Fuel Wood Supply in Bamenda II Subdivision, North West Region of Cameroon

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*Abstract:-*The mid-1980s' economic crisis in Cameroon led to poverty and high rates of unemployment. This phenomenon forced many people to fuel wood exploitation as a source of income and employment. More than 3/4 of the population of Bamenda II has limited access to modern energy sources such as domestic gas and so has resorted to the use of fuel wood as their major source of cooking energy. This study has as an objective to assess the role of fuel wood as an energy source in the Bamenda II Municipality. The methodology consisted of data collection from households, fuel wood vendors, public and private institutions. A random sampling of 140 households was obtained from the study area and questionnaires were administered. Data were analysed using descriptive statistics, with the use of SPSS and GIS using ARGIS Software. This enabled the following results:

The fuel wood in Bamenda II is supplied more from outside the Sub- Division than local sources like Bali, Santa, amongst others. Over 128,544 tons of firewood is consumed by households per annum. The beneficial aspects of firewood consumption are manifested in its socio-economic gains by vendors such as improvement in living standards and stimulation of savings. The major negative implication noted was that of loss of resources and air pollution which can be ameliorated via afforestation and the use of improved stoves.

I. INTRODUCTION

This study presents findings of the research based on the data collected from the field study. In this chapter, issues related to sources of fuel wood trade among vendors and energy consumption patterns among households are presented and discussed in three main sections. The first section provides information on the sources of fuel wood trade in Bamenda II, both from local and distant sources and finally the daily and monthly estimations of inflow of firewood load by vehicle types. Section two discusses the types of energy used by households, the mode of acquisition by households of these energy types as well as the firewood species preferences for cooking and heating by households. The final section looks at the socio-economic factors determining energy consumption patterns by the households. Establishing this linkage is important in assessing how socio-economic factors affect energy consumption patterns at the household level in the Bamenda II Municipality.

Sources of Fuel Wood Trade in Bamenda II Municipality

In Bamenda II, firewood supplies come from different sources; it is obtained mostly from communal forests and also from private farms or plantations in and from rural localities surrounding this Municipality. Sometimes the owners of the farms are the ones involved in the fuel wood business; they pay labourers to cut the wood and then loading in trucks for sale in the market. Also, firewood retailers go to private farm owners and buy directly at low cost because they have to do harvesting and transportation themselves. Most of the wood sold and consumed in the study area comes from both local and distant sources. This response was mainly for respondents who relied on fire wood trade and forest owners involve in its trade.

Internal or Local Sources of Fuel Wood in Bamenda II

There are some neighbourhoods within Bamenda II where wood is gotten from especially from the rural areas of the villages making up the Municipality. The different rural areas include Alabukam, Afumbeng, Ntankah, and Chomba as shown on Figure 1
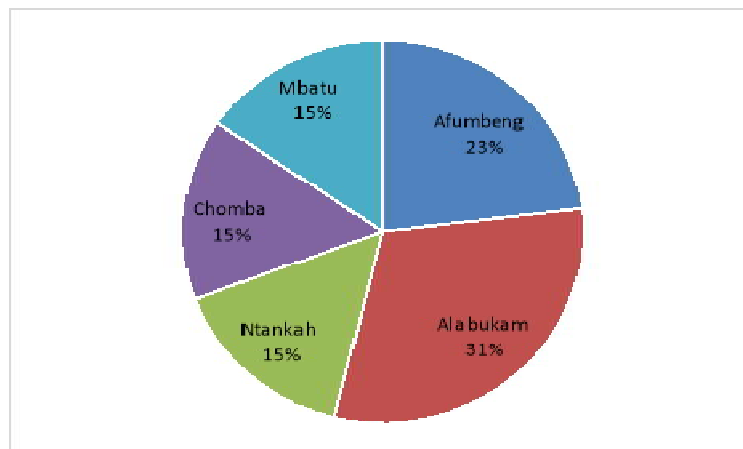

Figure 1: proportion of respondents buying wood from internal sources

Source: Field Work, 2017

Mostly planted eucalyptus forest occupies the steep slopes at the outskirts of Bamenda II with indigenous trees. Table 1 shows the quantity of firewood from these areas.

