YOUTH 4 POLICY

POLICY OPTIONS FOR COMBATING ENERGY POVERTY IN UGANDA

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Abstract

Energy poverty prevails over the larger portion of the population in Uganda especially in the rural areas where majority of the population lives. The absence of reliable and affordable energy resources negatively affects the social and economic welfare of the population. This paper provides an analysis of energy poverty in Uganda and proposes a set of policy alternatives for combating the challenge. To glean more insights into the subject, qualitative research techniques were deployed. These included interviews and focus group discussions with the target population. The interviews and focus group discussions were guided by an open-ended questionnaire. The key findings from the study indicate that low-income levels among the population is the major cause of energy poverty alongside lack of information about the rewards of using modern energy resources and the shortcomings of traditional forms of energy. The findings revealed that due to energy poverty, people are denied opportunities to engage in better income generating projects; they are prone to health issues arising from use of traditional unclean energy and very susceptible to low human capital development. To address the above challenges, the following recommendations have been made; increasing energy infrastructure and diversifying the energy mix to reduce pressure on biomass, use of hydroelectricity and fossil fuels, availing information about the different energy facilities and harnessing public-private partnerships in the energy sector.

Introduction

The problem of energy poverty is widespread in Uganda as in many African countries despite the fact that Uganda is well endowed with a wide array of both renewable and non-renewable energy resources (UBOS, 2018).

Energy poverty is the absence of sufficient choice in accessing adequate, affordable, reliable, high quality, safe and environmentally friendly energy services that support human and economic development (Reddy et al., 2000). Energy poverty results from high cost of generation, supply and access to modern forms of energy (energy that is clean both in use and handling and may include electricity, natural gas, liquid petroleum gas and biogas (Clancy et al., 2012)) versus low-income levels, weak institutions, investing in infrastructure that supports export of electricity rather than increase supply to locally and sometimes behavioral influences (Omojolaibi 2014). Energy poverty prevails because energy initiatives tend to ignore the needs and capabilities of majority local populace and often exclude them from energy sector decision processes.

The problem of energy poverty is prevalent throughout Uganda though its manifestation is greater in the rural areas where more than 80% of the population reside. Uganda is one of the countries with the lowest electrification rates in Sub-Saharan Africa with 23% electrification rate in urban areas. The rural areas only have a 19% electrification rate (Power Africa fact sheet, 2020). More than 95% of Uganda's population cater for their energy needs using traditional biomass energy options (firewood, charcoal, plant and animal residues) which are unclean and mostly inefficient whereas only about 5% of the population use other forms of improved energy like electricity, solar power and petroleum powered energy options (UBOS, 2018).

It should be noted that much as the energy poverty problem affects all household members, women carry a greater burden of the problem (Clancy et al., 2012).

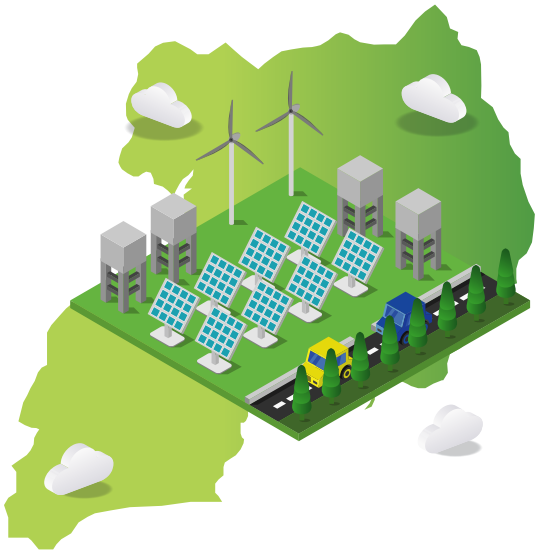
Women are more affected by the energy poverty problem because traditionally, women take charge of household responsibilities including managing energy resources. Despite their low incomes, women make energy choices, procure the energy resources, ration them and go right ahead to use them for the different purposes.

