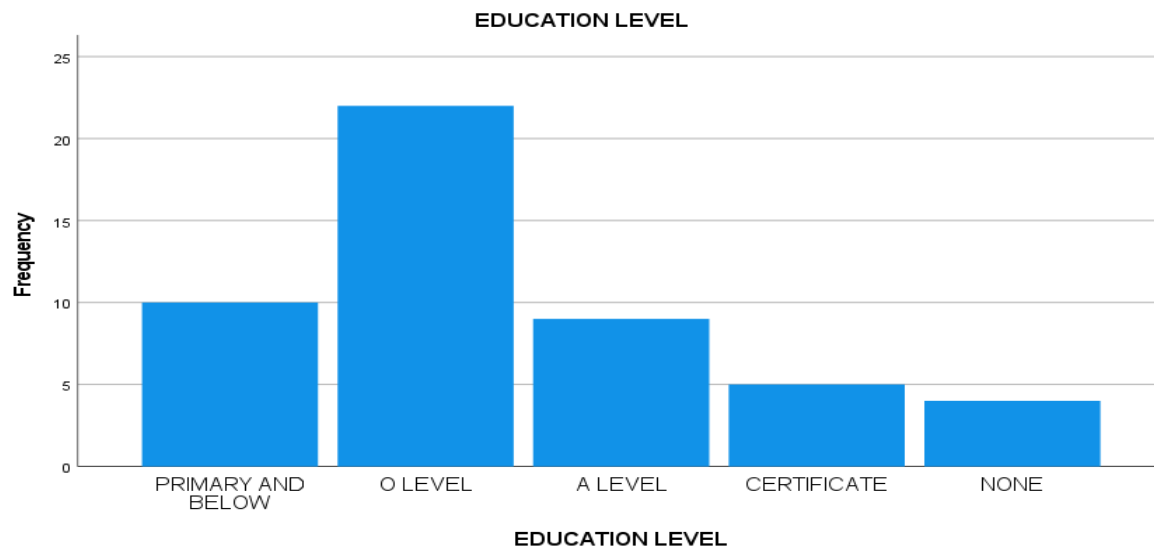
Educational level of the respondents

Information regarding the academic background of respondents in Mubende Municipality, Mubende District was obtained and tabulated as shown in table 5

Table 5: Educational background of the respondents

		EDUCATION LEVEL			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PRIMARY AND BELOW	10	20.0	20.0	20.0
	O LEVEL	22	44.0	44.0	64.0
	A LEVEL	9	18.0	18.0	82.0
	CERTIFICATE	5	10.0	10.0	92.0
	NONE	4	8.0	8.0	100.0
	Total	50	100.0	100.0	

An analysis of the questionnaires and interview responses revealed from table 5 that the majority of the participants (44.0%) were finishing their O level education, 18.0% had graduated from their A level education, 20.0% had concluded their primary education and never returned for further study, 10.0% had finished their certificate level of education, and 8.0% had never attended any level of education in their lives. According to the data, the education in Mubende Municipality and Mubende District is deficient and urgently needed.



Time spent in mining

Information regarding the time spent in mining of respondents in Mubende Municipality, Mubende District was obtained and tabulated as shown in table

Time spent while doing mining activities

Frequency		Percent	Valid Percent	Cumulative Percent
Valid	1-3 YEARS	1428.0	28.0	28.0
	4-6 YEARS	2856.0	56.0	84.0
	7-10 YEARS	816.0	16.0	100.0
	TOTAL	50100.0	100.0	

From table 6, it was found out in an analysis of interviews and questionnaire that majority of the respondents had spent in mines only between 4-6 years (56.0%), 28.0% of the respondents had spent 1-3 years and 16.0% had spent 7-10 years doing

mining activities.

