

EVI-SICEE RESEARCH BRIEF No. 01

Enhancing Skills and Capacities for Women and Youth Clean Energy Enterprises: Lessons from Kenya

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Key Messages

- Promote gender-sensitive business development services that cater to women entrepreneurs' unique needs, including flexible training schedules and targeted financial support.
- Support the establishment of inclusive networks that connect women entrepreneurs to mentors, investors, and ecosystem support institutions.
- Tailor policies that facilitate connections to long-term financing options and ensure business accelerators have gender-inclusive selection processes.
- Address social norms and biases that hinder women's participation in the clean energy entrepreneurship by promoting leadership and capacity-building opportunities.



Overview

Women and youth in Kenya face significant challenges in participating and thriving clean energy enterprises due to skills gaps, limited access to support systems, and gender disparities. Despite the sector's potential to drive sustainable development and economic empowerment, technical training and business development services often fail to address the unique needs of these groups. With Kenya positioning itself as a clean energy leader in Africa, understanding the capacity and support needs for women and youth entrepreneurs is essential to achieving inclusive green growth. Further, despite women's varying energy needs, energy access interventions have traditionally assumed equal benefits for men and women. Businesses owned by women receive significantly less general business support services compared to those owned by men, highlighting the need for more targeted and inclusive support that considers gender differences (IFC, 2021). Empowering women and youth in clean energy is crucial not only for advancing social equity but also for fostering economic resilience and environmental sustainability.

Approach and methodology

This article is part of a project, *Evidence for Informing Scaling and Impact in Youth and Women-Led Clean Energy Enterprises (EVI-SICEE)* in Africa, funded by IDRC and implemented by a consortium led by the African Centre for Technology Studies (ACTS). In 2024, ACTS and partners conducted an assessment to evaluate the status of women and youth entrepreneurship in Kenya's clean energy sector. The study employed both quantitative and qualitative methods, beginning with an in-depth scoping study that guided the development of data collection tools. These tools were subsequently used to conduct a comprehensive survey involving 1,093 clean energy entrepreneurs from 32 counties across Kenya. Of the respondents, 65% were youth, while 44% were women. Notably, 57% of the participants reported being employees in different capacities within the multiple clean energy value chains. For the women and youth entrepreneurs, majority were involved in non-technical roles such as sales, supply, and distribution, while their participation in technical activities, including manufacturing and fabrication, remained limited. To enrich the data, the assessment also incorporated key informant interviews and focused group discussions. The findings were validated during a stakeholder workshop held in February 2025. This research brief integrates insights from the different data sets and evidence generated in Kenya.

Dynamics of Clean Energy Skills and Capacity Levels among Gender Groups

Evidence from Kenya suggests that building inclusive and sustainable clean energy enterprises requires different levels of skills and capacity, which are explored in this article.

Limited clean energy entrepreneurship knowledge among youth and women

The evidence from the EVI-SICEE project shows that male adults are the majority among those with advanced and expert knowledge in the clean energy ecosystem and tend to have a deeper understanding of the sector, with youth and female adults being underrepresented in the more experienced categories (Figure 1). Youth are the majority in the beginners' category (33%), arguably because of their role as employees in the value chain rather than business owners, which may limit their exposure and experience as entrepreneurs.

This argument aligns with the finding that out of the 57% of the participants involved in the clean energy businesses, the majority of women and youth entrepreneurs were involved in non-technical roles such as sales, supply, and distribution, while their participation in technical activities, including manufacturing and fabrication, remained limited. This calls for a targeted approach to capacity building and educational initiatives.

