Gender-Energy Nexus in Tanzania: Assessing Rural Electrification in the Context of Gender Mainstreaming Among Women

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Abstract

This chapter presents empirical evidence from the study conducted in two rural districts of Tanzania. The aim was to assess government rural energy strategy undertaken by Rural Energy Agency (REA) to electrify rural Tanzania in the context of gender mainstreaming in energy projects as well as its viability in resolving gender energy challenges that rural women face. A total of 22 semi-structured interviews were conducted with rural women and TANESCO officials in Kilolo and Shinyanga rural districts over a period of two weeks. Our findings indicate that although government takes gender issues seriously, more remains to be done as most of our informants had little knowledge on what rural electrification is; an indication that gender may just have been mainstreamed in energy policy, plans and strategies on paper by a mention of the word gender and gender mainstreaming. Again, the study found out that patriarchal practices that marginalize rural women are still entrenched in rural Tanzania to the extent that rural electrification may only end lighting rural Tanzania instead of altering complex and multiple energy challenges women face. High costs of energy and limited energy choices were also mentioned as main issues that challenge rural electrification. From the findings, it is recommended that the government ought to go down to rural women to learn of their expectations and challenges; build awareness to rural women over the use of different energy sources; diversify energy sources; and implement energy policies, plans and strategies effectively to resolve gender energy challenges.

1. Introduction

Modern energy services are considered a vital input in the development process. It is widely accepted that access to affordable and modern energy services is key to development and poverty reduction in the developing world. Without this, developing countries are likely to be trapped in a vicious circle of poverty, social instability, and underdevelopment (Mohn, 2013). Unfortunately, however, not all people have access to modern energy services. Statistics indicate that more than 20% of the world's population have no access to electricity, about 2.4 billion people use traditional biomass for cooking and heating; and 99% of those who live without energy are in the developing world (Mohn, 2013, p. 46). The situation is even worse in Sub

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Saharan Africa where four out of five families lack access to electricity (Practical Action, n.d.). Due to this energy poverty, people still cook on an open fire thus running the risk of endangering their lives as they become exposed to fumes which kill more than 1.4 million people each year (Practical Action, ibid.). It is further argued that an African uses only one eleventh, one sixth, and one half of the energy used by a North American, a European, and a Latin American, respectively; thus making Africa the lowest consumer of energy (Davidson et al, 2007, p. 3).

When one factors in the question of gender the situation becomes more critical. It is obvious that men and women have different energy needs and are disproportionately affected by lack of access to modern energy services. By virtue of their social roles in African societies, women are usually the victims of lack of modern energy services. In many of the rural African societies women bear the responsibility of meeting household energy needs by collecting, preparing and using wood fuel (Maduka and Fayomi, 2004, p. 1-2; James, 1999). This adds burden on their already overburdened life. Thus, it is not surprising that many of the 1.4 million deaths a year due to exposure to wood fuel fumes are women and children (Practical Action, n.d.). In Tanzania, the situation is not brighter regarding access to modern energy services.

The United Republic of Tanzania is a political union of two semi-autonomous countries which was formed in 1964 from the former Tanganyika and Zanzibar (made up of Unguja and Pemba Islands). It is the largest of the five East African countries (Tanzania, Uganda, Kenya, Rwanda and Burundi). Tanzania has a total area of 945,000 square kilometers[i] and a population of almost 45 million and an annual growth rate of 2.7% in the last ten years (United Republic of Tanzania [URT], 2013, p. 2). Out of the 45 million people, women constitute 51% of the total population (ibid,. p. 14). Like any other Sub-Saharan African country, Tanzania faces several socio-economic and political challenges such as poverty, gender inequality, promotion of democracy and human rights observance. Access to reliable and affordable energy sources remains a big challenge in Tanzania given the fact that the country has been suffering from intermittent power supply and rationing for quite a long time. As a country, Tanzania is facing energy challenges resulting from technical and economic constraints and has not developed adequate linkages between energy and gender for sustainable development (Kassenga, 2008, p. 420; and Oparaocha, 2004, p. 5). In terms of access to electricity, only 23% of the population have access to modern electricity connection; in rural areas access to electricity is only 7% of the rural population (Muhongo, 2013, p. 42). Per capita energy consumption is one of the lowest in Sub-Saharan Africa- currently standing at less than 100KWh (Mathew, n.d.). The use of biomass (firewood and charcoal) accounts for more than 90% of energy supply (Ministry of Energy and Minerals [MEM], 2013a). The remaining 10% comes from commercial energy sources such as petroleum, electricity, coal, and solar energy (*Ibid*,).

A quick look at those challenges shows that they disproportionately affect women and men. Given this, the question of gender-energy nexus has attracted debate among different scholars, stakeholders, and civil society organizations in terms of access, control and affordability of energy to women in Tanzania. This is so because women are more disadvantaged than men in circumstances of accessing, decisions and control over energy sources (Maduka and Fayomi, 2004). According to Sosovele, (2010, p. 117) opportunities are more limited to women than men in the context of policy challenges where there is absence of holistic and comprehensive energy policies to address gender equality. This is further argued by Maduka and Fayomi (2004, p. 1) and Sosovele (2010, p. 117) that, when making decisions and interventions in energy policies women abilities are more restricted than men and there are weak institutional and legal frameworks to respond to women energy needs.

