



## ASSESSMENT OF INDIGENOUS KNOWLEDGE ON FOREST FOODS CONSUMPTION AND HERBAL MEDICINE USE IN BUIKWE DISTRICT

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**ABSTRACT:** *This study investigated the local communities' application of ecological knowledge in the selection and use of forest products for food and medicine in Buikwe district. In Uganda, utilization of indigenous knowledge systems regarding plants to promote food security and health and wellbeing of the human population is widespread. This aims to generate information about the way members of the same communities use different forest products for food and medicine, as well as the role each household member plays at various stages in forest products' distribution chain. We used interview method to collect data on key variables, including forest products harvested, frequency of visits to the forest, persons involved and household demographic characteristics. Data were analyzed for descriptive measures of central tendency and spread and information presented in tabular format. The results revealed that households with more than 5 members were more involved in the harvesting of forest products compared to their counterparts with less than 5 members at 71.7% and 51% respectively. Communities living adjacent to the park admitted that they were able to save upto Ush 50,000 a month when the use forest products, whereas some member made extra income from the sales of forest products. The findings have implications for policy regarding management practices that would achieve the greatest conservation goals without compromising economic value of Mabira Forest Reserve to the local communities.*

**KEYWORDS:** Forest Products, Indigenous Knowledge, Food Security, Herbal, Uganda

### INTRODUCTION

Indigenous medicine comprises knowledge systems that developed overtime through generations within various societies, before the era of modern medicine (WHO, 2016). Traditional medicine, variously known as ethno-medicine, folk medicine, native healing, or complementary and alternative medicine (CAM), is the oldest form of health care system that has stood the test of time (WHO, 2016). It is an ancient culture-bounded method of healing that humans have used to cope and deal with various diseases that have threatened their existence and survival.

Traditional medicine according to the World Health Organization (WHO 2000b:1) can be defined as the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or no, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness.



Traditional healer on the other hand, is a person who is recognized by the community where he or she lives as someone competent to provide health care by using plant, animal and mineral resources and other methods based on social, cultural and religious practices. (WHO 2000a:11)

Traditional medicine may include formalized aspects of folk medicine, that is to say long standing remedies passed on and practiced by lay people. Folk medicine consists of the healing practices and ideas of body physiology and health preservation known to some in a culture, transmitted informally as general knowledge, and practiced or applied by anyone in the culture having prior experience.

### **Background to the Study**

However, the socio-political and cultural dimensions of the western hegemonic tendencies in the world's global affairs posed serious challenges to IKS, especially to former African colonies. The west considered Africa as a 'dark continent', and hence despised its traditions, customs, belief systems, and indigenous knowledge systems as diabolic, barbaric, and backward. This had a negative impact on Africa's own socio-economic and political development. It is however important to note that Africans never completely lost touch with their traditional thought and values despite the cultural onslaught on African thought through the spread of the western worldview.

Some critics have shifted attention to the impact of colonialism on indigenous knowledge system (IKS) (Mapara, 2009) especially knowledge of medicine (Feerman, 2002; Konadu, 2008; Millar, 2004; Paul, 1977). It is explained that the introduction of Western medicine and culture gave rise to 'cultural-ideological clash' which had hitherto created an unequal power-relation that practically undermined and stigmatized the traditional health care system in Africa because of the over-riding power of the Western medicine. This became manifested in South Africa during the Apartheid regime. Such arguments underscore the negative impact of colonialism on indigenous medicine.

## **MATERIALS AND METHODS**

### **Description of Study Area**

The study area will cover human settlement areas around Mabira Central Forest Reserve some of which are enclaves and others adjacent to the forest. Mabira Central Forest Reserve is located 20 km north of Lake Victoria shoreline immediately to the west of Victoria Nile. The forest reserve lies partly in Buikwe, Mukono and Kayunga districts and occupies an area of 306 km<sup>2</sup> with an altitudinal range of 1070 – 1340 m above sea level. It is situated between latitude 0° 22' and 0° 35'N and between longitude 32° 56' and 33° 02'E. (Tugume and Kakudidi, 2016)

The forest reserve occupies gently undulating landscape characterized by numerous flat-topped hills and wide shallow valleys. The topography is such that the land drains to the north, even though the reserve's southern boundary lies only 13 km from the lakeshore.

