

## **CURBING FUEL WOOD CRISIS IN NIGERIA: THE ROLE OF ENVIRONMENTAL ADULT EDUCATION**

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### **Abstract**

Fuel wood crisis has become a topical issue in the world agenda. As the world population increases fuel wood energy consumption also increases thereby resulting to its shortage. This ugly situation calls for serious concern of all stakeholders. This paper examined the extent to which environmental adult education could help in curbing the problems associated with fuel wood crisis in Nigeria. To achieve the above goal, the paper looked at the concepts fuel wood crisis and environmental adult education. It x-rays the benefit of fuel wood energy to man and the environment. The paper also examined factors responsible for fuel wood crisis and its effects on the environment. It further examined the role of environmental adult education in solving the problem of fuel wood crisis and a conclusion was drawn. The paper recommended among others that the government and non-governmental organizations should do everything possible at their disposal to encourage all the adult citizens to be environmentally literate to enable them understand the consequences of fuel wood crisis to man and the environment.

**Keywords:** Fuel wood, crisis, environmental adult education, curbing

### **Introduction**

Wood is one of the first fuels used by humans. It is the most commonly source of energy used in the world. Nearly half of the world population in 20<sup>th</sup> century depended on it for cooking and heating. Fuel wood remain a stable energy source in developing countries. In some of the poorest African countries fuel wood consumption rate is still in an increase and it account for about 90 percent of national energy consumption. On average every person in less developed countries consumes about 0.45m<sup>3</sup> of wood as fuel wood or charcoal in a year. In Nigeria like other developing countries fuel wood consumption is still in an increase. Most of the consumption is carried out in the rural areas where the availability and affordability of alternative sources of energy such as gas, kerosene electricity etc. remains a mirage. Fuel wood energy consist of firewood, charcoal, chips, sheets, pellet and

sawdust the usage of any particular form of fuel wood depend on factors such as the quality, situation and application.

The use of fuel wood as major sources of energy has been part and parcel of our way of life. Women in the rural areas especially those who reside in forest communities form groups that goes for wood collection on a daily basis. From my personal interview, it has been observed that most women in the rural communities believe that food prepared with firewood is more delicious than the one prepared with any other form of energy source. The use of fuel wood energy is most preferred by Nigeria rural and urban dwellers where large quality of food is prepared for occasions and festivities such as, weeding and burial/funerals. Although the use of fuel wood energy may result in air pollution, its usage helps to reduce waste, improve air quality, help to sustain the forest, is carbon neutral, requires the use of cheap technology and has economic benefit to man and the environment. <http://www.forestry...2018>.

In spite of the above relevance of the use of fuel wood energy in Nigeria, rural communities who rely primarily on fuel wood energy are experiencing wood shortage. This ugly situation could be attributed to deforestation, desertification, poverty, rapid population growth and poor attitude of the citizens towards the environment. The problem keeps intensifying as the population growth continues to increase thereby increasing the demands for firewood and charcoal. As firewood becomes increasingly scarce, women and children who do most of the domestic labour spend more time and hours in search of fuel wood (Cunningham, Cunningham & Saigo, 2005). Women can no longer select the size and types of wood they prefer, roots and stumps previously left in the field for coppicing are removed for fuel, fresh branches from healthy trees are cut and shrubs and bamboos are now collected and used for cooking. Today soft woods as well as agricultural residues such as cassava stems, coconut branches and shells, palm branches and shells and dried pods which were not hitherto used for fuel are now collected and used as fuel wood. Collecting enough fuel wood thus becomes more time consuming (Smtheimer, 1991).

Fuel wood crisis is not a new phenomenon and neither is it restricted to a particular country but its acute shortage in Nigeria is becoming so alarming such that many rural poor who depend on it are not too sure of their livelihood. This calls for an urgent step to sustain the forest and reduce fuel wood consumption by embarking on programmes such as reforestation and afforestation projects, agroforestry, establishment of community woodlot and the use of locally produced woodstove. It is hoped that when consumers of fuel wood become environmentally conscious of the consequences of its shortage, it would help in curbing this problem. It is based on the above that this paper examines the extent to which environmental adult education could assist in curbing the problem of fuel wood crisis in Nigeria.

### **The concept fuel wood**

Shagufta (2014) defines fuel wood as branches, twigs, logs wood chips and other wood products harvested and used as fuel. It refers to various forms of wood that are used as fuel for cooking, heating or to drive steam-powered engines or turbines for electricity generation. Fuel wood or wood fuel consists of firewood, charcoal, chips, sheets, pellets and

sawdust. Fuel wood crisis refers to any bottleneck or problem arising in the supply of fuel wood energy to an economy. It is a situation whereby there is inadequate supply of firewood and charcoal for cooking or heating or a situation where this primary source of energy becomes scarce and people spent several hours in search for fuel (Cunningham, Cunningham & Saigo, 2005).

