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From Firewood to Freedom:

Seven Years of Evidence on Gender, Clean Cooking Energy, and Change in Tanzania

How TaTEDO-SES0's sustained research journey is reshaping what it means to cook clean — and what that means for women

By TaTEDO-SES0 Research & Communications Team • May 2026 •

In the communities where TaTEDO-SES0 has worked for over three decades, cooking is never just cooking. It is the first task of the morning and often the last of the evening. It is the invisible labour that keeps families alive, the smoke that darkens lungs, the wood that must be collected before dawn breaks. And, as a growing body of evidence now makes unmistakably clear, it is one of the most powerful levers we have to advance gender equality in Tanzania.

01 THE SCALE OF THE CHALLENGE

Tanzania stands at a pivotal moment. Electricity access has expanded dramatically from 14% of households in 2011 to 71% today, with the Julius Nyerere Hydropower Project adding 2,115 MW of generation capacity by early 2025. The national grid now reaches all 12,318 villages on the mainland. By most measures, Tanzania's energy story is one of rapid, remarkable progress.

And yet only around 2% of Tanzanian households cook with electricity. Over 80% still depend on firewood and charcoal as their primary cooking fuel. The gap between the electricity meter on the wall and the pot on the stove is vast and it is, above all, a gender gap.

82% OF HOUSEHOLDS RELY ON BIOMASS (FIREWOOD & CHARCOAL)	~2% USE ELECTRICITY AS PRIMARY COOKING FUEL DESPITE 71% ACCESS	33,024 PREMATURE DEATHS ANNUALLY FROM HOUSEHOLD AIR POLLUTION	US\$39bn ESTIMATED ANNUAL COST OF INACTION ON CLEAN COOKING (WORLD BANK, 2024)
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Women and girls bear most of these costs in time, in health, in opportunity. They collect the fuel, tend the fire, and breathe the smoke. They produce an estimated 60% of all food crops in Tanzania while simultaneously managing the energy demands of the household. Research across TaTEDO-SESOS gender studies has found that Tanzanian women spend up to 14 hours a day on unpaid household labour, with international evidence confirming women do three times as much unpaid domestic work as men.

These numbers frame TaTEDO-SESOS decades-long commitment to understanding and reshaping the relationship between women and cooking energy in Tanzania, a commitment that has generated seven years of primary research findings now forming one of the most detailed evidence bases on gender and electric cooking on the continent.

02 A RESEARCH JOURNEY BUILT ON LISTENING

TaTEDO-SESOS gender and energy evidence base did not emerge from a single study. It grew, iteratively, from community conversations in Ubungu, Dar es Salaam, Kibindu and Kifuru in Pwani, Dodoma and the rural foothills of Kilimanjaro's Hai and Moshi rural Districts. The following organisation has been a partner or lead in a succession of nationally and internationally significant research programmes, each one deepening the picture.

- **2019 — eCook and Gender in Tanzania**

TaTEDO-SESOS co-authored this foundational study with Gamos, Loughborough University, and the University of Surrey under Innovate UK's Energy Catalyst Round 4 — one of the first gendered analyses of battery-supported electric cooking in sub-Saharan Africa. Focus groups in Ubungu, Moshi, Kibindu, and Kifuru, combined with cooking diaries from 20 households, produced the first rich primary evidence on gendered barriers and drivers to electric pressure cooker adoption in Tanzania.

- **2022 — MECS Cooking Diaries, Dodoma & Kilimanjaro**

Under the Foreign, Commonwealth & Development Office (FCDO)-funded Modern Energy Cooking Services (MECS) programme, TaTEDO-SESOS led a gender assessment and cooking diaries study in Dodoma and Kilimanjaro's Hai District, placing electric pressure cookers (EPCs) in 24 households and measuring real-world change over three weeks alongside community focus groups. This study generated some of the most concrete quantitative evidence on time savings and behaviour change in the region.



