

Impacts Of Land Fragmentation On Crop Production. A case Study Of Namutumba District

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ABSTRACT

This study was set to investigate the influence of land fragmentation on crop production in namutumba district. The study was guided by three objectives namely; to find out the impacts of land fragmentation on crop production in namutumba district, to establish the relationship between land fragmentation in namutumba district and finally to find out the possible causes of land fragmentation. The study adopted several theories. The target population was all farmers and district agricultural officials of namutumba district and the sample size which was determined was 258 respondents, 250 farmers and 8 district agricultural officials. District agricultural officials were selected purposively and farmers were selected randomly. Data was collected using questionnaire and the instruments were tested for reliability through split half method. Its reliability co-efficient correlation after correcting to full test using spearman prophecy formula was 0.15. The data collected instruments were administered to the respondents by the researcher. Completed questionnaires were collected immediately. Data analysis involved descriptive statistical analysis, summarized and presented in tables showing frequencies and percentages. The study was revealed that land fragmentation has impacts on crop production, there is a relationship between land fragmentation and crop production and land fragmentation is caused majorly by human factors. The study recommends that the responsible district persons and government should come out to help farmers to fight the problem of land fragmentation, the government should teach its people to know the relationship between land fragmentation and crop production and district agricultural officials should know the causes of land fragmentation and look for the possible solutions. The study suggests further research to be done on establishing the exact kind of land fragmentation that affects farmers in the district, establishing the impacts of land fragmentation on the development of namutumba district and to find out the natural causes of land fragmentation in Namutumba district

Key words: land fragmentation, crop production, housing and urbanization planning

Background of the Study

Received: 06.12.2023

Accepted: 11.12.2023

Published on: 30.12.2023

Globally, people use land for agricultural purposes in plots (plots), this type of practice is called land fragmentation. Land fragmentation is a phenomenon that exists when a household operates several owned or leased non-contiguous plots of land at the same time (Collins et al., 2023), land fragmentation can be defined as a situation where a farming household cultivates several non-contiguous plots of land. Plots often scattered over a wide area (Ronald & Kazaara, 2023). When several non-contiguous owned or leased farms or plots of land are managed as a single production unit. Land fragmentation is the division of land into a large number of district parcels (dovring 1960).

Land fragmentation is said to harm productivity in a number of ways. Fragmented land holdings can quickly increase transport costs, and management, surveillance and security of dispersed land can be more difficult, time-consuming and costly (Musaibah et al., 2023). Land fragmentation involves a complicated boundary network between

parcels that causes land waste as some land, especially in small localities, remains uncultivated at the edges of parcels (Karouz's 1977 and Burton 1988). Small, fragmented farms can also make it difficult to grow certain crops and prevent farmers from switching to highly profitable crops. more profitable crops, such as fruit crops, require large areas of land, so if farmers only own small plots of land, they may be forced to grow only less profitable crops (Christopher, 2022). Land fragmentation is also a common feature of agricultural land in Nepal, where people have the right to continuous land transactions. inheritance, ensuring the equal distribution of property between sons and, more recently, daughters also cause land fragmentation. The structure of land inheritance system, haphazard housing and urbanization planning and loose enforcement policies are responsible for land fragmentation in Nepal (crsc. 2012).

Statement of the Problem.

Taking an example from an online study, there has been an increased problem of land fragmentation in Namutumba District and according to the Uganda Research Center (URC) and National Agricultural

Received: 06.12.2023

Accepted: 11.12.2023

Published on: 30.12.2023

Advisory Services (NAADS) 2017 report, fragmented land in the district constitutes 70 percent of the total land area. This is due to high demand for agricultural land, growing population (Allan et al., 2023), high demand for food required in the market and favorable climate that attracts many farmers in the district. the problem of land fragmentation, such as promoting land consolidation, relocating some farmers to new areas of land and promoting commercialization, and if not resolved, it will lead to land conflicts among farmers, loss of life, people killing themselves over land, and reduction of agricultural land (Niyonzima, 2023). These studies will indicate that crop production can be affected by land fragmentation by many factors, such as reduced production and land conflicts. in these studies, each factor in the district such as reduced production and land conflicts will be large factors of which land fragmentation affects crop production. However, this study will be conducted both within and outside the district, further investigating the relationship between land fragmentation and crop production as one factor, but does not examine in detail the effects of land fragmentation on crop production. This research aims to fully fill this gap. therefore, this study will examine the effects of land fragmentation on crop production in Namutumba district.

Purpose of the Study

To determine how currently land fragmentation is affecting crop production in Namutumba district.

Research Objectives.

1. To find out the impacts of land fragmentation on crop production in Namutumba district
2. To establish the relationship between land fragmentation and crop production in Namutumba district
3. To find out the possible causes of land fragmentation in Namutumba district.