Given these gender energy challenges, the government has been trying its best to mainstream gender in its design and implementation of energy projects and strategies. Moreover, the government through its MEM has committed itself to increase the proportion of people connected to electricity from the current 23% to at least 30% by the end of 2014/2015 (Muhongo 2013, p. 25). The national energy policy of 2003 also captures the centrality of gender in all energy programmes and projects as a means of liberating women from the bondage of challenges as a result of unreliable energy sources (see URT 2003). Further, the Ministry of Energy and Minerals Strategic Plan 2011/12-2015/16 stresses the need for 'ensuring adequate supply of energy to increase social and economic welfare' (URT 2012, p. 12). All these efforts indicate how the government is committed to making gender an integral part of all energy development strategies, plans, policies and projects. On top of that, the government has formulated the Rural Energy Agency (REA) to coordinate and distribute electricity in rural areas. Its major aim is to improve access to modern energy services in rural areas as a means of improving rural livelihoods and reducing poverty. This is because according to energy policy 'energy consumption in rural areas accounts for about 85% of total national energy consumption' (URT, 2003, p. 6). Although REA has partnered with the World Bank (WB) to mainstream gender in the organizational structure, design, implementation and monitoring and evaluation of energy projects (URT 2013), it does not explicitly state how and the extent to which it considers gender issues in its energy distribution. It appears that the main pre-occupation of the agency is to increase the number of people in rural areas having access to energy. Moreover, the question of whether or not rural electrification is gender sensitive and can help to reduce women health risks associated with unreliable energy sources remains less researched.

Most studies on rural electrification have focused on the potential benefits of the project to the rural population, their livelihoods and to national development. There is virtually nothing on the extent to which rural electrification integrates gender specific needs in the design, formulation and implementation of energy policy and projects. Thus, it remains unknown whether new energy projects in the form of rural electrification in Tanzania are to the rescue of women and if so how. The present study aimed at addressing this knowledge gap. It was the objective of this study to *explore the extent to which rural electrification resolves the gender and energy nexus challenge among rural women in Tanzania.* This study specifically was intended to answer the following questions:

- Can rural electrification project resolve health risks and the killings of alleged witches in rural areas as a result of unreliable energy sources?
- To what extent does the state mainstream gender during energy policies formulation and implementation and energy distribution to provide adequate energy services?
- How do women perceive new energy projects?
- What challenges face rural electrification as far as gender is concerned?
- What should be done to make energy services provision effective and reliable to the majority rural women in Tanzania?

This is a qualitative study based on the use of semi-structured interviews and survey conducted for two weeks in rural areas from two districts in Tanzania namely Kilolo and Shinyanga rural districts. Since Kilolo has extensive forest activities and fuel wood is the main energy source, we wanted to find out if rural electrification can reduce dependence on fuel wood and reduce health risks. The selection of Shinyanga was based on traditional ways of life and beliefs such as the killing of alleged witches whose eyes become reddened by over use of cow dung as source of

energy. We wanted to find out whether rural electrification can rescue women in these areas from killings and other health risks. In these areas women gather fire woods and dung for cooking at households because of limited energy choices. Therefore, we wanted, from these areas, to find out how rural electrification took aboard women needs as a process of fundamental change in the existing structures which subordinate women in access and control over energy sources.

Once the two study areas were identified, interview guides were prepared in Swahili. This was after extensive survey was carried in both two areas. Interview questions were set for three groups: women beneficiaries of rural electrification strategy, non-beneficiaries, and officials from Tanzania Electric Supply Company (TANESCO). After identifying beneficiaries and non-beneficiaries of rural electrification a sample of 20 informants was randomly selected. Of these, 10 were from Kilolo district and 10 from Shinyanga Rural district. We also interviewed two TANESCO officials one from each district. We wanted to get insightful comments from all groups on whether they understood the question of gender mainstreaming in energy sector, and what challenges face rural women towards accessing reliable energy sources. While conducting interviews, we were also making observations on the energy sources used and on the patriarchal practices. Full anonymity of the informants was observed and assured from the beginning to the end. The major methodological challenge we faced while collecting information from our informants was that some women interviewed were not free to speak out because in some traditions there are bounding norms where women have to listen or consult their husbands before they can speak anything. For example, in Shinyanga rural some informants spoke in Sukuma[ii] language and their husbands had to translate for a researcher to understand the answers. This marks the long lived and unchanging gender relations. To reduce the impact of this on the quality and reliability of information, we had to ask for permission from the husbands to allow their wives to speak out their mind. We also ensured that what our informants disclosed to us was treated confidentially.

The remainder of the chapter is organised as follows: section two covers the conceptual and theoretical issues on gender and energy in Tanzania. Section three presents, analyses and discusses results. Lastly, a conclusion is given as a reflection on women's concerns over rural electrification and how rural electrification fits in the framework of GAD as far as gender mainstreaming is concerned.

2. Conceptual and Theoretical Issues on Gender and Energy in Tanzania

Access to modern energy services in Africa remains one of the major challenges to inclusive and sustainable development. For example, majority of the people living in sub-Saharan Africa lack sustainable energy and access to modern energy services; and the problem is even worse in rural areas (Sawe, 2005). Most societies in Africa are facing unstable and unsecure energy sources which have posed threat to economic development and to people's lives. In Tanzania, as pointed out earlier, only 23% of the population have access to electricity and only 7% of rural areas is electrified (Muhongo, 2013). To realize sustainable energy supply Tanzania has passed different stages since independence in 1961 to current REA strategy. Initiatives such as improved Fuel-wood Stoves and Private Tree nurseries Promotion project; Africa Rural Energy Enterprise Development Project (AREED); Sustainable Energy Policy and Research Knowledge Network; Establishing of REA and REF (Rural Energy Fund) and many more have been in place (Sawe et al, 2004). Efforts at ensuring access to modern energy services date back to the pre-independence

period. For the first time electricity was introduced in 1908 under the German colonial regime then in 1931 was transformed by establishing two electric companies namely the Dar es Salaam and District Electric Supply Company (DARESCO) and the Tanganyika Electric Supply Company (TANESCO) (Msyani, 2013). Soon after independence in 1961 the government acquired shares from both companies and in 1975 the two companies were merged to form a state owned company officially known as Tanzania Electric Supply Company (TANESCO) (Ibid.). Since then, several measures have been taken to ensure the government supply modern energy to its rural dwellers; and one of those initiatives is establishment of REA in 2007 to coordinate and oversee rural energy projects. Despite this notable initiative, rural Tanzania, like many other rural areas in Sub-Saharan Africa, still suffers from lack of modern energy services. At the household level, lack of modern energy services affects women more than it does to men. This is because, as discussed above, women are the main procurers, producers and users of energy. Moreover, considering the triple roles that women play in most African societies, it is evident that lack of modern energy services puts more burden on their shoulders than it is for men. In these societies, traditional energy sources such as charcoal, firewood, cow dung and cereal residues still dominate and women are in most cases responsible for ensuring their availability. It is argued by Kauzeni, Sawe and Sechambo (2001, p. 92) that most of initiatives developed have suffered from lack of national priority, inadequate information, and lack of requisite institutions and skills in energy sector.

