Effects of Community Activities on Forest Resources: A focus On Echuya[1]Central Forest Reserve in Rubanda District, Uganda.

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(A) ABSTRACT

The study examined the effects of local community activities on forest resources of Echuya Central Forest Reserve in Muko Sub county Rubanda district. It was based on one objective that is; to examine the local community activities being carried out in areas around Echuya Central Forest Reserve. Results showed that; respondents reported to be practicing crop farming mainly in Kagaano (30%) and Ncundura (15%) parishes of Muko Sub County because of the availability of land for cultivation in these parishes. The respondents further explained that since these parishes are not congested, land is still available and fertile. Crops like Irish potatoes, sweet potatoes and sorghum are mainly considered for food and cash. Other economic activities like sand mining, animal rearing, stone quarrying and brick making are also practiced but in smaller quantities. Finally, the study findings highlighted that increasing forest resource extraction is a great socioeconomic and environmental challenge in Rubanda district. Basing on field observations and interviews, the increasing forest resource extraction could be as a result of increased population. Furthermore, areas with high population and much forest resources extraction could be harnessed through setting up local initiatives to regulate and control such activities by the local communities.

(B) LIST OF KEY WORDS
(i)  Effects
(ii) Human activities
(iii) Forest resources
(iv) Echuya Central Forest Reserve
(v) Rubanda District

 (C) INTRODUCTION

Forestry is crucial to lives of millions of Ugandans especially the poorest sections of society. (Turyahabwe et al, 2019). The dependence of poor people on forest resources and their ability to improve their livelihoods through forestry has for long not been adequately recognized in Uganda. Benefits of forests and trees to people especially the poor has mainly focused on the

numerous direct benefits in form of food, energy, employment, incomes, quality of life and increased resilience to shocks and stresses.

Forests are important for the role they play in society providing a range of ecological and socio-economic functions. Ecological and regulating services include erosion prevention, moderation of extreme flows, sediment traps, climate modification, soil formation, maintenance of water tables in surrounding lands, and as centers of biodiversity and wildlife habitat. Socio-economic or provisioning services include food, medicines, water supply, fisheries, dry season grazing for livestock, nutrient and toxin retention, tourism, and so on. They are also important for recreational and spiritual reasons (Turyahabwe, 2016).

Community has largely been left behind in terms of forest conservation, particularly in forest resources conservation. There continues to be conflict between community and government in dealing with the issues of securing livelihood and protecting natural resources. It serves as a bottom-up approach which emphasizes the 'participation' of stakeholders in meeting local needs and at the same time, achieve sustainable management of natural resources (Fisher 1995:7, Borrini-Feyerabend et al.2014). In response, this study aimed at identifying the local community activities carried out in and around Echuya Central Forest Reserve.

(D) MATERIALS

(i) Camera

Some photographs were taken using a simple digital camera; the photos served as an illustration of the existing effects of community activities on forest resources of Echuya Central Forest Reserve.

(ii) Questionnaire
Questionnaires were used to collect data from households. The questionnaires were directly administered by the researcher himself in order to support the respondents who needed clarification of the questions. The questionnaires were structured, and designed with both open and closed ended questions.

(iii) Books and Pens

Some data was recorded down using pens into books for example, the quantitative part of the study for example; interviews were recorded down using books and pens for future reference purposes and proper data storage.

(iv) Interview guide

The researcher prepared and used a semi-structured interview guide to conduct direct personal interviews with technical staff involved in forest resources management. The guide had open ended questions where the respondents were free to elicit whatever they had to say about a given topic. Interviews also made it easy to fully understand someone's impression or experience.

(E) METHODS

(i) Research population

Respondents were selected from Muko sub-county particularly Kagaano, Ncundura and Karengyere because people there entirely depend on the forest for livelihoods. Muko sub-county was selected purposively, because it contained the highest number of communities (households) that live near the forest reserve (Tweheyo, 2018). Using Slovin's formula, a sample of 400 respondents has been determined from a population of 13346. The district forestry officer and district environmental officer, plus sub-county production coordinator of Muko were also selected purposively based on the nature of their work which relates to the topic under investigation.