The underlying rocks are composed of micaceous schists and shales of the Baganda-Toro system with ridges of quartzite and amphibolites. The soils are generally ferralitic sandy clay loams, with black water logged clays in the valley bottom. The climate is tropical with two



rainfall peaks from April to May and October to November ranging from 1,250-1,400 mm per annum. The vegetation of Mabira is classified as “medium altitude moist semi-deciduous.

Commercial use of the forest began when some parts were harvested in the early 1900's and until 1988, intensive coffee/banana agricultural encroachment badly damaged parts of the forest. The local people are mainly of the Bantu ethnic group of the following tribes; Baganda, Banyarwanda, Basoga, Bagisu, Bakiga, Banyankole, Bagwere and Batoro (tugume P and Kakudidi, 2016).

### **Sampling and Sample Size**

There are several potential challenges to ensuring that data on people who utilize forest resources are representative of the entire population of the target community:

#### **Sampling Method**

Sampling was done by simple random sampling method. The sampling will be carried out in three (3) selected villages of Kikoma, Kirangira and Koba in Ssugu parish, Buikwe sub-county, Buikwe district. A total of 33 respondents will be interviewed in each selected village (Kikoma, Kirangira and Koba). Buikwe District has an estimated population of 329,858 which is distributed in 11 Sub-counties which is made up of 5 parishes and a total of 10 villages.

#### **Sample size**

A sample size of 100 respondents was determined using the published table of Yamane (1967), with 95% confidence level, precision level of 10%,  $P=5$

The estimated proportion of an attribute that is present in the population

$$N = \frac{N (Z^2) P (1-P)}{e^2 (N-1) + Z^2 * P (1-P)} \text{ where}$$

N=number of households in three villages 300

P= probability of success 0.5

e= error margin 0.0715

Z=confidence level 1.96

This gave us a sample size of **109**

#### **Data Collection**

Respondents were asked to assign ranks to specific aspects like driving forces (e.g., distance from the forest, poverty, market opportunities etc) and barriers. The rankings of forest products by importance as food item and medicine were weighted on the basis of scores ranging from very low to very high, assigned by the respondents.

#### **The Interview Guides**

The researcher was conducted personal interviews and at the same time used the observation method where the occurrence of the social events or phenomenon was recorded. While interviewing, the researcher was guided by both structured and unstructured questionnaires



which were as interview guide. The researcher used questionnaires to people who can be able to read and write, and interview guide to people who cannot read or write hoping that these were resourceful sources of information.

### ***Secondary Data***

This is the use of the already collected data that was not specifically gathered for the research question at hand. This data could be government or non-governmental / private statistics. The researcher got information from the study of documents about assessing indigenous knowledge of forest products for food and medicine; these documents included the publications, annual reports of the ministry of health, periodicals, journals, magazines and other literature written by different knowledgeable scholar. This data helped the researcher with the starting point for additional research.

### ***Key Informants***

Primary data was obtained from the respondents in the field and secondary data was obtained by reviewing relevant literature. Data and information for this project were obtained by employing different methods. Apart from reviewing the existing documents on assessing indigenous knowledge on forest products for food and medicine from government and private sources, field trips were made to the various indigenous knowledge centres. Communities living in the area were interviewed about the different types of forest products they use, how they are obtained, how they look like, how they are prepared, how they are preserved who uses them, how is it managed by the locals as well as the area local government. Information regarding the capacity and constraints of indigenous knowledge on forest products in the communities were obtained from herbalists.