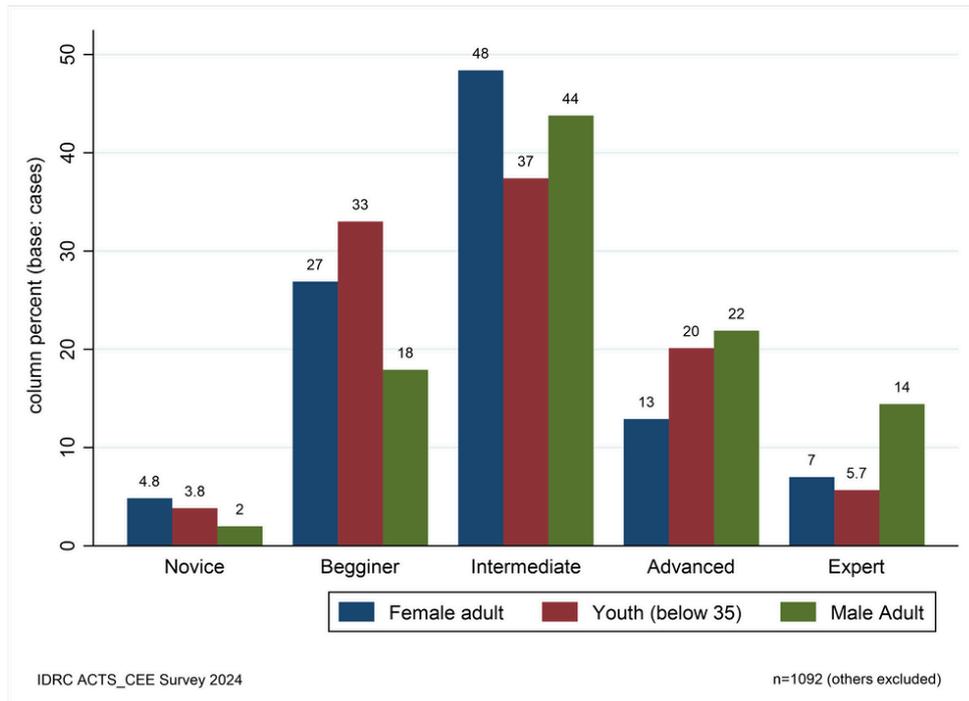


Figure 1: Perception on clean energy knowledge levels across gender groups

The skills and capacity barriers, and the need for both technical and business skills

Over 50 % of female entrepreneurs interviewed strongly agreed that they lack the technical and business skills necessary to effectively manage the technical and managerial aspects of clean energy enterprises. This is compared with below 50% of interviewees who disagreed with this view. Further, there was a large number of women primarily occupying non-technical roles, such as supply and sales. To empower women in the clean energy sector and encourage their involvement in more technical positions, interventions should focus on skills development programs that build both technical expertise and business knowledge.

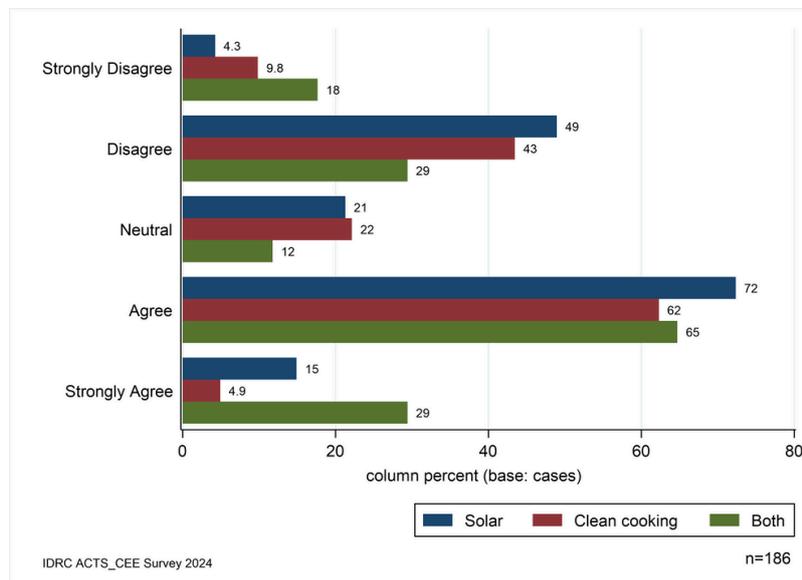


Figure 2: Perceptions on skills barriers for women

In contrast to female participants, many youth entrepreneurs acknowledge a lack of both technical and business skills. However, a notable portion also believe they have adequate skills to participate in the clean energy sector. This split is particularly clear among those involved in solar energy, where 52% disagreed with the statement that they lack skills. Likewise, 55% of youth running businesses that offer both solar and clean cooking solutions also disagreed, as illustrated in Figure 3. These insights point to varied perceptions among youth, underscoring the need for targeted support to address skill gaps while building on their current capabilities.