Table 1 Estimation of Fuel Wood Consumption in Bamenda II in ton

Quantity / Source	Weekly Quantityper Vehicle Type			Monthly Quantity per vehicle Type				Yearly Quantity
	0.5	3	7	0.5	3	7	Total	Total
Afumbeng	7	1.5	2	14	18	56	88	1056
Alabukam	9	2	3	18	24	84	126	1512
Ntanka	6	2	-	12	24	-	36	432
Chomba	6	4	-	12	48	-	60	720
Mbatu	10	3	1	20	36	28	84	1008
Total	38	12.5	6	76	150	168	394	4728

Source: Forestry Control Posts, 2017

NB: a) 0.5ton= taxi, 3ton= pick-up vehicle, 7ton= Cargo Dyna 300.   b) Weekly Quantity = volume of the vehicle type (in tons) X number of trips per week
    c) Monthly Quantity= Weekly Quantity X 4 weeks   d) Yearly Quantity = Monthly Quantity X 12

From Table 1, a greater proportion of the fuel wood over 214 tons comes from Afumbeng and Alabukam neighbourhoods per month giving annual estimates at 2,568 tons. These are some of the rural localities in the Municipality with large expanse of planted forest lands. Also is the fact that the largest expanse of the forest as witnessed during field studies are predominantly eucalyptus woodlots found in Afumbeng and Alabukam owned by farmers whose woodlot is about three hectares and above. Many of the woodlots have been established principally to produce poles and timber and partly for firewood commercialisation and consumption as respondents noted. Most of firewood freight in from Mbatu

and Chomba (144 tons) are mostly indigenous trees and fruit trees whose prices are cheaper than eucalyptus because of the difficulties and cost procured in the splitting process. Some of the respondents attested that felling these fruit trees will increase their cultivable lands and direct sunlight on cultivated crops. By implication, with the rate of harvesting it may affect the quantity of fruits from these tree species in the foreseeable future looking at the consumption rate at over 1,728 tons per annum. Apart from the rural area in Bamenda II, firewood is equally supplied from areas out of the Municipality. Figure 2 shows a flow diagram of the volume of firewood from the different rural neighbourhoods of Bamenda II.
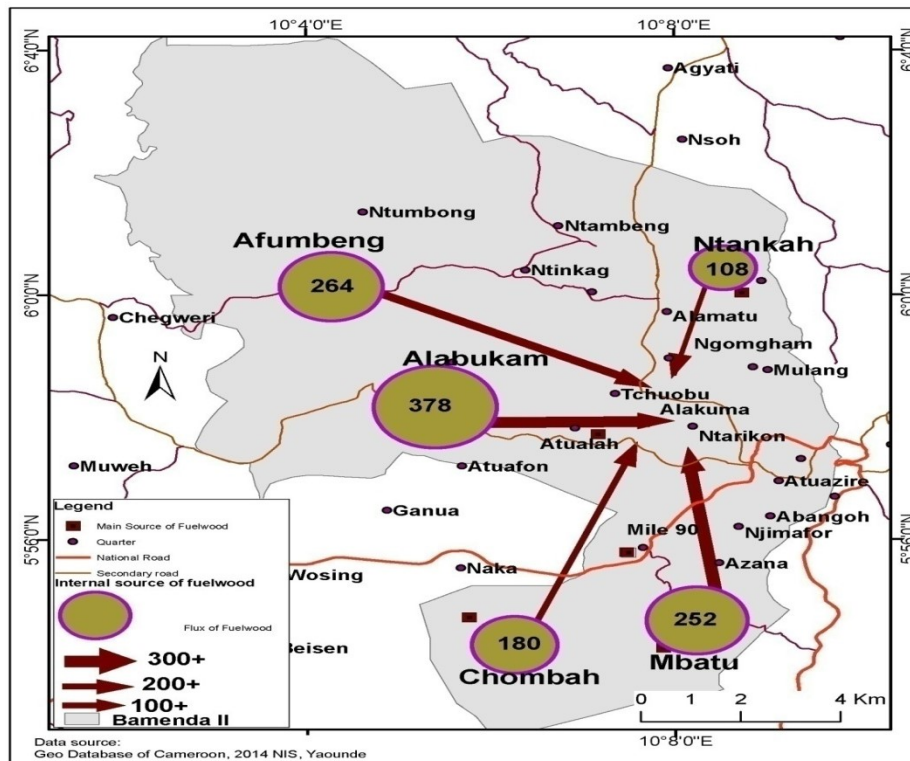

Figure 2: Flow map of Bamenda II showing volume of firewood from its rural localities.
Source: Geo Database of Cameroon, 2014 NIS, Yaoundé. Field Work, 2017.