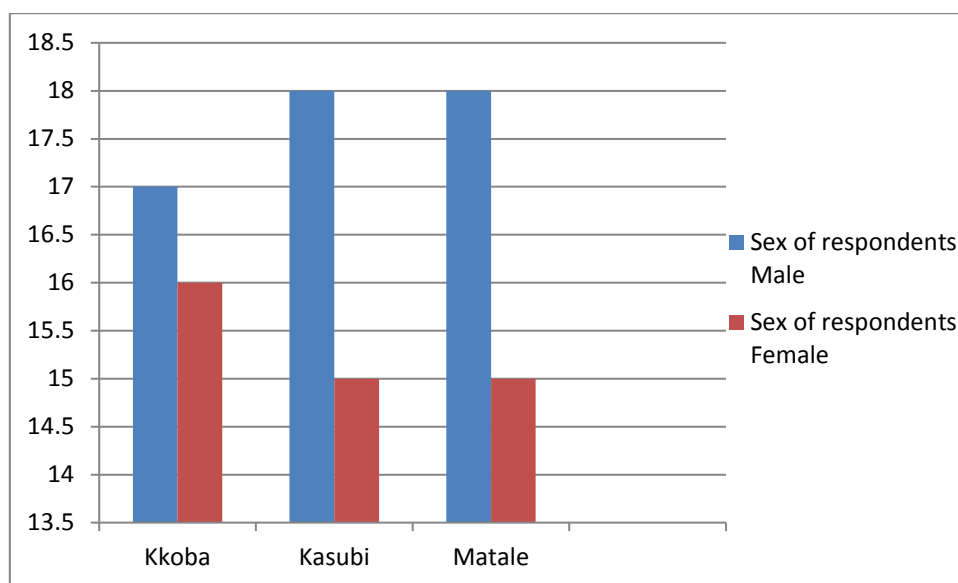
### **Data Analysis**

Descriptive statistics using frequencies and percentages were used to summarize data using Microsoft excel 2013.

## **RESULTS**

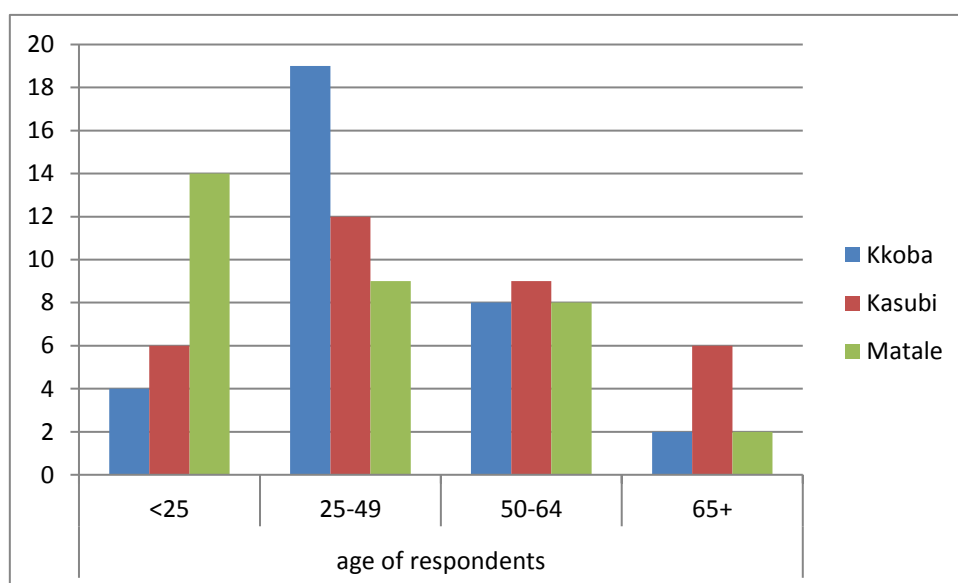
### **Socio-Demographic Characteristics of Respondents**

The results on socio-demographic characteristics of the respondents during the study revealed that more men than women participated in the study. The higher numbers of male participants suggest that in Buikwe district most households were headed by males, since this study targeted household heads. Of the three villages, Kkoba had the highest number of female respondents and least number of male respondents compared to Katale and Kasubi.



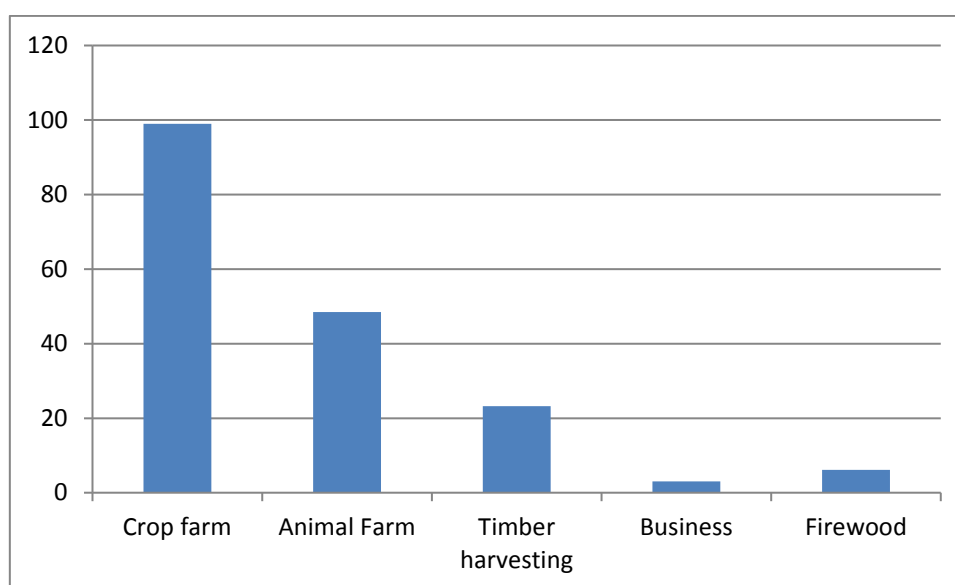
**Figure 1: Shows the Distribution of the Study Respondents by Gender Across three Villages.**