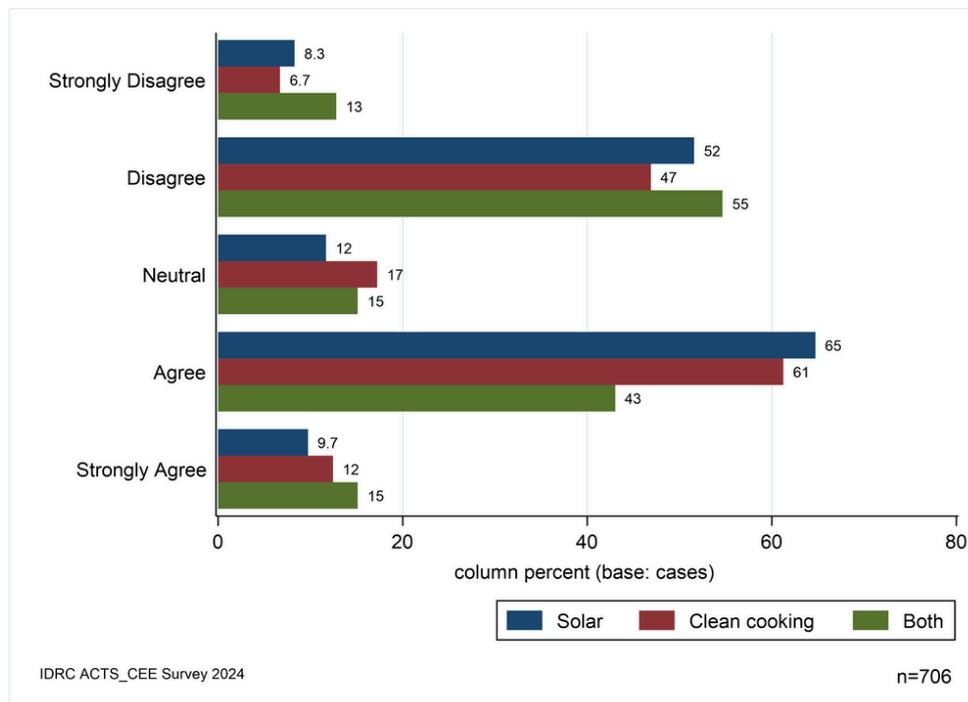


Figure 3: Perceptions on skills barriers for youth

One of the most significant barriers to skills development and capacity building in the clean energy sector is the lack of relevant education and training among youth. Many young people lack the technical and soft skills needed to meet the demands of the sector, including skills related to clean energy processes, practices, and systems (Shankar et al., 2020). Bridging the gap is not only about technical training, but it also requires fostering entrepreneurial mindsets, especially amongst first-time business owners. This mismatch between formal education and industry requirements is particularly evident in technical fields such as engineering, where skills gaps persist despite growing opportunities in renewable energy. There is however hope in the clean energy industry since technical skills can also be learnt as explained by a young entrepreneur.

“I learned the art of making energy stoves from my father, and it’s something that has stayed with me throughout my life. Eventually, I decided to open my own workshop, turning my skills into a business that I’m proud of today,” an entrepreneur from the lower eastern part of Kenya.

This notwithstanding, there is a strong opportunity to enhance core soft skills among youth, including communication, time management, leadership, and workplace readiness, which are essential for success in the sector (Malonza & Fedha, 2015). For women, targeted efforts to increase participation in Science, Technology, Engineering, and Mathematics (STEM) courses can help address existing gaps and unlock their full potential in technical and entrepreneurial roles.

Gender stereotypes, limited female role models, and cultural influences continue to shape career choices, preventing women from entering technical fields and limiting their access to clean energy employment opportunities. Even when women possess similar qualifications to men, they often lack the confidence to pursue technical roles or entrepreneurial ventures, driven by fears of failure and societal expectations (Pueyo, 2020). In addition, many women entrepreneurs lack essential business skills such as accounting, marketing, and quality control, which are necessary to establish and sustain enterprises. This shortage of skills often leads to slower business growth and limited access to investment capital (Fajardo, 2020).

Inadequate business support for entrepreneurs

Analysis of the survey data shows that majority of the clean energy entrepreneurs are not receiving any form of business support and only 29% of respondents reported receiving some support (Fig 4).

