

Women IN Energy

Partnership on Women's Entrepreneurship in Renewables (wPOWER):
A Case Study on wPOWER Perspective on Engaging women across the
Energy Value Chain.

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Introduction

Globally, 1.2 billion people lack access to electricity. Over 2.7 billion people, representing approximately 38% of the global population, rely on traditional use of biomass for cooking, mainly through burning wood, charcoal, crop waste, and animal dung in open fires and on inefficient cookstoves (International Energy Agency, 2016). This population remains concentrated in Sub-Saharan Africa (SSA) and India, with estimates showing that the two regions account for over 850 million of those without access to electricity. Research has since confirmed that indoor air pollution, as a direct result of traditional use of biomass, accounts for the premature deaths of 4.3 million people annually (UNDP & WHO 2009; Lim & Vos 2012; WHO, 2016). Unfortunately, majority of those who succumb to this fate are women and children (Lim and Vos, 2012), with current statistics indicating that approximately 800,000 children under the age of 5 die each year due to household pollution (WHO 2016). Culturally, more so in rural areas, women are the primary users of these inefficient cooking methods increasing their exposure and risk of a multitude of detrimental health impacts. On the other hand, degradation of natural resources due to inefficient energy use means that women spend more hours (at least 5 hours a day) collecting fuel for cooking (Global Alliance for Clean Cookstoves, 2015). Eventually, majority of women and girls have limited access to education and opportunities for empowerment due to time consuming household chores such as looking for firewood, cooking and taking care of the home (Coltrane 2000).

Background of Study- Engagement of Women across energy value chain

Women's labor within the energy ecosystem that depend on open fires and inefficient cookstoves is often invisible. Evidence shows that women are predominantly concentrated in certain energy sub-sectors, particularly those that are less capital intensive at the initial phase and consequently less profitable. This promotes a sense of "survival entrepreneurship" i.e. being engaged in the bottom-of-the-ladder, survival activities (Deshpande & Sharma, 2013). They are also known to employ business models that are "closer" to the final customer such as charcoal retailing (Delahunty-Pike, 2012). Generally, there is a lack of recognition of the economic value of women's work despite the fact that their participation benefits consumers and communities directly and is heavily gravitated towards last-mile (Shankar & John Hopkins University, 2015). At the decision-making level, by contrast, men dominate the sector (European Institute for Gender Equality, 2015).

Given the realities discussed above; 1) increased global carbon emissions; 2) inefficient cooking methods as major contributor to increased carbon emissions; 3) devastating health, environment, and economic outcomes and 4) the vulnerability of women in the entire equation, there was a consensus that sustaining low-carbon emissions "requires putting in place a set of conditions needed to create an "enabling environment" (UN/DESA 2013) and increase women's participation across the energy access value chain. Consequently, women's knowledge, empowerment and collective action were now considered central to building more environmentally sustainable pathways for environmental management; adaptation to climate change; and securing access to sustainable energy." (UN Women, UNDP and UNEP, 2015). In addition, adoption of clean energy technologies with the active participation of women as entrepreneurs and consumers is critical in reducing the numbers of premature deaths of women and children, decreasing unsustainable biomass energy use and alleviation of limited life opportunities for women in rural and urban households (World Bank 2014; WHO, 2016).