### **The concept of environmental adult education**

Eheazu (2016) sees environmental adult education as a product of the blend of the principles and goals of environmental adult education with those of adult education. Anthony, Essien and Tawo (2014) defines environmental adult education as that aspect of adult education which aim at developing a world population that is aware and concerned about the environment and it associated problem and which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively toward a solution of the current problems and to prevent new ones.

Clover (2003) defines environmental adult education as a course of study that makes concrete links between the environment and social, economic political and cultural aspects of people's lives. It is a type of education that takes place in a non-formal setting. This implies that the organized learning can take place in many forms including vocational education, literacy education and on-the-job training. It is a unique field of study and practice that is relatively new. It is a community-based method in which educators listen and respect the inputs of learners and all participants are considered essential.

Summarily environmental adult education could be seen as a field of study that helps to transmit knowledge, skills and desirable attitudes to adult learners on the issues that concern the environment and how the environment could be protected from degradation. It could be carried out through the formal, non-formal and informal settings.

### **The benefit of fuel wood**

The benefit of the use of fuel wood energy source in environmental preservation cannot be overemphasized. According to an outline publication of the forest commission England <http://www.forestry2018>. Fuel wood usage as a source of renewable energy has economic benefit to man and the environment. Fuel wood lead to cost saving, it less expensive than fossil fuel. With the use of fuel wood energy, the issue of fuel poverty/scarcity becomes a forgettable issue.

The use of fuel wood energy source provides green jobs for the unemployed since wood fuel supply requires a skilled work force. The use of fuel wood helps to reduce waste. Wood that could otherwise end up as waste can be utilized as a resource. The use of forest waste increases forest health. The use of fuel wood help in improving air quality, with the use of modern wood burning broilers and stoves, fuel wood usage could compete with fossil fuel usage in terms of ease, cleanliness efficiency and convenience.

The use of fuel wood energy source help to reduce or curb the problem of low risk/security of supply, with the declining nature of fossil fuel reserves and geopolitical instabilities, fuel wood users can protect themselves of the risk. The use of fuel wood energy help in saving carbon dioxide, burning wood releases carbon dioxide which is

balanced by the carbon dioxide absorbed by original trees and in the growth of new ones. It occurs more when wood replaces intensive fossil fuel such as gas. Burning firewood is carbon neutral and does not contribute to global warming because allowing wood to rot in the forest floor releases the same amount of carbon dioxide as it does when the wood is burn properly.

Sontheimer (1991) maintain that fuel wood collection does not only help women in cooking but perform other functions such as providing light at night, and heat to dry and wet harvest, keep livestock warm on chilling nights and the smoke from firewood help to keep insects away. Moreso, fuel wood prices are relatively stable it can be grown and purchased locally and ashes from fuel wood can be used as fertilizer.

### **Factors responsible for fuel wood crisis/shortage**

A plethora of factors are responsible for fuel wood crisis, Cunningham, Cunningham and Saigo (2005) identified rapid population growth in most developing countries like Nigeria as one of the major factor responsible for fuel wood crisis. According to them, the increasing demand for fuel wood and charcoal in most developing counties is intensified due to the rapidly growing population.

Enger and Smith (2000) stressed that rapid population growth and the high cost of other types of fuel are responsible for fuel wood crisis in many areas of the world. In Nigeria for instance where there is acute shortage of other forms of fuel for cooking such as kerosene and gas, the only option for the common man or the rural poor is to fall back to fuel wood. It is estimated that over 1.3 billion people are not able to obtain enough fuel wood. This, situation has resulted in the destruction forestland thereby leading to deforestation and desertification.

Anijah-Obi (2001) attribute rapid population growth as a major factor responsible for fuel wood shortage. She stressed that wood is still a major source of energy for most of the rural population and with rapid population growth, the demand for fuel wood would further increase leading to greater depletion of the forest resources as well as enhancing desertification. As the size of the nation's population increases the potential investment for petroleum resources is likely to decline and the demand for wood increases.