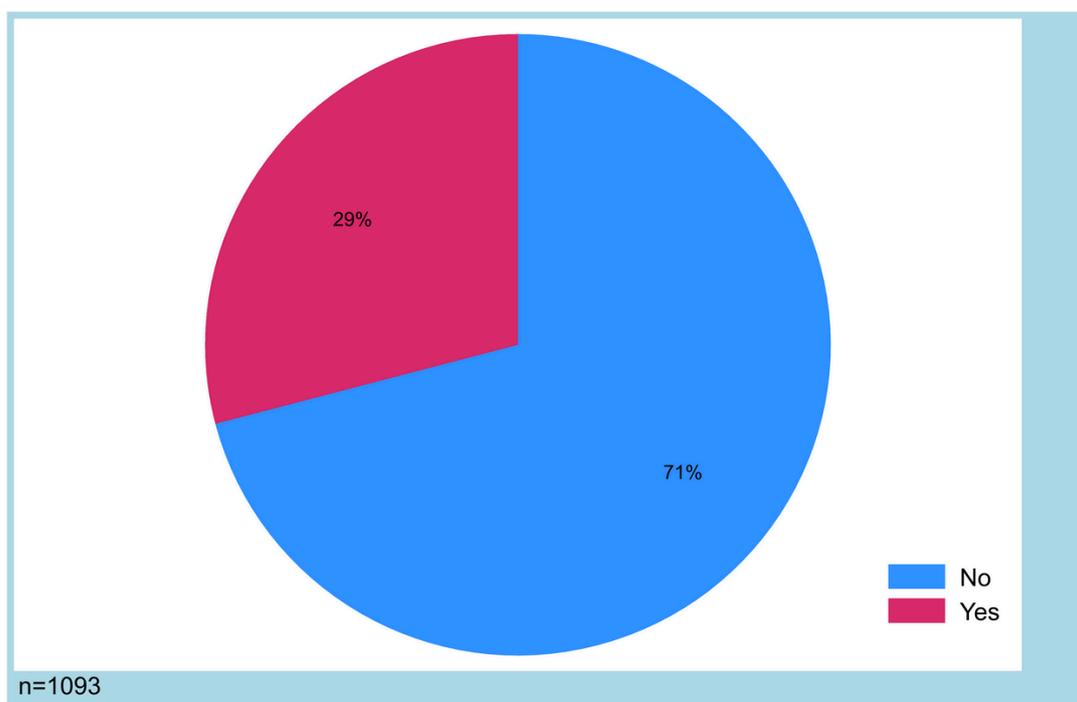


Figure 4: General overall perception on business support

Further disaggregation by gender and sector confirms the limited business support to entrepreneurs. Female adults were asked to share their views on the availability of business support, such as training, mentorship, awareness creation, and access to finance, for women clean energy entrepreneurs. The majority agreed with the statement that women in the sector lack adequate support, with the highest level of agreement (51%) among those involved in clean cooking, compared to 34% among those in the solar energy sector, as illustrated in Figure 5. This variation reflects the perceived differences in support across the two sectors and emphasizes the need for targeted and sector specific strategies to address these gaps and better empower women in clean energy entrepreneurship.