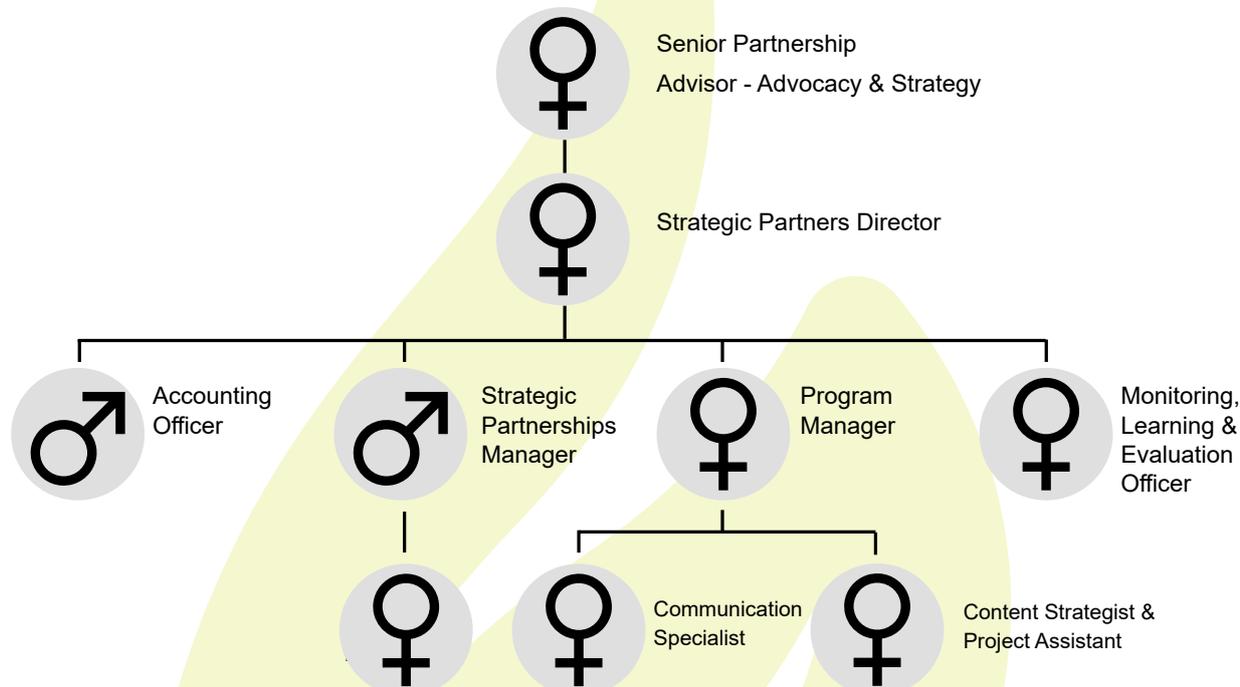
Partnership on Women's Entrepreneurship in Renewables- (wPOWER)

The genesis of the Partnership on Women's Entrepreneurship in Renewables (wPOWER) and its efforts are underpinned with this same consideration of bringing together support for women's participation and in promoting the pivotal role they can play in clean energy entrepreneurship. The partnership was launched by the Department of State of the United States at the Annual United Nations Framework Convention on Climate Change Conference of the Parties (COP-19) at Warsaw, Poland in January 2013. The partnership, housed in Nairobi, Kenya has grown by leaps and bounds into what is now a coalition of over thirty partners across the energy supply chain, including representatives from technology, implementation, research, advocacy, and donor partners.



Organization Structure

In line with the mandate, the senior leadership of wPOWER is comprised of women, with a majority of the team members comprising of women and that reflects the values and mission of the organization. Figure 2 is a representation of WPOWER's organization structure.



wPOWER Vision

wPOWER has set the goal to support over 8,000 women entrepreneurs and leaders by 2018 to enhance access to renewable energy and adoption of energy efficient technologies at the household level in local communities. wPOWER has already achieved more than half of that goal, empowering over 5,500 clean energy entrepreneurs working in underserved rural areas in the global South who are now catalysts for both urban and rural development. Table 1 is a summary of number of clean energy entrepreneurs trained by wPOWER and its partners.

wPOWER and its Partners conducting the training	Total Number of People Trained (as of September 2017)
wPOWER Hub	380
Solar Sister	2,174
Care International	1,055
Swayam Shikshan Prayog (SSP)	1,087
Greenbelt Movement Kenya	164
Energy 4 Impact	434
GACC	755
Total	6,049

Table 1: Total number of people trained as clean energy entrepreneurs by wPOWER and its partners

wPOWER strategies to integrate women in the renewable energy value chain

The burden of energy poverty is often disproportionately burdensome for women and yet they are rarely involved and often marginalized in the energy value chain, (WHO, 2016). When they are included, they tend to be concentrated at the low-value end of the chain, for instance, Delahanty-Pike, (2012) who studied gender roles played across the charcoal value chain confirmed that small scale selling/retailing of charcoal is done almost entirely by women. The goal of the partnership is to catalyze the rate of energy adoption at the household level by integrating the primary users of energy across the entire value chain, and, by focusing on women in clean energy entrepreneurship.