(ii) Questionnaire Survey Method

This was used to collect primary data from households and it involved the use of a semi-structured questionnaire. According to Etyang (2018) a questionnaire survey is mainly aimed at collecting quantitative data where the researcher designs questions related to study objectives.

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(iii) Interview Method

This was used to collect primary data from technical staff including the District Forest officer, environmental officer, and 3 Parishes forest coordinators. This method was deemed appropriate since the mentioned category of staff had vital information yet had no time to fill in questionnaires. An interview guide was used to collect qualitative data.

(iv) Documentary Review Method

This was used to collect secondary data and was be guided by a documentary review checklist. Documents with literature relevant to forest management were analyzed as secondary sources of data to supplement primary data from survey and interview.

(v) Observation Method.

Some photographs were taken using a simple digital camera; the photos served as an illustration of the existing effects of community activities on forest resources of Echuya Central Forest Reserve.

(vi) Data Analysis

In this study after the necessary information was acquired and collected, Data was processed and analyzed through SPSS. Data was entered and edited at the end of each working day's field work. This ensured accuracy and consistence in information given by respondents.

(vii) Data Presentation

Data has been presented in form of tables, figures, plates and inferential statistics.

(F) RESULTS

(i) Distribution of respondents by parish

During the study, the research identified respondents in areas around Echuya central forest reserve correlated with the population statistics. As seen in figure 4.1, below, a significant number of respondents (40%)-160 respondents were from Karengyere parish-the most densely populated parish because of being a trading centre and 35% (140 respondents) from Kaagano parish and 25%(100 respondents) from Ncundura as shown below by the pie chart.
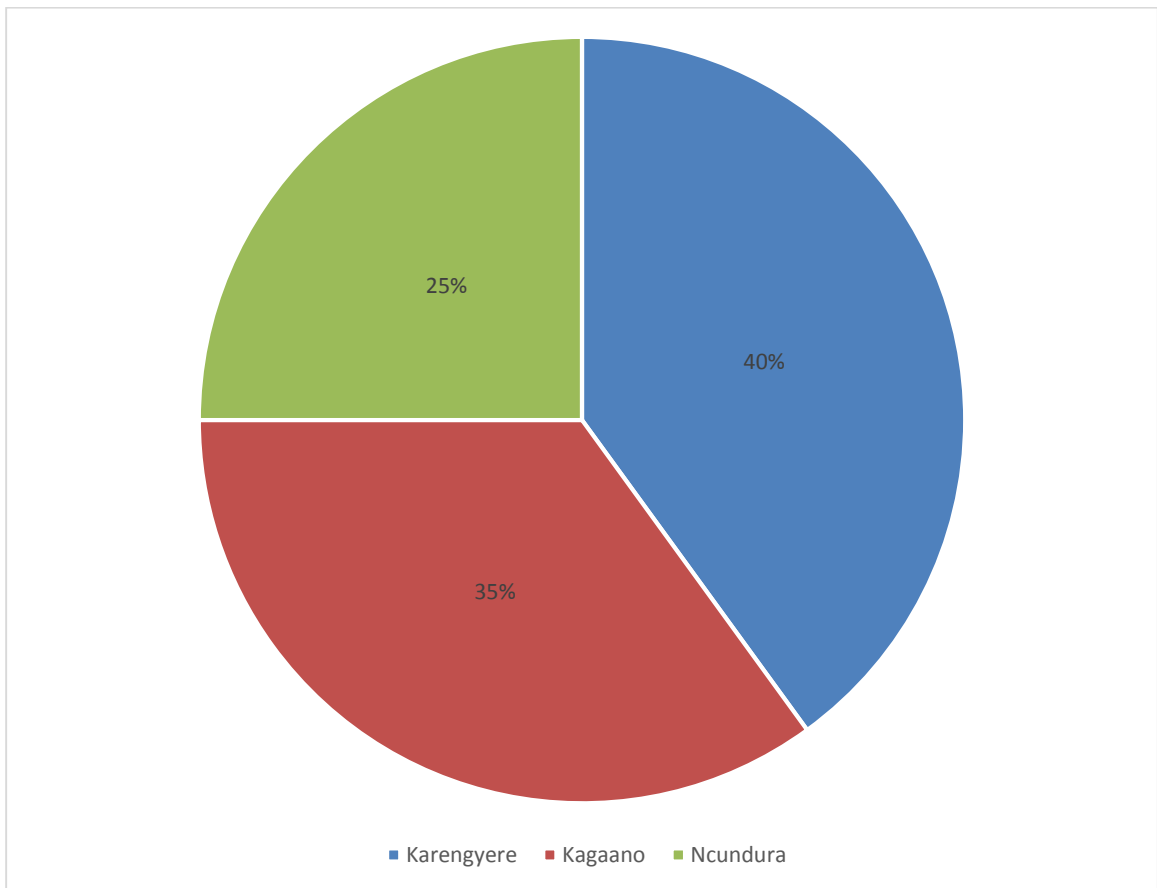