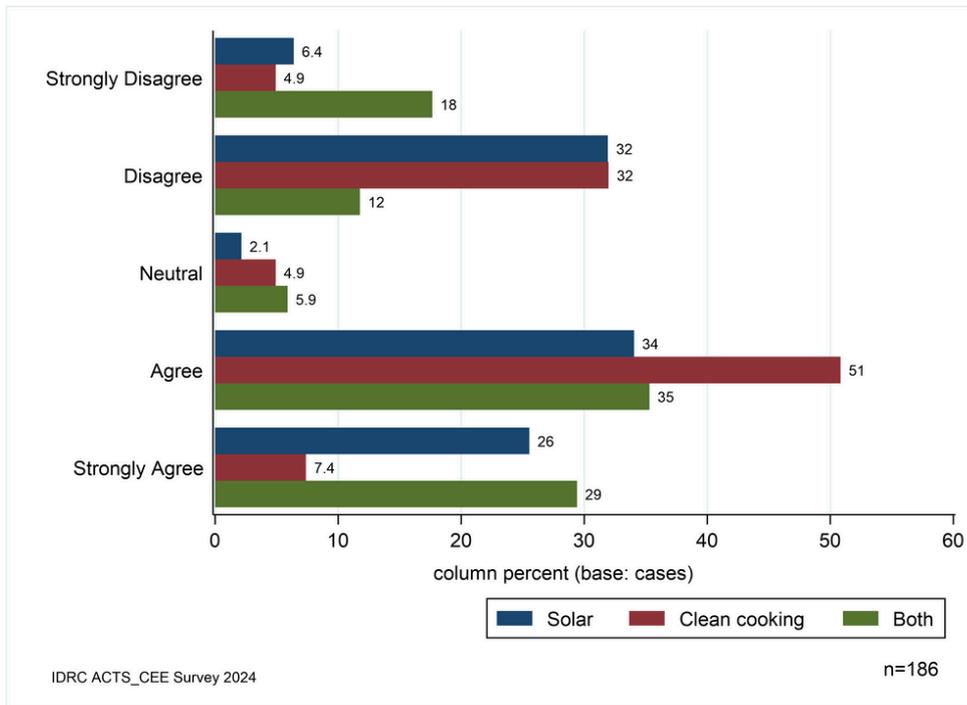


Figure 5: Women perceptions on business support

Youth involved in clean energy entrepreneurship identified the lack of business support, such as training, mentorship, awareness creation, and access to finance, as a major challenge. A majority agreed with the statement that youth clean energy entrepreneurs lack this essential support. As shown in Figure 6, 56% of youth in the clean cooking sector and 48% in the solar sector recognized this as a key barrier. These insights underscore the urgent need for tailored business support initiatives to help youth overcome these obstacles and successfully grow and sustain their clean energy ventures.

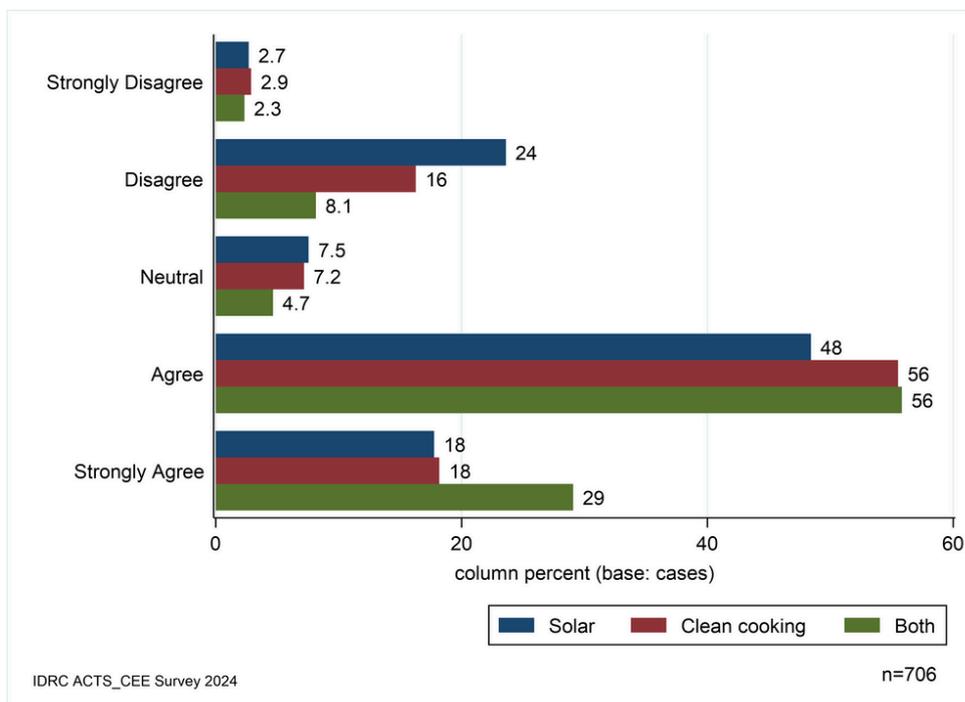


Figure 6: Youth perceptions on business support

Like women and youth, adult male entrepreneurs acknowledged the lack of business support, such as training, mentorship, awareness creation, and access to finance, as a major challenge facing women and youth in the clean energy sector. In response to the statement, “women and youth clean energy entrepreneurs lack business support,” 53% of adult men in clean cooking enterprises agreed, compared to 40% in the solar sector, as shown in Figure 7. Interestingly, a significant portion (31%) of adult men in the solar sector strongly disagreed with this view, indicating diverse opinions within the group.