From the figure 1, it was found out that the researcher interviewed 17 respondents who were male and 16 respondents, who were female from Kkoba village, 18 respondents who were male and 15 respondents who were female from Kasubi Village and 18 respondents who were male and 15 respondents who were female from Matala Village. Therefore, the researcher interviewed more male respondents than female respondents from all the three different village of Kkoba, Kasubi and Matala. Despite the emphasis on the promotion of gender balance in most social and economic studies, this researcher found out that the male respondents were more willing to participate in the study than their female counterparts.



**Figure 2: Provides a Summary of Respondents' Age Distribution at Village Level**

Only 4 respondents were from Kkoba, 6 respondents from Kasubi and 14 respondents were from Matala in the ages <25, 19 respondents were from Kkoba, 12 respondents from Kasubi and 9 respondents were from Matala between the ages of 25-49, 8 respondents were from Kkoba, 9 respondents were from Kasubi and 8 respondents from Matala were between the ages of 50-64 and 2 respondents were from Kkoba, 6 respondents were from Kasubi and 2 respondents were from Matala in the ages 65+. The researcher therefore found out that the majority of the respondents interviewed were aged between 25-49 and 50-64 years whereas the minority was aged less than 25 (<) and 65 plus (+)

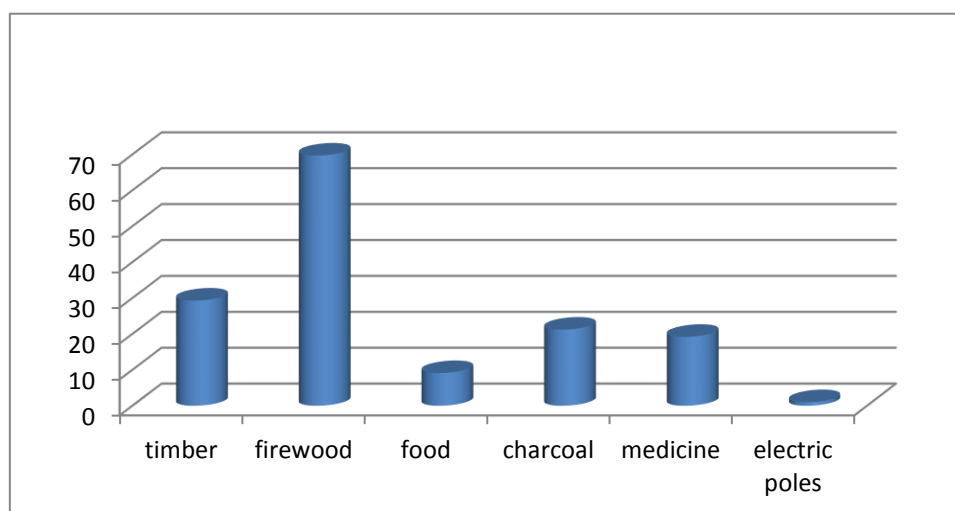


**Figure 3: Income Activities of Households**

The figure above shows that crop farming was the highest income earning activity in all the three villages of Kkoba, Kasubi and Matala with 99%, animal farming with 48.5%, timber harvesting with 23.2%, firewood harvesting with 6.1% and the least income earning activity in the three villages was business with 3%. Therefore, these results suggest that the highest income earning activity in all the 3 villages was directly not linked to forest ecosystem services and products such as food, medicine and fuel wood as local source of energy as we expected. Instead, farming played a major role as income earning activity, while forest products from Mabira only supplemented households' income.