Distant Sources (Inflow) of Fuel Wood in Bamenda II

Fuel wood consumed in this Sub- Division comes mostly from outside the metropolis as attested by majority of the respondents. The investigation shows that fuel wood supply comes from at least nine identified villages. Using some of these villages (Figure 3), it is possible to define fuel wood region of the study area. This defines a functional spatial relationship between Bamenda II and these rural localities from which the city draws its fuel wood supply.
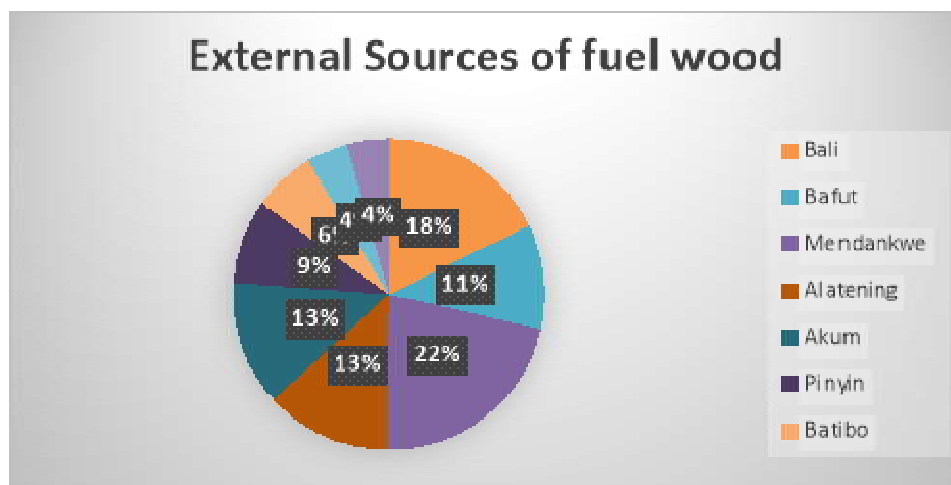

Figure 3 Distant sources of fuel wood in to Bamenda II

Source: Field Work, 2017

From Figure 3, majority of the wood entering Bamenda II comes from villages surrounding the Bali and Bafut-Ngemba Forest Reserves. Some of the villagers have converted the reserves to a source of raw material for their business products. Over 22% respondents buy wood from Mendankwe, 26% of the incoming wood from Akum and Alatening. Over 9% of the wood comes from pinyin. Out of Mezam Division, firewood is freight in from Momo Division (10%) precisely from Meta and Batibo. Most of the wood freight from these villages is mostly indigenous trees and fruit tress such as mango trees as noted by bakery vendors because of the retained heat contain of the wood. About 4% of the respondents attested they buy wood coming in from Kumbo especially splitted wood in a 20ton Mercedes 911 mostly those selling firewood at old town neighbourhood. Table 2 shows the estimated tons of firewood entering the study area on daily and monthly basis.

Table 2 Estimation of Distant Sources of Firewood in Tons in Bamenda II

Quantity / Sources	Weekly Quantity per Vehicle Type				Monthly Quantity per Vehicle Type					Yearly Quantity
	3	**7**	**10**	**20**	**3**	**7**	**10**	**20**	**Total**	**Total**
Kumbo	-	3	1	2	-	84	40	160	284	3,408
Santa	-	6	-	-	-	168	-	-	168	2,016
Bafut	10	2	-	-	120	56	-	-	176	2,112
Bali	11	5	-	2	132	140	-	160	432	5,184
Mbengwi	2	4	-	-	24	112	-	-	136	1,632
Total	**23**	**20**	**1**	**4**	**276**	**560**	**40**	**320**	**1,196**	**14,352**

Source: Forestry Control Posts, 2017

NB: **a) 3ton= pick-up vehicle, 7ton=Cargo Dyna 300, 10ton= Cargo Dyna, 20ton=Mercedes 911.**

b) Total of weekly quantity = volume of the vehicle type (in tons) X number of trips per week

c) Monthly Quantity= Weekly Quantity X 4 weeks

d) Yearly Quantity = Monthly Quantity X 12

From Table 2, it was noted from field survey that most of the firewood transport vehicles from distant sources use carrier trucks of 20 ton Mercedes 911, Dyna 3oo cargo of over 7 tons and pick-up trucks of about 3 tons. This perhaps is due to long distances and the nature of some of the roads from which firewood is brought in from to the study area.

The majority of firewood comes from Bali area with over 432 tons of firewood in a month and projected equivalent per year (5,184 tons). The exotic eucalyptus tree is transported from these areas on daily basis. This area embodies rural localities in pinyin, Bali and some villages in Batibo. Some of the firewood comes from Santa Sub Division. Over 2,016 tons are transported monthly from villages such as pinyin, mile 12, Akum, Mendankwe amongst others. These areas freight firewood on weekly basis. In line with Takem (2013), infringing on the reserve is that of illegal wood exploitation for commercial purposes by dealers in plank and using the branches as firewood by most of the villages surrounding the reserves.

This is followed by Kumbo with over 284 tons of fuel wood per month or over 3,408 tons per annum. Firewood is equally freight in on weekly basis from this division in to the study area and Bamenda town in general. As attested by a forestry officer, most of the vehicles from Kumbo always placate with firewood while carrying planks under the cars. Such statistics were not taking into consideration because it couldn't be quantified. The highest quantity of firewood from these areas may be attributed to the fact that villages in this Division fall in the Western Highland agro-ecological zone of Cameroon with its humid climate favouring the growth of the eucalyptus trees.

Firewood also comes in to the study area from Momo Division precisely around Nyembo in Meta village. Over 136 tons is transported in a month in to Bamenda II with annual consumption rates of about 1,632 tons. Considering total consumption per annum from all the above sources both local and distant sources (19,080 tons per annum), there is risk of firewood crisis in the nearest future.