“To achieve human dignity and shared prosperity, we must address how a majority of the world’s poor, particularly women, cook”.

Wanjira Mathai

Although wPOWER is not directly involved on the decision on which products partners should stock; the hub advocates for solar technologies, improved (charcoal and firewood) production and use, ethanol cookstoves and fuel briquettes among other household clean energy solutions. wPOWER carries out its work by employing three pillars in a multifaceted approach to enhance women’s integration in the renewable energy value chain. These pillars are: i) building evidence ii) sharing best practice iii) advocacy. In addition to these pillars the organization uses community training as a strategy to build women networks. The following are the descriptions of the goals and expected outcomes of each of the strategies used by wPOWER.

Building evidence

To achieve its vision, WPOWER would initially engage in evidence building. This involves gathering of information and data that supports the important role that women must play in advancing the adoption of clean energy technologies. All recommendations and/or actions plans by wPOWER stem from evidence-based data. By using evidence- based data and implementing researched best practises the organization is able to diagnose the most effective options to reduce greenhouse gas emissions, improve livelihoods, while simultaneously empowering women to be entrepreneurs. Evidence building is done through as reviews of existing literature, evaluation reports, case studies, compiling baseline surveys to assess needs, gaps and best practices in clean energy technologies. WPOWER’s online site contains an exhaustive repository of resources collated from partners, practitioners, researchers and academic institutions. In addition to this wPOWER also develops its own resources based on their primary data from outcome surveys to be able to add new knowledge, and seal off information gaps that exist to in the quest to support the role of women in clean energy.

“Prioritizing women’s leadership in clean energy entrepreneurship is investing in our future.” says Wanjira Mathai, Senior Partnership Advisor, Advocacy and Strategy, at wPOWER

Wanjira Mathai

Sharing best practices and experiences

To ensure partners and other players in the sector can replicate and scale up for more effective approaches to clean energy entrepreneurship. wPOWER aim to spur effective implementation through providing access to practical tools to wPOWER partners. This in turn helps accelerate the participation of women in the value chain.

In this light, wPOWER has created eight main principles for best practices for effective approaches to clean energy entrepreneurship. These include – focus on women, community presence, product availability, quality certified products, access to finance, coaching and mentorship, women’s networks and technology innovations. These success principles are key for organizations in the business of accelerating energy access to ensure success in the sector.



Figure 2: wPOWER Best Practice Principles that underscore success in the clean energy entrepreneurship

Advocacy

wPOWER, through its partnership programmes, plays a collaborative role to bring policy makers, manufacturers, distributors, suppliers and the end user in forums that are focused to empower and build capacity for women to be clean energy entrepreneurs (See Table 1- WPOWER partners). The organization in collaboration with its partners, advocate for women's leadership in clean energy entrepreneurship and across the energy value chain. To be precise, a key qualification for partnership is a demonstration of common interest in the overall goals of developing women entrepreneurs in clean energy to address energy poverty and climate change. There was also a need to demonstrate evidence of the organization's effort in engaging women across their energy value chain. To ensure sustainability the advocacy is based on multiple factors on both the supply side (policy and legislative environment, availability of raw materials, access to storage and distribution networks) to the demand side (access to the fuel, availability of technology to use the fuel, traditional practices and price).

WPOWER CONSIDERS THE FOLLOWING AS BUILDING BLOCKS TO SUCCESSFUL IMPLEMENTATION OF THE INITIATIVE:

1. Awareness

Women entrepreneurs must be aware of the opportunities across the value chain. End-users must be aware that there are alternatives to their current solutions.

2. Accessibility

Entrepreneurship opportunities must be accessible with few barriers to entry. Alternative products must be easily accessible within the communities where the women live.

3. Affordability

Entrepreneurs must have access to affordable financing to access the opportunities. Products must be affordable at the price point end users can bear.

4. Advocacy

There needs to be strong advocacy around the issue. Robust policies are needed to promote engagement across the value chain.

5. Association

Influence and potential in women's networks and community groups must be tapped effectively across the value chain.

6. Acceptability

Cultural barriers must be taken into consideration when approaching women in entrepreneurship and adoption of clean energy technologies.

