

Findings from a baseline survey on the status of clean cooking in Kisenyi, Kampala City in Uganda

November 2023



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FOREWORD



HIS WORSHIP SALIMU UHURU

Mayor Kampala
Central Division
Urban Council

It is with great pleasure and a profound sense of responsibility that I introduce this pivotal report on clean cooking access in the Kisenyi urban informal settlement, situated in the heart of our beloved city, Kampala, Uganda. As the Mayor Kampala Central Division Urban Council, I am honored to present the findings of a comprehensive study that delves into a crucial aspect of our citizens' daily lives – access to clean cooking solutions. The study conducted by ICLEI Africa and Mercy Corps – Energy 4 Impact (with support from ACTogether), under the Enabling African Cities for Transformative Energy Access (ENACT) project, not only underscores the current status and challenges faced by our citizens in accessing clean cooking solutions, but also provides recommendations and insights into tangible pathways for positive change.

Kisenyi is the largest slum in Kampala, with a population of over 42 000 people. It encapsulates the rich diversity of our city, embodying the aspirations and resilience of a substantial portion of our population. The report reveals that over 92% of the residents of Kisenyi rely on charcoal for cooking, paired with inefficient metallic or ceramic cookstoves, contributing to elevated levels of indoor air pollution and environmental degradation.

These findings emphasize the urgency of addressing this prevalent issue and prompt us to consider the broader implications for the well-being of our citizens and the sustainability of our city.

The report does not merely present challenges; it also proposes practical solutions, including fostering collaborations amongst various public, community and private-sector stakeholder groups; a more intentional approach to awareness creation; as well as a mindset change by all citizens around traditional fuels and stoves used for cooking.

Implementing these recommendations will contribute towards the attainment of key national and city targets. The government of Uganda has set ambitious targets of improving access to clean cooking to 100% of its population by 2030 and has also committed to reducing its greenhouse gas (GHG) emissions by 24.7% by 2030 from Business as Usual. Likewise, Kampala Capital City Authority (KCCA), through the Kampala Climate Action Plan, has set ambitious targets of reducing total GHG emissions by 22% by 2030 and increasing access to clean cooking by 50% by 2025.

I call upon all stakeholders – policymakers, community leaders, and our residents – to unite in implementing the recommendations outlined in this report and also scale these solutions to similar communities in Kampala and beyond. Together, let us embark on a transformative journey towards a city where the air is clean, the environment is preserved, and the health of our citizens is safeguarded. May the lessons learned through the ENACT project inspire positive change throughout Kampala and beyond.

FOREWORD



KOBIE BRAND

Regional Director:
ICLEI Africa &
Deputy Secretary
General: ICLEI

Staggeringly, over 990 million Africans, particularly those living in sub-Saharan Africa, cook with inefficient and polluting biomass fuels and stoves. This not only causes environmental degradation and climate impacts, but poses devastating health risks to those doing the cooking, which are usually women and children.

This critical report, that ICLEI Africa has co-developed – as the lead implementing partner for the Enabling African Cities for Transformative Energy Access (ENACT) project – with Mercy Corps-Energy 4 Impact and with support from ACTogether Uganda, Uganda’s Ministry of Energy and Mineral Development and the Kampala Capital City Authority, highlights the urgent need to act on accelerating access to clean cooking solutions in sub-Saharan Africa.

With more than half of Africa’s urban population living in informal settlements and slums, this report puts a spotlight on some of the energy-related challenges these vulnerable communities face.

As an example, 92% of households and microenterprises in the Kisenyi informal settlement in Kampala use charcoal as the primary fuel for cooking.

The adoption of clean cooking solutions in this area is inhibited largely by the price of clean cooking assets, mindset and cultural norms around cooking, and perceived health and safety concerns related to using cleaner cooking technologies. Nonetheless, in this community, there is a demonstrated willingness to transition to cleaner solutions and, through collaborative efforts and awareness raising, there is an immense opportunity to accelerate this transition.

This report clearly underscores the urgent need to amplify our efforts in supporting these marginalised communities, especially in the sprawling landscapes of slums and informal settlements. Clean cooking is not just an environmental imperative, it is a lifeline for those on the fringes, a catalyst for social equity and a testament to the transformative power of sustainable urban policies. Clean cooking transforms lives.

While there has been some progress on clean cooking access in recent years, adoption levels are still low, and the SDG7 goal of universal access by 2030 is appropriate but ambitious. Projects like ENACT play a defining role in making sure we reach this target. But more needs to be done.

For decades, ICLEI Africa has been supporting our network of over 400 African cities on their sustainability journeys. We stand ready, as always, alongside our partners, for radical collaboration and innovative ways of working, to ensure that the policies, plans and financing needed to implement clean cooking in African cities are scaled and successful.

ACKNOWLEDGEMENTS

ICLEI Africa is delighted to publish this report on the baseline survey on the status of clean cooking and awareness gaps in Kisenyi, Kampala, Uganda. The study was commissioned by the ENACT project partners, namely: ICLEI Africa, Mercy Corps-Energy 4 Impact (MC-E4I), Uganda's Ministry of Energy and Mineral Development (MEMD) and the Kampala Capital City Authority (KCCA). It was funded by the UK Government, via the Transforming Energy Access (TEA) platform. We appreciate the individual contributions of staff and members of ACTogether Uganda, the National Slum Dwellers Federation of Uganda (NSDFU), 15 enumerators from Kisenyi who participated in the data collection, and everyone who gave their time to be interviewed.

We are grateful to the MC-E4I team, who led the research and creation of this report. We are especially grateful to the lead authors, Collins Owuor and Sifa Sirima (both MC-E4I), and the main reviewers, Mercy Rose (MC-E4I) and Carine Buma (ICLEI Africa), for their invaluable input. We would also like to extend our gratitude to Eng. Herbert Abigaba (MEMD), for his valuable technical insight on the design of survey tools, and to Alessandra Moscadelli (MC-E4I), for coordinating the editing, designing and eventual publication of this report.

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ACRONYMS

CCSP	- Clean cooking service provider
ENACT	- Enabling African Cities for Transformative Energy Access
FGD	- Focused Group Discussion
ICLEI	- Local Governments for Sustainability
KCA	- Kampala Central Division
KCCA	- Kampala Capital City Authority
Kg	- Kilogrammes
KII	- Key Informant Interview
kWh	- Kilowatt-hour
LPG	- Liquefied petroleum gas
LSP	- Local service provider
MC-E4I	- Mercy Corps-Energy 4 Impact
M&E	- Monitoring and evaluation
MECS	- Modern Energy Cooking Services
MEMD	- Ministry of Energy and Mineral Development
MFI	- Microfinance institution
NSDFU	- National Slum Dwellers Federation of Uganda
SACCO	- Savings and credit cooperative
SMS	- Short messaging service
TEA	- Transforming Energy Access platform
UBS	- Uganda Bureau of Statistics
UGX	- Ugandan Shillings
WTP	- Willingness to pay

EXECUTIVE SUMMARY

In the informal settlement of Kisenyi, in Kampala, Uganda, the Enabling African Cities for Transformative Energy Access (ENACT) project engaged with diverse stakeholders in order to: a) introduce the ENACT project to the local community, and b) gather baseline data to inform the development of clean cooking interventions, and a campaign to raise awareness in the community.

This report presents key findings from door-to-door interviews with 345 households and 61 food-based microenterprises, five key informant interviews (KIIs) and two focus group discussions (FGDs), all conducted over three weeks.

The results of this survey will be useful in:

1. Developing key messages on clean cooking and its benefits, which the ENACT team and its partners can leverage throughout project implementation.
2. Designing a comprehensive communication and awareness-raising plan that ACTogether Uganda, ENACT's in-country community engagement partner, will implement between November-December 2023. This includes identifying key messages that should be carried forward by the clean cooking service provider (CCSP), to be selected later in the project.
3. Identifying areas of support from the wider enabling environment (e.g. the Kampala Capital City Authority (KCCA), the Ministry of Energy and Mineral Development (MEMD), clean cooking associations), to ensure collaborative participation.

Key findings

Clean cooking access and potential

- **Charcoal is the predominant cooking fuel, typically used in metallic¹ and ceramic cookstoves².** 22% of households and 62% of food-based microenterprises primarily use metallic and ceramic stoves, with 92% of both, households and microenterprises, using charcoal as the primary fuel source.
- **Stove stacking, and therefore fuel stacking, is not common in Kisenyi.** Only 31% of household and 33% of microenterprise respondents own and use a secondary stove. Of these, 32% use clean (secondary) cookstoves while 10% use traditional (secondary)

¹ Metallic cookstoves and traditional artisanal cookstoves are coal pots made of metal, valued for their portability and easy availability.

