Contribution of non-timber forest products to livelihood of rural communities in Kumbungu District of Northern Ghana

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Abstract. Ammal A, Mariam M. 2020. Contribution of non-timber forest products to livelihood of rural communities in Kumbungu District of Northern Ghana. Asian J For 4: 10-14. This survey concentrated on the contribution of Non-Timber Forest Products (NTFPs) to the livelihood of rural communities in the Kumbungu District of Ghana. Data were collected by structured questionnaires and verbal interviews to obtain information from sampled members of the communities' in the Kumbungu District of Northern Ghana. Personal interviews and direct observation were carried out. 200 structured questionnaires were administered randomly to respondents in 5 selected communities in Kumbungu District. The selected communities were Cheyohi, Kpalchi, Kokpeng, Zuoanlyili, and Garizew. 40 questionnaires were administered in each community and this was used to prompt information on the uses of NTFPs in the study area. Data were analyzed using descriptive statistics (tables, charts, and graphs). The findings indicate that NTFPs are abundant in the study area and are found in all the forest land areas within the communities. NTFPs collection for utilization is usually carried out throughout the year. All the respondents in the five communities collect and use the NTFPs for preparation of food for the family and other purposes. The number of respondents involved in the collection of NTFPs was highest in Kokpeng community (21.3%), while only (18.5%) respondents were involved in the Garizew community. The chi-square test revealed that there were highly significant differences (P<0.05) between the number of respondents involved in the collection and non-collection of NTFPs in the district. The lowest income ranged between 1-25 (GHC) Ghana cedis week-1 whilst the highest income was 65+ Ghana cedis was generated by respondents in the district. 12.5% respondents in Zuolanlyili had income ranging between 1-25 Ghana cedis week-1 and 10% of respondents income ranged above 65+. 47.5% and 30% of respondents’ income ranged between 25-45 and 45-65 Ghana cedis respectively in the Zuolanlyili community. Respondents in the Kokpeng community had the highest income of 30% above 65+ whilst Garizew had the lowest income 5% above 65+.

Keywords: Food, livelihood, Non-Timber Forest Products, rural community, occupation, poverty

INTRODUCTION

Non-timber forest products (NTFPs) offer livelihood to a larger proportion of the global population, particularly the rural communities in terms of their needs such as food, medicine, employment, earnings through trade, and reducing poverty (Endamana et al. 2016; Pandey et al. 2016; Suleiman et al. 2017). Additionally, NTFPs are vital sources for rural communities in times of shortages and therefore lead to socio-economic progress of rural communities (Ojea et al. 2016; Suleiman et al. 2017). The rural folks still depend on NTFPs for their livelihood payable to their poor financial situations (Alex et al., 2016). NTFP gathering, use, and trade are similarly significant livelihood and cost-effective activities of rural communities (Raj et al. 2018).

The association between the rural poor and benefaction with the ecological spreading and natural resources has been recognized (Kranjac-Berisavljevic and Gandaa 2002). Ghana is essentially rural and 54% are presently subsistence farmers. Rural poverty in communities has a robust locality preference which is connected to the proportional natural resource bequest of the key ecological zones of Ghana. The frequency and the profundity of poverty in rural communities are superior in rustic savannah compared to any other portion of Ghana, however, pouches of rural poverty occur in the forest zone and coastal belts of Ghana. In the Northern parts of Ghana, gender plays a vital role in the measurement of poverty which indicates differences in the earnings of men and women. Womenfolk's accept an uneven portion of the liability of being poor and indulge in devoting unlimited time in household initiatives, yet they also support and educate children in executing any additional household tasks (Kranjac-Berisavljevic and Gandaa 2002).

Local people have native knowledge of the existing forest resources used for food safety in mixing with crop production. They occasionally utilize these sources for returns, which offer them the chance for others for their livelihood option. Monetary approximations of USD 90 billion are set for NTFPs per annum globally and almost one-third is consumed in the local economy minus inflows into the market (Raj et al., 2018). The contribution of NTFPs to rural households’ income is important in many countries worldwide. For instance, Shackleton et al. (2015) established that family unit returns from NTFPs earnings are occasionally equivalent to or advanced than the school teachers’ least remunerations in Central and West Africa. They additionally stated that traders of NTFPs in the Democratic Republic of Congo received between USD 16
and 160 each week whereas producers made approximately 50 - 75% of the amount per week.