Methodology

Capturing this opportunity, wPOWER worked to promote a “modern” wood energy value chain in Kenya in the first phase of its operation (October 2013 - September 2016). The importance of wood energy for communities in SSA and South Asia as a way to cook food, boil water, and produce and sell charcoal as a source of income, is well documented (The World Bank Group, 2009; wPOWER, 2017). In the present scenario, the majority of the households still continue to use wood fuel in the form of firewood and charcoal for cooking and space heating, where charcoal is mainly used in urban areas through charcoal stoves and firewood in rural areas using three stone open fire.

While wood fuel use at the household level has been associated with deforestation (primarily through illegal and unsustainable charcoal production), poor health and contribution to climate change, research shows that it will continue to be a significant energy source in the developing world particularly in SSA for the foreseeable future (World Coal Association, 2012). Due to the slow adoption rate of modern sources of energy such as ethanol-based cookstoves, efforts are being directed to make wood fuel a sustainable source of energy in SSA. Promoting this modern wood energy value chain can alleviate health problems associated with traditional use of wood energy on inefficient, and polluting cookstoves.

This points to a direct link on the role of women as effective catalysts for the adoption and use of clean energy technologies at the household and community level. With this in mind, wPOWER focused on trainings to build women’s capacity in entrepreneurship, financial and technical skills.

Capacity Building-Trainings on renewable energy by wPOWER

wPOWER spearheaded several activities including a ‘Training of Trainers’ (ToT) Course on Sustainable Clean Energy Entrepreneurship and community trainings at the local level. The Training Course (ToT) included modules on empowering and developing transformative leaders, sustainable clean energy entrepreneurship, environmental stewardship and developing and delivering content. The ToT course was held at the Wangari Maathai Institute for Peace and Environmental Studies (WMI), University of Nairobi in July, 2014 with 27 participants (18 women and 9 men) from wPOWER partner organizations (Green Belt Movement, Swayam Shiksha Prayog, CARE International, Solar Sister and Women for Women International) across Kenya, Rwanda, Uganda, Tanzania, Nigeria, and India.

This course allowed trainees to launch themselves as entrepreneurs and trainers in clean technologies such as briquettes, solar lighting and clean cook stoves.



Figure 3: A training session in action held at the Wangari Maathai Institute for Peace and Environmental Studies, University of Nairobi

Upon completion of the TOT training, community trainings in different regions were done. In Kenya specifically, the first phase of local community trainings for 353 entrepreneurs covered six regions, namely; Othaya, Maragua, Kahuro, Kibera, Munyaka and Homa Bay (Figure 3). The second phase covered Machakos and Tetu area. The 353 trainers (320 women and 33 men), who had graduated from the wPOWER ToT course, conducted these trainings. Development of baseline data and a monitoring and evaluation exercise was undertaken, which resulted in the ease of tracking and mapping the impacts and outcomes of the initiative.

