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by Tracy Sidney Commodore

Introduction

Energy resources are essential to the sustainability of livelihoods in cities, hence discussion on energy access in cities has assumed global significance¹. Men and women are without doubt both beneficiaries of energy consumption²; however, they do not have equal access to this resource³. Studies show that energy service has different impact on men and women resulting in differential economic and social impacts on each group⁴. According to Reeves & Baden such differential impact is linked to the different responsibilities accorded to men and women in society⁵.

¹ S. Meikle and A. Bannister, *Energy, Poverty and Sustainable Urban Livelihoods*, Working Paper no. 126, Development Planning Unit, University College London 9 Endsleigh Gardens, London WC1H 0ED, 2003.

² M.B. Orlando, V. Lopes Janik, P. Vaidya, N. Angelou, I. Zumbyte and N. Adams, *Getting to Gender Equality in Energy Infrastructure: Lessons from Electricity Generation, Transmission, and Distribution Projects*, World Bank, 2018.

³ E.W. Cecelski, *Energy and Poverty Reduction: The Role of Women as a Target Group*, Debate on Sustainable Energy in Danish Development Assistance, Copenhagen, Landstingsalen, Christiansborg, 2000.

⁴ African Development Bank Group, *Empowering Women in Africa through Access to Sustainable Energy: A Desk Review of Gender-focused Approaches in the Renewable Energy Sector*, in «Gender and Energy Desk Review», 2016. Retrieved March 20, 2020, from <https://www.google.com/search?q=Empowering+Women+in+Africa+through+Access+to+Sustainable+Energy.+A+desk+review&oeq=Empowering+Women+in+Africa+through+Access+to+Sustainable+Energy.+A+desk+review&aqs=chrome..69i57.60210j0j8&sourceid=chrome&ie=UTF-8#>.

⁵ H. Reeves and S. Baden, *Gender and Development: Concepts and Definitions*, Report no. 55, Bridge development-gender, Institute of Development Studies, University of Sussex, accessed 15, 2000, p. 13.

These varied responsibilities are grouped into practical gender needs and strategic gender interests. Practical gender needs are essentially the needs of men and women that relate to responsibilities and tasks associated with their traditional gender roles. Strategic gender interests, on the other hand, look at the position of men and women in a given society⁶.

Although both gender needs play a role in the discourse around energy access, energy has been known to be key in developing women's strategic gender interests⁷. Regardless of the considerable amount of literature which exists on issues of gender, poverty and energy usage⁸; the percentage of this literature covering low-income communities is relatively low. This has resulted in a neglect of the link between renewable energy technologies (RETs), gender and livelihoods in such communities.

As rightly noted in Clancy *et al.*⁹, energy is significant in livelihood development, especially for poor women living in deprived urban communities. Issues of notable interest include availability, affordability, accessibility, quality and safety in energy consumption as these can impinge on the health, time and financial freedom of women. Access to renewable energy technologies is essential to addressing these aspects of energy consumption. That notwithstanding, it is more important to study this area of research for the purpose of gaining knowledge on the feasibility and possibilities of the use of these technologies in low-income urban communities, as this will be important for determining its adaptability as well as improvements in women's livelihoods. It is against this backdrop that this paper

⁶ *Ibidem*.

⁷ J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus: Finding the Energy to Address Gender Concerns in Development*, DFID project CNTR998521, 2003.

⁸ *Ibidem*; A. Panjwani, *Energy as a Key Variable in Promoting Gender Equality and Empowering Women: A Gender and Energy Perspective on MDG# 3*, London, UK Department for International Development (DFID), 2005, http://r4d.dfid.gov.uk/PDF/Outputs/Energy/R8346_mdg_goal3.pdf; J.S. Clancy, F. Ummar, I. Shakya and G. Kelkar, *Appropriate Gender-analysis Tools for Unpacking the Gender-Energy-Poverty Nexus*, in «Gender & Development», vol. 15, n. 2, 2007, pp. 241-257.

⁹ J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus...*, cit.

seeks to develop a framework that will guide future research intended to understand the nexus between livelihoods, renewable energy technologies and gender in low income communities. This framework is intended to illuminate discussions on renewable energy use for livelihoods by suggesting possible areas that must be interrogated. The framework is also gender focused so that the specific needs and impact for men and women are also taken into account.