The fuel woods supplied from the identified sources and through various carriers are distributed to the consumers through a network of depots. Major fuel wood depots in the study area include Bali Line, Fowl Line; Ring way street-behind former Regional Delegation of Secondary Education, and all at the Bamenda Food Market. Also at Ntarinkon Main Market and Old Town Neighbourhood are fuel wood depots in the Municipality. These depots distribute directly to consumers and indirectly through another micro- retailers by a system of wholesale especially vehicles from Kumbo. Unfortunately there was no precise data on to how the wood is redistributed in the various depots, principally because fuel wood trade is an informal trade in the Municipality with no authentic records as attested by forestry officers and majority of the respondents.

It can be said that for the fuel wood distributors, the demand situation is attractive and constitutes a dependable incentive for the continuation of fuel wood trade. This is also against the background of the fact that each of the fuel wood depots is large to serve as many consumers as possible over a time. Figure 3.4 shows the flow map of firewood from various sources in to Bamenda II.
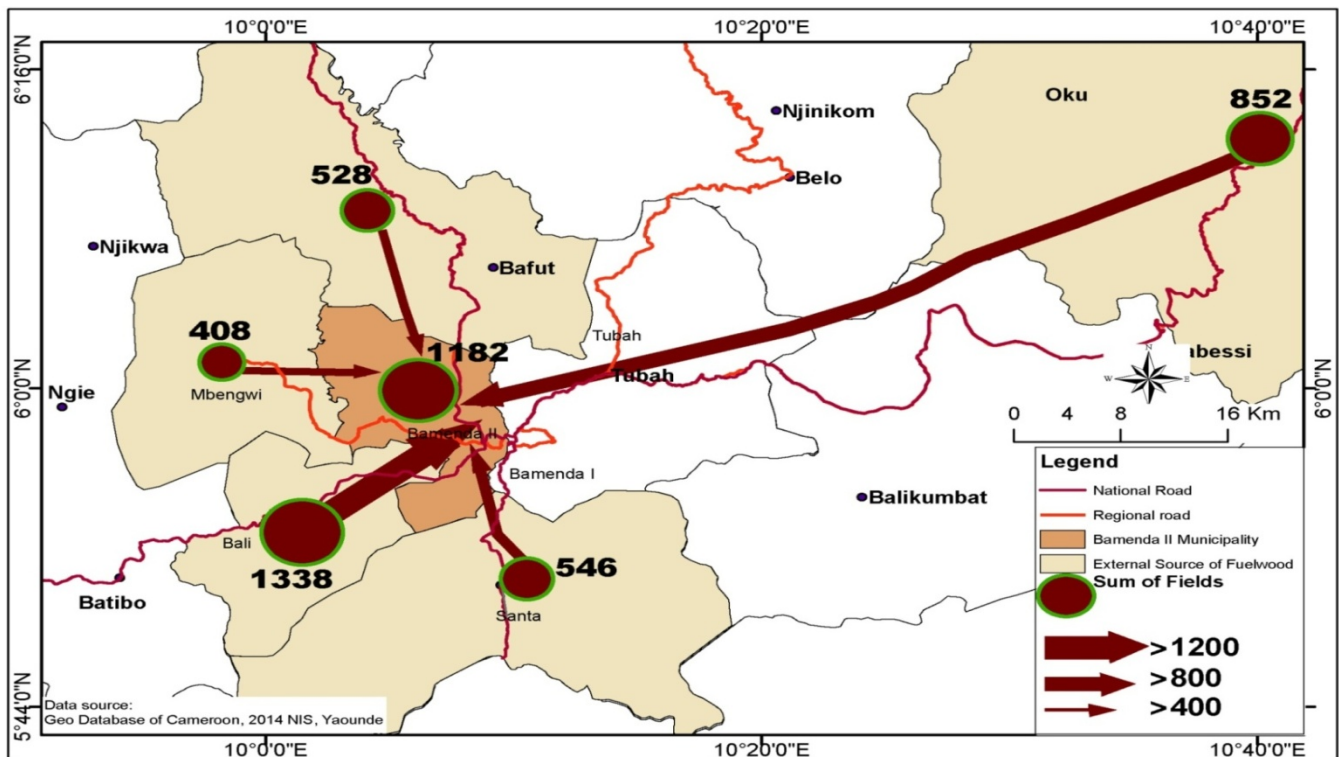

Figure 4 Fuel wood flow map into Bamenda II Municipality from other Sub Divisions

Source: Geo Database of Cameroon, 2014 NIS, Yaoundé. FieldWork, 2017.

Types and Sources of Energy Used by Households in Bamenda II

The utilization of energy is not only one of the most important environmental issues facing society today, but also a very crucial factor in the livelihoods of many people. This is because it provides comfort, enables a desired lifestyle and increases productivity. The study established that the sources of domestic energy in Bamenda II include fuel wood, charcoal, sawdust, kerosene, domestic gas and electricity mainly used by households for cooking, heating, drying/preservation and baking as well as for roasting. Firewood is the most (71%) used source of energy for cooking followed at a distant second (14%) by domestic gas. (This is shown in Table 3).