Figure 1: Distribution of Respondents per parish (Source: Primary data, 2021)

(ii) Household level of education and knowledge on forest resources management

There was a great correlation between the levels of education with basic knowledge on forest resources conservation and management practices. In Karengyere for instance, most respondents with a higher level of education have some knowledge on forest resources conservation and management unlike the other parishes. The literacy level of respondents has improved especially in the trading centre parish of Karengyere; however, this trading centre parish has the largest number of respondents with ordinary level education up to tertiary institutions (40%), Kagaano parish (35%) and Ncundura parish (25%) of the sample.

Table 1: Respondent's level of education and forest resources conservation and management knowledge.

| PARISH | Percentage (%) of literate respondents (above primary level) | Knowledge on forest resources conservation Practices (Number of respondents) | |
|---|---|---|---|
| | | YES | NO |
| Karengyere | 40% | 130 | 30 |
| Kagaano | 35% | 120 | 25 |
| Ncundura | 25% | 80 | 15 |
| Total | 100% | 330 | 70 |

Source: (Primary data, 2021)

(iii) Distribution of settlement type by parish

Furthermore, the high concentration of businesses and people in Karengyere trading centre shows that most congested households (60%) are found in this parish with an increasing proportion of middle income settlements in the parishes of Kagaano and Ncundura respectively and this clearly relates to the level of tenancy and occupancy. In most trading centres of Uganda, most of the people are tenants who rent houses either for small scale businesses or living houses (UBOS, Report, 2017). In high and middle income zones, most households are landlords or permanent owners.

Table 2: Distribution of settlement type by parish

| Parish | Number of households basing on settlement type | | |
|---|---|---|---|
| | Congested households | Middle Income households | High Income households |
| Karengyere | 155 | 40 | 25 |
| Kagaano | 65 | 30 | 15 |
| Ncundura | 35 | 25 | 10 |
| TOTAL | **255** | **95** | **50** |

Source: (Primary data, 2021)


(iv) Age and sex distribution of respondents per parish

Most of the respondents were youth accounting for 2/3 of the total sample. Basing on the sample, Karengyere parish has 45% (72/160 respondents) of the inhabitants as youth, 52/140 respondents were middle aged and 36/100 respondents were the elderly. Kagaano parish with 35% (79/140 respondents) of the inhabitants as youth, 40/140 respondents were middle aged and 21/140 respondents were the elderly. Ncundura parish with 45/100 respondents as youth, 35/100 respondents middle aged and 20/100 respondents as the elderly.
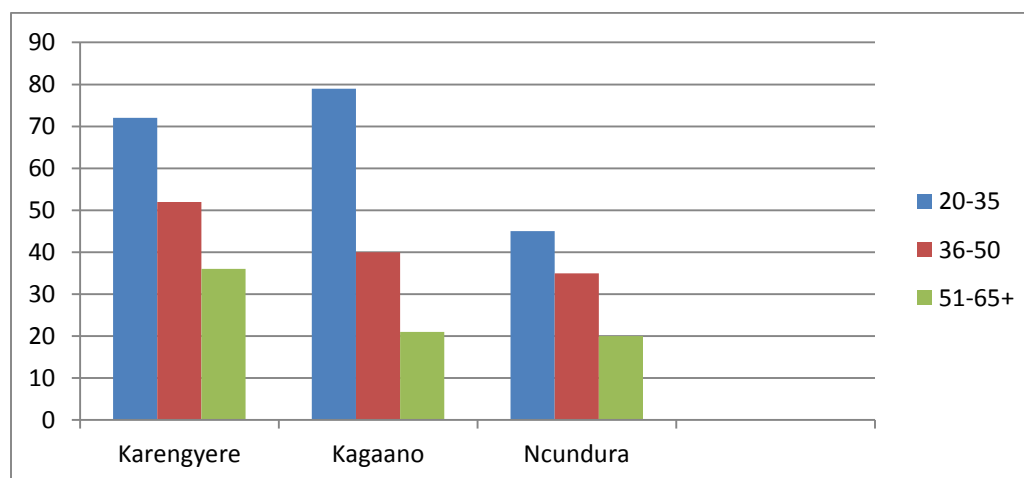


