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Effects of Family Size, Status and Taste on the Type of Domestic Fuel Utilization in Kano Metropolis, Kano State; Nigeria

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Abstract

The paper explores the effect of family size, status and taste on the adoption of domestic fuel energy utilization in the metropolitan Kano. As a typical Islamic culture; polygamy is widely accepted among the community irrespective of economic status (rich and poor), political class (leaders and followers) as well as religious affiliation (sectarian and secular). The culture accelerates conpetitiion between co-wives for more children, sex preferences and marrieg security which consequently lead to large family size. Reasons and major causes are envisaged from which recommendations were tendered in order to reduce/cushione the impact on the environment. Both quantitative and qualitative data are used as well simple random sampling technique is adopted in handling the households for administration of questionnaire and interviews in the area. Interstingly, the study discovered that both monogamous and polygamous families have higher fertility and in average each family consist of eight children excluding the parents. The volume of the food for the extended family system is high hence need bigger source of energy to save time and monetary cost. Some held cultural taboos that food cooked by fuelwood is better than on cooker gas. Other reasons such as risk of fire outbreak scare some household from gas cooker. To save our ecosystem, Kerozine stoves, solar and electric cookers should be made available, affordable and accessable to all.

KEYWORDS: Family, culture, polygamy, sampling, fertility and taboo

BACKGROUND TO THE PAPER

Family size, status and taste affect various decisions pertaining to the general upkeep of the family including food and feeding. Large and extended family set up of the northetn Nigeria are binded by culture of communal life style of togetherness known as Gandu system. Cooking from the same pot for a big or larger family require huge and enormous energy. Many smaller family start by smart, efficient and convenient source of energy such as cooking gas and kerozine but as the size of the family get larger the adage hold true where affordability/availability is better than desirability. Necessity forces many to adopt fuelwood as the energy source in domestic cooking. Fuelwood is a resource that provides the main source of domestic fuel for the rural and urban households. Its utilization as a mean of fuel is as historic as man's invention of the use of fire that is Neolithic period. In the past the source of fuelwood was simple and the ecological impacts were minimal due to low human population (Adebimpe 2008). When population increases rapidly, man's dependence on fuelwood as a

source of fuel become indespensable. Today the behaviour or culture of cooking with woods poses threat of deforestation as a result of man's attempt to have a regular supply of fuelwood and other vegetal resources.(Adebimpe 2008) in Bashir (2015). About two billion people (40%) of the total world population depend on fuelwood and charcoal as their primary source of energy (Haruna, 2006). Of this, three-quarter (1.5billion) do not have an adequate, affordable supply. And particularly many people are facing daily struggle to find enough fuel for heating and cooking. The cooking problem is intensifying because rapid growth of population in many developing countries create increasing demands for fuelwood and charcoal due to high cost of conventional source of energy.

In Africa fuelwood account for about 90% of the total energy use and two-third of this consumption is household energy for the most part procured by women (FAO, 2010). The major reason for deforestation in Africa is the fuelwood collection by the poorer section of the population. Fuelwood use exceeds 1.6 metric cubes per capita per year in Nigeria Kenya, Sudan, Tanzania, Serra Leone, Liberia and Cameroon (Ayuba, 2004) as quoted by Bashir (2015). In some countries particularly developing countries, fuelwood use per capita is on the increase. The story is not different in Nigeria where as high as 86% of low income earners are primarily dependent on fuelwood as their source of energy (Ayuba, 2004). A biomass fuel has remained the commonest source of household energy in Nigeria. In 1992 alone, firewood and charcoal production were estimated at 55 million tones (Obueh, 2000 quoted in Nura 2001). More than half of the 9.6 million hectares of rain forest belt in the south of Nigeria has been used to meet the demand for firewood in rural and urban areas. Studies on fuel wood supply in developing countries have concluded that firewood scarcities are real and will continue to exist, unless appropriate approaches to resource management are undertaken (Arnold 1991; SADCC, 1992 quoted in Nura, 2001). Increased efficiency of utilization through efficient technologies can therefore be considered as one of the major prerequisites for attaining sustainable development in developing countries.

AIM AND OBJECTIVES

The aim of the paper is to explain the effect of family size on the use of domestic energy in Kano metropolis with a view to understand the effect of culture on the livelihood options in term of energy utilization in the study area for proper social planning conservation principle, these are to be achieved through the following:

i. To identify the size of the family size and the type of energy used in their domestic activities.
ii. To find out the level of preferences among different family sizes in the area
iii. To ascertain the reasons for the use of fuelwood in the study area.
iv. To offer some culturally feasible recommendations for the safety of the ecosystem.