Table 3: Types of Household Energy Use within Bamenda II

Household Energy Types	Number of Respondents	Percentage
Fire wood	100	71
Charcoal	10	7
Sawdust	7	5
Kerosene	2	2
Domestic gas	20	14
Electricity	1	1
Total	**140**	**100**

Source: Field Work, 2017

From Table 3, Charcoal is used by 7% of the respondents who concluded that it creates less pollution inside the home. Respondents who used charcoal as their main source of fuel reported that they preferred to use it as it had less health risks. Equally they reported that the use of charcoal was healthier than the use of fuel wood as it was less smoky thus presenting less health related risks to the respondent. Also, the respondents noted that they supplement charcoal with domestic gas. The remaining 2% respondents using kerosene acknowledged the fact that they couldn't afford for any other energy source and its utensils, but always fall back on the use of firewood to supplement this source of energy in their homes. The reason behind limited number of electricity users (1%) in Bamenda II for cooking is due to erratic prices and frequent black outs as explained by most respondents. This 1% as attested by the respondent was due to the fact that the family head works with ENEO Cameroon so they consider its use free and fall back on firewood and domestic gas only during periods of blackouts.

Firewood is the most used fuel by the respondents in the Municipality. The choice for firewood as a major source of energy is explained by the fact that the respondents considered it to be very cheap compared to other sources, the appliances use are also cheaper, available in nature as well as need no or minimal cost of transportation. About 5% of households use saw dust, a by-product from most wood-using industries in town. Overall, gas is preferred for cooking as an alternative fuel when families want to prepare snacks for their family as some respondents attested. This can be explained by the fact that gas is generally cheaper than electricity and require simple equipment such as hand gas cylinder, though complaint of its unreliability. It is worth mentioning here that all households noted the fact that they do fall back on firewood as a supplement as well as a backup.

Mode of Acquisition of Fuel Wood by Consumers in Bamenda II

Fuel wood in the urban area is sourced or obtained from on-farms sources, forests and from the markets in the study area. The study had listed various sources of energy: purchased from local markets, fetched own, buy and fetched own and others. Figure 5 below shows the sources of fuel in the study area.
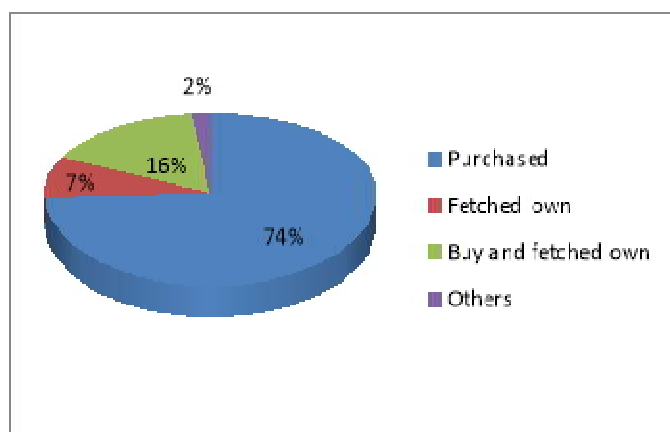

Figure 5: Sources of fuel wood

Source: Field Work, 2017

Figure 5 shows that the major source of energy for use by households is purchased from the market. That is 74% of households regularly purchase fuel wood. The findings also reveal that the proportion of households that buy fuel wood to those that collect is higher due to the fact that most of the households in the area are largely urban. Over 17% of households supplement their free collection from open vegetation by purchasing some fuel wood while 7% gathered from the forest as their main mode of accessing cooking energy. These were principally inhabitants from the villages of the study area who own family forest. Purchasing fuel wood according to these respondents is an indication that firewood is no more a free commodity. Another implication here is that the alternative sources of fuel may be costly or not easily available hence the preference by households to collect rather than buy the fuel used. With cash incomes mostly below the poverty line, buying fuel wood is a big financial pressure on some of the urban dwellers especially the urban poor. Dwindling supplies and acute shortages of firewood within the municipality were found to be due to several factors including slower rates of tree regeneration in open vegetation, increasing development pressure on available

farmland for cropping and a steadily increasing population demand for firewood within the Municipality.