Energy is a basic asset for livelihood among households in rural areas as they rely on it for development and basic survival purposes like cooking, lighting, heating and some economic activities (DFID, 2000). Generally, limited access to energy limits economic productivity. The forms of energy afforded by the low-income people are inefficient and unsafe.

Uganda's rural population has long been deprived of modern energy services like grid electricity as shown by an electrification rate of only 19% and is thus dependent on biomass as the major energy source. The women in rural areas, sometimes with the help of their children have to spend an average of 5 hours daily to collect and carry almost 20 kilogrammes of firewood over long distances. The women are deprived of time for economic activities, child care, social activities and education. The use of traditional biomass has further led to respiratory illnesses and deaths from indoor pollution. Additionally, dependence on biomass has contributed to severe deforestation throughout the country. The area of land in Uganda that was covered by forest has reduced from 24% in 1990 to 18% in 2005 (NFA, 2009). The forest area in Uganda continues to reduce at a rate of 1.8% per annum. The loss of forest cover has led to climate change and environmental disasters like floods, air pollution, soil fertility loss and greenhouse gas emissions.

Transformation from bio energy

to renewable energy



Why the energy poverty problem needs urgent intervention

There is an important link between access to modern energy services and growth and development, and the reduction of poverty. The purposes for which energy resources are needed, for example cooking, lighting, heating, communication, powering machines and automobiles and security contribute to social well-being, support creation of job opportunities and lead to greater income potential. The importance of energy resources in supporting industrialisation cannot be disregarded and so is the role of industrialisation in harnessing growth and development. Access to efficient energy is a recipe for optimum use of production resources and maximum productivity. If there is no access to modern energy, production efficiency in industries is undermined because production processes will then require more time and more input.

On the flip side, the use of traditional energy sources has a huge negative bearing on the environment. Traditional forms of energy (firewood and charcoal) require the cutting down of forest vegetation like trees which are key in ensuring that climate and weather conditions are kept in check.

The use of biomass also comes with serious health hazards because of emission of dangerous fumes which lead to respiratory problems and death (Lacey et al., 2017). Also, inadequate energy services further contribute negatively to health care provision, education attainment, security, socialisation, gender equality, environmental protection and information dissemination (World Bank, 2016; Karekezi & Kithyoma, 2002).

The problem of energy poverty requires urgent attention because absence of modern energy options contributes to incessant poverty cycles (Picolotti & Taillant 2010). Without reliable energy, the poor remain poor as a result of low exposure to economic opportunities presented by modern and efficient energy systems. This keeps incomes low and cyclically the poor are unable to afford modern energy. If energy poverty persists in local communities, it means local communities may not easily escape all other forms poverty.

Existing interventions addressing energy poverty in Uganda

There is effort by the Government of Uganda to champion the contribution of energy to the sustenance of all other sectors in the economy. The energy sector features widely in national plans and visions like the NDP I, II and III as well as the Vision 2040 and other national strategy documents. The national policy documents draw attention to the importance of energy in socio-economic transformation and provide strategies the government, its institutions and development partners can adopt in order to increase electricity and other modern energy resources uptake among the population. Some of the strategies suggested in the NDP I, II and III and the Vision 2040 include increasing power generation, expanding the electricity transmission grid network, building capacity in the energy sector and improving energy policy, legal and institutional framework. The policy documents encourage clean energy consumption, increased transmission capacity and better grid reliability.

The approaches suggested in the policy documents aim at increasing the productive use of energy, increasing energy efficiency, reducing over-reliance on biomass, increasing access to off-grid energy solutions and improving coordination between intra and intersector planners.