When it comes to development and women empowerment, it emerges clearly that gender and energy cannot be separated. Gender and energy are related in that there is always, at least in the poor developing countries where access to reliable and affordable energy sources is still a challenge, a disparity between men and women over the use of and consequences of unreliable energy sources. Thus, women are disproportionately affected by unreliable energy sources because they are the ones at the centre of production, reproduction and community roles all of which are energy intensive. Like in many other African countries, Tanzania's energy sector is facing a major challenge of provision of modern energy services to its population, to facilitate economic development and poverty reduction (Wamukonya 2002). As noted above, the challenge is even critical in rural areas where more than 80 per cent of the country's poor lives (Aikaeli 2010, p. 1). In these areas, unreliable energy sources pose a burden to the already overburdened woman who has to always be on the move looking for fuel wood, cow dung or cereal residues for cooking and other household activities at the expense of her health, life, and even meaningful participation in non-household activities that are relevant for the country's development.

When one considers all these, it becomes obvious that women are at the receiving end of the unreliable energy sources. The following account captures all this properly:

> *"The responsibility for household energy use affects women's health disproportionately to men's (for example, higher levels of lung and eye diseases due to the longer hours of exposure to smoke and particulates in smoky kitchens experienced by women compared to men). Wood fuels collection also reduces the time women have available for contributing to other aspects of livelihood strategies and girls are frequently kept away from school to assist their mothers. Women are also responsible for a number of other survival tasks needed to sustain the household such as water collection, transport, food processing and cooking. Many of these tasks are demanding in terms of both human energy and time; the preparation of many staple root crops and grains takes upwards of an hour of vigorous pounding"* (Songela, 2006, p. 19).

This account captures one of the main issues that have been affecting women in rural Tanzania as a result of the use of unhealthy energy in their daily domestic activities. All these are but some of the multitude of challenges that women face as a result of unreliable and unsustainable energy sources.

This study is framed in the Gender and Development (GAD) approach. GAD approach emerged in the 1980s in response to the weaknesses of Women in Development (WID) approach. While WID emphasized about women as if gender was all about women, GAD expands the concept of gender as a social construct involving relations between men and women. The critiques raised by GAD over WID revolve around the fact that WID excluded men by focusing only on women forgetting that men were the main bearers of women's marginalization and subordination. GAD specifically works on three principles: focus on practical and strategic levels to bring about change in gender relations; involving men and women to change gender relations; and taking a broader and historical view of gender relations (World Vision Australia, n.d., p. 60). According to Tasli (2007, p. 2, 23-24) and Bradshaw, Castellino, and Diop (2013, p. 3) GAD approach emphasizes gender mainstreaming so as to integrate women's concerns in the design, implementation and evaluation of all socio-economic and political policies, projects and programmes. It approaches gender relations in the totality of the complex environment of socio-economic and political structures. Our study assesses rural electrification in Tanzania in the context of gender mainstreaming. To understand the extent to which rural electrification integrates gender-energy specific needs in its design and implementation the GAD approach seems to be well suited. This is because rural electrification is both a development and gender issue that needs to be approached from the perspective of gender and development. Any study of rural electrification must consider the socio-economic and political issues that determine who and how energy decisions are made at the household level. There is no suitable approach to understand this other than GAD. Looking at socially determined gender roles it appears that women play triple role in most families if not all. These are reproductive, productive and community roles. While most of women are facing this triple burden, unreliable supply of energy may add on the burden they are already experiencing. In relation to rural electrification in Tanzania the GAD approach is chosen to enable the analysis of gender and energy nexus challenges to see if the strategy can help in reducing the burden to women.

3. Results, Analysis and Discussion

3.1: Rural Electrification, Health Related Risks and the Killings of Alleged Witches

Results indicate that rural women have been facing a myriad of health and life risks as a result of unreliable energy sources. Years of exposure to unreliable energy sources have positioned women in a much more precarious health and life situation. Thus, modern energy services designed for electrifying rural areas come at a time when they are greatly needed. The quibble remains on whether they can resolve these health and life risks and challenges that women have endured over time. As for rural Tanzania, the great majority of the informants expressed strong personal feelings over health problems they are facing as an outcome of unreliable energy sources. Walking long distances to find fire woods, family influences especially from their husbands were factors affecting their daily lives. Some mentioned family conflicts emanating because of mistrust.

> *"You know we walk long distance to fetch fire woods. You gather enough to sustain you and your family may be for a week, again another week you do the same. We carry large bundle of firewood on our heads, when you reach home the whole body is exhausted and severe headache and chest pain. At the same time you have to prepare food, and engage with other family activities. So I think rural electrification may help us reduce some burden somehow although the cost may be a problem, but at least you can say let me use electricity for once"* (Shinyanga 1)

This informant illuminates us that it is still not clear whether rural electrification may help reduce the burden of unreliable energy sources to women. The main concern raised here is the cost of electricity and its affordability to the rural poor. All informants from Kilolo and Shinyanga were of this view that even if all rural households are electrified, the possibility that this may help in reducing energy challenges is unlikely because of higher costs. According to Uisso and Mwihava (2005, p. 6), the poor spend more than 35 per cent of their household income on energy while the richer spend about 14.45 per cent. These statistical variations clearly mark rural areas as victims of the situation as opposed to urban areas because the majority poor are found in rural areas. Although the government has clearly stated that electrifying rural areas is a means to rural modernization and transformation (MEM, 2013b), it appears that a situational analysis to examine the economic capability of the rural population was not adequately done. The government has cut down the costs of energy installation for rural households to USD 111 to enable many have access to modern energy services (Muhongo, 2013) but the basis on which this was done is not plainly stated. This means that electrifying rural areas where most of the poor live may not be a solution to energy challenges that face women.

