

# eCook and Gender

## 1 Introduction

---

Today, gender equality should be integrated into the goals of all development projects. The UN's Sustainable Development Goals (SDGs) are a universal call to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The SDGs came into effect in 2016 and set targets to guide UN policy and funding until 2030. The SDGs are interconnected making the success of one goal dependent on solving issues in another goal.

(Leary and Batchelor, 2018) state that “Currently only 16% of Tanzanians (9 million) have access to the national grid, however only 1% (600,000) use electricity as their primary cooking fuel” while WEF(2017) ranks Tanzania 68<sup>th</sup> out of 144 countries in terms of women's economic participation. Cooking is the main energy need of poorer households and lack of access to modern energy for cooking is a burden that falls disproportionately upon women. Achieving SDG 5(achieve to gender equality and empower all women and girls), very much depends on access to affordable and reliable energy,i.e. SDG 7.Women especially in Tanzania are estimated to work for 14 hours a day of unpaid household chores; fetching firewood, cooking, washing,farming(they produce 60% of all food crop). Without commitments and actions to address cooking energy concerns, women in Tanzania will continue to be oppressed, discriminated against and suffer the consequences of energy poverty(TANGSEN and HIVOS, 2012). eCook offers the potential to extend access to clean cooking to households in off-grid and weak-grid regions. As such, it directly addresses SDG 7, however it clearly has the potential to also make a significant contribution towards SDG 5. By considering the potential impacts of eCook on eachgender, we can understand how the positive impacts can be amplified and negative impacts mitigated.

### 1.1 Gender Mainstreaming

EIGE, (2017, p. 1) state that gender mainstreaming:“involves the integration of a gender perspective into the preparation, design, implementation, monitoring and evaluation of policies, regulatory measures and spending programmes, with a view to promoting equality between women and men, and combating discrimination”.This process ensures that policies and legislations consider the needs of all citizens; women and men, boys and girls.Energia, (2019) break down the key steps to achieving gender mainstreaming as:

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

- Assess the likely implications of specific projects on women and men.
- Build consensus among stakeholders on gender sensitive approaches.
- Determine gender goals and strategies for specific programmes or projects and designing activities to achieve these.
- Develop gender sensitive monitoring strategies.

TANGSEN is at the forefront of gender mainstreaming into the energy sector in Tanzania. They hosted the validation workshop for the Sustainable Energy for All (SEforALL) gender action plan, which had the goal of establishing equal opportunities for women and men in access to and control over sustainable energy services as an essential right to development. To achieve this goal, the workshop's specific objectives were:

- To effectively mainstream gender on SE4All related policies, strategies, plans, programs, projects and budgets.
- Promote women's employment and economic empowerment in the SE4All initiative.

J. Clancy (2017), says that the volume of research on the relationship between gender and energy is still relatively small although many efforts are being made to fill the gaps. Access to sustainable energy can transform the lives of both men and women in a lot of ways however, energy interventions are generally gender blind with little attention given to women's interests. Energy interventions impact women and men differently and without considering this, the policies made risk missing the key targets of the different roles played by women and men inside and outside the home which require different energy demands. There is evidence of gendered approaches at the project level, especially for the over-represented female headed households in the low-income categories and it has proved to have positive impacts on the livelihood of rural families. In these cases, gendered approaches have achieved increased connection rates.

## 1.2 Aim

To engender the eCook research, design and implementation processes to ensure that they yield the maximum possible benefits for both genders.

## 1.3 Objectives

- a) Identify the likely impacts of eCook on women and men, e.g. health, time saving and entrepreneurial opportunities

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

- b) Make recommendations for how eCook could have the biggest impact on quality of life for women and men around the world
- i) How could the positive impacts be maximized?
  - ii) How could the negative impacts be mitigated?
  - iii) How should the eCook research consortium carry out their research to maximise the participation of both genders in the research and design phases, as well as implementation?

## 2 Methodology

---

The findings presented in this report are based upon data obtained from the following sources:

- Literature review on gender and energy issues in Tanzania.
- Notes taken during personal interviews and a focus group with participants undertaken during the cooking diaries study; 20 participants were provided with new technology for cooking (pressure cookers, rice cookers, thermo-pots) and they were expected to record their cooking for a period of close to 3 months; with emphasis on energy readings, quantity and type of food being cooked.
- Analysis of gender-focussed questions from the choice modelling surveys.
- Experience from our local partner organization TaTEDO who have been working on improved cook stoves in Tanzania for several decades.
- Contributions from TANGSEN through interviews and notes from workshops.