Firewood Species Preferences for Cooking and Heating

The proportion of respondents who identified tree species commonly used for cooking and heating are listed in Figure 6. Although the indigenous species are commonly preferred, their dwindling supply compels households to shift to available exotic species like eucalyptus for firewood. In most cases, individual households fail to notice that there is decline in the use of these resources Moreover, the cost of the resource use to individual is less than the cost to the society and therefore households ignore the effects of their consumption cost faced by others using the same resource. The most preferred species however are eucalyptus and fruit trees such as mango, kola nut and pear trees
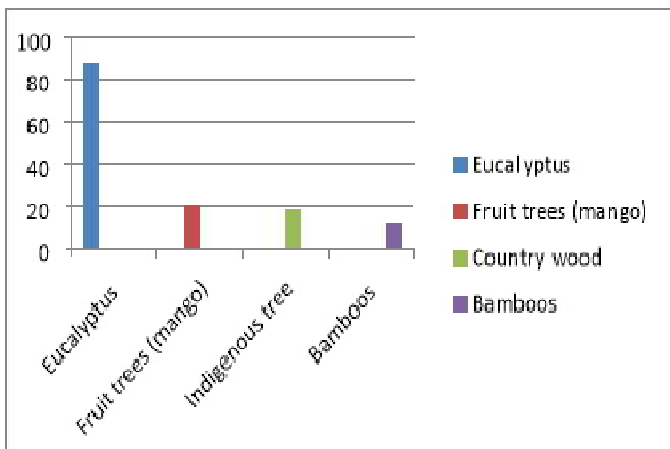

Figure 6: Species of fuel wood use for cooking

Source: Field Work, 2017

The exotic eucalyptus specie is seen to be dominating with about 65% and readily identified as available tree that may be equally utilized for other purposes but are greatly used for cooking fuel. Outside the forest were mango and pear trees. These wood sources are used as fuel wood in most occasions within this Municipality. About 29% of the respondents acknowledged using both fruit trees and indigenous wood as the major energy source of cooking and heating especially those who are bakery owners giving reasons that the tree species are good heat stabilizers. It is evident that households are increasingly shifting to the consumption of fruit trees which are widely sought for both firewood and charcoal.

Among all the species identified as used for fuel wood, respondents were asked to identify their preferred reason for using eucalyptus out of the lot. Figure 7 shows the percentage of respondents and their corresponding reason for using this exotic tree species for firewood.
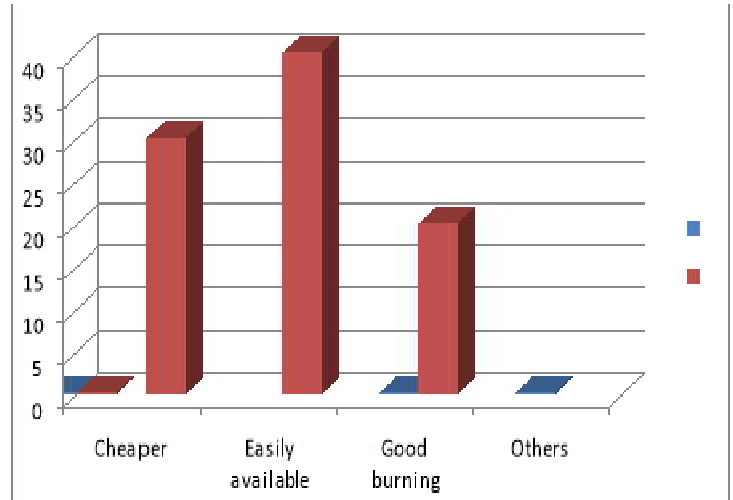

Figure 7: Most preferred utilized tree species for firewood

Source: Field Work, 2017

Qualities most sought in eucalyptus firewood were the ease of split, cheaper, easily available, good burning and extensive burning. Impinging was also the fact that despite all those who used other tree species different from eucalyptus, all the respondents still holds to the fact that they will prefer to use eucalyptus therefore saying that it is the ideal species of tree used as fuel wood in the Municipality.

Household Family Size

Demographic characteristics of a household influence the energy consumption patterns. About 7% of respondents in the study area had 1-2 members in their households followed by 29% who had more than 3 members and only 5% had more than 9members in a household. In addition, over half of the respondents had a family size of between 4-8 household members (61%). Figure 8 shows the distribution of family size of the interviewed population in the study area.
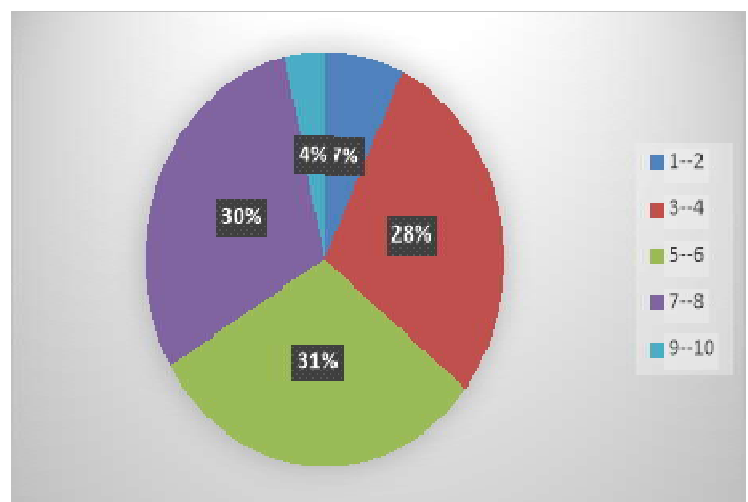