² Ceramic cookstoves are an improvement on traditional metallic stoves, as they have clay linings that provide insulation, increasing fuel efficiency through better heat retention.

cookstoves. While this may offer positive opportunities for a gradual transition to clean cooking, rigorous support is needed to create behavioural change, and motivate community members to entirely replace their current systems with new, unfamiliar technologies.

- **There is an active local supply network for charcoal and firewood.** 85% of respondents mentioned that they can access these fuels within 2km (10 to 20 minutes by foot and five minutes by motorbike) of their places of residence or business operation, making charcoal and firewood businesses prevalent and competitive. It is imperative that any clean cooking interventions introduced do not inadvertently displace the livelihoods of those selling charcoal and firewood. These businesses could potentially support the decentralised distribution of clean cooking solutions.
- **Adoption of clean cooking solutions in Kisenyi is largely inhibited by the price of clean cooking assets, the ongoing cost of related fuels, and health and safety concerns in using the technologies,** expressed by 57% of respondents. The safety of using LPG and electric cooking was particularly questioned. Other barriers include unreliable supply networks and stigma around using clean cooking for certain foods.
- **Households indicated a general willingness to pay up to UGX 85,279 for a clean cooking product, and food-based businesses would pay up to UGX 65,222, provided payments were spread over several months.** 64% of respondents would be likely or very likely to purchase LPG cookers over a six-month payment period. This willingness to pay (WTP) increases to 88% for 12-month instalments. On the other hand, only 36% of respondents would purchase an electric pressure cooker over a six-month payment plan, which increased to 44% for 12-month instalments.

Clean cooking awareness

- **There is a general awareness of clean cooking and its potential benefits,** but more could be done to communicate the health and safety advantages, as well as where and how to acquire clean cooking solutions.
- **The community has, in the past, responded well to awareness-raising activities that involve face-to-face interactions, like door-to-door visits and social gatherings.** 57% of respondents found door-to-door visits, social gatherings and radio announcements to be the most effective, mainly because they build trust similar to public mechanisms for participation. It might also be worth combining forms of communication to maximise engagement with key messages. For example, print media could be paired with face-to-face approaches, to allow participants to further engage with key messages in their own time. Equally, cooking demonstrations could be incorporated into social gatherings, door-to-door visits or settlement forums.

- **Key messages that would contribute to clean cooking uptake** include: the importance of clean cooking to users and the community, opportunities to use clean cooking for income generation, the pricing of clean cooking products, clean cooking training, and financial options that could enable access to clean cooking products. To maximise effectiveness, the community expressed a need for these messages to be communicated consistently and in collaboration with service providers and community members.

Complementary support needed from key enablers

Survey respondents feel that ENACT has a significant role to play in facilitating the affordability of clean cooking solutions, through user-centric and sustainable approaches. Closely following this, ENACT should support with continued education on clean cooking access and safety in handling, local supply infrastructure to improve last mile delivery, and facilitating access to financing to acquire clean cooking products.

Key recommendations

The recommendations presented in **Chapter 5** offer a nuanced and comprehensive approach to fostering effective collaborations and advancing the adoption of clean cooking technologies in Uganda, particularly in the urban informal settlements of Kisenyi.

Within the domain of **local service providers**, the suggestion is to draw insights from successful community awareness-raising efforts, emphasising collaboration with diverse organisations such as refugee groups, religious institutions, and cultural leadership groups. Exploring partnerships with entities experienced in door-to-door communication, social gatherings, and community radios is encouraged for a more impactful outreach.

Furthermore, the integration of face-to-face approaches with digital platforms is recommended to enhance cost-effective communication. While conventional strategies like door-to-door communication, social gatherings, and community radios remain pivotal, the **potential of digital platforms** like WhatsApp and Facebook should be harnessed for broader and more efficient dissemination of messages.

Turning to **clean cooking service providers**, the recommendations encompass diversifying product offerings to align with community demand, with a particular focus on popular choices like LPG and electric cooking kits. Marketing strategies are advised to consider both primary and secondary product uses, recognising the varied cooking practices within the community. A strategic marketing vision is encouraged, envisioning gradual behavioural

change and incorporating hands-on methods such as demonstrations and early adopter recruitment.

Moreover, the introduction of user-centric payment models is proposed to enhance affordability. This involves exploring partnerships with local financial service providers to address financial barriers faced by community members. The holistic cost of cooking, covering both cooking assets and ongoing fuel costs, is also highlighted for consideration.

For **public sector partners**, the recommendation gathered from participants and stakeholders during the study is to provide supportive public infrastructure that complements private sector efforts. This includes support for wiring homes and implementation of consumer tariffs to support adoption of electric cooking, ensuring accessible roads for LPG distribution to facilitate effective service delivery and match private sector funding to subsidise clean cooking products during initial purchase by consumers.

Additionally, the **development of inclusive energy policies** is advised, with an emphasis on effective communication through trusted channels. Stressing common goals and underscoring the benefits of policies, such as the ban on cooking with firewood in public markets, is seen as vital for building trust and encouraging voluntary policy adoption.

These detailed recommendations collectively form a robust framework aimed at driving demand and adoption of clean cooking technologies in Uganda, with a specific focus on the unique challenges and dynamics of the urban informal settlement in Kisenyi.

1 INTRODUCTION

1.1 Background

About ENACT

The Enabling African Cities for Transformative Energy Access (ENACT)³ project works with local governments in Freetown, Sierra Leone, and Kampala, Uganda, to create enabling environments for providing adequate, safe, reliable, clean and affordable energy to the urban poor in informal settlements⁴ and slums. Urban informal settlements are chosen over rural informal settlement because they have the greatest potential for improving the quality of life of dwellers. This is informed by their proximity to opportunities for employment and wealth creation while often left out in of plans and strategies for growth leading to poor provision of services like energy which would catalyse socio-economic development and improve life outcomes for those that live and work within informal settlements. ENACT is part of the Transforming Energy Access (TEA) platform⁵, funded by the UK government's UK Aid. It is managed by the Carbon Trust and delivered by ICLEI Africa, with support from Energy 4 Impact-Mercy Corps (MC-E4I).

Background on clean cooking baseline activities in Kampala

Globally, around 2.4 billion people rely on wood, charcoal and animal waste for cooking and heating.⁶ Overreliance on biomass for cooking is a large contributor to greenhouse gas emissions. One of the problems associated with this practice is the reduction of the carbon sink (the capacity of forests to absorb and store CO₂ from the atmosphere) due to deforestation. Additionally, the incomplete combustion of biomass releases contaminants such as particulate matter, carbon monoxide and nitrogen oxides, which are responsible for household air pollution (HAP) and pose a threat to human health. Urbanisation within sub-Saharan Africa (SSA) is projected to increase to 75% by 2050, increasing the population of urban dwellers. This is true for urban areas like Kampala, which are demand centres for charcoal and firewood often sourced from rural areas which gradually depletes carbon sinks owing to deforestation. According to the Energy Policy for Uganda 2023, access to clean cooking remains limited: 90.5%⁷ of Ugandan households cook with unprocessed biomass, jeopardising the government's target of universal clean cooking access for Ugandans by

³ To learn more about the ENACT project, visit: <https://africa.iclei.org/project/enact/>.

⁴ Informal settlements are habitations that emerge within urban areas and their outskirts but lacking in security of tenure, communities are deprived of basic services and town infrastructure (electricity, water and sewer systems) and buildings rarely comply to the urban zone building and planning codes often situated in environmentally sensitive areas.

⁵ To learn more about the TEA platform, visit: <https://tea.carbontrust.com/>.

⁶ For more on the global status of cooking, visit: <https://www.who.int/news/item/20-01-2022-who-publishes-new-global-data-on-the-use-of-clean-and-polluting-fuels-for-cooking-by-fuel-type#:~:text=One%20third%20of%20the%20global,%2D%20and%20middle%20income%20countries.>

⁷ Ministry of Energy and Mineral Development. (2023). *The Energy Policy for Uganda 2023*. Kampala: Government Press

2030. This target will remain unattainable if concerted efforts, like adequate funding and the delivery of market-responsive business models, are not proactively explored.