Connecting energy access, livelihoods and gender roles

Livelihoods are maintained and supported by energy, therefore making energy use an essential input in livelihood development¹⁰. In addition, access to energy is regarded as a fundamental human right¹¹. As evident in the Sustainable Development Goals (SDGs); specifically Goal 7, achieving affordable and clean energy is imperative for development. Energy is used in cooking food, boiling water, lighting and providing warmth in homes. Energy is also consumed for commercial purposes, for example cooking on a large scale for sale, operating machinery in businesses and for production, constructing buildings, and in transportation services. For public services one can also include electricity for health facilities, schools and street lighting.

With regards to livelihoods, scholarly discussions on gender roles highlight the differences in livelihood interventions for men and women and the corresponding effects. As already mentioned, the gendered division of labour as well as gender identities, create different energy needs and access to the resultant benefits. Notable in the literature is that the poor often use biomass as their main energy for domestic plus economic purpose¹², and

¹⁰ *Ibidem*; S. Nelson and A.T. Kuriakose, *Gender and Renewable Energy: Entry Points for Women's Livelihoods and Employment*, in «Climate Investment Funds», 2017, available online at https://www.climate-investmentfunds.org/sites/cif_enc/files/gender_and_re_digital.pdf.

¹¹ A. Zepeda, M. Salvador and J.E. Díaz Zepeda, *Energy and Human Rights: A Perspective from Mexico*, in «Journal of Energy & Natural Resources Law», vol. 35, n. 4, 2017, pp. 377-380.

¹² E.W. Cecelski, *Energy and Poverty Reduction...*, cit.; J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus...*, cit.; A. Panjwani, *Energy as a Key Variable in Promoting Gender Equality and Empowering Women...*, cit.

women are more often responsible for such practical gender needs and reproductive roles. Thus, they face the brunt and shoulder the burden when there is shortage in the supply of biomass¹³.

Reliability on non-renewable energy sources such as biomass, coal and natural gas for livelihoods presents some challenges for the sustainability of lives and the environment, even while they are also important in meeting the economic needs of low-income people¹⁴. According to the African Development Bank Group¹⁵, these challenges can be grouped under social and environmental challenges. Energy as a social challenge embraces the disproportionate access and consumption levels. This buttress the point on the different gender identities, needs, roles and responsibilities in every society. Thus, women and children in poor and low-income urban communities spending several hours a day collecting firewood/fuel implies that the time spent cannot be used for other livelihood and leisure activities. This is distinct from cases of men and wealthier households¹⁶. Asserted by Amigo-Jorquera *et al.*¹⁷, caregiving duties and unpaid domestic work by women contribute significantly to «energy poverty». Energy as an environmental challenge highlights excessive energy use and its effects on climate change¹⁸. For instance, cutting trees for biofuels results in deforestation, which is an environmental hazard. Also, the low fuel quality of biomass when burnt gives off quantities of smoke and particulates that are harmful to the atmospheric surroundings, thereby having negative repercussions on health.

¹³ E.W. Cecelski, *Energy and Poverty Reduction...*, cit.

¹⁴ *Ibidem*.

¹⁵ African Development Bank Group, *Empowering Women in Africa through Access to Sustainable Energy...*, cit.

¹⁶ A.K. Reddy, W. Annecke, K. Blok, D. Bloom, B. Boardman, A. Eberhard and J. Ramakrishna, *World Energy Assessment: Energy and the Challenge of Sustainability*, in «Energy and Social Issues», 2000, pp. 39-60.

¹⁷ C. Amigo-Jorquera, M.J. Guerrero-González, J. Sannazzaro and A. Urquiza-Gómez, *Does Energy Poverty Have a Female Face in Chile?*, in «Tapuya: Latin American Science, Technology and Society», vol. 2, n. 1, 2019, pp. 378-390.

¹⁸ African Development Bank Group, *Empowering Women in Africa through Access to Sustainable Energy...*, cit.

The gender-specific problems relating to the consumption and production of non-renewable energy cannot be overlooked as they are crucial in the developmental process of every society and country¹⁹. For example, the burden of biomass collection shouldered by women and children; women being poorer than men both in resources and time; women generally disadvantaged in terms of ownership and access to land, natural resources, credit, information and decision making at all levels; financial and time burdens associated with non-renewable energy consumption and supply at both the micro and macro levels. These are all evidenced in various studies across diverse geographical areas²⁰. Hence, the need for alternative energy sources that might relieve the burdens of consumers and suppliers, especially with regards to livelihoods.

Gendered livelihoods and renewable energy technologies (RETs)

In relation to the provision of energy, developing countries tend to suffer abject poverty in terms of total consumption plus accessibility²¹. Particularly, most poor urban communities face a considerable challenge in accessing clean and affordable energy, and this apparently leads to increased poverty in these areas. Here, poverty takes the meaning that the cost of using non-renewable energy – e.g. on their health, time and environment – may mask the gains that may be achieved²². A situation of «energy poverty» is also created since its availability in poor urban households is not assured²³. Energy poverty as defined by Winkler²⁴ as the «absence of sufficient choice

¹⁹ J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus...*, cit.; S. Nelson and A.T. Kuriakose, *Gender and Renewable Energy...*, cit.