Energy challenges change with changing seasons. It was noted that energy challenges are more critical during the rainy seasons where access to reliable energy becomes difficult. Some opportunists use this period to maximize profit in the great demand of others and therefore this adds burden on an already overburdened woman:

> *"Unreliable energy affects us severely during planting seasons, the prices are high. And because we don't have other sources of energy we are forced to work hard. Psychologically, this has problems on us. Children are crying, our husbands are asking where the food is. So as a woman you have to use all means*[iii] *to make sure your family gets food on time. As you see I have a little kid here, she doesn't understand if there is no firewood"* (Shinyanga 2)

This response indicates clearly that patriarchal relations still dominate in most rural households.

Regarding health risks posed by unreliable energy, some informants expressed their psychological sufferings as they think that the challenges of unreliable energy make them very tired and look older than their actual age. In fact, some of them looked as if they were in their mid forties when their actual age was in the thirties. This was even observed as we interviewed these women. For example, while of the age of 35 years, one of our informants looked as if she was 40 to 45 years. She openly expressed how bad she felt over her early aging. This is understandable given the fact that aging is usually associated with decline in performance and attractiveness (White, 1988). Although there may be various reasons for early aging, it remains obvious that psychological sufferings that women face as a result of unreliable energy sources makes them constantly unhappy something which may result to other health risks. This even

goes beyond the triple role burden argument that most scholars have advanced; it is a new burden added on the triple roles that a woman plays in the household.

As far as resolving the challenges posed by unreliable energy sources, many informants were pessimistic on whether rural electrification can do so. A common running argument was that the costs of electricity are too high to be affordable for the majority of rural women. Many believed that installing and using electricity for cooking and other domestic activities would require one having reliable financial resources to be able to pay for the costs. This resonates quite well with an argument that off-grid energy projects in Africa face the challenge of low average income of the targeted consumers (the rural population in this case) (Adomakoh, 2012). This means that without addressing income challenges, rural electrification is unlikely to alter the energy related gender injustices that rural women have endured for so long. Moreover, it is true that the costs of distributing electricity to rural areas are enormous (Wamukonya 2002; Kassenga 2008; Sosovele 2010) so much that it would be very difficult for the majority of the rural population to afford them given their poverty. In spite of the fact that many respondents cited high energy costs, the actual costs involved in using modern energy such as electricity for cooking were beyond their knowledge. They were just talking from experience that if many beneficiaries of electricity do not use it for cooking then it must be expensive. The problem here seems to be lack of knowledge and information about the use of electricity and other modern energy sources like solar energy. As will be discussed in the next sub-section, there is a very serious lack of citizen participation in design and implementation of energy policies. Although there seems to be a knowledge gap, experience from a study conducted in South Africa shows that households connected to electricity hardly used it for cooking mainly because it is considered expensive (Green and Zwebe 2004, p. 7). We believe this is not any different from Tanzania. This calls for concerted efforts by the government and other development stakeholders to think on the ways rural electrification may be made accessible and affordable to many rural people. Reducing the costs of installation and utilization may be a desirable short term strategy but it cannot be sustainable because it is very difficult to reduce costs to the satisfaction of many while at the same time ensuring the sustainability of the rural electrification projects. Rural electrification needs to be done alongside economic empowerment of the rural population, especially women so that with time they can be economically independent to afford the costs of electrification. This can be done through improving rural transport and communication infrastructure and promoting economic diversification away from agriculture and ensuring markets for rural products are readily available. Providing financial services to rural women through their entrepreneurial groups and supporting mobile financial services in rural areas are some ways that can empower women financially to offset the challenges of energy costs.

In relation to the opinions expressed by many of our informants in rural Shinyanga regarding energy challenges and how they affect their daily lives, it was noted that the use of fire wood, charcoal, and maize stalks, and cattle dung compounds superstitious beliefs in rural Shinyanga, thus putting women in danger. Consider the following response, for example:

> *"... But sometimes when we don't have charcoal we use cattle dung and this is the problem because they produce a lot of smoke than fire wood. As you were hearing in the past days all women with red eyes were labeled as witches and they were killed. So if we don't have reliable energy it is a problem to us. For instance these days we don't go to the bush we used to gather firewood from because the village government has prohibited*

us. So imagine what are we going to do? My family needs food, and especially my husband[iv] *when he comes home he expects me to have cooked, what am I going to use? Really there are so many intimidations we are getting"* (Shinyanga 4)

In relation to the GAD perspective which guided our study, the above responses from our interviewees indicate that gender relations have not changed for better. Unreliable energy sources encourage men to continue subordinating their wives and this makes women more vulnerable to numerous health and life risks. In both Kilolo and Shinyanga, it appears that the responsibility to fetch firewood remains in the hands of women. Unfortunately, in Shinyanga, lack of reliable energy sources adds a burden to women of being accused of witchcraft just because their eyes have been reddened by years of cooking in unventilated kitchens using smoky firewood and cow dung (Minja 2011). Statistics from Legal and Human Rights Centre (LHRC) show that on average, more than 500 people are killed yearly over witchcraft allegations (Minja 2011). It is further reported that more than 3,000 people were killed in a period of six years from 2005 to 2011 (Huffington Post 2012). In Shinyanga alone, 242 people were killed because of local beliefs in witchcraft between January 2010 and January 2011 alone (Huffington Post 2012). This is indeed a serious threat to women and their lives. Certainly, something needs to be done to save the lives of these women. Knowledge and awareness creation should be streamlined in government and civil society organizations' plans and strategies for rural development. This must be made a permanent strategy because it would take some time before such beliefs are completely arrested. Diversification of energy sources can be another way to save the lives. This would lower the costs of energy and make rural women have enough choices for energy. However, all these need to be done alongside economic empowerment of the rural women so as to set them free from the bondage of poverty.