JUSTIFICATION OF THE STUDY

The environmental impact of reckless felling of trees for fuelwood is spelling doom to the entire biomass.. In recent years there has been sharp increase in human population which led to commercialization of various renewable energy sources. High need of domestic energy especially in the metropolis of Kano, threatens environmental sustainability especially in areas where single source (fuel woods) is constantly used due to poverty and human lots. Various environmental degradation are accentuated by man's relation with resources such as pollution, deforestation and soil erosion, these have manifested many northern states including Kano, there is need for restrain to avoid bleaking the future.

THE STUDY AREA

The history of Kano metropolis as a state capital started in 1967 when it was formally established in 1968. Its real history remain a controversial issues but as a base line, Kano's existence started from 999 AD when Bagauda the grandson of Bayajidda founder of the Hausa dynasty became its first king. Kano State falls within the Sudan vegetation zone, the total land area of the State is 20,760 square kilometer. The minimum and maximum temperature ranges from 15 to 33 degrees Celsius. The predominant ethnic groups in Kano are Hausa and Fulani otherwise referred to as Hausa-Fulani. This reference is due to the indistinguishable features they bear arising from intermarriage. Other ethnic groups found in the State are Yoruba, Igbo, Nupe, etc. Hausa are however, the indigenous population.

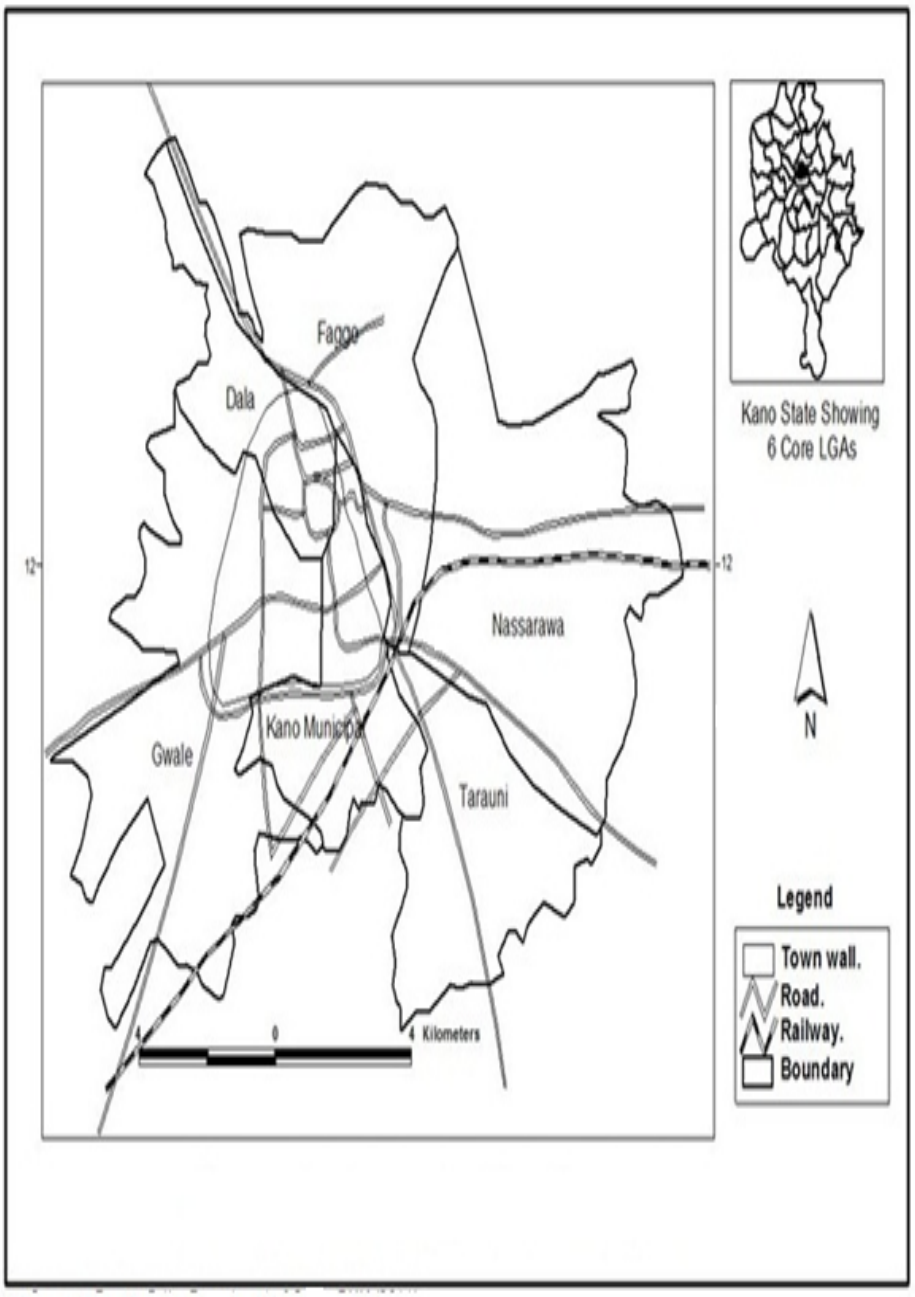
The city of Kano experiences changes and transformations over time. It is a cosmopolitan and heterogeneous society as a result of its extensive and numerous commercial and industrial activities. Kano has many occupations and means of livelihood but was famous for its weaving, gold and blacksmith, dyeing and other handicraft activities. As a result of these, Kano has attracted people from far and wide. Kano State is made up of 44 local government areas, with a total population of 5,810,340 million by 1991 census figures. The indigenous population is homogenous in terms of culture, language, religion etc. This homogeneity is apparent especially in the rural areas.