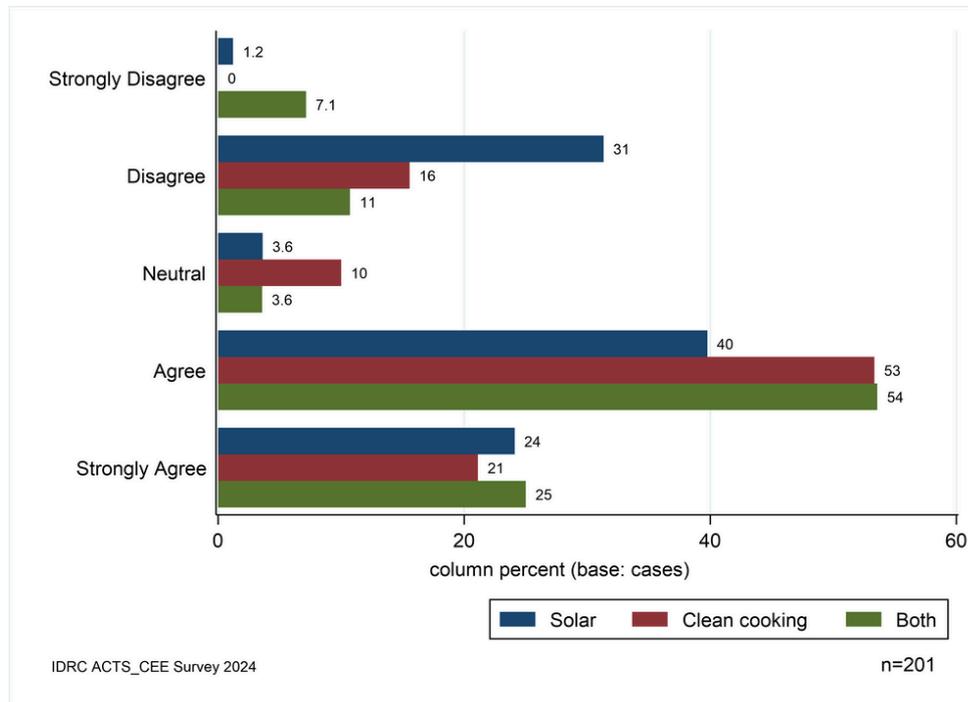


Figure 7: Adult males' perceptions on women and youth business support

Shankar et al. emphasizes that training programs should include technical expertise, business acumen, and advocacy skills to empower youth-led clean energy start-ups. The capacity development in leadership, communication, and sustainability practices should therefore be prioritized to equip young entrepreneurs with the necessary tools to thrive in the clean energy landscape.

Inadequate business support and implication for policy

To address in a sustainable way the challenges of skills development in clean energy entrepreneurship, it is crucial to integrate targeted training and capacity-building initiatives into clean energy policies. Drawing lessons from countries with robust labour market policies can provide valuable insights into developing vocational training and apprenticeship programs that align with the needs of the sector (Shankar et al., 2020). For instance, successful models of work-based learning and vocational training can be adapted to enhance skills acquisition and foster a more capable workforce. Incorporating clean energy training into vocational institutions and curricula is essential to bridge the skills gap. Such integration would not only focus on technical competencies but also encompass holistic training that includes entrepreneurial, business, and soft skills. It is also important to implement gender-responsive policies that address the unique barriers faced by women. This could ensure that clean energy policies translate into tangible benefits for women and youth at the grassroots level. Affirmative action can help ensure balanced representation in clean energy businesses and create pathways for women to acquire the skills they need.

Building a Holistic and Supportive Ecosystem for Women and Youth Entrepreneurs

Drawing from both the qualitative evidence and in-depth analysis of the scoping study, this article highlights several reflections as a way of opening up an expanded conversation around building an integrated and supportive ecosystem for women and youth entrepreneurs. Arguably, creating an enabling environment for women and youth entrepreneurs in the clean energy sector requires addressing structural and socio-economic challenges while promoting opportunities for growth and empowerment.

i. Energy access interventions have historically assumed equal benefits for men and women, despite women having different energy needs. Involving women in clean energy value chains has shown positive impacts on income generation and empowerment, but barriers remain:

- Socially constructed gender roles and the informality of women-owned businesses limit participation and growth.
- Addressing broader social challenges, including limited access to education, health services, childcare, and property rights, is crucial to creating a conducive environment for women and youth entrepreneurs.

ii. Women and youth entrepreneurs often face significant challenges in accessing finance and investment opportunities, which are further compounded by social norms and gender roles (Grantham, 2022). To overcome these barriers:

- Financial institutions should be capacitated to support women entrepreneurs by offering tailored financial products and building women's financial literacy.
- Investing in women-owned small and medium-sized enterprises (SMEs) can offer a higher return on investment since women are more likely to repay loans and reinvest earnings into family and community welfare.
- Despite their potential, women-owned SMEs, especially in rural areas, often have lower energy demand and face difficulties attracting investment. Addressing these issues requires innovative financing mechanisms and targeted capacity-building initiatives.

iii. Business incubators and accelerators are essential for promoting entrepreneurship by providing technical assistance, skill development, networking opportunities, and access to funding.