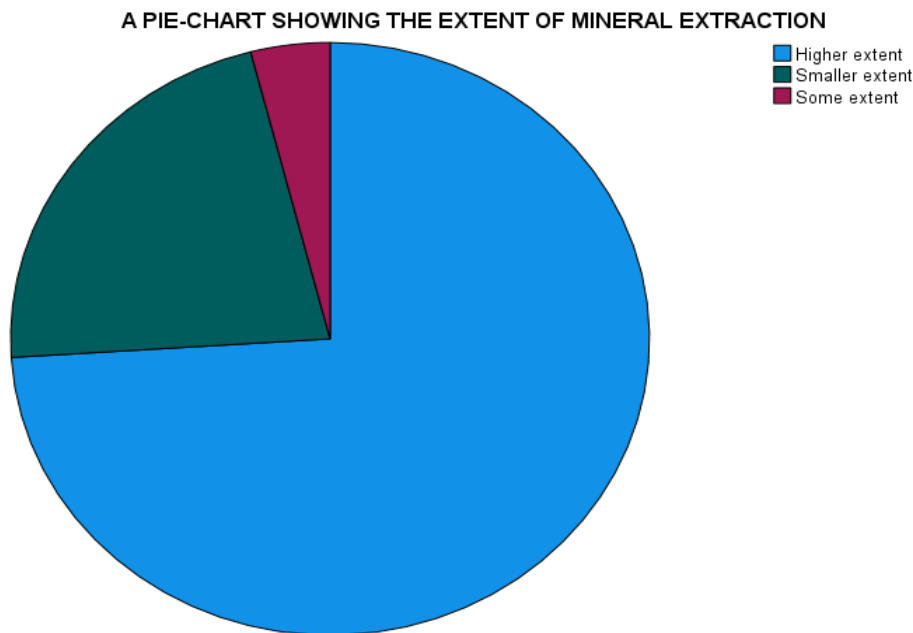
The extent of Mineral Extraction in Mubende Municipality

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

Table 7: The extent of Mineral of Extraction

EXTENT OF MINERAL EXTRACTION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Higher extent	37	74.0	74.0	74.0
	Smaller extent	11	22.0	22.0	96.0
	Some extent	2	4.0	4.0	100.0
	Total	50	100.0	100.0	



Because 74.0% of the study's entire population agreed that resource extraction was practiced to a greater or higher extent, it was determined that the extent of mineral exploitation in Mubende Municipality was high. Only 4.0% of respondents said that the scope of the extraction of minerals is at a tiny extent, while 22.0% agreed that it is at a smaller extent. The majority of respondents stated that floods during the rainy season fill the mines, and that there is also an issue with a lack of markets where to sell the minerals, all of which were covered by this research purpose.

Examples of minerals mined in Mubende District

Information regarding the examples of minerals extracted in Mubende mines, Mubende District was obtained and tabulated as shown in table

Examples of minerals in Mubende Municipality

		Valid Percent	
Valid	Gold	47 94.0	94.0
	Copper	2 4.0	4.0
	Silver	1 2.0	2.0
	Total	50 100.0	100.0

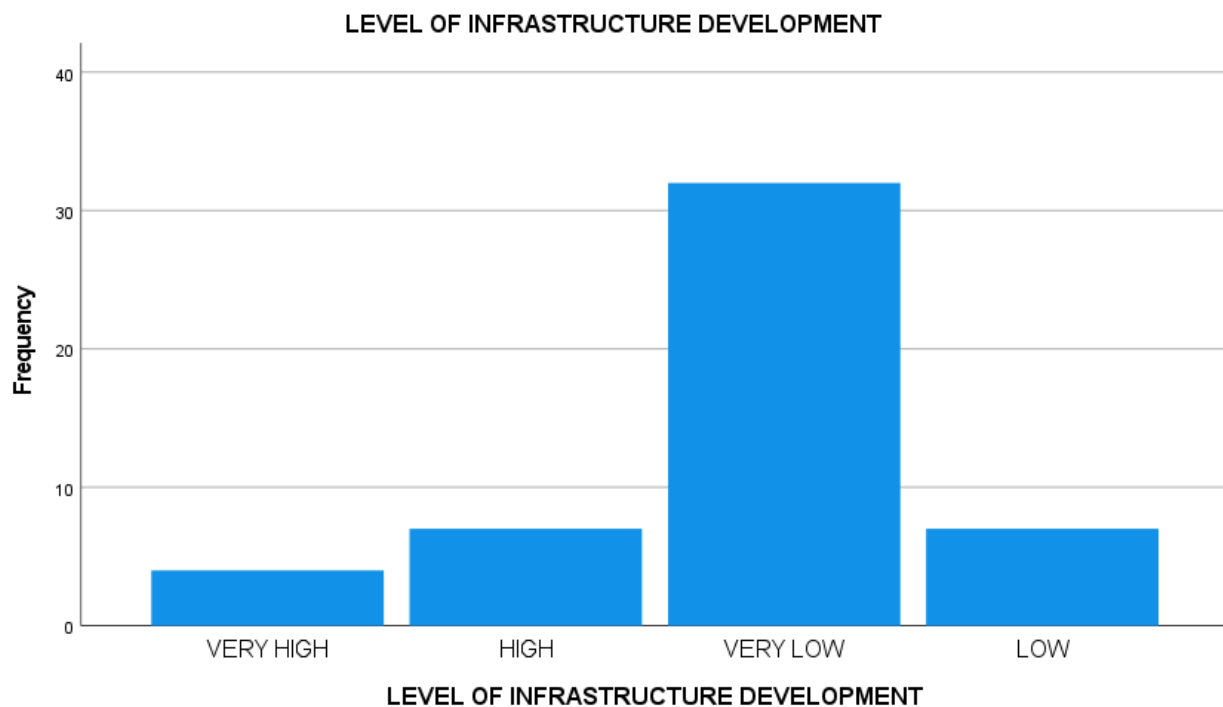
From table 8, it was observed from the analysis of questionnaires and interviews that the major mineral extracted from mines of Mubende District is Gold, this is because 94.0% of the respondents revealed that they mine gold as their major mineral. 4.0% of the respondents revealed that they mine copper and only 2.0% of the respondents revealed that they mine silver.