An overview of rural electrification efforts in Uganda

The government through the Ministry of Energy and Mineral Development and the Electricity Act of 1999 established the Rural Electrification Board with the Rural Electrification Agency as its secretariat and the Electricity Regulatory Authority among other energy sector entities. The Rural Electrification Board and its secretariat are responsible for rural electrification activities through public-private partnerships while ERA regulates electricity sector activities. The collective purpose of establishing the bodies was to improve policy in terms of value and implementation within the energy and electricity sector in order to ensure that there is increased availability of modern, affordable and reliable energy services, better governance and administration in the energy sector.

The interventions of government in the energy sector have led to a number of improvements. Uganda's electricity generation capacity has seen an increase from 317 MW in 2002 to 1,182 MW in 2019 resulting in supply / demand surplus. The rate of access to electricity throughout the country has increased by 23% from 5% in 2002 to 28% in 2019 and the rate of electricity loss has come down to 17.4% in 2019 from 35% in 2002 (MEMD, 2019). Particularly for rural areas, electricity uptake increased from 1% in 2001 to 19% in 2019.

Public-private partnerships through energy financing and subsidisation have encouraged increased uptake of renewable energy technologies, off-grid energy solutions and use of more efficient biomass energy technologies in the rural areas thus saving the vulnerable natural resources and improving the health of rural dwellers notably women and children who are more tasked with energy resource management in households.
This has supported productivity, improved security, service delivery, created urban and semi-urban areas and also led to better welfare across the country. Most importantly, the interventions in the sector have nurtured a more liberalised and better regulated energy sector through the advancement of better governance structures.

The energy sector places less importance on the efficiency of energy resources in the biomass subsector despite its contribution to total primary energy used in Uganda and its negative effects on health and the environment. In Uganda, 97% of rural households use bio-mass whereas 86% of the urban population use bio-mass for their energy needs (UBOS, 2020). To a large extent, energy sector interventions tend to focus more on grid electricity and have limited consideration for alternatives to off-grid energy that rural households and other users may access without necessarily being connected to the national grid. Present interventions in the sector continue to advocate more for betterment of urban energy consumers thereby limiting the productive use of energy resources in rural areas.

Rural energy services have continually been characterised by limited resources for the energy supply, costly grid extension both for service providers and energy consumers and low technical capacity to manage rural electricity distribution. It is also notable that energy sector policies and interventions do not satisfactorily acknowledge the role of women in the energy sector as women participation in energy sector activities like policy management and business development is low. Another gap in the energy sector interventions is failure to identify sources of finance that are key to extending modern energy services to all parts of the country..

Factors limiting access to modern and reliable energy services

The results of the study indicate that low-income levels are the biggest factor that limit households from accessing modern and reliable energy services. It was revealed that most households do not even earn enough for basic living as they have a single breadwinner (the household head; usually the man), yet the dependents are many. This translates to very little income for catering for basic needs and most times nothing is left for purposes like footing energy bills. The respondents revealed that because of meagre incomes most rural households cannot afford modern forms of energy like Liquid Petroleum Gas, grid electricity and solar energy for all household electricity needs. They therefore end up using traditional energy forms in whole or in the largest proportion for their energy needs. One respondent had this to say; 'We all want to use modern energy because it is easier to use; it is fast, can be used inside the house and it creates less mess (dirt) but the problem is that we do not have enough money to afford electricity, solar equipment and gas. Sometimes when you can afford the electricity, appliances like cookers, fridges and solar batteries are very expensive.'