Figure 8: Family size of the study population

Source: Field Work, 2017

Family size does not influence the type of fuel consumed but determines the quantity of fuel consumed by a household, regardless of the type. It was noted in the study area that bearing many children serving as labour force at the households was worth wise and prestige. However, the increase household's size might increase demand of forest wood products including wood fuels exerting pressure on forest lands through encroachment for charcoal production and firewood gathering. This is the case in Mendankwe who are well known in this urban area as far as the sale of firewood and charcoal are concerned.

Income Level of Sampled Population

Table 6 Income Categories of Respondents

Income level	Frequency	Percentage
1000-10 000	20	14
11 000-20 000	25	18
31 000-50 000	30	21
51 000-100 000	15	11
100 000+	50	36
Total	140	100

Source: Field Work, 2017

From Table 6, the majority of income earners were those who earn above 100 000FCFA, roughly 36% mostly civil servants and some large scale traders in the study area. By implication the consumption pattern of wood fuels among modern fuels would reflect the different income levels of respondents. Households with higher income levels are in a better position to employ the use of an improved fire place which was scarce and few in most households during field interviews in the study area. This means that those with low monthly incomes are less likely to use improved fire place than those who are moderately poor. From the analysis, it can be argued that the wealth status influences the type of cooking devices used in the households which in turn determines the type of energy used.

Besides socio-economic factors, energy consumption patterns in the study area is determined by availability and affordability of fuels, dependability of supply, cost, convenience, household size, dietary patterns of the households and familiarity of working with traditional fuels. Further probing of respondents revealed that this was associated with the dietary patterns/tastes of the household. Respondents affirmed to using fire wood to cook certain types of food which required a lot of heat and took a long time to cook. The consumption of boiled maize and beans, corn 'fufu', 'achu', which are all delicacies among the respondents in the study area amongst other types of foods that require a lot of heat and time to cook.

Above all, the respondents noted that for cultural reasons some foodstuffs can only be prepared on three stone traditional firesides so as to maintain their tastes. By implication they can't do without the use of firewood.

II. DISCUSSION

According to the FAO (2012), and IEA (2014), the main source of fuel in both urban and rural areas within developing countries is biomass. Biomass is commonly available in two forms: charcoal and fuel wood. Charcoal is energy that is made from wood, while fuel wood is collected and used directly from the field. In developing countries, wood energy (firewood and charcoal) has until today been the main source of energy. 80% of the populations in sub-Saharan Africa rely on the traditional use of solid biomass, mainly fuel wood, for cooking. This is similar to the results in Bamenda II as about 80% of the population use fuel wood as a source of cooking energy especially those in rural areas like Nsongwa, Mbatu, Alahnki, and Alamanfe.

The study findings correspond with the report of Fogwe and Kwei, (2015), who opined that over 90% of the people of Oku use firewood as a source of fuel. The study shows that amongst the 13 villages surrounding the Kilum mountain forest, some household members harvest forest wood mainly for domestic use whereas others harvest the forest wood for commercial purposes. This study tallies with that of Mogaka *et al*; (2001), which indicated that the majority of Eastern and Southern Africa's population rely on wood energy from forests and woodlands. For example, the Miombo woodland is estimated to account for about 92% of the total energy in Tanzania. In Namibia also, over 85% of population rely on wood based energy compared to 90% in Malawi, 70% in Zambia and 80% in Mozambique.

Jinadu (1998) observed that fuel wood remains the major source of domestic energy in most parts of the developing world. In Nigeria as noted by Encyclopedia Britannica, (2001) fuel wood is still the main source of domestic fuel even in urban areas and it accounts for more than half of the domestic energy consumption. This is exactly what is taking place in Bamenda II and its surrounding villages such as Chomba, Nsongwa, and Mbatu where about 80% of the people use firewood as a source of fuel. In like manner, most of the households within this Municipality harvest forest wood mainly for domestic use while others harvest the forest wood for commercial purposes.

The predominant use of firewood by households in the study area affirms the findings of Masera *et al*; (2000) which shows that urban households do not switch fuels, but more generally follow a multiple fuel by which new cooking technologies and fuels are added, but even the most traditional systems are rarely abandoned. On the type of lighting, it emerged that households use different types of energy for lighting to supplement electricity during power outage. Some use rechargeable lamps and torches while others use kerosene as a backup. No statistics was taken for this since the purpose was to get energy sources meant for cooking by households.