### **Forest Products Harvested by Communities Around Mabira Forest Reserve**

From Table 4, it was found that firewood was the most forest product that the local communities' benefit from in Buikwe district with a percentage of 69.7, followed by timber with 29.3%, charcoal with 21.2%, medicine with 19.2%, food with 9.1% and the least which was electric poles with 1%. Therefore, the researcher found that the major forest product that the local communities' benefit from in Buikwe district is firewood and the least is electric poles. This is further illustrated in the tables below;



**Figure 4: Major Forest Products Harvested**

The adults had the highest harvest for most of the forest products. The highest harvest in electric poles had 100% of adults, medicine had 94.7% of adults, timber had 79.3% of adults, firewood had 76.8% of adults, food had 66.7 of adults and charcoal had 38.1% of adults. The harvest by the children was 19% for charcoal, 18.8% for firewood, 13.8% for timber, 11% for food, 0% for medicine and electric poles. The harvest by both was 42.9% for charcoal, 22.2% for food, 6.9% for timber, 5.3% for medicine, 4.3% for firewood and 0% for electric poles. Therefore, it was found out that the adults were the ones who were involved in the harvest of most of the forest products, followed by both the adults and the children and least harvest of the forest products was by children.

**Table 1: Age categories of persons involved in harvesting forest products**

Product	Age of Respondents (%)		
	Children	Adults	Both
Timber	13.8	79.3	6.9
firewood	18.8	76.8	4.3
Charcoal	19	38.1	42.9
medicine	0	94.7	5.3
Food	11.1	66.7	22.2
electric poles	0	100	0

*Note: persons aged 0-18 years were classified as children, and percentages are calculated as proportion of total number of people involved in the harvesting of a particular product.*



**Table 2: Sex of Respondents who Harvested Forest Products**

Product	Sex of respondents		
	Both	Female	Male
Timber	6.9	17.2	75.9
Firewood	4.3	55.1	40.6
Charcoal	42.9	19	38.1
Medicine	5.3	78.9	15.8
Food	22.2	33.3	44.4
electric poles	0	0	100

Table 2 shows that the males harvested most of the forest products and the least harvest was by both sexes. 100% males harvested electric poles, 75.9% males harvested timber, 44.4% males harvested food, 40.6% males harvested firewood, 38.1% males harvested charcoal, and 15.8% males harvested medicine. The forest products harvested by the females were as follows; 78.9% females harvested medicine, 55.1% females harvested firewood, 33.3% females harvested food, 19% females harvested charcoal, 17.2% females harvested timber and 0% females harvested electric poles. The forest products harvested by both males and females were as follows; 42.9% both harvested charcoal, 22.2% both harvested food, 6.9% both harvested timber, 5.3% both harvested medicine, 4.3% both harvested firewood and 0% both harvested electric poles. Therefore, the researcher found out that the males were the ones involved in harvest of the most forest products followed by the females and then both sexes.

**Table 3: Proportion of Respondents with Experience on Forest Products Harvesting**

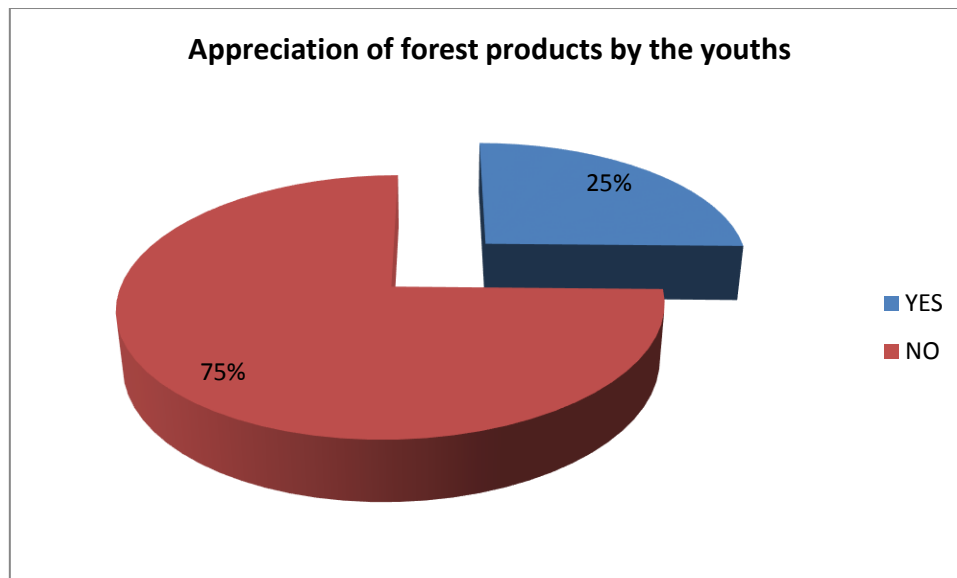
	Visiting Forest and Harvesting			
	YES		NO	
household size	N	%	n	%
<5	20	57.1	15	42.9
5-10	43	71.7	17	28.3
10+	2	50	2	50