ENACT worked with the KCCA and MEMD to address some of the energy access challenges in Kampala. The partners focussed their collaborative efforts in Kisenyi, an informal settlement within Kampala City, working on clean cooking access for households and food-based businesses. This was a starting point to demonstrate the viability of helping urban informal settlements transition to clean energy. In this context, the programme appointed ACTogether Uganda as a local service provider, to collect baseline data that would inform the development of relevant interventions for the Kisenyi community.

This baseline information is instrumental in providing:

1. **A comprehensive picture of the status of cooking** in Kisenyi, including technologies and fuel types used, reasons for existing cooking patterns, and challenges experienced.
2. **A basis for designing responsive interventions**, both in awareness-raising and in the delivery of clean cooking solutions by a CCSP, to be selected later in the project.
3. **Evidence of other complementary support needed for an enabling environment**, such as policy, financing, advocacy and research, that would contribute to sustainable clean cooking solutions in the community.

1.2 Report structure

Chapter 1: Introduction - Introduces the report by giving background on the ENACT project and the rationale for a clean cooking baseline study in Kampala.

Chapter 2: Survey Overview - Includes disaggregation of survey respondents, objectives and demographic information.

Chapter 3: Cooking Status - Discusses the status of cooking in Kisenyi households and food-based micro-enterprises, focussing on the primary and secondary cookstoves and types of fuels used, distances to fuel sources, cooking area characteristics, willingness to install new cooking solutions, preferred aspirational cookstoves, and motivations for transitioning to clean cooking.

Chapter 4: Awareness, Sensitisation and Messaging - Discusses community awareness of clean cooking messaging and the channels encountered, and the preferred channels and types of messaging that would increase awareness enough to prompt changes in behaviour.

Chapter 5: Recommendations - Offers recommendations for policymakers, such as the Government of Uganda through the MEMD and KCCA, and potential service providers like CCSPs, on awareness-raising and sensitisation efforts.

Appendix – Contains: i) Key messages to include in awareness-raising efforts, which would be taken up and customised by local service providers, ENACT project partners and CCSPs to improve engagement with and outcomes of a transition to clean cooking, and ii) images depicting cooking technologies, fuels and behaviours in Kisenyi.

2 SURVEY OVERVIEW

Table 1 outlines the stakeholders engaged in the baseline survey, which gathered information on the status of clean cooking and gaps in awareness in Kisenyi. These stakeholders were engaged over a period of three weeks in September 2023 through household surveys, FGDs and KIIs.

Table 1: Stakeholders engaged during the baseline survey

Stakeholder group	Mode of data collection	Number of respondents	Profile of the respondents: sex, age and disability disaggregated data (SADD)
Household survey respondents	Interviews (in-person) – questionnaire	345 households 61 businesses	Households: seventy males and two hundred and seventy-five females Nine persons with a disability: two male and seven female 18 – 19 years: 13 respondents 20 - 24 years: 75 respondents 25 - 34 years: 122 respondents 35 - 49 years: 92 respondents 50+ years: 43 respondents
Business survey respondents	Interview (in- person) - questionnaire	61 businesses	Businesses: nine male and fifty-two females 18 – 19 years: 2 respondents 20 - 24 years: 17 respondents 25 - 34 years: 27 respondents 35 - 49 years: 15 respondents 50+ years: 0 respondents
Business representatives	FGDs - SMEs questionnaire	Two small and medium-sized enterprises (SMEs)	Two males and eight females

Key informants	KIIs	Five informants	Two males and three females
Household representatives	FGD - Household questionnaire	One FGD for households	Five male and five female

2.1 Methodology

The following methodology was used to determine the sample engaged in the survey.

A random sampling approach was adopted for the survey, drawing data from 406 households and food-based businesses (micro-enterprises) in Kisenyi, against an initial plan of 400. According to 2021 citywide slum profiles by ACTogether Uganda, Kisenyi is divided into three parishes, Kisenyi I, II and III, which consist of approximately 1,150, 1,000 and 1,800 households respectively, with a total of 3,950 households. After consultation with stakeholders (KCCA, KCD, NSDFU and ACTogether Uganda), it was decided that due to the redevelopment rates of Kisenyi I, which has recently been highly commercialised, the sample of 340 households would be engaged in the survey in the following proportions: 20% in Kisenyi I, 35% in Kisenyi II and 45% in Kisenyi III.

Table 2: Sample size determination

Parish	Sample representation (%)	Households (n)	Businesses (n)
Kisenyi I	20%	68	12
Kisenyi II	35%	119	21
Kisenyi III	45%	153	27
Total	100%	340	60

To reduce potential biases in respondent selection on the ground, a spatial geographical technology⁹ application was used on enumerators' tablets, to randomly interpolate the 406 surveys as points in the study areas. Each enumerator was assigned daily targets to administer the questionnaires on MC-E4I's Kobo Collect platform.

In addition, FGDs were conducted, involving 20 community members. FGD I was conducted mainly with five male and five female participants, representing households, and FGD II was conducted with two male and eight female participants, representing food-based enterprises.

Another set of interviews was conducted with five key informants, two male and three female, who represented local leadership and policy bearers in Kampala and Uganda.

2.2 Survey objectives

The baseline survey was primarily designed to help:

1. Assess the type of energy used for cooking in Kisenyi, and its related parameters;
2. Determine the community's understanding of clean cooking;
3. Identify gaps in awareness about clean cooking technologies and their benefits;
4. Identify preferences in types of clean cooking technologies to introduce to the community; and
5. Identify suitable platforms on which to engage the community and raise awareness about clean cooking.

The survey outcomes will be used to develop a robust awareness-raising campaign, to be implemented collaboratively by ACTogether Uganda, the KCCA, and the Kisenyi community, and later to be adopted by the selected CCSP(s). This campaign will promote the adoption of clean cooking products and services in Kisenyi and beyond.

Furthermore, the collected data will serve as a valuable tool for the ENACT team and other partners to monitor the progress of awareness levels throughout the project, including their role in augmenting the adoption of clean cooking products and services within urban informal settlements and slums, and develop recommendations for scaling to other communities. The key findings are summarised below.

⁹ Maps.me was used for this: <https://maps.me/>.

2.3 Community demographics

Sex of the respondents

In the conducted survey, it was observed that the majority of respondents were female (81%) compared to male (19%). However, 85% of the overall sample represented households, while the other 15% operated food-based microenterprises, either in standalone premises or within their homes. As shown in

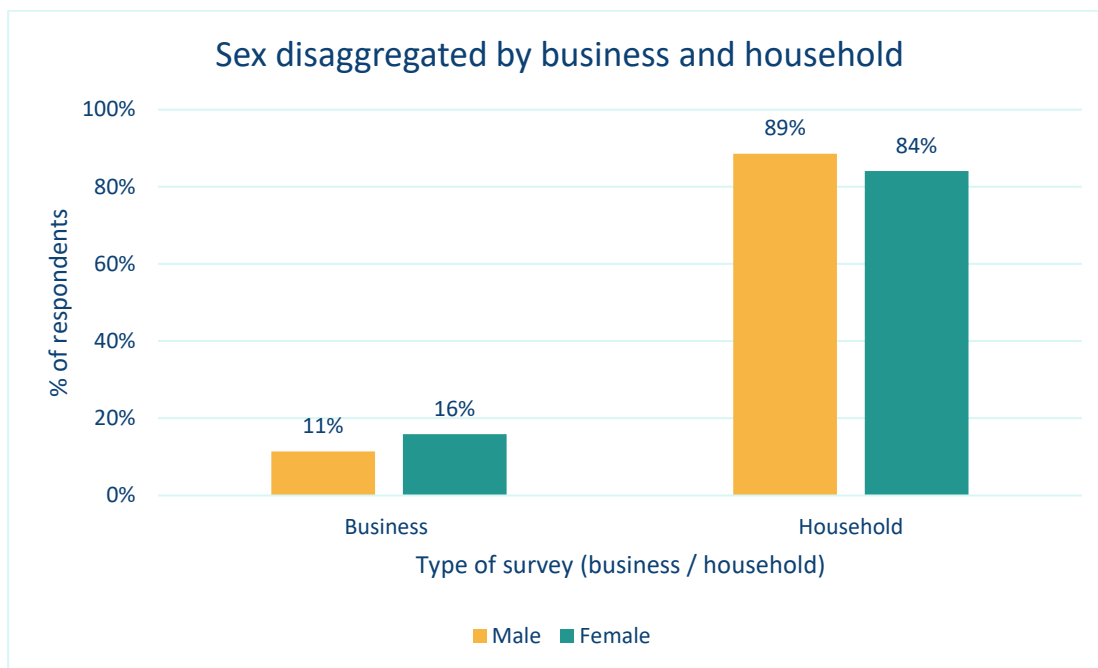


Figure 1, only 11% of male respondents operate a food-based business, while women are only slightly higher at 16%. This means that when targeting food-based microenterprises, awareness raising should not be gender-biased, since there is a near parity of men and women either owning or employed within food-based businesses.