3.2: Gender Mainstreaming in Energy Policies and Energy Projects in Rural Tanzania

Gender mainstreaming in all development projects and plans is considered to be a proper approach for ensuring gender equality by making both women's and men's concerns and experiences integral to the design, implementation and monitoring and evaluation of all development policies (UN WOMEN, 2013). It follows therefore that the success of any energy project, plan, strategy or policy depends mainly on how it integrates women's and men's concerns and aspirations. As for rural electrification in Tanzania, evidence suggests that energy projects are not adequately gendered as opposed to the government's claims to mainstream gender in all development plans/strategies. Results from our field study reveals that gender energy specific needs of women have not been satisfactorily tackled. It was expressed by many interviewees that the state has not done enough to allow rural women participation, and if it does, this was something common in urban areas:

"Do they even care about us? I did not see any leader coming to ask of my views on the issue.... They do not involve us. We just see TANESCO [Tanzania Electric Supply Company] installing electricity in rural areas, we don't know who and how decisions were made" **(**Kilolo 3**)**

This shows how rural women have not been involved in the design and implementation of rural electrification. The results are in tandem with what the NORAD report (2012) concludes that gender issues have not been systematically developed or institutionalized despite some positive gender relevant actions. It follows that, gender mainstreaming in the design, formulation and

implementation of rural electrification was not adequately done, at least in the rural areas. That is why all our informants reported to either not have heard anything about rural electrification or to have heard about it from a friend or media reports. Gender specific energy needs of women in rural areas were, therefore, not accorded significant consideration in the planning and execution of the project. If they were, then the process was not inclusive. Although we did not interview men to see how well they are informed, our findings indicate that rural women are not aware of how and why the government has invested in rural electrification and what this means to them. Of course, experience shows that men are well informed as compared to women. For example, a study conducted in Zanzibar on media sector mapping revealed that men are more informed than women on issues of good governance and governance policies (Tanzania Media Women's Association [TAMWA], 2013). The following quotation from one of our informants responding to the question on how she got to know about rural electrification sums it all:

> *"...first of all I hear such things from you here today. I have never heard anything about rural electrification or energy policy. And if there is something like that, then we in rural areas are excluded. There is limited opportunity to participate. The leaders are not allowing us to participate enough to express what we need and how should the energy sector look like"* (Shinyanga 5)

Looking at REA also reveals that gender-energy needs were not prioritized when designing and executing rural electrification. Rural Energy Agency (REA) is responsible for rural electrification. Its core vision is to transform rural livelihoods through provision of modern energy services and its mission is to promote and facilitate availability and access to modern energy services in rural Mainland Tanzania (REA 2012). To fulfill these, REA does the following:

- Promote, stimulate, facilitate and improve modern energy access for productive uses in rural areas in order to stimulate rural economic and social development.
- Promote rational and efficient production and use of energy, and facilitate identification and development of improved energy projects and activities in rural areas.
- Finance eligible rural energy projects through REF.
- Prepare and review application procedures, guidelines, selection criteria, standards and terms and conditions for grants allocation.
- Build capacity and provide technical assistance to project developers and rural communities.
- Facilitate preparation of bid documents for rural energy projects (REA 2012).

A critical look at all these reveals that what they are mostly interested in is to increase the number of people accessing energy in rural Tanzania and not addressing gender energy needs. Although increasing access to modern energy services cannot be underestimated, this alone cannot address energy challenges that rural women face. This is because increasing access o modern energy services cannot alone address the root causes of gender injustices related to energy. This is confirmed by one of the TANESCO officials who had the following to say about rural electrification:

> *"With rural electrification, what we want to achieve is to increase the number of rural households accessing modern energy services. The government is committed to achieve a*

target of increasing people's access to electricity to 30% by the year 2014/2015 and rural electrification is one strategy to achieve the target" (TANESCO official 1, Kilolo)

The above responses also show that there is a participation gap as all women interviewed claim not to have participated in the programme in any way. While GAD emphasizes involving men and women to change gender relations (World Vision Australia n.d.), the practice of rural electrification points to the contrary. Some informants attribute this to patriarchy and limited women participation and presence in politics and decision making organs:

"There are no enough women representatives in decision making organs. Much of what women need remain unknown to decision makers. Parliamentarians are partisan when debating issues in parliament which limits making our gender-energy needs addressed in many energy policies and projects" **(**Kilolo 4**).**

A somewhat similar argument is raised by a TANESCO official who thinks that REA has done little to empower women in energy:

"It is true that REA has played a great role to supply electricity to rural areas but because of resource constraints and high energy needs it appears that the government has put less efforts to empower women. However, we are thinking about gender in most of our energy programmes." (TANESCO Official 2, Shinyanga)

In reference to the quotations above, it is evident that rural electrification has not adequately integrated rural women's concerns and needs in the design and implementation of the project. The consequence of this is a continuation of a general trend of limited women participation in various social, political and economic issues in Tanzania. This is the situation in both Kilolo and rural Shinyanga where our study was conducted. Looking at broader and historical view of gender relations in Tanzania, the customary laws that have been giving men more power and control over resources and decision-making processes (Losindilo, Mussa and Akarro 2010) still dominate. Instead of rural electrification addressing this anomaly, it has just marginalized women in its design and implementation.

3.3: Women's Perceptions on Rural Electrification Project

Electrifying rural areas was an idea which all interviewees subscribed to. Many see it as an opportunity for rural development and transformation. Having access to electricity was thought to be a means to women empowerment and economic freedom. It was expressed by the informants that having reliable energy would give them an opportunity to engage in other economic activities that would guarantee their freedom and liberate them from bondages of patriarchy.