Source: primary data

Table 3 shows that upto 57.1% of the respondents from households with less than five members harvested the forest products within the last one month prior to the study, while 42.9% of the same households did not harvest the forest products. Majority of the respondents (71.7%) from households having 5-10 members harvested the forest products while 28.3% of the same households did not harvest the forest products. And 50% of the respondents from households with members above ten harvested the forest products while 50% of the same household did not harvest the forest products. Therefore the researcher found out that, the majority of the respondents (71.7%) who harvested the forest products were from households with members between 5-10, followed by households with less than five members which had 57.1% of



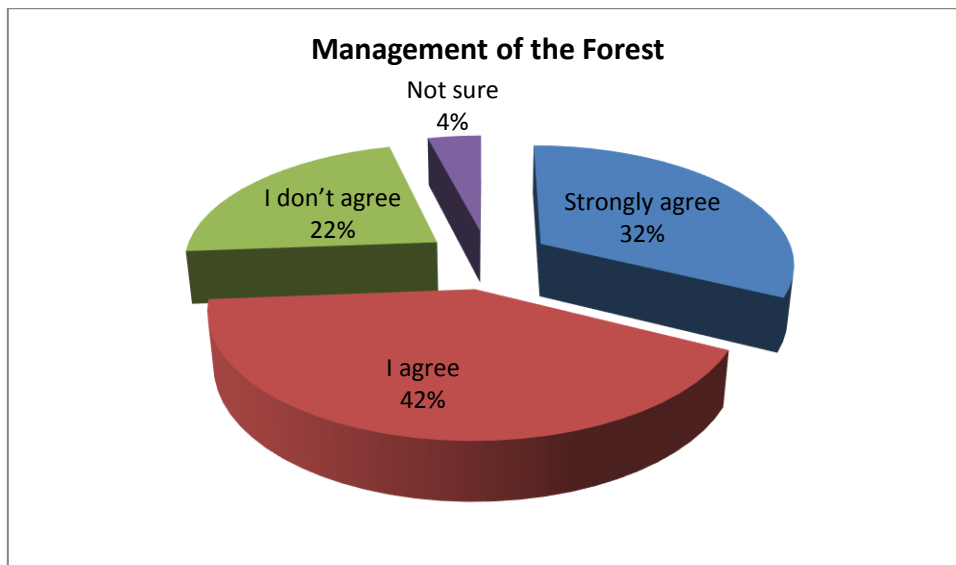
respondents who harvested the forest products and the least were households with members above ten who had 50% of the respondents



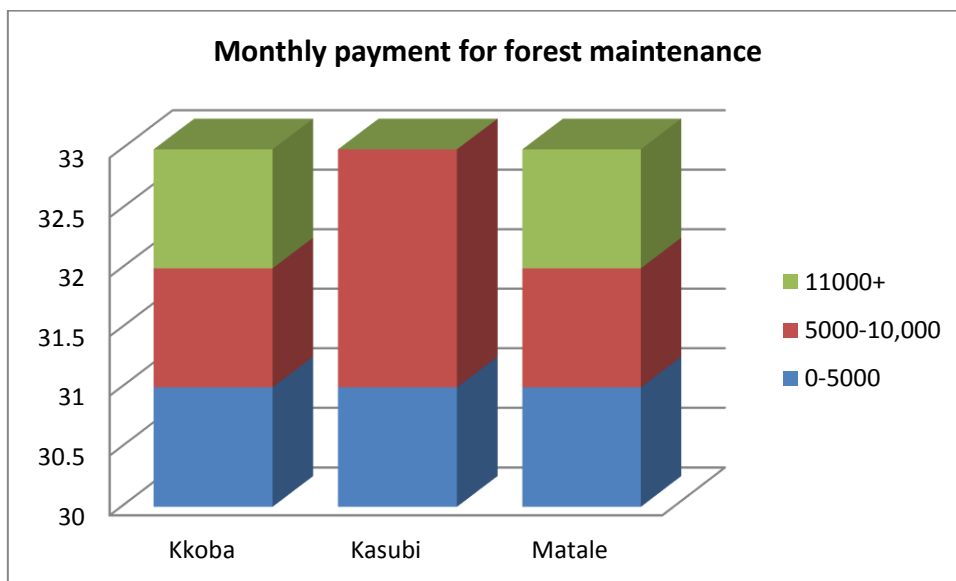
**Figure 5: Appreciation of Forest Products by Youths**