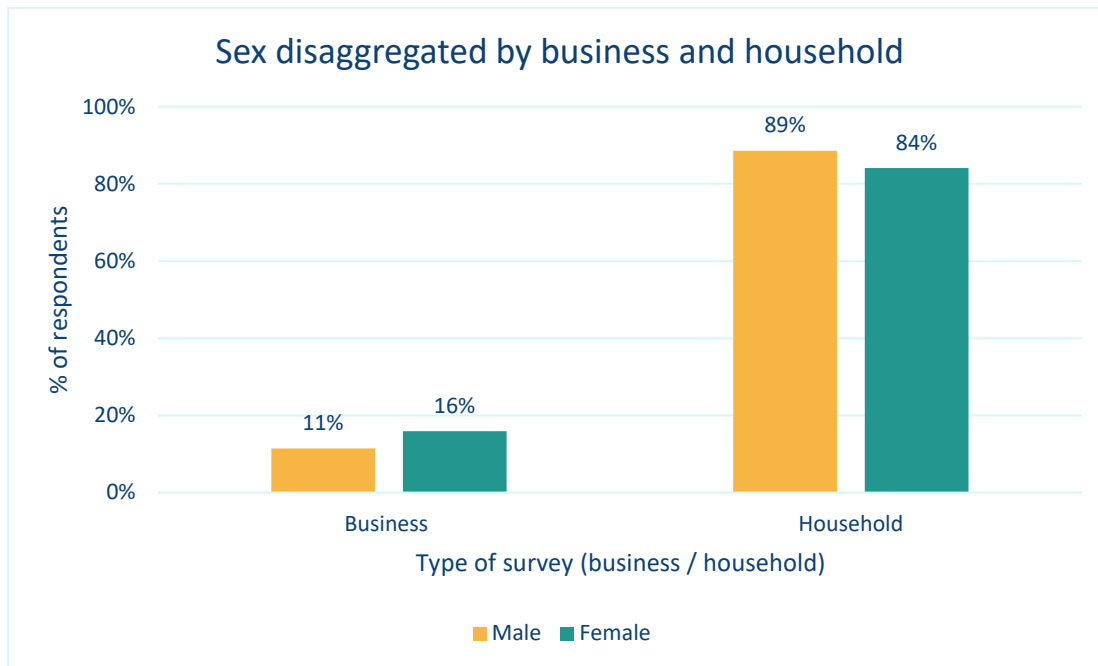


Figure 1: Sex of the respondents **Error! Reference source not found.**

The survey further sought to find out the sex of the household head.⁸ It is assumed that the household head wields significant decision-making power, which also includes the choice of household cooking solution. As seen in Figure 2, three-quarters of those interviewed were women, implying the need to design messages that target a largely female audience at the household level, and disseminating these through channels that these women typically utilise.

⁸ Usually, the household head is an adult, who is responsible for household decision-making, due to their ability to earn an income and influence the decisions of other household adults and dependants.

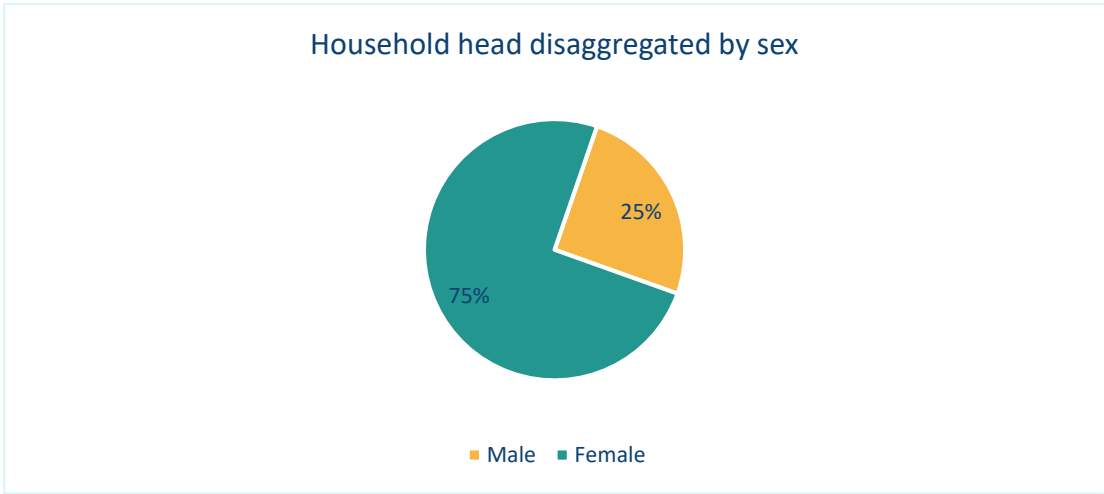


Figure 2: Sex of the household head

Age of the respondents

As shown in

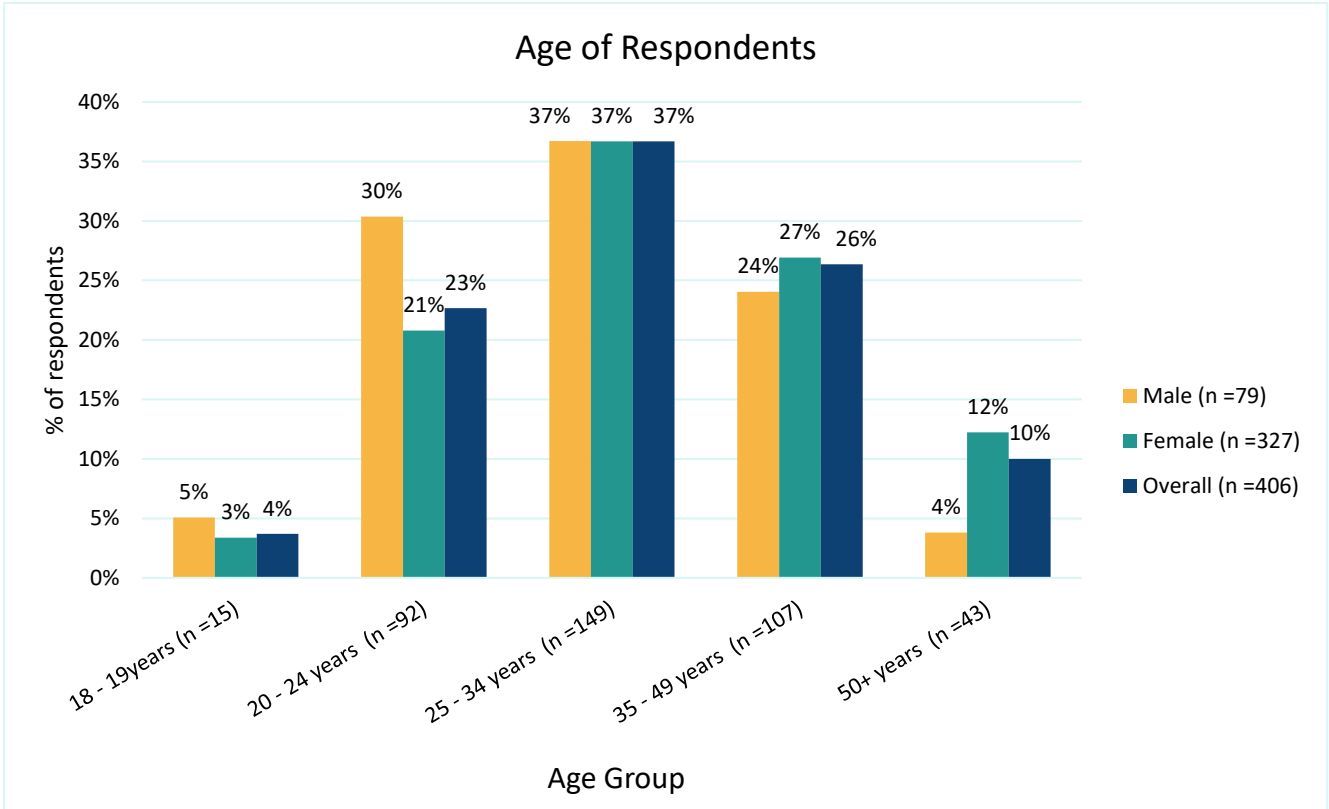


Figure 3, the largest proportion of respondents fall within the age range of 25 to 34 years (37% of overall sample), followed by 35 to 49 years (26% of overall sample), then 20 to 24 years (23% of the overall sample). Considering that most respondents are within their youthful and prime working ages⁹, it is advisable to tailor awareness-raising messages specifically to these specific age groups. The youth would be targeted through social media engagements, sharing of key messages via WhatsApp groups, posting of digital infographic on Facebook and X sites frequented by the youth, while those working would be targeted through community dialogues and demonstrations and drama disseminating the key messages. It may also be beneficial to mobilise these two demographic groups as community champions, advocating for clean cooking within the community.