²⁰ E.W. Cecelski, *Energy and Poverty Reduction...*, cit.; J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus...*, cit.; African Development Bank Group, *Empowering Women in Africa through Access to Sustainable Energy...*, cit.; S. Nelson and A.T. Kuriakose, *Gender and Renewable Energy...*, cit.

²¹ S. Munien and F. Ahmed, *A Gendered Perspective on Energy Poverty and Livelihoods – Advancing the Millennium Development Goals in Developing Countries*, in «Agenda», vol. 26, n. 1, 2012, pp. 112-123.

²² J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus...*, cit.; S. Nelson and A.T. Kuriakose, *Gender and Renewable Energy...*, cit.

²³ A. Zepeda, M. Salvador and J.E. Díaz Zepeda, *Energy and Human Rights...*, cit.

²⁴ H. Winkler, *Cleaner Energy Cooler Climate: Developing Sustainable Energy Solutions for South Africa*, Cape Town, University of Cape Town, 2011.

in accessing adequate, affordable, reliable, quality, safe and environmentally sound energy services to support development»²⁵. This affects the well-being of people as well as the socio-economic development potentials of a country²⁶. Recently, scholars in Ghana have established much interest in renewable energy consumption, especially towards electricity generation through solar grids. In addition, urban dwellers have been identified to be the main beneficiaries of renewable energies, however the majority of the urban poor in most developing countries generally do not benefit extensively. Ghana is of no exception.

Nelson and Kuriakose²⁷ assert that renewable energies have the potential for broad and far-reaching benefits, however they are found to be more effective when gender equality is taken into account. Thus, it is important to take note that not only do men and women have different energy needs and ideas about sustainable livelihoods, but they also have different access to resources and decision-making²⁸. As asserted by Clancy *et al.*²⁹, women's access to decision-making within households and communities is restricted, limiting their ability to influence processes and resource allocation on many issues, including energy.

Connecting the dots on renewable energy, gender and livelihoods: An analytical framework

Addressing low income communities' access to renewable energy should be the underlying discussion on issues relating to livelihoods and renewable energy. This must however be done taking cognisance of the peculiarities of the social, economic and environmental/geographical context. Also, stud-

²⁵ S. Munien and F. Ahmed, *A Gendered Perspective on Energy Poverty and Livelihoods...*, cit.