Ukpong, Ntia, Obot and Usang (2010) identify poverty as a major enemy of environmental conservation, poverty forces man to fallback to nature and contribute to all forms of resources exploitation and depletion. Poverty limits the option that are available to an individual effort to survival and may force him to adopt attitudes and practices that are devastating to the environment. Lawal, Aniah, Uche, Animashaun and Anijahobi-Idem (2010) maintain that with the recent increase in the prices of petroleum products, many Nigerians who cannot afford cooking gas and kerosene are forced to use firewood and sawdust for cooking. According to them this problem can be solve when the per capital income of people in developing countries is increased, with the high cost of petroleum product which has gone out of the reach of an average common man in Nigeria the only alternative energy source become fuel wood.

Fuel wood crisis began to emerge in the 1970's this has been aggravated by agricultural policies that aimed at making developing countries self-sufficient in food

production. In Nigeria operation feed the nation (OFN) and green revolution programmes were launched in the 1970's. These programmes helped in increasing food production in the country at the expense of the existing forestland, which are the main sources of fuel wood. National programmes tend to negate or overlook the relationship between food and forest. Fuel wood exploitation in developing countries as a whole and Nigeria in particular is not carried out in a sustainable manner. Most trees that produce wood fuel are lost due to short fallow period. More so, some agricultural practices such as shifting cultivation give way for fuel wood shortage. Shifting cultivation is associated with slash and burns, where the forest is cleared and burnt, most trees are affected, thus, trees that would have supply fuel wood energy are burnt and not put into use.

Deforestation is a major factor responsible for fuel wood crisis. Anthony (2012) sees deforestation as a wanton removal of forest and other forms of vegetative cover without replacement. The forest performs significant function including the provision of timber and fuel wood energy. But with its wanton destruction, the fuel wood is also drastically and rapidly becoming a scarce energy resource.

Anijah-Obi (2001) attribute fuel wood shortage to unsustainable agricultural practices industrial development, urbanization over exploitation of trees and bush burning. She sees human activities as the principles factor responsible for the depletion of the biodiversity. However, desertification which is a natural factor also contributes to fuel wood crisis. It presents a serious threat to sustainable fuel wood utilization and availability in the Sudan-Sahelian savannah ecosystems. Most part of Nigeria such as Borno, Kebbi, Bauchi, Taraba, Sokoto Adamawa, Kastina, Kano, Niger and Jigawa States experiences fuel wood crisis due to desertification.

### **The effect of fuel wood crisis to man and the environment**

Fuel wood shortage no doubt has social, economic and environmental consequences. Sontheimer (1991) maintain that as wood becomes increasingly scarce women no longer select the size and types of wood to harvest. This also gives room for them to remove roots and stumps previously left in the field for coppicing. She added that fuel wood shortages affect incomes and change rituals.

Fuel wood provide business opportunities for both men and women. Most families are involved in long distance trade in firewood and charcoal. With acute shortage in fuel wood this family business is short lived. Poor urban women have to pay higher prices for fuel wood and charcoal while in the rural areas women and children have to walk long distances in search of firewood for their domestic use. The effect of this is that, women curtail their cooking time and even cut down production.

Fuel wood crisis affect the economy as timber becomes scarce, families have to use animal dung or crop waste as fuel instead of ploughing them into the land. With fuel wood crisis women who walk long distances to collect firewood need more energy to walk in search of firewood each day. Fuel wood energy no doubt is a renewable energy source but when the trees are cut down faster than they can be grown again the environment will be subjected to various crisis such as erosion, deforestation, desertification, climate change

and increase flooding. In Bangladesh for instance it was as a result of cutting down of forest for fuel that led to the flooding in 1998 <http://www.sciencedirect.com.pil.2018>.

### **The role of environmental adult education in curbing the problem of fuel wood crisis**

The role of environmental adult education in curbing the problem of fuel wood crisis in Nigeria cannot be under scored. In order to obtain equitable and sustainable development and address the problems associated with fuel wood crisis, environmental adult education should be concerned with:

- (i) Building network of environmental adult education from civil societies, people or organizations and government who can act as catalyst in bringing about changes in their respective communities and countries as well as global communities on how to solve the problem associated with fuel wood crisis.
- (ii) Work for capacity building of people to understand and respond to the effect of fuel wood crisis and
- (iii) Facilitate dialogue between people and government for effective mitigation of the menace of fuel wood crisis (Anthony, 2012).

Environmental adult education according to Peters, Ekpo and Bisong (2010) assist people (individuals and communities) to acquire knowledge that is needed to be well informed about environmental problems (such as fuel wood crisis) and their solutions. The knowledge acquired through environmental adult education could help adult know the negative implication of man actions and his interaction with the forest ecosystem on fuel wood supply with such knowledge man will be conscious of the effects of bush burning, excessive harvesting of timber, and adopt various measures such as tree planting to regenerate the forest. Eheazu (2016) added that environmental adult education help adult to acquire basic conceptual knowledge of the causes and effects of environmental challenges and their solutions.