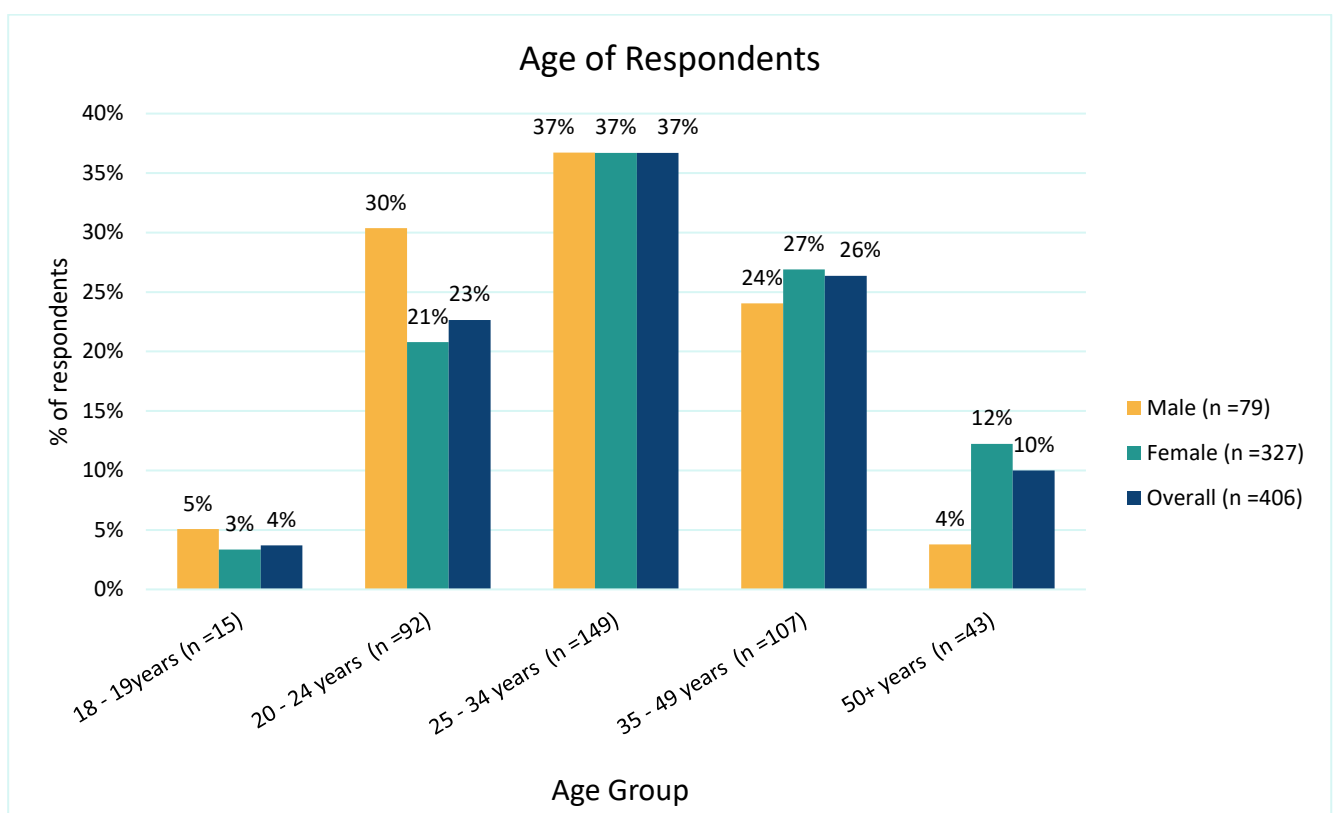


Figure 3: Age of respondents

⁹ Distinguishing between working ages, the International Labour Organization (ILO) categorises working 15-24 years as youth, 25-54 years as prime working ages, and 55+ years as older workers.

Marital status

As seen in Figure 4, the marital status of respondents in Kisenyi is spread across five categories. Marital status has a significant correlation to dietary choices and cooking patterns adopted by households.¹⁰ For example, households headed by unmarried men spend 60% or more of their food budget on commercially prepared food, while those married spend 62% of their food budget on home-cooked meals,¹¹ Marital status influences family sizes, cooking habits, frequency and duration, and eating patterns, which all have implications on the choice of cooking solution adopted by the household.¹² Clean cooking solutions should cater to the cooking needs of all households, in their various formations. They could be sold in different capacities, for example, to attract those that cook meals for themselves and those that cook for bigger families.

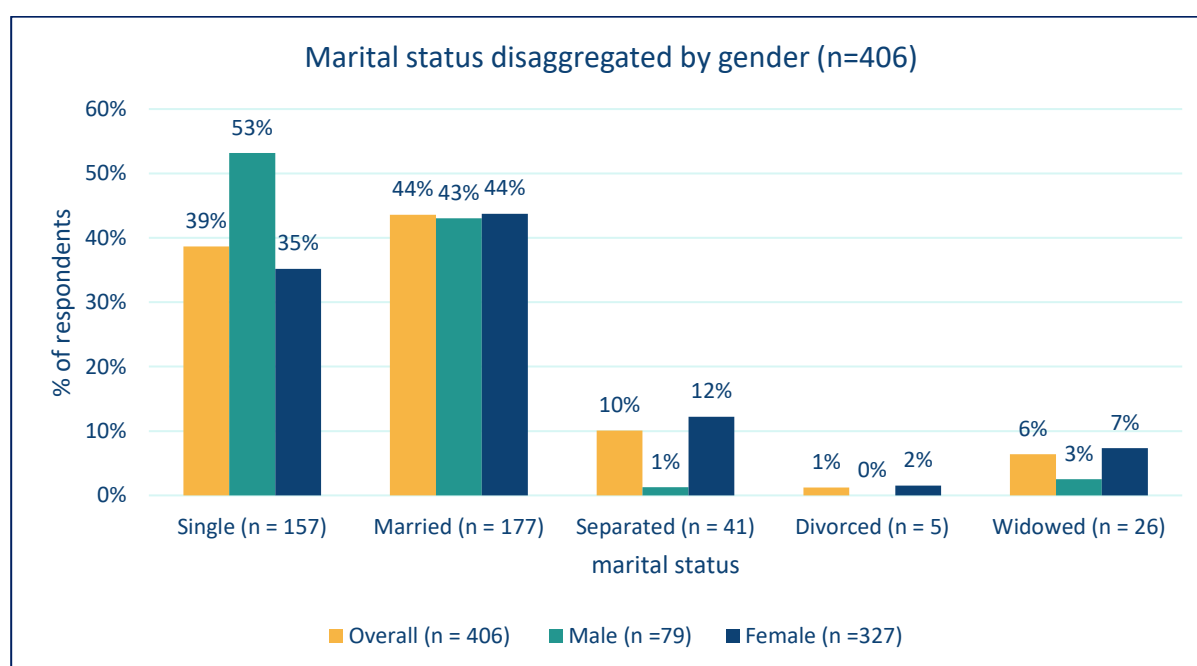


Figure 4: Marital status of Kisenyi residents

¹⁰ <https://doi.org/10.1016/j.clnu.2018.06.1488>.

¹¹ Considering that rates of divorce, separation and delayed marriage are increasing, marital status alone is not considered a significant influence on male eating habits. However, it is associated with the choice and health of food intake. Home-cooked meals are considered healthy, and are prepared using choice cookstoves and fuels.

¹² <https://doi.org/10.18697/ajfand.116.22645>.