"You know as women we have so many small business projects which sustain our living and if there is no reliable energy sources it affects production. It takes time and higher costs to find alternative energy sources. At the end of the day even the small projects we have end up declining" (Shinyanga 6)

Other benefits associated with rural electrification include improvement of social services such as health and education because electricity acts as a pulling factor towards attracting and retaining workers. So, instead of people declining offers to work in rural areas electricity may

ultimately attract them to live and work there. Furthermore, the presence of electricity in rural areas is believed to create employment opportunities for the rural youth (in such areas as mobile phones recharging, hair cutting etc) thus, reducing the problem of rural-urban migration.

> *"I see it [rural electrification] as an opportunity for rural transformation especially in creating economic opportunities for rural population. For a long time young people have been running from rural areas to towns partly because of availability of electricity in towns. So, rural electrification may help solve this problem. It has the potential of helping us develop and get markets for our products. The project may also attract people from towns to come and invest in rural areas"* **(**Kilolo 5**)**

What our informants expressed about rural electrification is in line with arguments raised by Ahlborg and Hammar (2011) who are of an opinion that access to and use of electricity is of benefit to people in both developed and developing countries and more so to the rural areas. They also opine that 'while electricity may not bring development on its own it is a highly desired commodity and a prerequisite to rural development in long term perspective' (Ibid, p. 2493). Moreover, it is argued that,

> *"[a]ccess to modern energy services particularly electricity, is not only a pre-requisite for agreeable living standards, but it is also an indispensable input for productive, economic and improved social services. The positive impacts of electricity for the poor in rural areas are basic activities such as pumping water for drinking and irrigation purposes, lighting for extending working and studying hours and powering small-scale rural industries"*(Sawe 2008, p. 1).

Therefore, as the above analysis indicates, rural electrification brings a multi-sectoral impact in rural areas. Such sectors where rural electrification has a great impact are education, health, financial transactions like mobile money transfer; barber shops, cereal milling shops, and the like. In all these sectors rural electrification can potentially reduce energy costs, create employment opportunities and ultimately reduce rural poverty. It, therefore, plays a role as a catalyst for social, economic and productive improvement. It is undeniable that the presence of electricity in rural areas creates opportunities which may help to reduce women marginalization and subordination. Although rural electrification is not a panacea to the various challenges women face, we argue that it is very vital for their gradual empowerment and reduction of the burdens they face in their daily lives. Interviews cited above confirm this.

In spite of the fact that many informants were of the view that rural electrification is very significant, it was noted that the government has not done its best to offer various energy sources choices to rural populations. From our observations in the field sites it was noted that most of the rural houses were surrounded by bundles of fuel wood, cow dung, absence of electricity connectivity, and even where connectivity was available, it was mainly the hydro based electricity. Other energy sources like solar and cooking gas were generally absent in the areas we visited. Significantly, this indicates that energy diversification in rural Tanzania is still underdeveloped. Some views were pointed out that, if the government will introduce other new sources at reasonable prices, the majority of women could use them as an alternative to hydro-electricity which seems to be expensive. All our informants insisted that limited energy choices make rural electrification unable to resolve energy challenges that women face mainly because

electricity is too expensive for them to afford. Asked of whether rural electrification can resolve energy challenges facing women in rural Tanzania, one of the informants was straight forward:

> "*Tohoo*[v]*. It cannot resolve energy challenges because costs will be high. The government has failed to involve us women to realize our energy demands. If the costs are lowered to enable us poor women to use electricity for cooking and for other usages, then it can somehow resolve the challenges"* **(**Shinyanga 3**)**.

Our field observation proves what our informants told us. We noted that many of the households we visited in both Kilolo and Shinyanga (18 of 20 households) had electricity installed or used gas or other energy sources for various activities. Even the two which were connected with hydro-electricity did not use electricity for cooking. Many households were surrounded by bunches of firewood, cow dung, maize stalks, cereal residues and, a few of them, charcoal. So it is evident that limited energy choices continue to pose serious energy challenges to women. Rural electrification may offer some remedy but if energy diversification is not done, the project is bound to fail to alter gender-energy challenges because costs will be too high for many to afford. As pointed out earlier, this affordability challenge needs to be addressed if rural electrification has to bear fruits to women. Engaging women in income generating activities such as arts and crafts, petty trade, poultry, and the like as well as creating enabling environment for investment in rural areas would surely curb energy cost challenges.

3.4: Rural Electrification and Gender: the Challenges

There is no doubt that rural electrification faces challenges. Our study reveals that several challenges abound with the implementation of rural electrification. From the perspective of our informants, there are so many challenges facing rural electrification as far as gender is concerned. Most of the challenges relate to participation and decision-making. Our interviewees claimed that women are regarded as takers of what has been decided by men. This appears to exclude very important energy stakeholders as noted below:

> *"The government has failed to involve women in decision-making while energy sector touches women directly. The problem is because of patriarchal practices. Women are placed as decision takers and men as doers. I am a good follower of media; I have not come across news telling about women participation in policy and decision-making on energy sector. The state forgets that women are controllers of everything in many households"* (Shinyanga 6)

Looking at what has been described from the above quotation, it is vivid that rural electrification strategy to empower women through distribution and supply of reliable energy encounters several challenges. These include structural challenges embodied in socio-cultural practices that marginalize women in decision making and access to resources, limited knowledge, high energy costs and policy laxity. According to Uisso and Mwihava (2005); Damhaug (2009) and Sosovele (2010), energy challenges range from policy to participation into different levels. Limited integration of women energy needs may be hampered by unidentified leadership positions which could help to pinpoint women energy needs. Given the fact that wood fuel account for about 90% of energy used nationally (Uisso and Mwihava, 2005), the challenge remains on how to improve access to variety of reliable sources of energy. It is further argued by Lyimo (2007, p. 4) that:

> *"[e]ven with rural electrification the impact on income-generating activities among users would remain low. Even if electricity was to be supplied on a 24-hour basis, it is unlikely that there would be a change in usage levels; the predominate [sic] reason being that the rural poor do not have the tools and knowledge necessary for effective use".*

Therefore it is apparent that, challenges arising from knowledge scarcity to usage of rural electrification may hamper women emancipation in the energy sector. Although the Energy Policy clearly states that women will greatly be involved in any issues concerning energy so as to empower them and help resolve the challenges of energy they face (URT 2003), our interviews with rural women indicate that this has not been the case. Many of our informants said they either had not heard anything about rural electrification or that they heard it from friends. This means that translating policy statements into practice has largely been a challenge with regard to the energy sector.