- In Kenya, around 150 hubs and co-working spaces currently offer tailored support to start-ups and small businesses. However, most are concentrated in urban areas, leaving rural entrepreneurs underserved (Disrupt Africa, 2022).
- Expanding business incubators and accelerators to rural areas and tailoring them to meet the unique needs of women and youth can increase their participation in the clean energy sector.

iv. Fostering symbolic capital by promoting women role models in clean energy can enhance women's confidence and agency.

- Supporting women's cooperatives and social networks can facilitate peer learning and enhance access to resources, thereby strengthening entrepreneurial capacity. In reference to this, a female entrepreneur emphasized the importance of having strong networks that along the way served as a strong pillar towards keeping her business afloat.

"I started my journey with the little money I had, but what really made a difference was the support I received from the people I was working with and those I had connected with along the way. Their belief in me kept me going, and I couldn't have made it this far without them."

- Promoting community-based approaches that leverage women’s influence can also support market penetration of clean energy products, particularly in rural areas.

Conclusion and Recommendations

Despite the promising potential, challenges remain, including inadequate policy frameworks, limited financing options, cultural barriers, and gaps in digital literacy. Addressing these challenges through multi-stakeholder collaboration, inclusive policy development, and targeted capacity-building interventions will pave the way for a more equitable and sustainable clean energy future. A resilient clean energy future depends on our ability to identify, nurture and invest in the untapped entrepreneurial potential of women and youth across Kenya and the continent. Towards this end, based on our study, we highlight identified gaps and propose respective recommendations that can be explored further in different sector-specific and gender disaggregated contexts. In addition, the EVI-SICEE scoping study has documented selected case studies that provide varying lessons for targeted economic empowerment in clean energy entrepreneurship (Case Study 1 & 2).

	Identified gap	Recommendation
1	Inadequate policy support for women and youth in clean energy	Enact policies that recognize and promote youth and women in clean energy, offering tax incentives and grants to encourage innovative community-based solutions.
2	Lack of gender-specific training and mentorship programs	<ul style="list-style-type: none"> • Implement mentorship and skills development programs specifically targeted at women and youth (through affirmative action) • Strengthen collaborations between TVET institutions, industry players, and universities while targeting of increasing women and youth enrolment
3	Limited access to finance for women entrepreneurs	Develop government-backed credit guarantee schemes to reduce collateral requirements for women entrepreneurs, and partner with microfinance institutions to design tailored financial products for clean energy businesses
4	Insufficient market linkages and value chain integration	Foster public-private partnerships (PPPs) to strengthen supply chains, reduce raw material costs, and create platforms for showcasing clean energy products and innovations.
5	Gender biases in clean energy job opportunities	Develop affirmative action policies that encourage the hiring and retention of women in technical and leadership roles within the clean energy sector
6	Limited local incubation and support hubs	Establish local clean energy incubation hubs that offer continuous mentorship, technical training, and business support
7	Socio-cultural barriers and stereotypes	Conduct community sensitization and advocacy campaigns to challenge gender stereotypes and promote the inclusion of women and youth in technical fields and entrepreneurial roles.
8	Weak digital literacy and technology uptake	Integrate digital literacy training within clean energy programs, enhance digital marketing, e-commerce, and financial management skills.

Learning from Best Practices

Case Study 1: Solar Sister Women's Economic Empowerment in Clean Energy Entrepreneurship

Over 10,000 female entrepreneurs have been educated by Solar Sister since its founding, and it currently employs 126 people full-time in Kenya, Tanzania, and Nigeria. The Enterprise offers a minimum of a year's worth of business training, which is given by organization personnel during monthly Sisterhood meetings. The company places a strong emphasis on complete after-sales service, community-based sales strategies, and training programs tailored specifically for women. The initiative aims to improve women's entrepreneurial skills in sustainable energy, with a focus on distribution network expansion. In addition, Solar Sister offers solar equipment to female entrepreneurs on loan and depends on grants and contributions to fund its operations. Commissions from sales are earned by the business owners, which helps keep it afloat.