Education levels of respondents

As seen in Figure 5, 61% of the respondents have attained primary and lower secondary school education. Since more than half have considerable levels of literacy, the project may consider using print materials with simple structured sentences in English and Luganda to raise awareness. 14% of participants have an upper secondary school education, 5% have achieved higher education (undergraduate and above), and 16% have no formal education.

A deep dive on education and gender reveals that more female respondents have attained primary and lower secondary level education (63% of overall sample) compared to male respondents (52%), though higher education achievement is similar across board at 1%.

In the Ugandan context, literacy is defined as the proportion of the population over 10 years old who can read, write and understand a short simple statement, to manage their daily life tasks and increase opportunities that may positively enhance their lives.¹³

¹³ See page 26 of the main report on the National Housing and Population Census of Uganda 2014: https://www.ubos.org/wp-content/uploads/publications/03_20182014_National_Census_Main_Report.pdf.

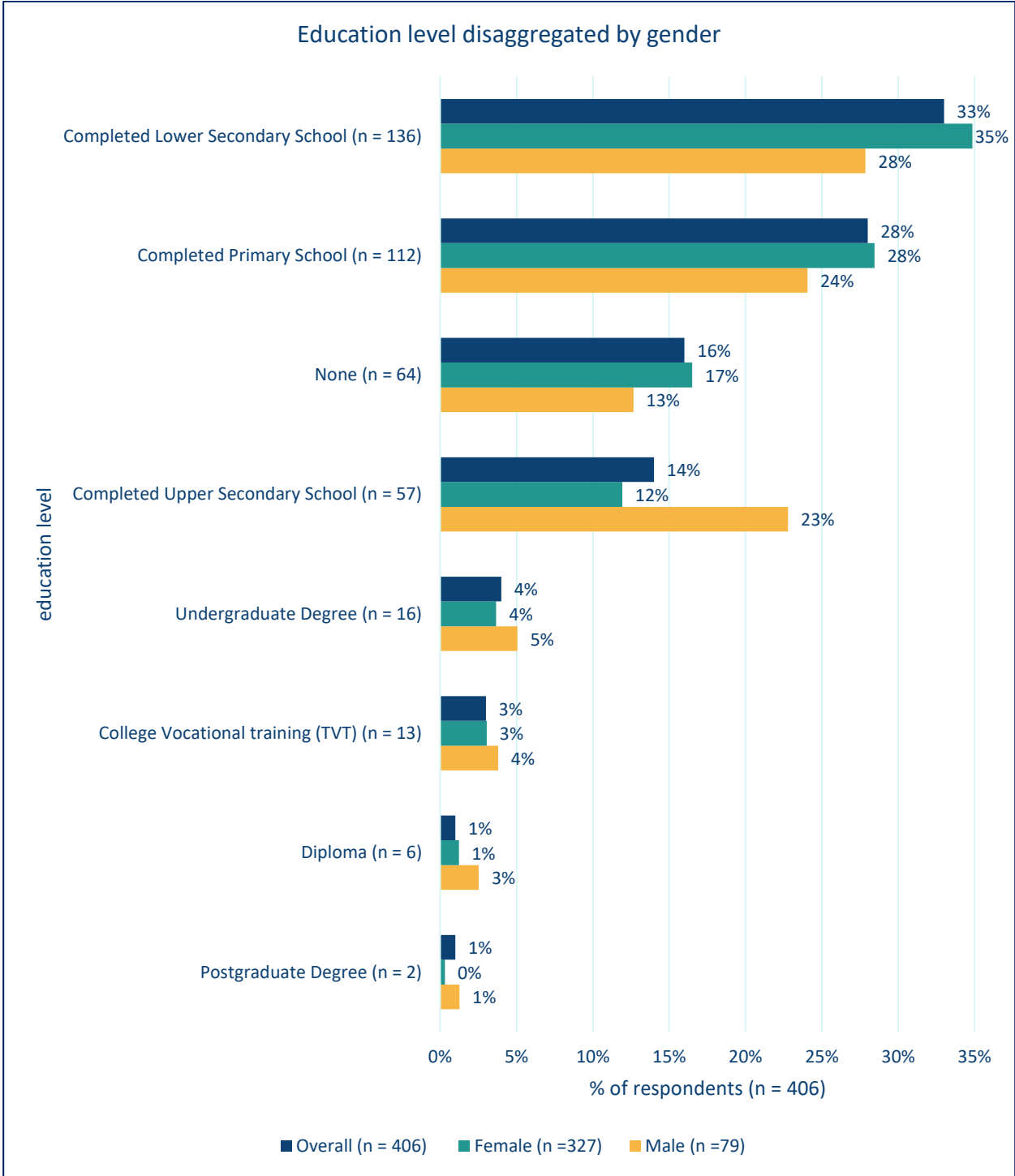


Figure 5: Education levels in Kisenyi

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These findings correspond to a recent Uganda Bureau of Statistics (UBS) report¹⁴ that confirms an increase in Ugandan literacy levels for both men (81%) and women (72%) in recent years, reaching 76.5% of the overall population aged 10 years and above, as of 2021. Nonetheless, awareness-raising efforts should be tailored to suit all categories of the population, across different literacy levels. It would be more effective to utilise the material and channels most appreciated by different categories, for example through a mix of print, audio, and video formats. For instance, as shown in Figure 6, 13% of males and 17% of females with no formal education might benefit more from non-print material, such as skits and practical demonstrations.

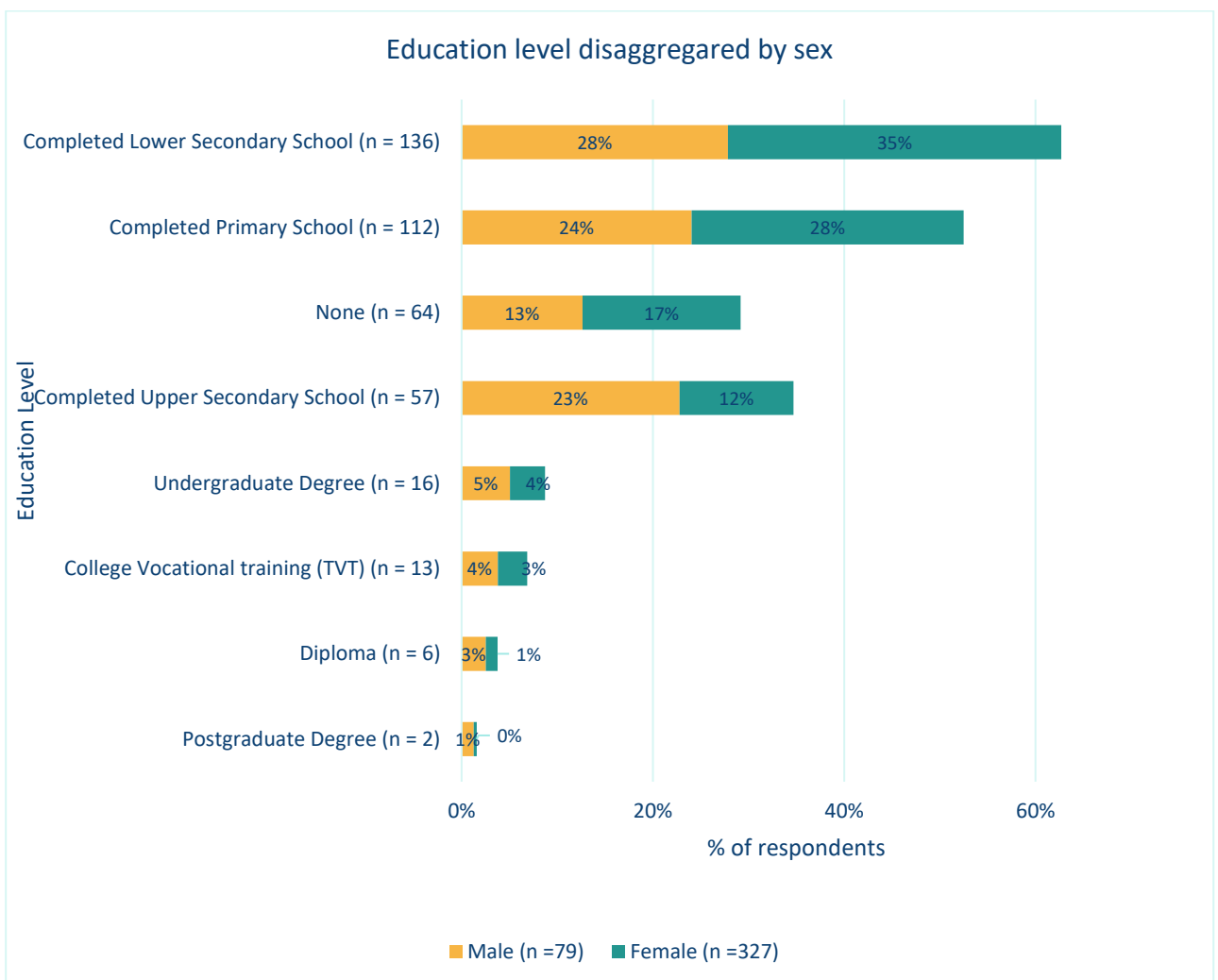


Figure 6: Education levels by sex

¹⁴ UBS findings on literacy levels, 2021: https://www.newvision.co.ug/category/news/literacy-rate-for-male-ugandans-reaches-81-NV_129670.