Another important issue that came out of our informants was concern over the supposedly high energy costs that rural women cannot afford. All our key 20 informants mentioned this as the single most important challenge to their access and use of reliable energy sources. Some went to the extent of saying it may be possible to install electricity in their homes but not to use it for cooking, for example. Asked of whether rural electrification can resolve energy challenges, one of our informants had the following to say:

> *"Yeah, of course if it is lighting then it can. But for cooking we still face the same challenges. Who can afford cooking using electricity if buying charcoal and fuel wood is itself not always possible?"* **(**Kilolo 6**)**

Rural people's concern over high energy costs is not born out of ignorance. According to the Ministry of Energy and Minerals budget speech, the cost of installing electricity to rural households is USD 111 (Muhongo 2013, p. 24-25) (equivalent to 177,000 Tanzanian shillings)[vi]. Although this may be regarded as less costly, the fact that about 40 per cent of the rural population lives below the national basic needs poverty line (URT 2011, p. 5) and that 80 per cent of the country's poor live in rural areas (World Bank 2013) give credence to our informants concerns. If statistics speak for themselves, then this is an indication that electrifying rural areas is not something that can easily resolve gender energy challenges unless the government is prepared and committed to diversify energy sources for the rural poor and seriously working on strategies for rural income poverty reduction. As noted above, rural electrification is a very commendable strategy for rural development and transformation; but as far as gender is concerned, there is still a long way to go with the current poverty levels.

3.5: Rural Women and Future Energy Aspirations

Access to reliable and affordable energy sources is thought to be the best strategy for empowering women and resolving gender energy challenges they face in their daily lives. Many informants aspire having reliable energy sources. Most of our informants expressed concerns on women participation in new systems of energy apart from rural electrification. Thus, the main issue is not only having access to reliable and affordable energy sources but also taking into consideration gender specific energy needs and involving rural women in all energy issues and processes. It was thought by many that electrifying rural areas is not enough to reduce energy complexities in their places; more needs to be done:

> *"It is time now for the government to get directives from us (we women). The government does not value women; they are not getting opinions from rural areas on what we need. Mass education is needed about other sources of energy like cooking gas, reduce prices to enable us access cheaper energy. Women participation should start at grassroots level, and if there are seminars regarding energy policy making, these should focus on rural women, and not in urban areas"* (Shinyanga 6)

The above quotation presents a challenge to the government and energy stakeholders to think critically on how they integrate gender issues and needs in the design and implementation of energy projects. It leaves us with a very critical question on whether or not the government goes down to rural women to learn of their challenges and needs before coming with policies and energy projects for electrifying rural areas. Currently, REA is working with the World Bank (WB) to integrate gender issues in the design, implementation and monitoring and evaluation of energy projects (URT 2013). REA is training its staff to implement identified gender issues in energy projects. It is also strengthening its gender specific focal unit (Ibid). These efforts are commendable but they are by no means enough to address gender energy challenges in rural areas. As the above informant opines, the success of REA's efforts will depend on how the agency goes down to rural women to learn of their needs, aspirations and perceptions and how it integrates these in its energy projects. It is important to note that empowering women in rural areas is not only about bringing them electricity or thinking on their behalf on what is good for them, it is also about giving them freedom to decide on what they want. As the following informant notes, trainings and awareness campaigns are very relevant for the success of any energy project in rural areas.

> *"I urge the government to conduct seminars to many women so that they understand other sources of energy instead of sticking only on one source of energy. For instance many women still believe gas is very dangerous for cooking. Also on my own knowledge, I believe any well-off person has freedom to use any type of energy;* ***it has nothing to do with gender*** *[emphasis ours]. So I think it is time for the government to involve women to know other sources of energy, it will help women. Otherwise, we will remain to be women forever*[vii] *and men controllers..."* (Shinyanga 7)

The informant aspires to learn and be informed of energy issues as a means of helping women resolve energy challenges they are facing. She understands that energy is vital for the emancipation of women but that more needs to be done on educating women on the various sources of energy. Although, capacity to afford financial costs of energy is the major constraint for rural electrification to tackle gender energy injustices, it is observed that educating women on energy issues is desirable. Further, the informant challenges the government to tackle the problem of patriarchy in societies as a step to making access to and use of reliable energy sources of meaningful impact on women energy needs. More important is the fact that some of our informants still lack knowledge about gender issues and their connection with energy. The above informant is a reflection of such people. She desires to see women oppression and marginalisation prevailing in society ending and women taking leading role in decision making but she has limited knowledge on gender and energy. This is what makes training and awareness rising on issues of gender and energy very relevant for the success of rural energy projects. Emancipating women from the strips of energy poverty requires making them aware of their

situation and learning from them of their needs so that designed energy projects would be of benefit to them.

4. Conclusion

Access to affordable and reliable energy sources in rural Tanzania remains one of the best ways to rural transformation and development. Current efforts by the government of Tanzania through its Ministry of Energy and Minerals and its Rural Energy Agency (REA) to electrify rural Tanzania are commendable. This paper has demonstrated without doubt that, from the perspective of our informants and available literature, rural electrification is vital for rural transformation and development. Our research indicates that rural electrification is a gateway to various socio-economic transformations in rural Tanzania. Such aspects as employment opportunity creation, rural-urban migration mitigation, and promotion of social services by attracting potential servants to rural areas, attracting investors in rural areas and lighting rural Tanzania are associated with rural electrification by many of our informants.

