

EVI-SICEE POLICY BRIEF No. 02

Technology Attributes, User Awareness, and Market Acceptability of Clean Cooking Technologies Among Foodservice Enterprises in Kampala, Uganda

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Executive Summary

Clean cooking is a critical development priority for Uganda due to its strong links to public health, environmental sustainability, gender equality, youth employment, and climate change mitigation. Although the Government of Uganda has made notable commitments to promote clean cooking technologies, market acceptability and sustained use remain low, particularly among food service enterprises that rely heavily on charcoal and firewood.

This policy brief draws on findings from a cross-sectional study conducted between April and May 2025 among 400 women- and youth-owned food service enterprises in Kampala District. The study examined the influence of technology attributes and user awareness on the market acceptability of clean cooking technologies. Results show that, both technology attributes and user awareness have a statistically significant positive influence on market acceptability. Together, these factors explain 67% of the variation in market acceptability, highlighting their central role in adoption decisions.

The brief provides evidence-based policy recommendations for the Ministry of Energy and Mineral Development (MEMD) and other energy stakeholders, emphasizing demand-side interventions, user-centered technology design, enterprise-focused financing and gender and youth responsive programming to accelerate the clean cooking transition.

Introduction

Uganda's cooking energy landscape is dominated by traditional biomass fuels, with charcoal and firewood accounting for the majority of energy sources used in households and small commercial enterprises. Food service enterprises, including restaurants, street food vendors, catering services, and food kiosks, are among the largest consumers of cooking energy in urban areas. These enterprises, predominantly owned and operated by women and youth, play a critical role in employment creation, food security and urban livelihoods.

Despite increased promotion of liquefied petroleum gas (LPG), improved biomass stoves, electric cooking appliances, and other clean cooking technologies, adoption within food service enterprises has lagged behind expectations. Many enterprises either do not adopt clean cooking technologies at all or abandon them after initial uptake. This undermines national goals related to health improvement, environmental protection and inclusive economic growth.

This policy brief responds to the need for evidence-based policy guidance by focusing on how technology attributes and user awareness shape market acceptability among women- and youth-owned food service enterprises. It aims to inform MEMD and stakeholders on how to design and implement policies that support sustained adoption rather than short-term uptake.

Policy Context and Problem Statement National and Policy Context

The promotion of clean cooking technologies is anchored in several national and international frameworks, including the Energy Policy for Uganda, the National Development Plan (NDP III and IV), Uganda's Nationally Determined Contributions (NDCs) and Sustainable Development Goal 7 on access to affordable, reliable, sustainable and modern energy.

While these frameworks emphasize increased access to clean cooking solutions, implementation has largely focused on supply-side measures such as technology distribution, subsidies and infrastructure development. Less attention has been paid to demand-side factors that influence perception of enterprises on clean cooking technologies in relation to suitability, affordability and benefits for their businesses.

The Policy Problem

Low market acceptability of clean cooking technologies among food service enterprises results in

- Continued exposure of workers and customers to harmful indoor air pollution
- High and volatile fuel costs that reduce business profitability
- Environmental degradation driven by sustained charcoal demand
- Missed opportunities for green enterprise development and job creation

Study Objectives

The study informing this policy brief was guided by the following objectives:

- Characterize clean cooking technologies among women- and youth-owned food service enterprises in Kampala.
- Examine the association between technology attributes and market acceptability of clean cooking technologies.
- Examine the association between user awareness and market acceptability of clean cooking technologies.
- Examine the combined effect of technology attributes and user awareness on market acceptability of clean cooking technologies.

Methodological Overview

A cross-sectional research design was employed. Data were collected using a structured questionnaire administered to 400 randomly selected food service enterprises that use clean cooking technologies. The sample was drawn from a population of 16,032 enterprises operating within Kampala District. Quantitative data analysis techniques were used to assess associations and explanatory power.

Key Findings

Clean Cooking Technologies in Use

Women and youth-owned food service enterprises use a mix of clean cooking technologies, including LPG stoves, improved biomass stoves, electric pressure cookers, and ethanol stoves. However, many enterprises rely on multiple fuels, often combining clean technologies with charcoal to manage costs and reliability concerns.

Influence of Technology Attributes

Technology attributes, such as affordability, fuel efficiency, durability, safety, ease of use, and compatibility with local cooking practices, were found to have a significant positive association with market acceptability. Technologies perceived as unreliable, expensive, or unsuitable for high-volume cooking were less likely to be fully adopted.

Influence of User Awareness

User awareness (including knowledge of health and economic benefits, operational skills and exposure to demonstrations and training) was positively associated with market acceptability.

Enterprises with higher levels of awareness were more likely to trust, adopt, and continue using clean cooking technologies.

Combined Effect

The combined effect of technology attributes and user awareness explained 67% of the variance in market acceptability. This indicates that while these factors are central, other issues such as financing, fuel supply reliability, and regulatory enforcement also influence adoption decisions.

Policy Recommendations

Strengthening User Awareness and Capacity Building

The Ministry of Energy and Mineral Development (MEMD), in collaboration with local governments, civil society organisations, and development partners, should consider the following:

- Institutionalize community-based clean cooking demonstrations targeting food service enterprises.
- Support women-led stove installation, operation, and maintenance workshops.
- Integrate clean-cooking awareness and skills training into existing enterprise development and youth-skilling programs.

Promote User-Centred Technology Design and Quality Assurance

- Encourage manufacturers and distributors to co-design clean cooking technologies with end users.
- Strengthen enforcement of national standards to ensure safety, durability, and performance.
- Promote technologies that align with local cooking practices and commercial cooking needs.

Improve Access to Affordable Financing

- Expand results-based financing and pay-as-you-cook models tailored to food service enterprises.
- Partner with microfinance institutions and Savings and Credit Cooperative Organizations (SACCOs) to develop affordable clean cooking loan products for women and youth.
- Consider targeted incentives or subsidies for enterprises transitioning away from charcoal.

Strengthening Coordination and Data Use

- Improve coordination between the Ministry of Energy and Mineral Development (MEMD), local governments, and private sector actors.
- Use enterprise-level data to inform planning, targeting, and monitoring of clean cooking programs.

Conclusion

The transition to clean cooking in Uganda cannot be achieved through technology provision alone. Evidence from this study demonstrates that technology attributes and user awareness play a decisive role in shaping market acceptability among women- and youth-owned food service enterprises. Policies that prioritise user-centred design, awareness, and enterprise-focused support are more likely to achieve sustained adoption.

By integrating these insights into clean cooking policy and programming, the Ministry of Energy and Mineral Development can accelerate progress towards national energy, health and environment.

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