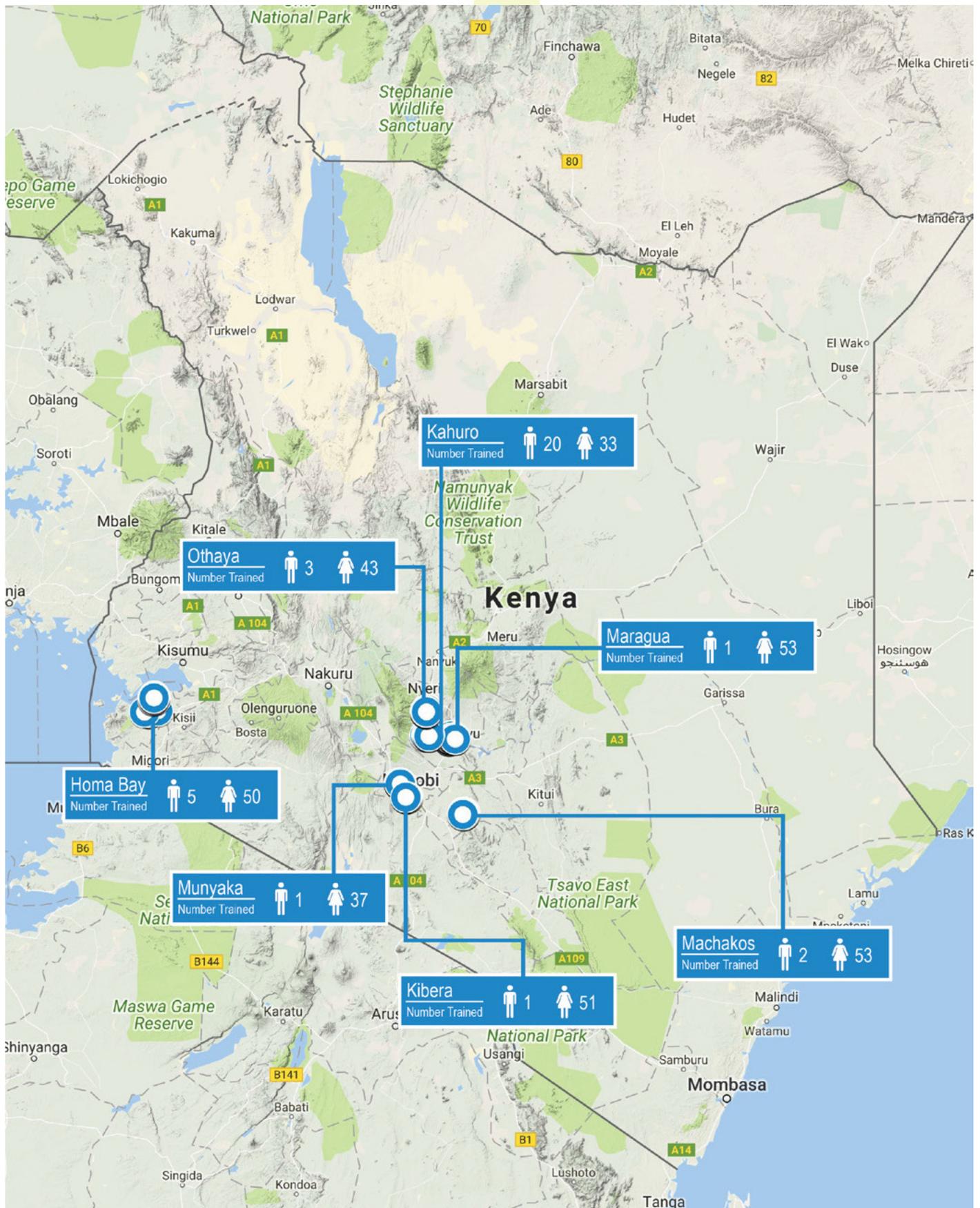


Figure 4: Distribution of men and women who participated in the community trainings conducted by the ToT graduates in Kenya

Outcome Survey

As a way to evaluate impact and progress, a qualitative survey was conducted. The respondents of the survey were drawn from the total number of trainees in the TOT programme (353 participants) across seven regions in Kenya; Othaya, Maragua, Kahuro, Kibera, Munyaka Machakos and Homa Bay. Using a Monitoring and Evaluation questionnaire as a guide, the research assistants conducted face to face interviews with the respondents. The participants responded to queries on major themes to determine 1) if they had started a business after the training; 2) their opinion on how the training impacted on the way they are doing business/lives; 3) statistics on number and type of clean energy products sold; 4) challenges they were facing as entrepreneurs; 5) gender variation of their customers; 6) approximation on amount of money saved after adopting clean energy products 7) income generated from clean energy entrepreneurship, among others.

Results -Impact of wPOWER work

From the survey, a total of 306 participants responded to the survey, indicating an 88% response rate with 8% and 92% men and women respondents respectively. Approximately 54% of the respondents had completed primary school with 34% completing their secondary school education. Comparisons between clean energy entrepreneurship and level of education showed that trainees who had higher educational levels were more likely to engage in entrepreneurship. After the training, a total of 23 respondents were engaged in clean energy entrepreneurship.

Results also indicate that a major impact witnessed from wPOWER's work was an increase in the average monthly income among the 23 entrepreneurs who started business after the community training. On average each of the entrepreneur generated an income of approximately USD32.00 per month through the sale of clean cookstoves and solar lamps. The program also saw the near elimination of monthly lighting expenses from kerosene and electricity bills for over 100 households, and a decline in cooking fuel related expenses from an average of USD 17.20 to 8.80 USD.