The metropolis recent lost its dominant occupation that is agriculture with about 75 percent of the population directly or indirectly involved in agriculture or agro-related activities in the past due to massive urbanization that swallowed the farm lands from within the walled city to as far as 5km at all directions. This situation impacted serious on the people in the area thorugh aggravation of poverty. Currently, civil service, trade and commerce are the major activities. In fact Kano the capital city of the State has been known far and wide as an ancient and important center of commerce and trade. Kano was a major entry port in the Trans-Saharan trade. It is popular and known in the whole of West Africa, Maghreb and as far as Europe as a commercial center trading with Africa and Europe in local and manufactured goods, crafts and other items. This position is facilitated by the existence of modern communications (road network and rail line) which make Kano accessible.

POPULATION OF THE STUDY AREA

Kano is one of the most populated and urbanized states in northern Nigeria, as well as a dominant center of economic activity since the fourteenth century (Fika 1978) in Lambu (2014, 2015 and 2016). Consequently, commerce and industry in the urban areas and agricultural activities in the rural areas characterize the state.

The communities in this part of the country have been exposed to severe poverty due to lack of employment opportunities since 1987 resulting from the imposed structural adjustment program (SAP), together with razing urbanization, the urban poors are push to the bottom of poverty as the nearby cultivable land are built up.



Map of Kano metropolis

MATERIALS AND METHODS

This section explain the types of data, the sources of data, data collection such as sampling and data analysis. The data in this study includes quantitative indices like number of children, age, and status etc. while the qualitative data in this study are the preferences, choices and decision on composition and adoption of energy types.

The main instruments of the study are the questionnaire and interviews. The questionnaires are to collect quantitative information while the interviews are meant to measure the

qualitative data. The two instruments can supplement one another and can serve as triangulation method where errors and mistakes can be detected and corrected

SAMPLE SIZE AND SAMPLING METHODS

The population of interest to this study consists of males and females who are married and fall within family set up. This is because the study is interested in assessing the preference of people for energy type over another and how the attitude affects the subsequent decision toward the utilization of energy in the households. The study concerns the Hausa people, a culturally dominant ethnic group in northern Nigeria. The choice of this ethnic group was largely predicated on the traditional character of this patriarchal group and its high fertility within extended family set up. The Hausa people constitute a significant proportion of the population in Nigeria, the largest country in Africa. The Hausa people are undergoing rapid socioeconomic changes manifesting various transformations especially in expansion of education and urbanization. Some samples of one hundred and sixty (160) households were drawn from the study area. The sample size was considered adequate due to the homogeneous nature of the population. Simple random sampling technique is adopted due to fact that the sampling frame is known. House numbering from Primary Health Care (PHC) water and electricity Boards have various numbering that can facilitates unbiased treatment of households. Six local government areas have been selected which include Kano Municipal, Dala, Gwale, Tarauni, Fagge and Nassarawa LGAs.

DATA COLLECTION

Both quantitative and qualitative data were gathered for this study. Retrospective and prospective data were gathered from the respondents regarding their energy use. Respondents were asked about number of children ever born, desire for more children, last use of other energy sources, current use, and future use where applicable. Likert scale was used to measure attitudes of respondents using a combination of negative and positive statements pertaining to practices related to family preferences. Respondents indicated their responses ranging from strongly agree to strongly disagree on a four-interval scale.