Suleiman Sa'ad *et* al; (2016) pointed out that biomass remains the most dominant energy for both household sector and small scale rural industries and commercial outlets in Nigeria over

the years its use continues to increase. In Nigeria, about 95 percentage share of biomass in energy mix represents its use to meet off-grid heating, cooking needs and cottage industrial needs such as for processing cassava, oil seeds, local bakeries, blacksmiths, brewing and other activities that are closely related to household and small scale commercial activities such as restaurants in both rural and urban areas. Similarly, some households in the urban areas have also long been dependent on biomass from rural areas for some part of their domestic fuel needs. Biomass resources available in the country include fuel wood, charcoal, agricultural waste and crop residue, sawdust and wood shavings, animal dung/poultry droppings, industrial effluents/municipal solid waste. This agrees with the study results as the study established that the sources of domestic energy in Bamenda II Concil area include fuel wood, charcoal, sawdust, kerosene, domestic gas as well as electricity mainly used by households for cooking, heating, drying/preservation and baking as well as for roasting.

Malimbwi R.E *et* al; (2005) remarked that observations in the Coastal Region of Tanzania, indicates that farm land trees, mainly old cashew nut mango and occasionally jack fruit trees are also used for fuel wood and charcoal production. The study also pointed out that in most wood using industries, the common wood by-products that may be used as source of energy are sawdust, deformed stems and slabs. This is exactly what is happening in the study area especially in the peripheral neighbourhoods such as Alabukam, Alahnki, Mbatu, and Ntanka where fruit trees such as mango, kola nut and pear trees are equally used as fuel wood.

Jumbe *et* al; (2006) on their research indicated that there are three main sources of fuel wood in Malawi; customary forests, forest reserves and plantation forests. The study highlighted that customary forests are the most important source of fuel wood contributing 37% of the total fuel wood supply. These consist of natural (tropical) woodlands dominated by Uapaca, Parinari, Julbernadia and Brachystegia species. Forest reserves are the country's second most important source of fuel wood contributing 26% of the final energy consumption. Like customary forests, these are natural woodlands mainly dominated by Brachystegia, Julbernadia and Isoberlinia species. In like manner, firewood supplies in the study area comess from different sources ; it is o btained from communal forests and also from privatee farms or plantations in and from rural localities surrounding the Municipality.

Plantation forests are the third most important source of fuel wood contributing 11% of the final fuel wood supply. These consist of exotic tree species most of which were established by government in the mid-1970s with support from the donor community and the private sector. The government established 0.5 million hectares of softwood plantation (mainly Pinus patula) across the country for pulp, paper and timber, and hardwood species (Eucalyptus species) for fuel wood and poles. Bamenda II and its rural localities also exhibit different sources of fuel wood. For example, the once

protected Bafut-Ngemba Forest Reserve (BNFR) has been encroached by its surrounding inhabitants some of which are; Awing, Santa-Njong, Akum. Mendankwe are noted in the North West Region for its supply of fuel wood and charcoal to the population of Bamenda, including Bamenda II especially on Saturdays.

According to Takem (2013), the forest tenure in Cameroon governed by the 1994 Forest Law, divides the forests of Cameroon into permanent and non-permanent forest estates. The permanent forest estates include state forests and communal forests. State forests are divided into protected zones and forest reserves. The non-permanent forest estates consist of forest land which may be allocated to uses other than forestry. Three categories are described: the state forests (unallocated forest), community forests and privately owned forests.

State forests are under private state management. They are classified by a regulatory act. This act grants a right to draw up a land title in the name of the State.

Council forests are under private management of the municipality. These forests have been the subject of a classification act on behalf of the municipality concerned or have been planted by the municipality. The classification act grants a right to the drawing up of a land title in the name of the municipality in question.

Community forests are non-permanent forest areas and subject to a management agreement between one or more village communities and the administration in charge of. Within Bamenda II, most of the forests are owned by private individuals who plant trees mainly for commercial purposes (fuel wood and electric poles).

Jolien Schure *et* al; (2014) pointed that wood fuel can be sourced from a number of places; including natural forests, trees on farms, plantations, residues from forest harvesting and salvage harvesting (sick or damaged trees). Wood fuel for urban demand is often derived when forestlands are converted to farmlands or when markets are attractive; it is directly harvested from forests or agro forestry systems. Smaller quantities are sourced from plantations or from waste wood of timber operations. Production essentially entails cutting the trees, chopping to a practical or requested size, drying and packing for transport. This picture is clearly seen in the Bamenda II Municipality where fuel wood is harvested from farmlands especially by women who dry and transport them for both domestic and commercial purposes on Saturdays during off farm seasons.

III. CONCLUSION

Fuel wood within the Municipality is primarily used for cooking, smoking or drying, heating, and baking as over 71% of the respondents depend on it for their sustenance. Until there is an increase in alternative energy sources or improvements in the efficiency of cooking technology especially, the dominance of wood fuel energy sources will

continue into the foreseeable future in the Bamenda II Municipality. Therefore, it is necessary to understand the manner in which households use the available energy sources, and design ways to sustainably manage the available resources.

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