## 3 Results

---

Energy poverty has a particular gender bias, especially in developing countries where women are generally primarily responsible for energy procurement and management, which tends to infringe on the time available for income generating, educational, self-improvement and/or leisure activities (Habtezion, 2013). Women and girls being the main energy producers in a family; they are burdened with the responsibility to source energy options for the daily needs of their families (TANGSEN and HIVOS, 2012). The wide use of biomass fuels which come from the environment that in many contexts is depreciating therefore making these fuels become scarce putting a toll on the poor women especially in the rural areas (Habtezion, 2013). This is particularly acute in rural households headed by women (Cecelski, 2002)

### 3.1 Case Study: Solar Sister

ENERGIA in partnership with *SOLAR SISTER* in Tanzania for the *Woman's Economic Empowerment program* recruits, trains, mentors and provides leadership skills in business for women. First, potential solar sister entrepreneurs are identified with the help of the local community leaders then they are supported with multi-stage entrepreneur training, continuous sisterhood of mentorship and market development. So far, they have impacted over 1.4 million people across Africa. These women bring high quality and affordable clean energy solutions to rural customers. Solar sister also has a Gender and Energy Advocacy program called Women + Energy = WE Shine; a nation-wide campaign that raises the voice of women entrepreneurs in the energy value chain, providing inputs on strategies and success stories to support integration of the women into the Tanzania's SEforALL country agenda (Energia, 2019).

Solar sister uses an Avon-style solar product distribution as an innovative method of spreading solar technology. The Avon style business model works by recruiting a sales representative who is required to come with his or her social network, they are trained by an organization/company on certain products and can first use the products just to familiarise themselves with it. The sales reps are expected to invest their own capital to get the products and after training they can then sell these products to family members, friends as the circle expands to friends of friends and then the community at large. This style of business relies on the word of mouth from one person who has used the product to one that has not, or observing differences made to people's lives from using it which sparks interest in what they are using to look better, and in the case of solar sister, to make life better, affordable and clean. This business model capitalises on the fact that trust and familiarity of the sales rep to the consumers (family, friends and acquaintances) is more persuasive than conventional sales methods that rely on strangers selling to new customers (Brandon, 2015).

This business model at Solar Sister allows for women empowerment and provides rural customers with products that they would otherwise have not had access to (RADHAR R. BASU, 2013). The founder and CEO of Solar Sister Lucey Katherine saw solar products transform from being heavy and bulky with big panels, wires, batteries and installations, to small sized, more affordable integrated products such as the solar lantern. People from rural areas could access and afford it especially to replace kerosene which was expensive going for around \$2 or \$4 weekly with a solar lantern that cost \$5 for the upfront cost and the fuel (the sun) was free for everyone (Cynthia, 2018).

This business model could work well for eCook especially because we are asking people to spend the amount of money that they are already spending on charcoal or other fuels to acquire the new

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

technology of clean cooking. Cooking is normally a topic of conversation amongst women, so selling new cooking technologies by commissioning women as sales agents targeting their friends, family and neighbours is a natural fit. So far TaTEDO has received 40 inquiries for electric pressure cookers and rice cookers after they facilitated a two-day training program that supported the promotion of alternative cooking energy technologies. The main objective of the training was to introduce and sensitize wide use of efficient electric appliances for household cooking services and small-scale businesses on its potential for financial, time and energy saving.

As with any business model, this one also has challenges, (Abby, 2018) conducted some interviews to find out why some women dropped out of their solar sister business;