Adopted from Pinneo (2024)

Case Study 2: Women in Energy Enterprises in Kenya (WEEK 3) Initiative by Practical Action

The WEEK 3 project, supported by ENERGIA and funded by SIDA, aims to empower women energy entrepreneurs in Kenya's Meru, Embu, and Tharaka Nithi Counties. By providing training, mentorship, access to finance, and market linkages, the project has supported 402 women entrepreneurs and facilitated the sale of 112,769 modern clean energy technologies, benefiting 581,610 consumers in last-mile communities. The initiative also works with local governments to promote gender-sensitive energy policies, resulting in commitments such as Embu County's development of a gender-sensitive County Energy Plan and Meru County's waiver of marketing fees. The project has led to significant gender equality advancements in government bodies, including the creation of Gender Action Plans and the appointment of gender champions within the Ministry of Energy and Petroleum. Notable achievements include over \$27,000 in credit secured by women entrepreneurs and the establishment of key partnerships with clean energy companies.

Adopted from Practical Action (2024)

Further Reading

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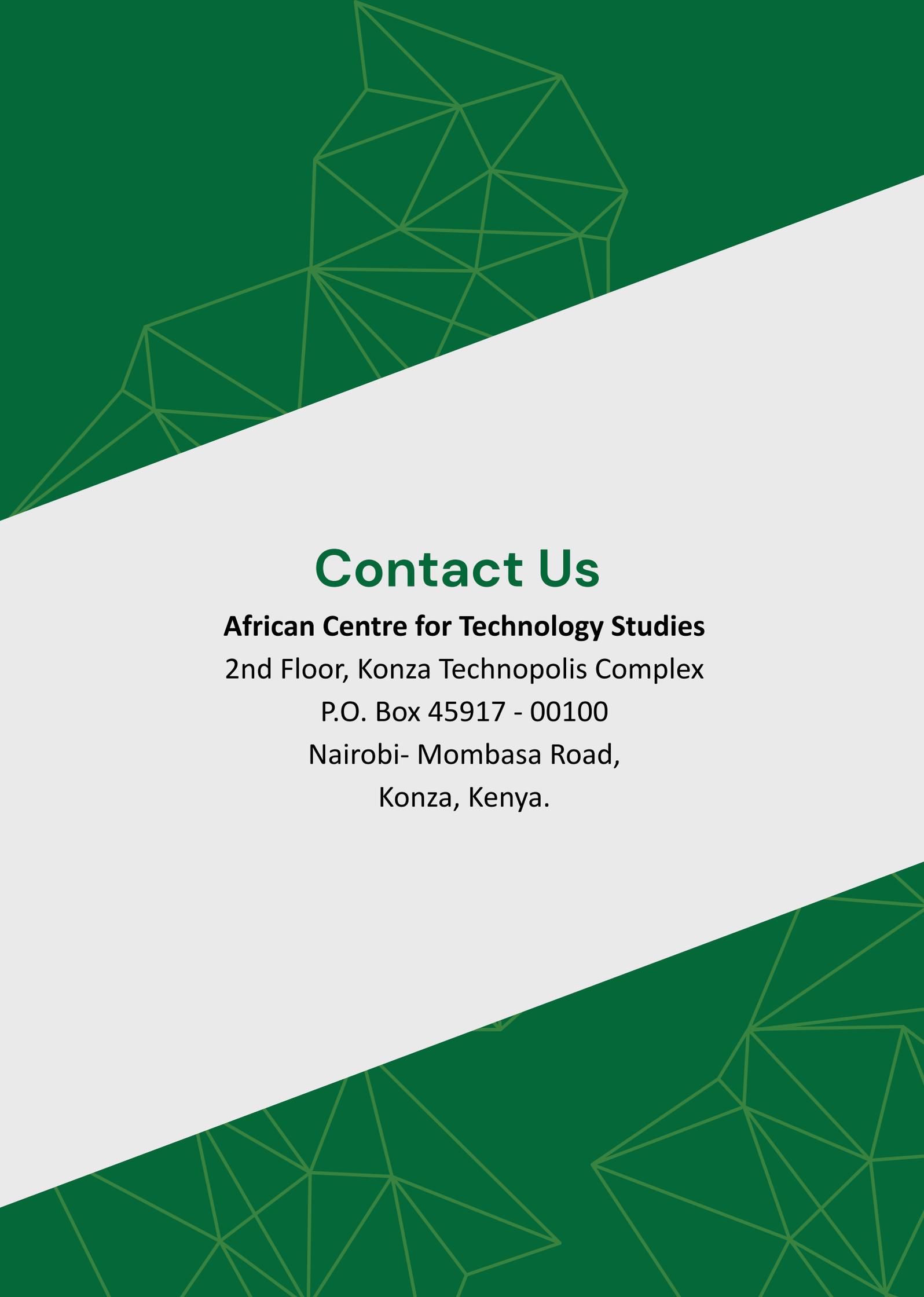
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