Looking specifically into one of the program locations in Kenya - Kaewa Location, Machakos County: The design of the local community training program was tailored to the region and took into considerations the challenges in the adoption of alternative energy in the region, that were documented as part of the process (as shown in Table 2). These challenges emphasized the need for training, and providing connections with suppliers, to name a few. The training was attended by 55 participants (53 women and 2 men), drawn from various registered women groups from Machakos County.

Biogas	%	Solar	%	Others	%
Lack of raw materials	4.9	Lack of knowledge and skills	5.7	Unavailability	4.1
Lack of knowledge and skills	23.8	High installation cost	54.9	Lack of knowledge and skills	13.1
High installation costs	18.0	No response	39.3	High installation cost	24.6
No response	53.3			No response	58.2

Table 2: Challenges faced by the community members in the adoption of alternative energy options

Discussion - Improved Livelihoods

The wPOWER training led to an increased awareness on the need to protect environment with over 95% of the respondents claiming commitment to protect the environment. There was an indication that the uptake and adoption of improved biomass cooking devices and solar lighting equipment may have increased as more of the entrepreneurs were able to convince the customer on the importance of using clean energy not only as a cheaper option but also as a way to protect oneself from respiratory diseases. Some of the products commonly used were Jikokoar, jiko Kenya, the Kenya Ceramic Jiko (KCJ) and the Safi™ ethanol based cookstoves at the household level as evidenced by the data. The lighting devices used included dlight™ (A1, S2, s20), EnvirofitR duo torch and solar lanterns. Although lack of funds was considered a major challenge contributing to the low percentage of trainees becoming entrepreneurs (8%), the adoption of clean energy sources and products for those who remained as end users was encouraging. The adoption of these products resulted in the following impacts:

- **Reduction in cost of cooking:** The cost of cooking fuel compared before and after the use of new cooking devices showed a reduction of about 10%. This meant that the adoption of clean cooking and lighting devices also contributed to improved livelihoods through cost reduction.
- **Light for studying:** Children were able to study well with solar energy providing adequate light as mentioned by 7% of participants and a reduced monthly energy cost amongst 3% of participants.
- **Briquette making:** 38% of the participants practiced briquette making after the training for their household use. Those not continuing to do so attributed reasons to lack of time, lack of raw materials and market.
- **Decreased charcoal use:** 70% of the respondents disengaged from charcoal production and replaced it with briquette making for the first time after training (63%) and 73% of them carried on with the tree planting.
- **Training and mentorship:** While 20% of the people trained were already aware of climate change, 7% of those trained instilled the skills in other people, promoting environmental awareness and tree planting.

These results therefore confirmed that engaging women in clean energy entrepreneurship had a direct impact on community adoption of clean energy practices. Based on these impact, wPOWER continues to make progress in improving livelihoods, efficient production and use of cleaner energy and sustainable environment and bolstering the role of women in the clean energy chain.

Conclusions and recommendations

The inclusion and mainstreaming of women in the energy sector is as much a decision-making choice, as it is a process of influencing the existing perceptions and fighting prejudices. The myopic developmental approach that focuses on investments primarily in the area of cooking stoves and lighting initiatives for women as opposed to recognizing the critical role that women play across the entire clean energy value chain, needs to change. Results from this study have shown that women are a critical force for sustainable management of natural resources and increasing clean energy access. This means that the involvement of women in clean energy initiatives has the potential to not only improve livelihoods but to increase access to clean energy solutions. Financial constraints were indicated as a key reason for the low number of women engaging in entrepreneurship post training. WPOWER acknowledged this gap and the results formed a base for the strategic engagements in the next project phase to ensure access to affordable financial support to see more women become entrepreneurs. As for energy sector institutions, there needs to be a shift from a general call for better women's integration towards a gender-inclusive strategy at the core part of every human resources strategy. This strategy, in turn must be complemented with targets and periodic monitoring. Broad systemic approaches are needed to change and challenge the status quo, which is why this enabling ecosystem created by the unique partnership network of organizations hosted by wPOWER is so critical. wPOWER is committed to working with like-minded partners to achieve our shared goal - one of a world free of energy poverty and where women's leadership and entrepreneurship are the norm.

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