- “The most commonly reported reason that women leave the program is due to capital. This answer actually opens the door to an interesting question. When an entrepreneur begins a business, she makes an initial inventory down payment, but after that first investment of capital, she turns over her inventory month after month. New capital should not be a major challenge as ideally an entrepreneur should maintain capital by reinvesting the proceeds from sales. In this case, new capital would be needed only when the entrepreneur wants to scale up to a new level. However, data reveals that this continues to remain a challenge likely due to capital originally coming from a loan (that then cannot be turned over and has to be repaid within a short time period) or entrepreneurs not preserving their initial investment. And in fact, our data shows that entrepreneurs in our program who begin their businesses with a loan have lower sales and tend to drop out sooner.”(Abby, 2018)
- Competition, especially from low quality and faulty products in the market, which undermines the importance of having strong brand and consumer awareness. In Dar es salaam, one of the participants noted this as a challenge that comes with the pressure cookers and rice cookers, especially because they do not come with spare parts. For example, the first thing that might get destroyed in a pressure cooker is the rubber that seals the pot from the lid. Once this is spoilt there is no other spare to replace it and a user will be forced to either buy another pressure cooker, which would be too much expense), use it as a normal pot, turn to a cheaper knock off product, or replace the seal with one from another model, which could be dangerous.
- Health related issues such as chronic illnesses, pregnancies or even short-term sickness that could temporarily or permanently force an entrepreneur to stop her business ventures in their communities.

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

- Cultural reasons of women entrepreneurs citing their husbands denying them the opportunity to do business due to deeply entrenched norm and culture.

As the study in Tanzania went on, the Moshi focus group stated that it was mostly women that did the cooking while the man is at work. Rarely do men cook even when they are in the home due to culture and norms. Only when the woman is sick or travelled does the man cook, they all agree that with e-cookers men might be willing to cook. In Kibindi the participants also stated that women are the ones who cook all the time; men do not cook because they think that this will give the women power to control them as stated by one lady in the group; seconded by all of them and occasionally, female kids help their mothers to cook. However, in Ubungu there were two households where the men did some cooking. While MWANAIDI did most of the cooking, her husband at least prepared the tea, and in NEEMA SHAI's household they share the cooking 50/50. For IMELDA she joked that the husband only 'gave recommendations' on what/how to cook.

The women in Ubungu noted that in the old times, when the patriarchal system was unchallenged, women did all the cooking as men did what men did best; give instructions and provide for the family. It was a taboo for men to cook and it was seen as witchcraft if one was seen cooking. Some men would perhaps have liked to cook but norms didn't allow. However, in this generation some men help their women in the households. The Ubungu group felt that most men have little skill regarding cooking and some women preferred to cook themselves. They also noted that men prefer to prepare quick foods, they take shortcuts and can often cook faster, but they are poor when it comes to energy conservations and budgeting, they use more utensils and don't clean after themselves. The comment about men liking 'quick foods' is insightful. It is likely that eCook will make cooking quicker and easier, and that may be the trigger for a slight gender shift in responsibilities – by building on men's need to do things 'quickly'.

Clancy et al., (2012) categorised the potential effects of modern and efficient energy solutions into gender as time saving and drudgery reduction; income generation; resistance to change and transformation of gender roles.

#### *Time saving and drudgery reduction*

Improved energy solutions that are also time-efficient like the electric pressure cooker used in the cooking diaries provide for enough time to rest. They can also reduce the hard labour that many women have to experience on a regular basis, in particular when collecting biomass fuels like firewood far from

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

home and to come back to domestic responsibilities. Using energy efficient appliances and practices will drastically change the amount of energy and time used for cooking used in a household for instance, using the pressure cooker cuts the cooking time to half the usual time of preparing foods. This kind of technology provides women with spare time to have their well-deserved rest.

### *Income generation*

With time saved from using efficient cooking technologies, women could get involved in economic activities that will improve their financial state. Financial freedom for women gives them the power to have choices more so for female-headed families e.g. solar sister contributes to women economic empowerment by providing training, business mentorship, technology and leadership skills to enable women kickstart a sustainable clean energy business. However, men report that the level of power available at the home from solar home systems is often not enough to operate the type of equipment they would use in enterprises, such as welding gear and motors.

### *Resistance to change*

Not all technologies are received with open arms; some of them are met with suspicion and uncertainty. For instance, the pressure cooker was met with uncertainty from most eCook participants due to its reputation of 'exploding'. My own cousins have been burned after an older stove top pressure cooker got jammed and as they were trying to open it, the lid exploded out due to the built-up pressure in the pot and spilled over them as they were trying to get their lunch; this will definitely have an impact on deciding whether to get another pressure cooker or not. Unlike the old pressure cookers, the new improved electric pressure cookers have a variety of new safety features; an electric pressure cooker does not allow for opening whilst it is still in pressure, it locks up and only opens after pressure has been released from the pressure valve or it has been cooled down.