Community training on use of EPC in Kilimanjaro

- **2024 — ISU-CHAVPRO Gender Action Plan**

TaTEDO-SESO developed a comprehensive Gender Action Plan for the Integrated Sustainable Charcoal Value Chain Promotion Project in Pwani Region, funded by the European Union and the Government of Tanzania applying a rigorous gender mainstreaming lens to the charcoal supply chain recognising that the transition to clean cooking requires attention to both the demand and supply sides of the energy system, including the livelihoods of women within biomass value chains.

- **2026 — The State of Modern Energy Cooking Services in Tanzania: A Gender Equality and Social Inclusion (GESI) Perspective**

The flagship output of the [Mainstreaming Gender Equality and Social Inclusion for a Just Energy Transition \(JustGESI\)](#) project, funded by UKRI's Ayrton Challenge Programme. The most comprehensive assessment yet: a mixed-methods study combining structured literature review with 32 key-informant interviews across government, private sector, civil society, and end-users in five Tanzanian regions, delivered by TaTEDO-SESO with Loughborough University.

Taken together, this body of work represents an extraordinary cumulative investment in understanding what it takes to move a household and a country from firewood to a cleaner cooking future.

03 WHAT THE EVIDENCE TELLS US: FOUR TRANSFORMATIVE INSIGHTS

1. Time Savings Are Large, Real, and Immediate

Across every study, the time-saving impact of EPC is one of the most consistent and striking findings. Women in Dodoma and Kilimanjaro cooking diaries study reported spending just over **three hours less per day** on cooking activities after receiving EPCs. Time spent collecting firewood dropped from an average of **14 hours per week to just 3 hours per week**. This remaining firewood collection reflects the continued practice of “fuel stacking,” where households use multiple cooking technologies and fuels alongside EPCs for certain meals, during power outages, or for cultural cooking preferences.

FIELD EVIDENCE — HAI DISTRICT, KILIMANJARO, 2022

Participants reported that the EPC eliminated the constant requirement to stay close to the cooking appliance to prevent burning — freeing them to attend to other household tasks simultaneously. Six households said they would no longer use a traditional wood stove at all.

Earlier research in 2019 found that switching from charcoal to an EPC cut cooking time for long-boiling dishes like beans in half. The practical mathematics are compelling: what once required 40 minutes of constant tending now takes 20, with the cook free to work, rest, or attend school during that time.

This time liberation is not trivial. For women already working 14-hour days of largely unremunerated labour, three hours is transformative. It is the difference between attending an evening literacy class or not. Between taking on a small trading activity or not. Between rest and exhaustion.

II. Economic Empowerment Follows Naturally — But Needs a Pathway

Most participants in TaTEDO-SESO's cooking diary studies reported intending to direct freed-up time toward economically productive activities. Importantly, the research documented intention translating into action: by the close of the Dodoma and Kilimanjaro study, three women in Dodoma and four in Kilimanjaro had independently decided to become retailers and promoters of EPCs in their communities creating micro-enterprise without any formal intervention to encourage it.

“These women saw what was possible, experienced the time savings themselves, and immediately identified a market. They became the evidence and the solution simultaneously.”

— TaTEDO-SESO Gender Assessment Report, Dodoma & Kilimanjaro, 2022

The 2019 eCook gender study identified the Solar Sister model, an Avon-style, network-based distribution approach as a highly promising vehicle for scaling EPC adoption through female entrepreneurship. The model leverages trust, social proximity, and women's cooking knowledge: a sales agent who cooks the dishes you know and then demonstrates the technology in a home you visit regularly is a more persuasive force than any billboard.

TaTEDO-SESO had already validated this instinct in practice: after facilitating a two-day training programme on energy-efficient electric cooking, the organisation received **40 direct enquiries** for EPCs and rice cookers, an organic pipeline generated entirely by demonstration and word of mouth.

The research is equally clear on the challenges. Capital access remains a binding constraint for women entrepreneurs. Studies across both 2019 and 2026 identify limited access to inclusive financing — PAYGO, on-bill financing, or micro-credit as among the most significant structural barriers to EPC adoption. For the Sustainable Energy Services Company (SESCOM), the TaTEDO-SESO's social enterprise subsidiary, this points to the imperative of integrating affordable financing into every EPC distribution model.