Figure 5 shows that majority of the youths (75%) do not appreciate the use of forest products as their grandparents did while 25% of the youths appreciate the use of forest products as their grandparents did.

On management of the forest by communities living adjacent to Mabira Forest Reserve, the study found out that 74% of the respondents were willing to contribute money for the purpose of managing the forest (Figure 6). As many as 42% respondents agreed whereas 32% of the respondents strongly agreed. Only 22% of the respondents did not agree to make any financial contribution towards conserving the forest, with 4% of the respondents not sure if the people would be willing to contribute money for the forest management. Therefore, the researcher found out that most of the respondents agreed that the people around the forest were willing to contribute money for its management because the forest is the livelihood of the people living around it.



**Figure 6: Willingness to Pay for Forest Management**



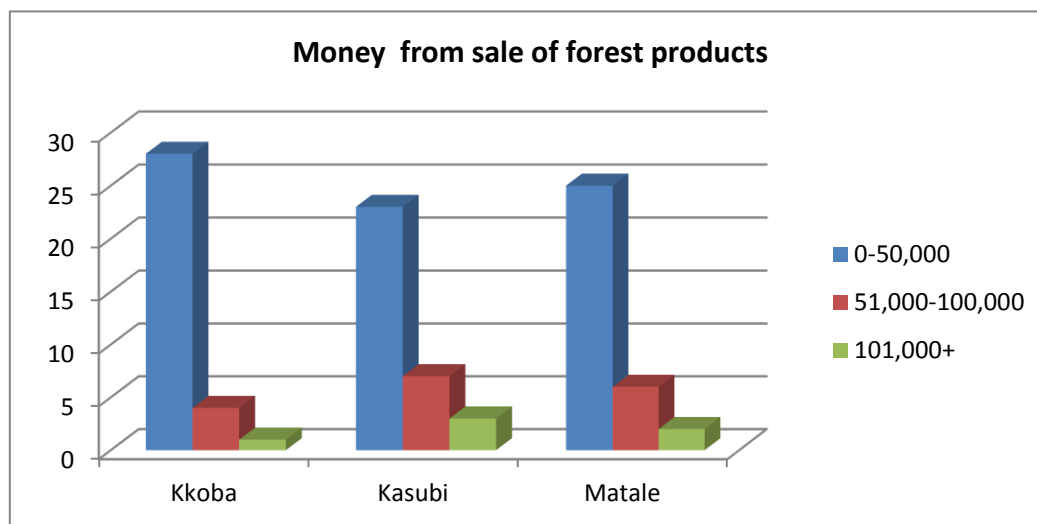
**Figure 7: Monthly Payment for Forest Maintenance**

In all the three villages of Kkoba, Kasubi and Matale upto 31 respondents were willing to contribute 5,000 USH, or thereabout for the management of the forest, the respondents willing to contribute between 5,000-10,000 were 1 from Kkoba, 2 from Kasubi, 1 from Matale and the respondents who were willing to pay more than 10,000Ush in all the three villages were only two; 1 from Kkoba, none from Kasubi and 1 from Matale. Therefore, the study found out that most of the respondents (31) from all the three villages of Kkoba, Kasubi and Matale were

willing to contribute 0-5,000US\$ compared to only 4 respondents who were willing to contribute above 11,000US\$ for the maintenance of the forest.