As shown in Figure 7, close to 50% of respondents aged 18 to 19 years old have completed primary and lower primary school. Slightly over 5% have had no education and are thereby considered illiterate. This age category could be focussed on in later stages of the project, to create awareness as clean cooking ambassadors.

As age increases, the proportion of those without any education increases slightly, from over 5% (18 to 19 years) to 30% (over 50 years). This implies that older populations are better off being sensitised through mediums like discussions, practical demonstrations, and limited print information with simple sentences or through local languages. Again, the higher proportion of those who have completed primary, lower secondary and upper secondary school, aged 18 to 35 years, could be targeted for recruitment as ambassadors or early adopters so that they can influence the rest of the community.

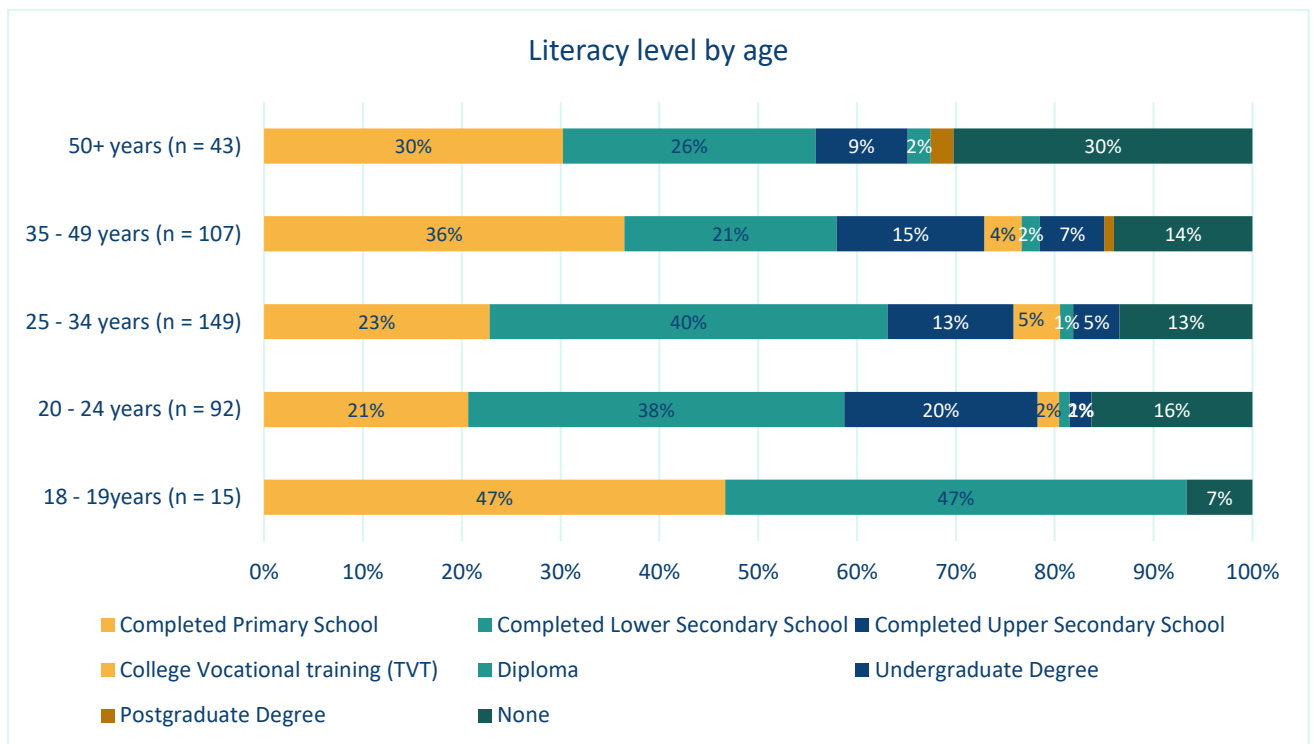


Figure 7: Literacy levels disaggregated by age

As shown in Figure 8, the majority of households have a higher number of school-going children than those needing home-based care. 37% of those with no formal education have school-going children, 35% of those who have completed primary school have children attending school, and 37% of those who have completed lower secondary school have

children attending school. The ENACT project can target school-going children through, for example, promoting clean cooking as a key component of environmental conservation in school environmental clubs, and printing materials with simple sentences, diagrams and pictures that they can interpret for their parents, to heighten their awareness and willingness to transition their cooking. There are two government-owned primary schools in Kisenyi, Nakivubo Blue and Nakivubo Settlement Primary Schools, as well as five private schools in Kisenyi II and III.

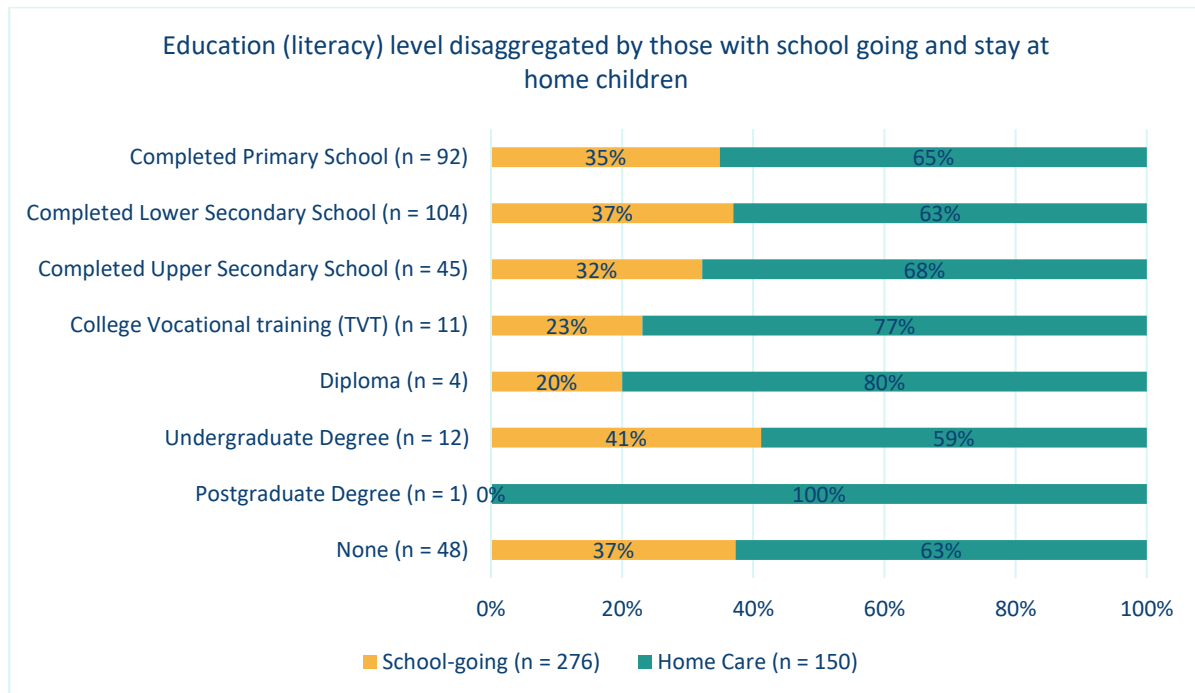


Figure 8: Literacy levels of respondents disaggregated by those with stay-at-home versus school-going children

Occupation

Most respondents at 96% have one source of income. Among these, 69% operate food-based businesses (food and drinks vendors, grocery sellers, restaurants, bars and pubs). Figure 9 summarises the various sources of income in Kisenyi, while

Table 3 provides a detailed breakdown¹⁵. It is worth noting that most of these jobs are in the informal sector.