The aforementioned personnel has purported that rural family units in Nigeria spring up to 80% of their earnings from the trade of NTFPs (Jimoh et al. 2013). Also, it was observed that over 70% of the country's family units depended unswervingly on fuelwood as one of the key sources of energy, via regular consumption projected at 27.5 million kg/day (Verma and Paul 2016).

There is consequently the need to gather information on the contribution of NTFPs in the region. Sufficient data about the rural group's associating with the forest is a significant device for the progression of viable programs to improve rural lives. This survey is thus to provide detailed data on the contribution NTFPs that can possibly improve poverty in the rural communities of Kumbungu District of northern Ghana. This survey will subsequently be suitable for academics, farmers, industrialists and traders. The purpose of this study is to determine the number of rural folks involved in the utilization of NTFPs in the study area, determine the kinds of NTFPs used and to determine the contribution of NTFPs species to the livelihood of Kumbungu District.

**MATERIALS AND METHODS**

**Study area**

Kumbungu District (Figure 1) is one of the districts found in northern Ghana and it shares borders to the north with Mamprugu District, Tolon and North Gonja districts to the west, Sanarigu district to the south and Savelugu/Nanton municipal to the east. The people are predominantly Dagombas who are mainly peasant farmers. The population is approximately 39341 (Musah et al. 2013).

**Data collection methods**

Data were collected by structured questionnaires and verbal interviews to obtain information from sampled members of the communities’ in the Kumbungu District of northern Ghana. Personal interviews and direct observation were carried out. 200 structured questionnaires were administered randomly to respondents in 5 selected communities in Kumbungu District. The selected communities were Cheyohi, Kpalchi, Kokpeng, Zuolanyili, and Garizew. 40 questionnaires were administered in each community and this was used to prompt information on the uses of NTFPs in the study area.

**Duration of work**

The study was conducted in a period of three months to collect data. The survey was between February and April 2019.

**Data analysis**

Descriptive statistics were used to analyze the data obtained and were represented in tables, percentages, charts were used to define variables of respondents to condense the contribution of NTFPs to households' livelihood.

![Figure 1. Map showing the location of the study area in Kumbungu District, northern Ghana](image)
RESULTS AND DISCUSSIONS

The results showed that NTFPs are abundantly available within the communities in the study area. The gathering of NTFPs are regularly carried-out all year round. The collection of NTFPs involved Male (44.5%) and females (56.5%). The respondents ages were grouped into the Young 10-20, middle-age 21-30, elderly age 41 years, and above. The middle-age showed a higher percentage than the working and elder age groups having (44.6%). The overall mean age of respondents was 21 - 30 years.

Education

The education of respondents was categorized into two groups namely educated and not-educated. Majority of the respondents are educated up to tertiary school level with the highest frequency of respondents (87.5%) having obtained a certificate in education at National Diploma or National Certificate of Education level.

Only a few respondents were found to be not-educated, who did not have the opportunity of going to school and group includes the elderly people. Cheyohi had the highest percentage of educated respondents (22.2%), while Kokpeng (17.4%) has the least. Likewise, Kokpeng had the highest percentage of not educated respondents of 26.9%, while Cheyohi (14.3%) had the least percentage not educated respondents. Overall educated and not-educated respondents percentages of total respondents sampled were (99.9%) and (100.1%) respectively. The chi-square test showed that there were significant differences between educated and not educated respondents among the communities in the Kumbungu District (Table 2).

Occupation

Respondent’s occupation was categorized into three groups namely, Farming, trading, and students. Farming is the major occupation of the communities. From the response majority of the occupation in the communities are trading (40%) and farming (40%) respectively which is the highest and students (20%) being the lowest.