Figure 2: Distribution of the age of respondents per parish (Source: Primary data, 2021).


In relation to the gender dimension of respondents, a large proportion of the respondents were female (60%) to males (40%). According to the UBOS Report (2017), women are the major

social group in most districts of Uganda for example, Rubanda district in particular. The study considered a relatively higher percentage of women because they were the readily available group at the homesteads during the administering of respondent's questionnaire interviews. The largest percentage of female respondents was in Karengyere parish and the smallest was in Ncundura parish.

(v) Local community activities carried out around Echuya Central Forest Reserve.

The study identified various community activities practiced in areas around Echuya central forest reserve in Muko sub county, Rubanda district. It was established that crop farming was the predominant community activity practiced in the parishes of Kagaano and Ncundura to a larger extent.

During my study, about 45% of the respondents reported to be practicing crop farming mainly in Kagaano (30%) and Ncundura (15%) parishes of Muko Sub County because of the availability of land for cultivation in these parishes. The respondents further explained that since these parishes are not congested, land is still available and fertile. Crops like Irish potatoes, sweet potatoes and sorghum are mainly considered for food and cash. Other economic activities like sand mining, animal rearing, stone quarrying and brick making are also practiced but in smaller quantities.

In Karengyere trading centre parish, crop farming is not common because of limited land space for cultivation. Mainly brick making (15%) and sand mining (15%) are practiced in the available small fragmented plots. Other economic activities like stone quarrying and brick laying are also practiced but in small quantities.

The District Agricultural Officer reported that farmers in communities around Echuya central forest reserve have always been advised to plant agro forestry crops together with trees. However, only 15% have responded to plant crops with trees. He further explained to me that failure to adopt agro forestry in these Echuya parishes has greatly contributed to the encroachment of the forest reserve for survival by community members.

Table 3: Community activities practiced per parish Source: (Primary data, 2021)

| Parish | Community activities practiced in the areas | | | | | |
|---|---|---|---|---|---|---|
| | Crop farming | Grazing | Brick making | Stone Quarrying | Sand mining | Total |
| Karengyere | 25 | 40 | 35 | 40 | 40 | 180 |
| Kagaano | 55 | 30 | 25 | 20 | 15 | 145 |
| Ncundura | 20 | 20 | 15 | 10 | 10 | 75 |
| Total | 100 | 90 | 75 | 70 | 65 | 400 |