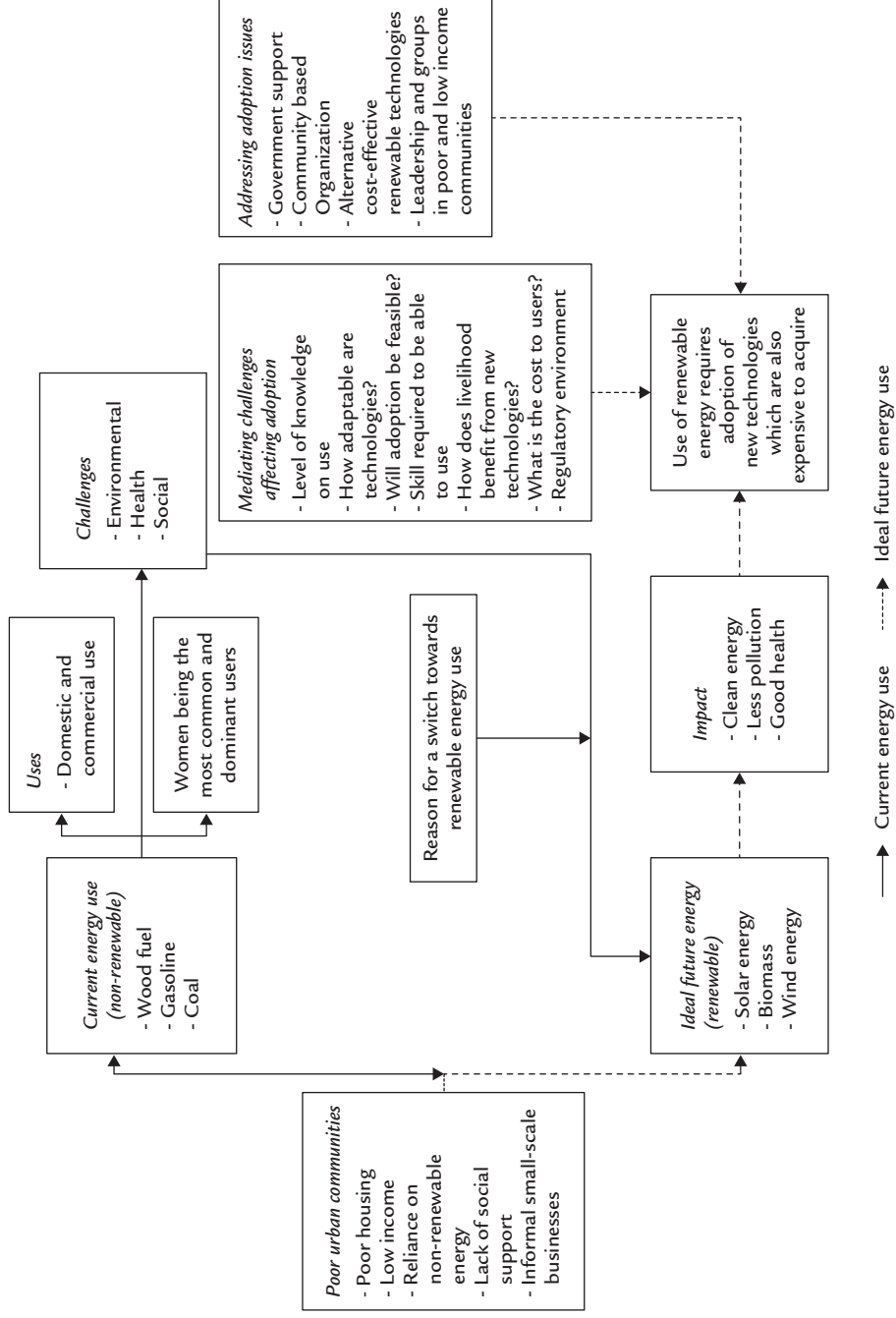
²⁶ C. Ong, *Choice of Energy Paths: Its Implications for Rural Energy Poverty in Less Developed Countries*, in «Society & Natural Resources», vol. 28, n. 7, 2015, pp. 733-748.

²⁷ S. Nelson and A.T. Kuriakose, *Gender and Renewable Energy...*, cit.

²⁸ J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus...*, cit.; S. Nelson and A.T. Kuriakose, *Gender and Renewable Energy...*, cit.

²⁹ J.S. Clancy, M. Skutsch and S. Batchelor, *The Gender-Energy-Poverty Nexus...*, cit.

Figure 1. Analytical framework for understanding renewable energy, livelihoods and gender.



Source: Author's Construct (2020).

ies often propose the use of renewable technologies to aid in the reduction of pollution and improve the health of its users (mostly women), however they fail in the implementation process due to cultural and social factors. This leads to the poverty trap issue, hence attention ought to be geared towards the implementation of renewable energy technologies. Examining the implications of energy poverty on the livelihoods of women is also central, and as gender sensitive issues that constrain access due to unequal power relations must also be taken into account. Figure 1 presents an analytical model that summarises the circumstances of the urban poor when it comes to energy access. It presents the current picture, which is essentially a reliance on non-renewable energy sources and the negative implications associated with uses of non-renewable energy technologies.

Renewable energy, which is presented as the ideal for the future, present positive impact on the environment as well as the health of people. It also presents an opportunity for people in low income areas to use clean energy through the use of new technologies. The problem, however, is how people living in low-income urban communities can access these technologies. For this to be interrogated in empirical studies, some of the following issues are suggested for the framework, including: knowledge and skill required to make them adaptable; will the adoption process be feasible; what will be the cost; will it fit within the regulatory regime or do we have the regulatory regime in place. The issues raised should be discussed within the context of gender sensitive discourses, and should try to answer questions about women's power in the household and society at large. Further, studies can also expand these suggestions to illuminate discussions on renewable energy technology usage. Lastly, the framework also suggest possible stakeholders whose engagement will be critical for adoption. This includes government (local and national), community-based organizations, leadership and groups in poor communities.

Conclusion

The aim of this paper is to develop an analytical framework that will guide studies researching renewable energy, livelihood and gender. Again,

it explored issues that may constrain accessibility, adaptability and usage of renewable energy in poor urban communities, justifying the need to prioritize these issues instead of potential constraints. The paper therefore recommends wider academic research into the gender dimensions in any sustainable energy programme or policy. Certainly, the specific gendered challenges and relevant issues such as «energy poverty» that will reduce feasibility, access and the practicalities of renewable energy technologies usage should be considered.

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