Significantly, it is noted also that gender energy challenges remain adamant in Tanzania. While rural electrification is commendable and encouraged, our study reveals that resolving energy challenges facing rural women in Tanzania requires more than just electrifying rural areas. For rural electrification to have any meaningful impact on the gender energy challenges, gender specific energy needs require to be identified and mainstreamed in the design and implementation of rural electrification projects. Although REA has worked with the World Bank to mainstream gender in energy programme design (URT 2013, p. 7-8), evidence from our field research has confirmed beyond reasonable doubt that women energy needs have not been properly and adequately integrated in the design and implementation of rural electrification. As argued in the paper, this is confirmed by the fact that majority of our informants are less informed about rural electrification. This means that rural women have not been consulted to learn of their energy needs and challenges so that these could be integrated in the design and implementation of rural electrification. Of course there is still opportunity for improvement given the fact that rural electrification is just taking off in Tanzania. REA would therefore have to go down to rural women, among other energy stakeholders, to learn of their challenges and needs so they can be integrated into the various energy projects. The best approach here is to put women at the forefront of rural energy plans and ensure that they participate in the design, formulation, implementation and monitoring and evaluation to achieve desirable outcomes. Doing so will ensure that rural energy projects are community owned and an outcome of their needs and not what the government thinks is best to do.

Furthermore, our findings indicate that for rural electrification to resolve energy challenges, especially those related to cooking using fuel wood, cow dung, and other unsustainable sources, costs for installation and use of electricity for cooking must be brought down. Despite the fact that the government has brought down costs for electricity installation in rural areas, many still believe that it is too expensive for the rural poor to afford cooking using electricity. Despite being real, this argument is compounded by the fact that many of our informants are not well informed of the use of and the real costs involved in cooking using electricity. This challenges the government to design awareness programmes to the rural people. It is not enough to increase the number of households accessing electricity to 30% by 2015; this should go hand in hand with awareness creation and promotion to the rural people. Higher electricity charges and costs should also challenge the government and energy stakeholders to think on how to bring this down. This

is even compounded by the fact that rural people do not have enough reliable energy choices. All our informants explicitly stated that the government has not given them enough energy choices to enable them resolve gender energy challenges. We thus urge the government and the entire energy sector stakeholders to work on this. One way of doing this is to diversify energy sources for the rural areas instead of depending mainly on hydropower which is unreliable given the current challenges imposed by climate change and variability. Other potential energy sources would be solar power, natural gas, biogas and cost effective and environmentally friendly wood stoves. This can best be done if the government continues to nurture public private partnerships by creating conditions that attract more private investors in the rural energy sector. It is our argument that the diversification of energy sources will provide rural population with adequate energy choices given the alternatives presented to them, thus bringing down the costs. Ultimately, women who are overburdened by cooking energy can reduce time, expenditure, respiratory diseases due to smoke, accident risks associated with collection of firewood in the forest and burning while cooking (Ngoo, 2004, p. 10).

From the findings of our study based on the Gender and Development perspective, it appears that rural electrification has failed to make use of gender mainstreaming in the design and implementation of rural energy projects. Although gender mainstreaming cannot resolve energy cost challenges, it is vital in making women's concerns and needs known and integrated in energy projects. By making them known, the government will have to respond to them and design rural energy projects alongside other strategies to resolve the challenge of costs. Whereas GAD emphasizes working with men and women to iron out different gender issues in development projects, rural electrification has not adequately worked with women to identify their energy needs and challenges. Moreover, patriarchal practices which have for so long marginalized and oppressed women in rural Tanzania are still prevalent. This indicates that rural electrification may not have approached the challenge of energy in rural areas from a holistic and historical approach. This challenges the government to reflect on its rural energy strategies and plans so as to improve the future energy projects. As for the current energy projects, it is evident that they have not successfully integrated women's gender specific energy needs. As per our findings, REA has mainly focused on the quantitative side of rural electrification with little emphasis on addressing the gendered aspects of rural energy. This should be a lesson for REA to seriously and adequately make gender energy needs of women central to the design and implementation of any future energy projects.

In view of the above conclusions, we recommend the following to be done in order to make rural electrification gender sensitive and responsive for rural development and transformation:

- Going down to rural people, especially women, to learn of their energy needs, challenges and expectations and mainstream these in all energy policies, plans, strategies and projects. The government should not in any way try to think on behalf of rural women and men about what is good for them. Energy projects and plans should be informed by the needs and expectations of women and other energy consumers;

- Awareness building to rural women and men about the use of different sources of energy, the costs involved and the likely benefits of sustainable and modern energy sources vis-à-vis traditional energy sources;
- The government should focus more on rural women participation in energy policy making and implementation. Increasing the number of women in energy sector and

decision making bodies is commendable but not enough to ensure women energy concerns are addressed.

- Moving from papers to implementation is very important to realize the good things contained in policy statements about gender-energy issues.

NOTES

[i] www.tanzania.go.tz/home/pages/219 accessed 27/12/2013.

[ii] Sukuma is a vernacular language spoken by one of the tribes found in Western part of Tanzania. The country has more than 126 ethnic tribes.

[iii] The informant expressed her idea by saying that sometimes they end up on debts where they have to borrow money from friends without the knowledge and consent of their husbands. What matters to her is to see the family gets food. And this sometimes has placed women to be in conflicts which their husbands have no idea on what the source is.

[iv] To the Sukuma tribe, women expressed feelings that taking care of their husbands should be priority number one and that is the essence of their marriage. Looking at this statement the Sukuma women face these bad traditional practices.

[v] A Sukuma word that means 'no'. the informant mentioned this word when asked about whether electricity could resolve energy challenges stressing and showing doubt on the rural electrification strategy.

[vi] 1 USD= TZS 1592 as of 25th October, 2013. http://bot.go.tz/. The currency exchange rates do normally fluctuate; therefore it is subject to change.

[vii] This could be interpreted to mean that if the current state of affairs remains the same, women will continue to be marginalized. The statement also indicates that the informant is dreaming/aspiring a world where women are not just takers of decisions but also decision makers and drivers of their own lives.

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