The Level of Infrastructure development in Mubende Municipality

This Section describes the dependent variable (Infrastructure Development). The dependent variable was addressed in Section C of the questionnaire for respondents. Information regarding the level of infrastructure development in Mubende District was tabulated in table 9 below.

Table 9: Level of Infrastructure Development

		Valid Percent	
Valid	VERY HIGH	4 8.0	8.0
	HIGH	7 14.0	14.0
	VERY LOW	32 64.0	64.0
	LOW	7 14.0	14.0
	Total	50 100.0	100.0



The responses were interpreted as follows, 64.0% of the respondents agreed that the Level of

infrastructure development in Mubende municipality is low, 8.0% argued that Level of infrastructure development in Mubende municipality is very high, 14.0% revealed that Level of infrastructure development in Mubende municipality is high and 14.0% revealed that Level of infrastructure development is low. Under this objective, the respondents were also asked the factors that have hindered the growth of infrastructures in this area and most revealed that shortage of capital and poor topography of the area.

Factors that have favored growth of infrastructures in Mubende District

Information regarding the factors that have favored the growth and development of infrastructure in Mubende District was obtained and tabulated as shown in table 10

FACTORS THAT HAVE FAVORED GROWTH OF INFRASTRUCTURE

			Valid Percent	
Valid	Presence of abundant minerals	1632.0	32.0	32.0
	Favorable government policies	2040.0	40.0	72.0
	Abundant capital	1428.0	28.0	100.0
	Total	50100.0	100.0	

The responses were interpreted as follows; 32.0% of the respondents revealed that presence of abundant minerals like gold have favored the growth and development of infrastructure in Mubende district, 40.0% revealed that favorable government policies and 28.0% revealed that presence of abundant capital have favored the growth and development of infrastructure in Mubende district.

Relationship between Mining and Infrastructure Development in Mubende District

The data collected from the respondents on the relationship between Mining and Infrastructure Development in Mubende Municipality were presented as seen from table 11

Table 11: The relationship between Mining and Infrastructure Development Statistics

RELATIONSHIP BETWEEN MINING AND INFRASTRUCTURE DEVELOPMENT

<i>N</i>	<i>Valid</i>	50
	<i>Missing</i>	0

RELATIONSHIP BETWEEN MINING AND INFRASTRUCTURE DEVELOPMENT

			<i>Valid Percent</i>	
<i>Valid</i>	<i>HIGH POSITIVE</i>	3366.0	66.0	66.0
	<i>POSITIVE</i>	1122.0	22.0	88.0
	<i>NEGATIVE</i>	612.0	12.0	100.0
	<i>Total</i>	50100.0	100.0	

According to collected data by the researcher from questionnaire, a high positive relationship between Mining and infrastructure development received the highest response rate of 33(66.0%) respondents, 11(22.0%) respondents agreed that the correlation is positive and only 6(12.0%) respondents agreed that there is a negative relationship between Mining and infrastructure development in Mubende District. This shows that people in this area depend on mining activities to earn a living and this in turn influences the government to set up good infrastructures like tarmacked roads in order to transport the extracted minerals like gold from Mubende District.

Conclusion of the findings

The researcher concluded on this objective from the findings that the extent of Mineral Extraction is at a higher extent (74.0%) and this is due to many factors which include high need for abundant minerals like gold and skilled labour provided by the youth population.

The there is a high positive correlation/relationship between mining and infrastructure development. The researcher concluded that the high level of mineral extraction witnessed in the area of study increased the moral for the government to improve infrastructure in the area.

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