III. Resistance to Change Is Real — But Dissolves with Demonstration

Every study identified resistance to behaviour change as a significant factor. Two perceptions recur across all sites and geographies: the belief that EPCs are dangerous, and the belief that electricity is too expensive for cooking.

Both are factually incorrect and both, the evidence shows, dissolve rapidly with direct experience. Women in the Dodoma study had banned traditional stove-top pressure cookers from their kitchens after an incident in which one exploded. When introduced to

an EPC that physically cannot be opened under pressure and cuts off automatically when overheating, their response shifted from fear to enthusiasm.

ON THE COST MISCONCEPTION

The 2019 eCook gender study was unequivocal: cooking diary participants who switched from charcoal and/or LPG to electricity reported saving money. Some women in Dodoma reported spending over TZS 60,000 per month on charcoal; EPC users reported halving that expenditure and more.

The perception of electricity as costly for cooking is a barrier that can be dismantled but only through tangible, trusted, community-level demonstration. Campaigns alone will not do it.

The JustGESI 2026 study confirms that institutional barriers compound individual perceptions: weak appliance standards, limited quality control, inadequate after-sales support, and unreliable electricity supply all undermine consumer confidence. TaTEDO-SESO's advocacy work in the policy space particularly around TBS's standards functions and the implementation of Tanzania's National Clean Cooking Strategy reflects an understanding that market development and policy change must advance together.

IV. Gender Roles Can Shift — and Men Are Part of the Solution

Perhaps one of the most nuanced findings across TaTEDO-SESO's research is the potential for electric cooking to rebalance gently but meaningfully the gendered division of domestic labour in Tanzanian households.

Focus groups consistently found that while cooking remains overwhelmingly a woman's responsibility, men are not intrinsically opposed to participating, they are deterred by the skill requirement, the mess, the monitoring, and the social weight of an open fire. An appliance that requires the user to press a button, has a non-stick interior, a single pot to clean, and zero soot removes most of those deterrents.

Women in Moshi observed that men might be willing to cook with eCookers precisely because they eliminate the need to light and tend a fire. Women in Ubungu noted that men prefer to prepare quick foods taking shortcuts and that an EPC speaks directly to that preference. Several women reported husbands already preparing tea or sharing cooking responsibilities when modern appliances were available.

JUSTGESI FINDING, 2026

Introduction of EPCs in households in Dodoma and Kilimanjaro was found to have the potential to redefine men's role as sole economic provider and decision-maker as women's freed-up time translated into income generation and enhanced economic participation, and men began to share more domestic responsibilities.



Engagement of men and women in eCooking trainings

This is not transformation overnight. Deep cultural norms in some communities, a man cooking was historically considered taboo, do not dissolve in a study period. But the research is consistent: the technology creates conditions for change that did not exist before. The rest is a generational project.

04 THE POLICY ENVIRONMENT: PROGRESS AND GAPS

Tanzania now has an unusually strong policy framework for clean cooking. The **National Clean Cooking Strategy (NCCS) 2024–2034** targets 80% national adoption of clean cooking technologies by 2034. The **National Energy Efficiency Strategy (NEES) 2024–2034** complements it. The National Energy Compact commits to mobilising US\$12.9 billion in clean energy investment. TANESCO’s on-bill financing pilot and the “Pika Smart” behaviour-change campaign represent early-stage implementation.

EWURA has integrated GESI principles into its oversight functions. The NCCS formally recognises gender disparities in the clean cooking value chain. These are significant achievements, many of them reflecting direct engagement by TaTEDO-SESO and its partners over years of advocacy.

But the JustGESI 2026 study is candid about the implementation gap. The National Clean Cooking Fund supposed to be operational by June 2025 remains non-functional at time of writing. Electric cooking appliance standards are underdevelopment. GESI data systems remain fragmented: most national datasets lack gender-disaggregated cooking energy data, and marginalised groups — tenants in shared-meter housing, rural women, people with disabilities — are largely invisible in monitoring frameworks.

WHAT THE JUSTGESI 2026 STUDY RECOMMENDS

Expand affordable financing mechanisms, including PAYGO and on-bill financing, with specific targeting of low-income and women-headed households.