### *Transformation of gender roles*

Improved energy solutions have the potential to benefit all the members of the household, but in different ways. eCook technology is likely to shift the gender roles by allowing men to do more cooking as they prefer quick fix foods, also cleaning is minimized especially in pressure cookers and rice cooker (less pots to clean, no soot) and reduced incidences of burning food because of the non-stick coating. As opposed to Clancy *et al.*, (2012) the choice modelling results from our eCook study in Tanzania revealed that the decision to acquire modern energy technologies and/or fuels, was a joint decision rather than a male responsibility however, women are likely to remain the managers of the purchased

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

equipment. Focus group discussions during the study also showed that with the technology that ecook is aiming at, men could be seen more in the kitchen because of the ease that the energy efficient appliances bring to cooking. Women on the other hand could have more time for economic activities and or leisure.

## 4 Impact of eCook on Gender

---

### 4.1

- Energy and time efficient appliances like the pressure cookers could allow for increased levels of school enrolment for girls. This however does not mean that chores attributed to girls are excused, but they could have more time to do their academic responsibilities and have resting time. Ecook appliances like the pressure cooker and the rice cooker do not need constant attention and this aspect could aid the girls and women to multi-task between homework and dinner preparations.
- Off grid options can improve access to improved and clean energy as ecook focus on solar electric cooking thus promoting access to clean energy
- Increased entrepreneurship opportunities due to reduced time spent on cooking and fetching firewood. The group of ladies from Ubungo all had some economic activity that they took part in, with these improved cook stoves and technology, they thought they would do better with more time dedicated to their income generation.
- Improved health of women and children due to less or no inhalation of poisonous emissions
- Loss of jobs for the people working on the charcoal value chain i.e. those people making a living out of charcoal use from producers to retailers.
- Ecook promotes the conservation of the environment by reducing the number of trees cut down for charcoal and firewood.

### 4.2 BARRIERS TO ECOOK

- Local perception that the supply of efficient cooking appliances is of low quality, and with low poor reliability therefore the locals will prefer the appliances they are used to. This was a concern that one lady from the study participants put across
- For those using electricity, power surges might destroy the expensive electrical appliances. This will force the user to go back to the old fuels and appliances. In the three months that we were in Dar es salaam, power would go out for hours in a day especially if there was a chance of raining.



- Challenges for low-income houses to access electricity and solar options because of the expensive nature. Most participants were worried about the initial amount they would have to pay for the appliances, a solar home system and the electricity bill that would come from cooking using electricity only.
- Incompatibility between the size of household, cooking pots and the stoves. Big households with 10 or more people could find difficulty with finding the right size of pots, they would need to get bigger appliances which meant more cost. In cases where the biggest size of an appliance still was not enough, the family would resort back to their normal energy sources.
- The high upfront cost is predicted to be the most significant barrier that will affect household uptake of SHS according to (Brown & Leary, 2015)

Women have limited productive assets (for example, land which can be used as collateral for taking loans), which makes it difficult for them to obtain credit and hence, access new technologies.

## 5 CONCLUSION & RECOMMENDATIONS

---

### 5.1 Conclusion

Access to and utilization of energy highly depends on the gender differentiated roles in the society. Women, men and children have different needs when it comes to energy uses. Therefore, energy solutions should focus on providing solutions that are all inclusive of all the different needs in a family.

Women are the most beneficiaries of improved and efficient energy solutions; reduced labour in searching for firewood. Improved energy solutions allow women to have more time to rest, participate in income generating activities such as businesses or agriculture, improve their education levels by having more time to attend school and their livelihoods and that of their families. Though the burden of biomass cooking has been mainly on women, technology has been the men's domain traditionally; this could encourage a shift in gender especially because eCook introduces new technology which might catch men's curiosity. Furthermore, the environment is conserved in the process of using and utilizing clean and renewable energy solutions; reduced deforestation and indoor pollution. Clean and affordable energy solutions have a better chance to provide solutions to the rural areas more than electrification; as it was in Dar es Salaam, electricity was not reliable; whenever there was heavy winds and slight sign of rain there would be a blackout for as long as the rain lasts. Using clean and efficient fuels also reduces health complications such as pulmonary diseases and death from indoor air pollution.

Finally applying a gendered lens on energy allows for an all round excellence in the community; benefiting the family as a unit rather than one aspect of it; both men, women and children.