Methodology

The study used across sectional survey involving both qualitative and quantitative approaches. In using quantitative approach, the researcher used statistical information involving figures and numbers to arrive at the results of the study a fact presented by (jeynes 2002). And in using quantitative approach, the researcher normatively presented the Data findings of the inform of narrative descriptions, views or even comments from the target

Received: 06.12.2023

Accepted: 11.12.2023

Published on: 30.12.2023

respondents, method presented by (Henderson and mapp. 2000). The researcher also used triangulations which involved the convergence of data from the multiple data sources and collection methods as presented by (denziz.1987). The study comprised of farmers who carry out farming on fragmented land and district Agricultural officials of Namutumba district. The study was conducted in namutumba district; the district has population of farmers who use fragmented land and the district Agricultural officials. using the Slovene's formula to determine the sample size, the sample size was determined using the formula. Where a is a constant as 0.05, N is the number of populations. Farmers came from the different sub counties which make up namutumba district and the district

Agricultural officials from the district. The farmers were targeted because they were directly involved in the study and are believed to have the needed information and reliable information in regard to the study under Slovene. Questionnaires which are semi-structured and considering at least three questions per objective were used so as to ease the work of the respondents and avoid wastage of time. All questions in the Questionnaires were structured and using materials like Question papers, pens to write the farmers responses. All the data was collected, edited, coded and entered using SPSS and STATA (Nelson et al., 2022). It was then analyzed using percentages, then after assigned categories.

RESULTS

Table 1. Showing farmers' responses about the impacts of land fragmentation on crop production.

Impacts of land fragmentation	Number of farmers	Percentage (%)
Small land for crops	20	13.33
Low production	20	13.33
Conservativeness	20	13.33
Maintaining disease cycle	25	16.67
Hindering mechanization	40	26.67

Received: 06.12.2023

Accepted: 11.12.2023

Published on: 30.12.2023

Land conflicts	25	16.67
Total	150	100

This study shows that 13.33 percent of farmers said that land fragmentation affects crop production by creating small land for crop production, it is also said that 13.33percent of farmers also said that it affects crop production by causing low production, also 13.33percent of the farmers said that land fragmentation affects crop production by causing conservativeness towards agriculture,16.67percent by maintaining disease cycle ,26.67percent by hindering mechanization and 16.67 by causing land conflicts. This shows that more farmers think that land fragmentation affects crop production by hindering mechanization.

Table 2. Showing district agricultural officials' responses about land fragmentation

Impacts of land fragmentation	Number of officials	Percentage
Hinders mechanization	4	50
Small land for agriculture	2	25
Land conflicts	2	25
Total	8	10

This study shows that 50 percent of the district agricultural officials said that land fragmentation affects crop production hindering mechanization,25 percent said land fragmentation affects crop production by creating small land for agriculture and 25 percent said land fragmentation affects crop production by causing land conflicts.

Table 3. Relationship between land fragmentation and its effects on crop production by farmers.

Responses	S	L	C	M	H	L.C
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Received: 06.12.2023

Accepted: 11.12.2023

Published on: 30.12.2023

Strongly agree	20	20	20	25	40	25
Agree	25	40	25	20	20	20
Neutral	25	40	20	60	40	25
Disagree	40	25	35	15	30	40
Strongly disagree	40	25	50	30	20	40
Total	150	150	150	150	150	150

Where S = small land for crops, L = low productivity, C = conservativeness, M = maintaining disease cycle, H = hindering mechanization and L.C = land conflicts.

From the findings, the farmers strongly disagree the relationship between land fragmentation and creation of small land for agriculture as its effects on crop production and this shows 40 respondents in a disagree, they agree the relationship between land fragmentation and low productivity as it's effect which also shows 40 members in agree (Christopher et al., 2022). They also agree that land fragmentation is related to farmer's conservativeness towards crop production, farmers are neutral in the issue of hindering mechanization where more respondents are neutral and strongly disagree that land fragmentation affects crop production by causing land conflicts (Kazaara & Christopher, 2023).

Table 4. Showing the relationship between land fragmentation and its effects on crop production by district agricultural officials.

Responses	Hinders mechanization	Small land for agriculture	Land conflicts
Strongly agree	1 12.5%	4 50%	1 12.5%
Agree	4 50%	1 12.5%	1 12.5%
Neutral	1 12.5%	1 12.5%	1 12.5%
Disagree	1 12.5%	1 12.5%	1 12.5%
Strongly disagree	1 12.5%	1 12.5%	4 50%

From the findings, the district agricultural officials agree the relationship between land fragmentation and its impacts on hindering mechanization for crop production and this shows 50 percent, they also strongly agree creation of agricultural land as an impact of land fragmentation on crop production and they also rate it as 50 percent and finally strongly disagree the relationship between land fragmentation and land conflicts as its effects on crop production and also gave it 50 percent.