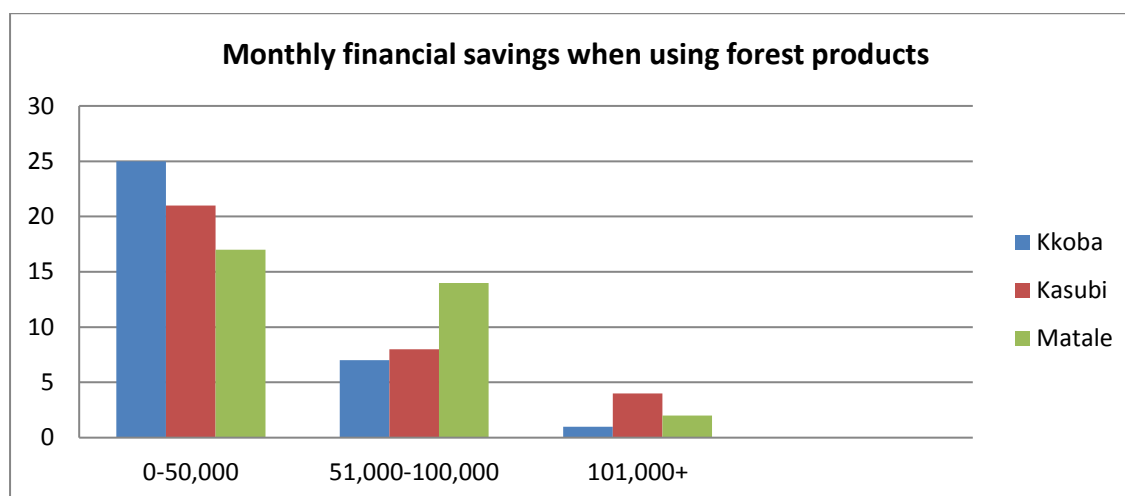
### The Contribution of Forest Products to Rural Households' Income in Buikwe District

Figure below shows that the respondents who got between 0-50,000US\$ from the sale of forest products from the three villages respectively were 28 from Kkoba, 23 from Kasubi and 25 from Matale, the respondents who got between 51,000-100,000US\$ from the sale of forest products were 4 from Kkoba, 7 from Kasubi and 6 from Matale, and the respondents who got above 101,000US\$ were 1 from Kkoba, 3 from Kasubi and 2 from Matale. Therefore, the researcher found out that from the three villages of Kkoba, Kasubi and Matale most of the respondents who got money from the sale of forest products got between 0-50,000US\$, a few respondents got between 51,000-100,000US\$ and the least respondents got above 101,000US\$.



**Figure 8: Money from Sale of Forest Product**

The respondents who saved between 0-50,000US\$ in a month when using forest products were 25 from Kkoba, 21 from Kasubi, 17 from Matale, those that saved between 51,000-100,000US\$ were 7 from Kkoba, 8 from Kasubi, 14 from Matale and those that saved above 101,000US\$ were 1 from Kkoba, 4 from Kasubi and 2 from Matale. Therefore, the researcher found out that most of the respondents from the three villages of Kkoba, Kasubi and Matale saved between 0-50,000US\$, some saved between 51,000-100,000US\$ and the least respondents saved above 101,000US\$.



**Figure 9: Monthly Financial Saving when Using Forest Products**

## CONCLUSIONS

Study conclusions are presented in accordance with the findings for each specific objective. The study concludes that the major forest products that the local communities benefited from in Buikwe district included firewood, timber, charcoal, medicine, food and the least was electric poles. Adults were the ones involved in the harvest of most of the forest products, followed by both the adults and the children and least harvest of the forest products was done by the children. The males were major players in harvesting most forest products followed by female adults and then both mature sexes, with children coming distance forth.

For the second objective of the study, it was found out that majority of the respondents (71.7%) who harvested the forest products were from households with 5-10 members, compared to 57% for households with less than five members. The study also showed that majority of the youth (75%) did not appreciate the use of forest products in the same way their parents and grandparents did. It was also discovered that the people living around the forest were willing to contribute money for its management because they perceive the forest as important source of their livelihood.

On average, the respondents from the three villages of Kkoba, Kasubi and Matala could save up to Ush 50,000 when they consume forest products at home. In addition, majority were able to earn up to average monthly income of Ush 100,000 from the sales of forest products. From the study findings, we recommend that future research should explore opportunities for conserving Mabira Forest Reserve through integration of environmental and socio-economic benefits, so as to create incentives for local communities' involvement in the forestry resources management in Buikwe district.



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