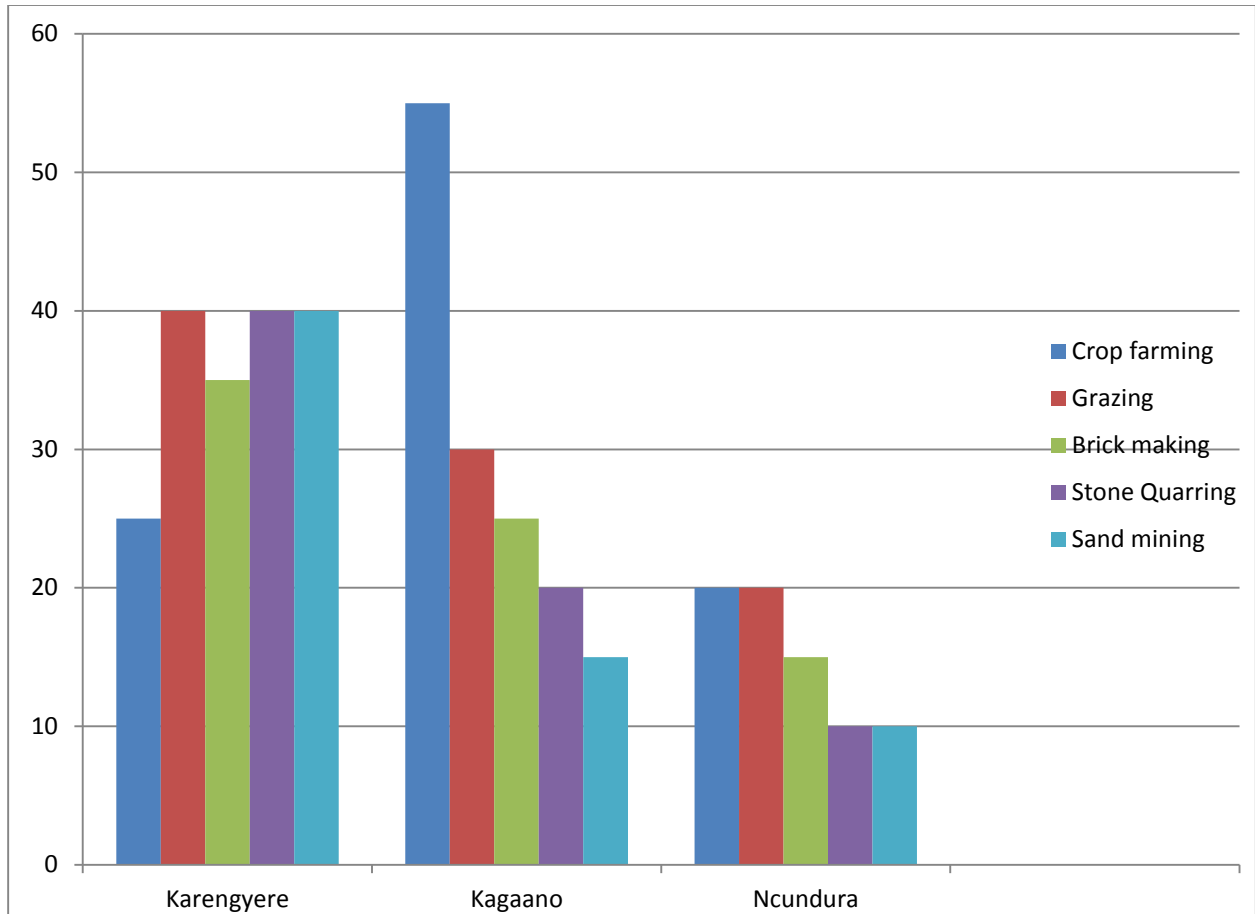Plate 1: Women in Kagaano Parish cultivating gardens

Figure 3: Community activities carried out in areas around Echuya central forest reserve
(Source: Primary data, 2021)

## (G) CONCLUSION

Study findings highlighted that increasing forest resource extraction is a great socioeconomic and environmental challenge in Rubanda district. The expansion of Karengyere trading centre is projected to increase the multiplier effect of forest resource extraction due to increased population and emergence of congested housing units. This is presumed from a hypothesis that as an urban unit expands, there is likelihood in forest resources pressure of extraction.

Therefore, in an emerging trading centre like Karengyere, there is need for the development of early warning programmes, systems and proactive mechanisms that integrate all households and local authorities towards sustainable and feasible forest resource conservation and management.

Basing on field observations and interviews, the increasing forest resource extraction could be as a result of increased population. Furthermore, areas with high population and much forest resources extraction could be harnessed through setting up local initiatives to regulate and control such activities by the local communities.

(H) RECOMMENDATIONS

According to the objective of the study, there is need to set up a local community activities regulation program or unit by the local authorities in trading centre's such as Karengyere to explore the opportunities for conserving and managing these resources and rethinking forest resources management strategy.

(J) ACKNOWEDGEMENTS

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