Farmers responses on the causes of land fragmentation.

Table 5, farmers' responses on the causes of land fragmentation.

Causes of land fragmentation	Number of farmers	Percentages (%)
Size of the families	60	40
Increased population	15	10
Soil infertility of other areas	45	30
Polygamy	15	10
Political instability	15	10
Total	150	100

This study shows that 40 percent of the farmers said that land fragmentation is caused by size of the families, 15 percent of the farmers said that land fragmentation is caused by increased population of immigrants, 30 percent said that it is caused by soil infertility of other lands, 10 percent said that land fragmentation is caused by polygamy and 10 percent said that land fragmentation is caused by political instability of some areas. This means that more farmers said that land fragmentation is caused by the size of families where we had 60 farmers (Kazaara et al., 2023).

Agricultural officials' responses about the causes of land fragmentation.

Table 6: District agricultural officials' responses about the causes of land fragmentation.

Causes of land fragmentation	Number of officials	Percentage (%)
Too much greed for money	2	25

Received: 06.12.2023

Accepted: 11.12.2023

Published on: 30.12.2023

Religious beliefs	4	50
Indiscipline cases	2	25
Total	8	100

This study shows that 50 percent of the district agricultural officials said that land fragmentation is caused by religious beliefs, 25 percent said that land fragmentation is caused by too much greed for money and 25 percent said that it is caused by indiscipline cases such as theft.

Conclusion of the study.

Land fragmentation has greater impacts on crop production in namutumba district as said by both farmers and district agricultural officials where farmers mentioned impacts like low production and increased size of the families and district agricultural officials mentioned hindering mechanization. There is also a relationship between land fragmentation and crop production and on this farmers and district agricultural officials said that it is based on its impacts on crop production like hindering mechanization and causing land conflicts.

Recommendations

The responsible personels like district heads and the government should come out to help farmers to fight the problem of land fragmentation like by establishing resettlement schemes to transfer other farmers to new areas. This would reduce impacts like limited land for agriculture, reduced production due to limited land and encourage mechanization.

The government should teach its people to know the relationship between land fragmentation and crop production and teach them how to overcome it in the way of reducing its impacts on crop production. Farmers and district agricultural officials should know the causes of land fragmentation like polygamy and indiscipline cases like theft where farmers sell their land to settle cases.

References

Allan, K., Charles, N., Moses, N., Kazaara, A. G., & Nelson, K. (2023). *The Effect of Operation Wealth Creation on Youth Farmers Development : A Case Study of Labongo Layamo Sub County , Kitgum District*. 7(2), 50–63.

Christopher, F. (2022). Review of Related Literature About Floods Management

Received: 06.12.2023

Accepted: 11.12.2023

Published on: 30.12.2023

&Socio-Economic Development of People of Kambuga Subcounty, Kanungu District in Uganda. *International Journal of Academic Management Science Research (IJAMSR)*, 6(July), 160–164.
www.ijeais.org/ijamsr

Christopher, F., Moses, N., Muhindo, M. E., & Komunda, T. R. (2022). Employee Training and Organizational Performance: A Case Study of African College of Commerce and Technology in Kabale District, South Western Uganda. *International Journal of Academic Pedagogical Research*, 6(5), 1–7.

Collins, A., Kazaara, A. G., & Kazaara, A. I. (2023). *Agricultural Loans and Farmer ' s Livelihood in Uganda a Case Study of Nyakayojo Sub County in Mbarara District*. 7(3), 40–46.

Kazaara, A. G., & Christopher, F. (2023). *Impact of Micro Credit Financing on Agricultural Production A case Study of Bundibugyo District In The Western Region Of*. 7(3), 56–62.

Kazaara, A. G., Kazaara, A. I., & Nelson, K. (2023). *Imapcts Of Soil Erosion On Crop Productivity In Uganda Acase Study Of Kibuga Division Butambala District*. 7(3), 202–212.

Musaibah, N., Kazaara, A. G., Kazaara, A. I., & Deus, T. (2023). *The Organizational Factors Affecting Employee Performance in Non-Governmental Organizations in Uganda . A Case Study of the Uganda Women Parliamentary Association*. 7(3), 221–231.

Nelson, K., Christopher, F., & Milton, N. (2022). *Teach Yourself Spss and Stata*. 6(7), 84–122.

Niyonzima, E. (2023). *Assessing the Impacts of Rural-Urban Migration on Agriculture Production in Rwanda : A Case Study of Huye District , in Southern Province*. 7(4), 1–15.

Ronald, K., & Kazaara, A. G. (2023). *Influence of Population Growth on Land Use in Uganda . A Case Study of Biguli Subcounty Kamwenge District*. 7(3), 291–299.