Strengthen appliance quality standards and enforce them including accessible after-sales services and spare parts availability outside Dar es Salaam.

Improve electricity supply reliability, particularly in peri-urban and mini-grid areas, to make electric cooking a viable primary option, not a fallback.

Deepen GESI integration: move from policy language to mandatory, gender-disaggregated monitoring across the clean cooking value chain.

Scale behaviour-change campaigns through trusted community networks not mass media alone with women as the primary agents of demonstration and diffusion.

05 TaTEDO-SESO'S ROLE: FROM RESEARCH TO MARKET

What distinguishes TaTEDO-SESO's contribution is not only the quality of its research but the directness of the line from evidence to action. As both a research organisation and, through SESCOM, a market actor in electric pressure cookers and clean cooking appliances, TaTEDO-SESO occupies a unique position: it generates the evidence, shapes the policy, and markets the appliance.

SESCOM's distribution activities in Dar es Salaam, Dodoma, Moshi, Arusha, and beyond are informed by the organisation's own gender research. The understanding that purchasing decisions in most Tanzanian households are **joint decisions**, not solely male-controlled, as was previously assumed has direct implications for how SESCOM designs its marketing. The evidence that women who experience EPCs become organic advocates and sales agents within their communities drives recruitment of female sales representatives.

The **21 solar mini-grid villages** facilitated by TaTEDO-SESO represent a different but equally important nexus. Mini-grids are an emerging frontier for electric cooking access evidence from ESMAP confirms that higher-capacity mini-grid systems can power EPCs effectively. For TaTEDO-SESO, integrating EPC promotion into mini-grid communities is both a commercial and a gender equity strategy: it directly addresses the persistent gap between electricity access and actual clean cooking adoption, and it targets the rural women who carry the heaviest burden of traditional cooking.

06 LOOKING FORWARD: THE WORK THAT REMAINS

Tanzania is, as the JustGESI report notes, at a critical turning point. The policy architecture is in place. Electricity infrastructure is expanding. Awareness is growing aided in part by campaigns like "Pika Smart," the emergence of East African food blogging communities (cooking-themed Facebook groups with over a million members, YouTube channels with hundreds of thousands of views per recipe video), and the organic testimonials of women who have already made the switch.

What is missing is the bridge: affordable financing, reliable electricity, availability of appliances standards and enforcement, accessible after-sales support, and the sustained community-level demonstration that turns curious onlookers into committed adopters.

TaTEDO-SESO's experience seven years of evidence, three decades of community trust suggests that the most powerful demonstrations are human ones. It is the woman in Kilimanjaro who takes her EPC to a group meeting and cooks a dish everyone knows. It is the agent in Dodoma who explains, patiently, that her cooking budget has halved. It is

the husband in Ubungo who quietly starts boiling water each morning, because it is just easier that way.

These are the moments of transformation that no national strategy can manufacture but that good research, good products, and decades of patient community engagement can create the conditions for.

The firewood era in Tanzania will not end in a single programme cycle. But it is ending. And the evidence that TaTEDO-SES0 has helped generate, test, and translate into action is part of how Tanzania will get there.

Sources & Acknowledgements

This article draws on five primary documents produced by or in partnership with TaTEDO-SES0: eCook and Gender in Tanzania (Chepkurui et al., 2019, Innovate UK / DfID); Gender Assessment Report for Dodoma Urban and Rural Areas of Hai District, Kilimanjaro Region (TaTEDO / MECS, January 2022); Gender Action Plan for the ISU-CHAVPRO Project (TaTEDO-SES0, June 2024) / EU - Integrated Approach to Sustainable Cooking Solutions Programme; and The State of Modern Energy Cooking Services in Tanzania: A Gender Equality and Social Inclusion (GESI) Perspective – the JustGESI Final Report (Didas, Swai, Shuma, Saue & Saligari, April 2026, TaTEDO-SES0 / Loughborough University / UKRI Ayrton Challenge). Statistical sources include NBS/REA Energy Access and Use Situation Survey 2019/20, URT Household Energy Consumption Survey 2025, and World Bank Country Climate and Development Report 2024.

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