NTFPs assembling

Table 3 shows the assemblage (%) of NTFPs by respondents in the district. The result shows that the number of households involved in the collection of NTFPs was highest in Kokpeng community with (21.3%) respondents being involved, whereas for Garizew community (18.5%) are involved being the lowest. The total number of respondents involved in NTFPs collection in the five communities was (99.9%). The chi-square test revealed that there were significant differences between the number of respondents involved in the assembled and not-assembled NTFPs in the Kumbungu District.

Income obtained per week from NTFP in the rural communities of Kumbungu District

Table 4 demonstrates the income generated from the sale of NTFPs in the five communities of the Kumbungu District. From the survey, the communities in the district receive some money from the collection of NTFPs example honey, construction materials, fodder, bush meat, living animals, medicinal plants, wild food, and fuelwood. The lowest income ranged between 1-25 (GHC) Ghana cedis week¹ whilst the highest income was 65+ Ghana cedis was generated by respondents in the district. 12.5% respondents in Zuolanyili had income ranging between 1-25 Ghana cedis week¹ and 10% of the respondents income ranged above 65+. 47.5% and 30% of the respondent’s income ranged between 25-45 and 45-65 Ghana cedis respectively in the Zuolanyili community. Respondents in the Kokpeng community had the highest income of 30% above 65+ whilst Garizew had the lowest income 5% above 65+. This approves Olsen and Larsen (2003) report that in some rural hilly areas of Nepal, NTFPs contribute up to 50% of total annual family incomes. However, the number of NTFPs collected are high in the communities of the district but only few NTFPs collected are being sold. The rural folks in communities are extremely reliant on a range of NTFPs for their subsistence needs which also contributes to their annual income (Fajobi and Fingesi, 2018; Olsen and Larsen 2003). Consequently, NTFPs generate little income to the members of the community, however overutilization of these resources will reduce the forest and land resources in the area. As a result of food deficiency by rural folks has resulted in pressure on NTFPs collection to make financial gains for their livelihood. In addition, traders reassure primary collectors to collect larger amounts, predominantly NTFPs that have higher market demand and this depletes the availability of NTFPs species day-by-day.

Table 1. Age of respondent in the Kumbungu District, northern Ghana

| Age of respondent | Respondents percentages |
|-------------------|-------------------------|
| 10-21             | 32.4                    |
| 21-30             | 44.6                    |
| 31-40             | 15.5                    |
| 41+               | 7.5                     |
| Total             | 100                     |

Source: Field Survey, 2019

Figure 2. Occupation of respondents (%) in the Kumbungu District, northern Ghana
Economically, the vital parts of NTFPs collected by rural folks are sold either as raw or as processed form. Some of the NTFPs sold were in the form of twigs, shoot, fruit, seed, and leaves which were sold to vendors in the form of bundles, bunches, single pieces, or weighed. The center of the economic significance of NTFPs is that they are found in forest areas inhabited by indigenous communities (Verma and Paul 2016). NTFP collection is an imperative source of income and employment generation for forest dwellers/indigenous communities and rural poor (Verma and Paul 2016). There is a need to educate rural dwellers/indigenous communities and rural poor (Verma and Paul 2016). NTFP collection is an imperative source of income and employment generation. The utilization helped to promote the image of the communities as it was noticed that companies, as well as individuals from nearby towns and cities, come to purchase these NTFPs from these communities, especially shea butter oil. The study also showed that the utilization of NTFPs also boosts the use of herbal medication among humans both in the local communities and urban areas. Therefore, awareness campaigns on the conservation of habitats of NTFPs species, both edible, medicinal plants, and tradable NTFPs species, should be conducted at the village level. At the same time, a local regulatory system should be launched which will regulate the harvesting of NTFPs species from government forests and other lands. This could also lessen the dependence of households on consumption of NTFPs; thereby help to preserve it for future purposes.