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

## 5.2 Recommendations for E-cook

- Future marketing strategies should focus on:
  - Creating awareness on the benefits and limitations of eCook amongst women and empowering them share this new opportunity with fellow women who they know may also benefit from it. The WHO estimated about 18,990 deaths in Tanzania from indoor air pollution in 2017 (TANGSEN and HIVOS, 2012) and if women and men knew this fact they would be more open to clean and efficient energy options. Women being very social beings; they will always share the information they have with other women in the community especially if they know it makes them look better. It will also boost their confidence in using these fuels and appliances. For instance, most of the cooking diaries participants in Tanzania had a negative perspective on a pressure cooker because they thought it's dangerous and it consumed a lot of electricity. After extensive demonstrations and trials, they all reported that they preferred it over the electric hot plate. This proves that with enough knowledge and empowerment women can do that which might improve their status and that of their family in the society.
- Establish targets to meet energy needs at the national level for provision of clean and sustainable energy, specific energy needs for a household for the different members in the home. This will help in providing the most inclusive energy solutions in the communities that will be beneficial to all members.
- Involving men from the beginning of the e-cook research to get insight on what can be the benefits of e-cook to them and which designs could be more inclusive of most of the energy needs in the homes.
- Conduct a parallel research to find out what the women in the households could be doing with their extra time. How e-cook could facilitate or support the activities that women could do during their spare time to improve on their livelihoods.
- E-cook could include business models focus groups that could help with innovation of the best way to earn a living for both men and women in the society from the e-cook appliances or other income generating activities that could result from the time spared.
- Have an intensive cultural analysis in each new context of the e-cook research and plan to use culturally accommodating research methods to realize maximum and more accurate results. For instance, other cultures do not allow for men and women to freely interact together and this could make the focus groups biased, every culture has different staple foods thus needing

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

different energy needs as realized between Myanmar and the other three African countries in the recently ended e-cook research.

- E-cook focusing only on clean cooking and electrification, they should also consider incorporating initiatives that will help the women use the SHS for other purposes other than just cooking and lighting. For instance, use it for irrigation or water pumping to allow them to do productive agriculture that could boost their economic value.

[Research@gamos.org](mailto:Research@gamos.org) | [PV-ecook.org](http://PV-ecook.org)

This research is funded by DfID/UK Aid and Gamos through the Innovate UK Energy Catalyst.

## 6 References

---

Abby, M. (2018) *Overcoming barriers to business success - Solar Sister*. Available at: <https://solarsister.org/overcoming-barriers/> (Accessed: 15 February 2019).

Brandon, G. (2015) *Avon Business Model and Growth Strategy*. Available at: <https://brandongaille.com/avon-business-model-and-growth-strategy/> (Accessed: 6 February 2019).

Cecelski, E. (2002) 'Enabling Equitable Access to Rural Electrification: Current Thinking on Energy, Poverty and Gender', *ENERGIA*.

Clancy, J. *et al.* (2012) 'Gender Equity In Access To And Benefits From Modern Energy And Improved Energy Technologies: World Development Report Background Paper', *World Development Report: Gender Equality and Development*.

Cynthia, S. (2018) *Katherine Lucey — CEO & Founder of Solar Sister — Talks Last-Mile Solar Revolution (#CleanTechnica Video) | CleanTechnica*. Available at: <https://cleantechnica.com/2018/09/24/katherine-lucey-ceo-founder-of-solar-sister-talks-last-mile-solar-revolution-cleantechnica-video/> (Accessed: 6 February 2019).

EIGE (2017) *Gender Equality Index 2017: Measuring Gender Equality in the European Union 2005-2015*. doi: 10.2839/770576.

Energia (2019) *Solar Sister; Women + Energy: WE Shine*. Available at: <https://www.energia.org/cm2/wp-content/uploads/2016/04/Solar-Sister-Advocacy-Context-and-Project-summary.pdf> (Accessed: 6 February 2019).

Habtezion, S. (2013) *Gender and energy, United nations development programme*. doi: 10.1016/j.aqpro.2013.07.003.

Leary, J. and Batchelor, S. (2018) *eCook Global Market Assessment Where will the transition take place first ?* doi: 10.13140/RG.2.2.22612.30082.

TANGSEN and HIVOS (2012) *Facts on achieving gender equality in relation to usage of modern energy services and technologies at household level in tanzania*.