It was further revealed that because of low incomes, most households that have access to modern energy like grid electricity limit the use to lighting, ironing, watching TV and charging phones so that they can save on the amount of money meant to cater for electricity bills. Other energy needs like cooking are met with traditional energy forms like charcoal and firewood. A discussant explained this notion as follows; 'Electricity is very expensive yet we do not have money; we use electricity for only essential purposes like lighting and also limit the time for the use. For example fridges in this area both in shops and homes are mostly switched on at night in a bid to save electricity and reduce the bills. If an activity can be accomplished using another source of energy other than electricity and gas, then we opt for the cheaper means. We use firewood and sometimes charcoal to cook because they are less costly. I don't know of a single household in this area that uses purely modern energy but there are those that use only traditional energy means.' Other respondents revealed that they do not have access to grid electricity in their locality and they have no information regarding why. They thus resort to the use of traditional energy for their energy needs like cooking and lighting. However, they revealed that most households work hard to save money for installing solar panels on their house roofs but can only use the solar power for lighting and phone charging since they cannot afford solar batteries. A respondent explained as follows; 'Most areas within our locality are not connected to the main electricity grid. This leaves people with no option but to use the traditional energy means. It is also common nowadays for most households with a bit of income to have at least a small solar panel on their roofs as people are tired of kerosene lamps. The panels usually serve two purposes; lighting and phone charging.' All respondents explained that they anticipated that the Rural Electrification Programme would extend grid electricity through their locality but that was never realised. They still have hope in the next phases of the programme though.

Factors limiting access to modern and reliable energy services

Energy poverty was found to have serious negative social and economic consequences on the respondents. The respondents explained that due to the fact that they are of low-income levels, they largely depend on inferior energy sources (firewood, charcoal and kerosene) for most energy needs like cooking and lighting. Inferior energy sources do not support most economic activities and where they do, they are largely inefficient. Lack of modern energy also reduces on time available for economic activities; for example, without proper lighting, one cannot work beyond day time. A respondent expressed the following concern; 'Some families would be financially better if they had grid electricity connection because they would not have to pay for high prices for certain goods and services like milling maize; in fact there would be more income generating opportunities within our locality.' Accessing energy is very expensive yet it is essential for day to day running of households. As such, the energy expenditures of households tend to dominate the household budget and leave no room for other needs thereby impacting negatively on overall welfare of households.

They revealed that use of inferior energy sources has negative health impact on persons who use them especially the women and children since they are more involved in collecting and using the traditional energy. Biomass use comes with health risks as inhaling the gases from burning biomass is as risky as smoking cigarettes. An informant stated that 'Many people have got sick because of using biomass yet the worst bit is that most people are not even aware that the biomass they use is very dangerous. For example, very many people do not know that using a charcoal stove inside the house is even fatal.

Lack of modern energy also condemns populations to poor health services as some medical services cannot be accessed without proper forms of energy. Ill health from use of traditional energy forms further harms the financial position of households due to high cost of health care and the resulting decline in economic productivity. Respondents revealed that energy poverty impacts negatively on the human capital development of children because they cannot adequately use traditional energies for studying especially during the night. Children play a big role in sourcing firewood for home use and this uses up the time they would instead use for school. Children ought to fetch firewood in the early morning before they report to school or late evening after school. However, in most cases, the activity eats into school time as firewood is scarce and most times has to be fetched from very far places. The case would be different if there was access to grid electricity and other modern energy forms because access to modern energy in an area reduces time needed for collecting fuel, in doing house chores and thus encourages children to study more. This is accentuated by a World Bank study where it was found that areas and households with access to modern energy have more children enrolled in school compared to areas with lower access to modern energy (World Bank, 2008). Additionally, the lack of modern energy discourages qualified human resources to settle in an area; for example, teachers do not want to settle in unelectrified areas as they are associated with low standards of living.

Approaches for improving access to modern energy services among households

The findings revealed that in order to increase access to modern energy, there should be more coverage of grid electricity especially in the rural areas. In addition, grid electricity should be priced such that it is affordable for low-income earners to enable them use electricity without limiting its use to a few tasks when they get connected. The government should subsidise all forms of modern energy like liquid petroleum gas and solar energy equipment to make them price friendly so that Ugandans can embrace their use. Energy subsidies are known to encourage persons to adopt to modern energy as a means of improving their welfare. One of the informants explained that, 'It is not enough to extend grid connection to all areas for as long as electricity remains expensive; the poor people will still remain unconnected because they cannot afford the connection fees and the routine payments. To me the most important thing is for us to have fairly priced electricity.'