One of the major objectives of environmental adult education is that it helps individuals and social groups to become aware and sensitive of the environment and it allied problems. When adult citizens become aware of the danger of fuel wood shortage, they will be sensitized on the need to reduce the rate of wood consumption, use alternative energy sources such as gas, coal, kerosene and electricity in food preparation. Through environmental awareness creation people will become sensitive on the need to use locally produce wood stove that may reduce the rate of wood consumption as well as avoid excessive cooking and heating.

Through environmental adult education people's attitudes and behaviours towards the environment and nature could be changed, people have very negative attitudes towards God given resources such as fuel wood. Most people think that such resources are in exhaustible thus they could be used anyhow without any restriction. Anijah-Obi (2001) maintain that through education individual and social group will acquires social values and ethics, strong feeling of concern for the environment and motivation to actively participates in its protection and improvement. Changing people attitudes towards the utilization of natural resources will help them to care for the environment. Thus both government and

local communities can come up with policies that will help to reduce fuel wood crisis, policies such as paying penalties for trees destroyed through bush burning, establishment of communities forest and embarking on afforestation/reforestation programmes.

Environmental adult education helps people to acquire skills for solving environmental problems. Through education adult learners will acquire conservation and environmental management skills such as tree planting. Tree planting exercise whether before or after cutting the trees will help to regenerate the forest ecosystems and this will reduce fuel wood shortage. More so, when farmers are skillful in carrying out their farming activities the issue of incessant bush fire effect that destroy both logs of wood and life trees in the forest could be drastically reduced.

The knowledge, skill and awareness acquired through environmental adult education will assist individuals and group develop a sense of responsibility that will help them to participate in programmes and projects that could assist in curbing the problem of fuel wood crisis in our communities. It should be noted that having awareness about the environment, knowledge, attitudinal change and acquiring skills and abilities cannot produce results unless they are utilized (Anjah-Obi 2001). It is when people are committed to finding solutions to problems that such problem can be solve. The problems or fuel wood crisis in Nigeria can be solve when people take active participation in decision making concerning environmental management, participate in tree planting project and be committed to the enforcement or policies that will assist in curbing fuel wood crisis or reduce it to the barest minimum. Through environmental adult education people could be assisted to carefully plan action programmes that will mobilize adult citizens towards the improvement of environmental quality to avoid harmful effects on the environment (Anthony et al 2014).

With the help of environmental adult education people can assess or evaluate the impact of any development projects on fuel wood supply bearing in mind the long- and short-term effect. Development projects such as road construction, industrial development as well as building of estate, and excessive exploitation of firewood for commercial purposes may lead to fuel wood crisis. With proper environmental impact assessment on such a development project people can predict the short- and long-term impact of such a development thereby planning an effective and efficient way of solving the problem.

## **Conclusion**

Fuel wood energy is the traditional energy source and the most commonly sources of energy used globally. In most developing countries of the world it remains the most stable energy sources used for cooking and heating. In Nigeria like most African states fuel wood consumption is still in an increase particularly in the rural areas. The use of fuel wood energy is very beneficial to man and the environment as it helps to reduce waste, requires cheap technology, it is carbon neutral and has economic benefits users.

Despite the relevance of fuel wood to man and the environment, most part of the country now experiences a crisis situation in fuel woods supply. This could be attributed to poverty, populations expulsion, deforestation, over grazing, desertification, urbanization, industrialization, civilization and man's quest for monetary gains (greed). Concerted efforts

by all Nigerians are needed to put this ugly situation to an end. This could be done when all and sundry change their attitude toward firewood exploitation; are aware of the consequences of fuel wood shortage to the environment; are knowledgeable about its effect on man and the environment, have manipulative skills and can participate in the planning and decision making on issues that concern fuel wood shortage.

### Recommendations

The government and non-governmental organization therefore should do everything possible at their disposal to encourage every adult citizen to be environmentally literate and conscious to enable them know the effect of fuel wood crisis to man and environment. The government should enact policies and laws that will help to reduce the problems of fuel wood crisis in the country. Since population explosion is synonymous with fuel wood shortage the government should come up with policies that will help to reduce or checkmate any geometric rise in population. Community leaders should do everything at their disposal to ensure that the forest ecosystem is not depleted. They should come up with policies that will help to sustain a forest such as punishing those who set wild fire in the forest. Finally, people should be economically empowered to enable them afford alternative energy sources such as, electricity, gas and kerosene for cooking and heating so as to reduce fuel wood consumption.

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