Table 2. Education of respondents Kumbungu District, northern Ghana

| Communities | Educated | Not-educated | \( \chi^2 \) | df | P     |
|-------------|----------|--------------|-------------|----|-------|
| Cheyohi     | 32 (22.2%) | 8 (14.3%)    | 7.4532      | 4  | (p > 0.05) |
| Kpalchi     | 28 (19.4%) | 12 (21.4%)   |             |    |       |
| Kokpeng     | 25 (17.4%) | 15 (26.9%)   |             |    |       |
| Zuolanyili  | 30 (20.8%) | 10 (17.9%)   |             |    |       |
| Garizew     | 29 (20.1%) | 11 (19.6%)   |             |    |       |
| Total       | 144 (99.9%) | 56 (100.1%) |             |    |       |

Source: Field Survey, 2019 (\( \chi^2 = \) Chi Square; df = degrees of freedom); (N = 200)

Table 3. Assemblage of NTFPs by respondents in the Kumbungu District, northern Ghana

| Communities | Assembled NTFPs | Not-assembled NTFPs | Total | \( \chi^2 \) | df | P     |
|-------------|-----------------|---------------------|-------|-------------|----|-------|
| Cheyohi     | 36 (20.2%)      | 4 (18.2%)           | 40    | 7.4532      | 4  | (p > 0.05) |
| Kpalchi     | 34 (19.1%)      | 6 (27.3%)           | 40    |             |    |       |
| Kokpeng     | 38 (21.3%)      | 2 (9.1%)            | 40    |             |    |       |
| Zuolanyili  | 37 (20.8%)      | 3 (13.6%)           | 40    |             |    |       |
| Garizew     | 33 (18.5%)      | 7 (31.8%)           | 40    |             |    |       |
| Total       | 178 (99.9%)     | 22 (100%)           | 200   |             |    |       |

Table 4. Income obtained per week from NTFP in the rural communities of Kumbungu District, northern Ghana

| Community | Number of respondents | NTFPs | Income range per week (GHC) |
|-----------|-----------------------|-------|----------------------------|
|           |                       |       | 1-25 GHC | 25-45 GHC | 45-65 GHC | 65+ GHC |
| Cheyohi   | 40                    | Fodder, bush meat, honey, medicinal plants, construction materials, fuelwood | 12 (30%) | 9 (22.5%) | 15 (37.5%) | 4 (10%) |
| Kpalchi   | 40                    | Living animals, wild food, honey, fodder, fuelwood | 8 (20%) | 16 (40%) | 7 (17.5%) | 9 (22.5%) |
| Kokpeng   | 40                    | Construction materials, honey, medicinal plants, fodder | 11 (27.5%) | 15 (37.5%) | 2 (5%) | 12 (30%) |
| Zuolanyili| 40                    | Honey, bush meat, wild food, fuelwood, fodder | 5 (12.5%) | 19 (47.5%) | 12 (30%) | 4 (10%) |
| Garizew   | 40                    | Construction materials, honey, fodder, bush meat, wild food | 6 (15%) | 25 (62.5%) | 7 (17.5%) | 2 (5%) |
| Total     | 200                   |       |           |           |           |         |

Economically valuable NTFPs species because there is, an opportunity of communities on the sustainable collection of economically valuable NTFPs species. In conclusion, to supplement the low agricultural production in the rural areas of Ghana, the rural people of the Kumbungu District has given due consideration to NTFPs as an effective means to enhance the economic benefits to rural people and to help in improving livelihood, household food security, and nutrition. The study revealed that the utilization of NTFPs by the communities helped to bring development to the communities. It was also recorded that the utilization helped to promote the image of the communities as it was noticed that companies, as well as individuals from nearby towns and cities, come to purchase these NTFPs from these communities, especially shea butter oil. The study also showed that the utilization of these NTFPs also boosts the use of herbal medication among humans both in the local communities and urban areas. Therefore, awareness campaigns on the conservation of habitats of NTFPs species, both edible, medicinal plants, and tradable NTFPs species, should be conducted at the village level. At the same time, a local regulatory system should be launched which will regulate the harvesting of NTFPs species from government forests and other lands. This could also lessen the dependence of households on consumption of NTFPs; thereby help to preserve it for future purposes.
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