The main instruments for the data collection are questionnaire and interviews are administered to the respondents conducted in the Hausa language. The research assistants are indigenous Hausa people, familiar with the cultural norms and values of the respondents. The research assistants are trained in order to make them effective communicators and solicitors of information. The instrument was pre-tested to ensure it validity and reliability. Data were collected on important variables, which include: attitudes, contraceptive use, education, age, income, time or duration of marriage, religion and residence. Other variables are age at marriage, wife's breastfeeding, abstinence, children ever born, ideas about family planning, and contraceptive decision making.

MAJOR RESULTS AND FINDING OF THE STUDY

The findings of this research suggest that the cultural set up of the people exercise greater influences where large family are considered more of an asset than liability. Children preferences and religious sermons encourage togetherness hence most households become bigger and larger in size.

The family size and the type of energy used in their domestic activities

The family size (Grand parents, parents' children and grand children) determines the mode of energy required for cooking and other domestic uses. In nuclear families of large size using kerosene or cooking gas indicate expenses of money compared to local fuelwood. Likewise a

small household required only a small amount of fuelwood to cook a meal. The larger the family the higher the energy needs. Your family size determined the type of energy use in your house. If one has larger family he will find a simple, affordable and available form of energy. According to some respondents family size forces many to depend on fuelwood for energy requirement due to the lower cost of the product. Small family has more opportunity of inter-fuel substitution from one form to another (kerosene, electrical, charcoal, cooking gas and fuelwood) depending on the wealth or income of head of household.

SOCIO- CULTURAL REASONS

According to maany respondents the cultural perspectives attached to reasons for the use of fuelwood includes slow cooking rate allow the user for other household work to be done at the same time, the emission of smoke serves as a repellant for mosquitoes and for food preservation (fish smoking), the emission of heat by fuelwood can be use for warming of space during cool condition and the fuelwood also emit light to the surrounding which is good for vision before down and after sunset.

The level of preferences among different family sizes in the area

The study discovered that majority of people prefer smart, decent and effeicieent mode of cooking but necessity is the mother of invention as adage goes. Many expressed their view that they started by Gas cooker to kerozine and later to Woods. A respondents larmented that "I started with Gas when we were two in the house, but now 17 people eating from the same pot, how can we afford Gas?

Table 1: Level of preference on the choice of energy

S/No	Type of family	Response	%	Remarks
1	Low family	Kerozine/Gas	56	More than average
2	Medium family	Kerozine/woods	60	Above average
3	Large family	Wood/Electric	72	Larger
4	Institutional family	Wood	89	Highest
5	Recretional family	Electric/Gas	66	More than average
6	Commercial family	Wood/Gas	57	More than average

Source: Field work 2016

The reasons for the use of fuelwood in the study area

This section looks at the reasons behind using fuelwood as a source of energy in the study area. Since fuelwood are use for various purposes as such there will be different opinion behind the reason of the usage. Below are the reasons advanced by people for the use of fuelwood. One of the main reasons for this lack of inter-fuel substitution is that household choice, socio-economic status (income and wealth), demographic reasons (family size, life style and culture)

and location attributes (e.g. proximity to sources of modern and traditional fuels) and availability.

Availability of fuelwood resources is another factor determining the reasons for fuelwood consumption by households according to respondents. Fuelwood is the only form of energy that you can purchase at your door steps, unlike other energy sources (kerosene, cooking gas etc), in which one has to meet the suppliers at their sales point and sometimes form queues before purchasing the product at exorbitant prices.

Furthermore, access to woodfuels means having physical access to the source, the right to gather woodfuels from that source and having the necessary field labour available to collect and transport it. Such field labour is usually supplied by women and children in other part of the world but the story is different here at Gombe were the male dominate the business. It is the most available forms of energy that you can get free from natural forest reserves.

Fuelwood in action

Culturally feasible recommendations for the safety of the ecosystem

1. There is need for government to provide alternatives such as electric, solar and Kerosine stoves at affordable price to the common man in order to salvage our forest from further damage
2. Enlightenment campaign need to be intensified to educate the people on the importance of environmental quality so that all action detrimental are reduced, checked or avoided
3. People should be encourage to patronizes raw food and those that require small amount of heating as an energy saver.

4. Heat-preserving equipment need to be provided to avoid unnecessary reboiling and warming of water, food and so on.

CONCLUSION

The supply of fuelwood holds a great potential for income generation as it was found to be a very profitable business owing to an ever increasing demand for the product. While supply differs between the rainy and the dry seasons, the overall impression is that put together fuelwood exploitation in the study area which have been taking place for quite a long time and has been on the increase will result to severe damage to the natural forest in the State. With current dependence of the people on the forests for fuelwood and with the existing population growth rate this situation will worsen unless measures are taken to improve forest resources management and work both devise strategies for conserving fuelwood and to find alternatives for fuelwood in the domestic energy supply system.

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