Respondents explained that it is necessary to conduct massive campaigns on available modern energies especially the renewable energy technologies to increase on the energy mix and to combat the negative effects of traditional energy throughout the country. The information will encourage people to make better energy choices that are safe, protect the environment and can boost economic and social welfare. It was revealed that the campaigns on various platforms would enlighten persons who are off-grid about government initiatives to increase electrification rates especially in rural areas. With this information, more people will access modern energy at least in terms of grid electricity. An informant revealed that, 'Many people lack information and thus miss out on opportunities for obtaining energy resources at fair bargains. An example is the people who were unaware of the benefits of the government rural electrification programme yet they could have used the opportunity to get electricity connection at very subsidized rates.'

Another respondent explained that some people are not aware of the dangers of using some forms of energy to their health, welfare and the environment. It is possible that their energy use patterns would be different if they were furnished with information.

On the basis of the impact of energy poverty on rural households in Uganda, immediate steps should be taken to increase access to modern and efficient energy sources and to reduce the incidence of energy poverty. This can be achieved in a number of ways as presented below;

The study findings revealed that energy poverty results from absence of sufficient energy infrastructure to increase access to energy among households. A more pressing issue concerning high levels of poverty among households that do not permit members to afford the different forms of modern energy was also highlighted. It means that even with more energy infrastructure, households with low incomes may not be in position to afford the different forms of modern energy services. It is important that energy policies accentuate gender sensitivity to increase chances of acceptance and successful implementation. Emphasis should pay particular attention to the role of women in the sector and the dire consequences that women are faced with in their bid to source and use energy resources in households. Energy policies should focus on interventions that can improve the well-being of women; for example, policies should identify those energy resources that are preferred for use by women and the options must be healthy, easy to use, safe and affordable. Energy policies goals should aim at reducing the workload of women in households in terms of time and heftiness and avail them more time to engage in economic productivity for welfare improvement. Information should be obtained regularly from women, local leaders, household heads and researchers about the needs of women in the energy sector to ensure that they are incorporated within policies.

The traditional forms of energy used by the greater percentage of households for energy needs trigger health problems and sometimes death due to respiratory complications. They also contribute to environmental pollution through emission of greenhouse gases. Energy policies should encourage the use of cleaner forms of energy through subsidisation, facilitation of provision of energy facilities on loan basis and widely educate the population on the disadvantages of traditional energy forms and the advantages of the modern and clean energy forms. With greater use of clean energy, rural households will have less out-of-pocket expenditures on respiratory illnesses from traditional forms of energy and such monies when saved can facilitate access to better energy resources, improve social welfare and support other income generating activities Therefore, in addition to increasing energy infrastructure through grid extension, policies should also focus on making improvements in economic productivity with a goal of increasing income levels of individuals and households in order to make it easier for them to afford modern energy. The cost of connection to grid electricity should be lowered and made uniform across the population to make it affordable for all people. Secondly, energy policies should stress a diversified energy mix. If the population embraces use of solar energy, biogas and liquid petroleum gas, the pressure on use of hydropower and fossil fuels will reduce resulting in a possible reduction of their prices.

Government energy policies should encourage combined efforts of the public and private sector and also offer support to private establishments within the sector. The public-private partnerships are crucial for reducing the burden on government in terms of workload and expertise. Finance institutions, non-government organisations and conventional businesses are good options for public-private partnerships in the energy sector because they have a better understanding of the energy poverty situation in rural areas given the fact that they have greater networks within local communities. This calls for energy policies to be supportive of private entities in the energy sector so that they can grow sustainable energy related businesses that provide better access to affordable and more efficient modern forms of energy suitable for rural households across Uganda. Partnerships can be through conducting joint research, sharing information, skilling human resources and government offering subsidies and tax holidays to entities in the energy sector..

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