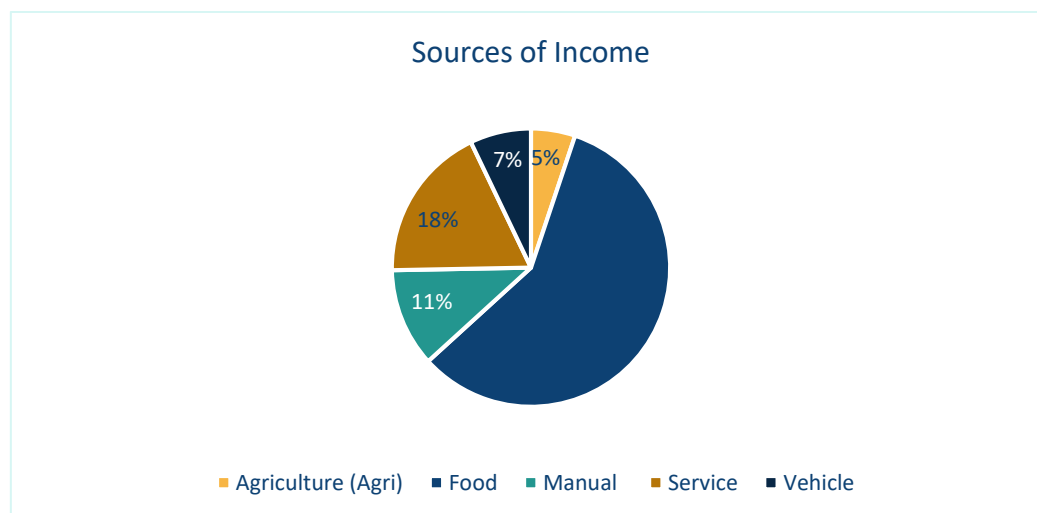


Figure 9: Sources of income in Kisenyi

Only 4% of respondents have a secondary source of income. According to findings from KIIs, most people work in the scrap metal dealership, iron smithing, waste recycling (especially plastics), street vending, and the sale of second-hand clothes, crafts and shoes. While the redevelopment of Kisenyi I has led to evictions of residents without legitimate title deeds to the land, emerging commercial buildings like the Hams Mall have created employment opportunities for businesses like hairdressers, boutiques and food-based businesses.

There are two main markets in Kisenyi: St. Balikuddembe, privately-owned and popularly known as Owino Market, and Usafi Market, which is owned and managed by the KCCA. According to the Market Master, Usafi Market has at least 10,000 traders, 10% of whom run food-based microenterprises. The green zone caters for fresh produce like vegetables and fruits.

Close to half of respondents with young children work in the food sector, as shown in **Error! Reference source not found.** Least-practiced occupations include those in the manual labour, vehicle and agriculture sectors as seen in

¹⁵ Various occupations were consolidated into five main categories: **agriculture** (animal processing, animal rearing, crop cultivation, crop processing); **food** (food and drinks vendor, grocery, restaurant, bar, pub); **manual labour** (carpentry, electrical repair, metal work, mining, waste processing, manufacturing including charcoal, soap, tailor, textiles and leather); **service** (barbershop, salon, hair dressing, events hosting, management, ICT, mobile money agent, LPG retailer, retail shop, transport, phone or battery charging); and **vehicle-related businesses** (car wash, mechanic/repairs).

Table 3. It can be assumed that most of those working within the food industry operate either home-based or detached businesses in proximity to their households, as they double up with childcare. Awareness raising would be more effective if it was targeted within these household and business environments and took childcare needs into account: it would be best to engage with these community members between 10am and 12pm and in the early afternoon, up to 3pm, once childcare responsibilities have been attended to, allowing community members to engage without hindrance. Those working away from their living areas, doing manual work or vehicle repairs, for example, could best be targeted through roadshows during the working day.

Table 3: Sources of income in Kisumu

Category	Occupation	Percentage
Agriculture	Animal processing (meat, fish, milk, eggs, etc)	2%
	Animal rearing (egg incubation, etc)	1%
	Crop cultivation (growing crops, harvesting crops)	2%
	Crop processing (drying, milling, pressing, grinding, etc)	0%
Food	Baker	3%
	Butcher	2%
	Fruit and vegetable vendor	4%
	Ice making	0%
	Food and drinks vendor/grocery	23%
	Restaurant/bar/pub	26%
Manual	Carpentry	2%
	Electrical repair	2%
	Metal work	2%
	Mining	0%
	Other manufacturing (charcoal, soap, etc)	2%
	Tailor/textiles/leather	4%
	Waste processing	0%
Service	Barbershop/salon/hair dressing	5%
	Events hosting/management	1%
	ICT (cyber, computers, photocopying, laminating, etc)	4%
	Mobile money agent	1%
	LPG retailer	2%
	Retail shop (non-food: clothes, stationery, etc)	0%
	Phone/battery charging	1%
	Transport (taxi/boda boda)	4%
Vehicle	Car wash	1%
	Mechanic/repairs	5%
Others	Others	2%

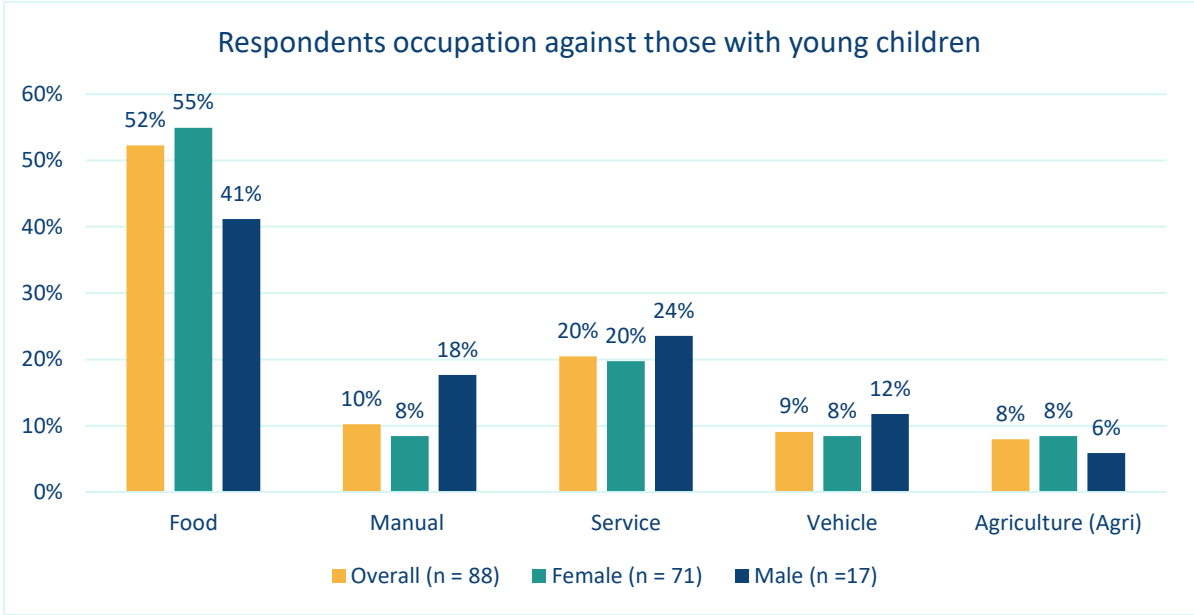


Figure 10: Occupation of those with young children

3 COOKING STATUS AND PREFERENCES IN KISENYI

This chapter provides in-depth insights into cooking habits in Kisenyi, as well as key drivers of and barriers to clean cooking adoption.

3.1 Primary cookstoves

Primary cookstoves are the main, default cooking technologies used most of the time to cook food or boil water for the household or business. As shown in Figure 11, 89% of respondents predominantly use ceramic and traditional metallic cookstoves, often due to their relative affordability (UGX 1,000 to 2,000, compared to UGX 145,000 to 200,000 for a full set of a 6kg LPG cooker).

Food-based businesses use these cookstoves, which almost exclusively (94%) use charcoal as the main fuel. These stoves are readily available in the community, usually hawked by street vendors or sold through trucks moving around the community. 2% of food-based businesses supplement their cooking with three-stoned open firewood technology.

Within household respondents, 65% favour the use of ceramic cookstoves over traditional metallic ones, which are preferred by only 24% of households. Among business respondents, the use of ceramic and metallic cookstoves is more evenly distributed, with 48% of food-based businesses using ceramic stoves, and 46% using metallic stoves.

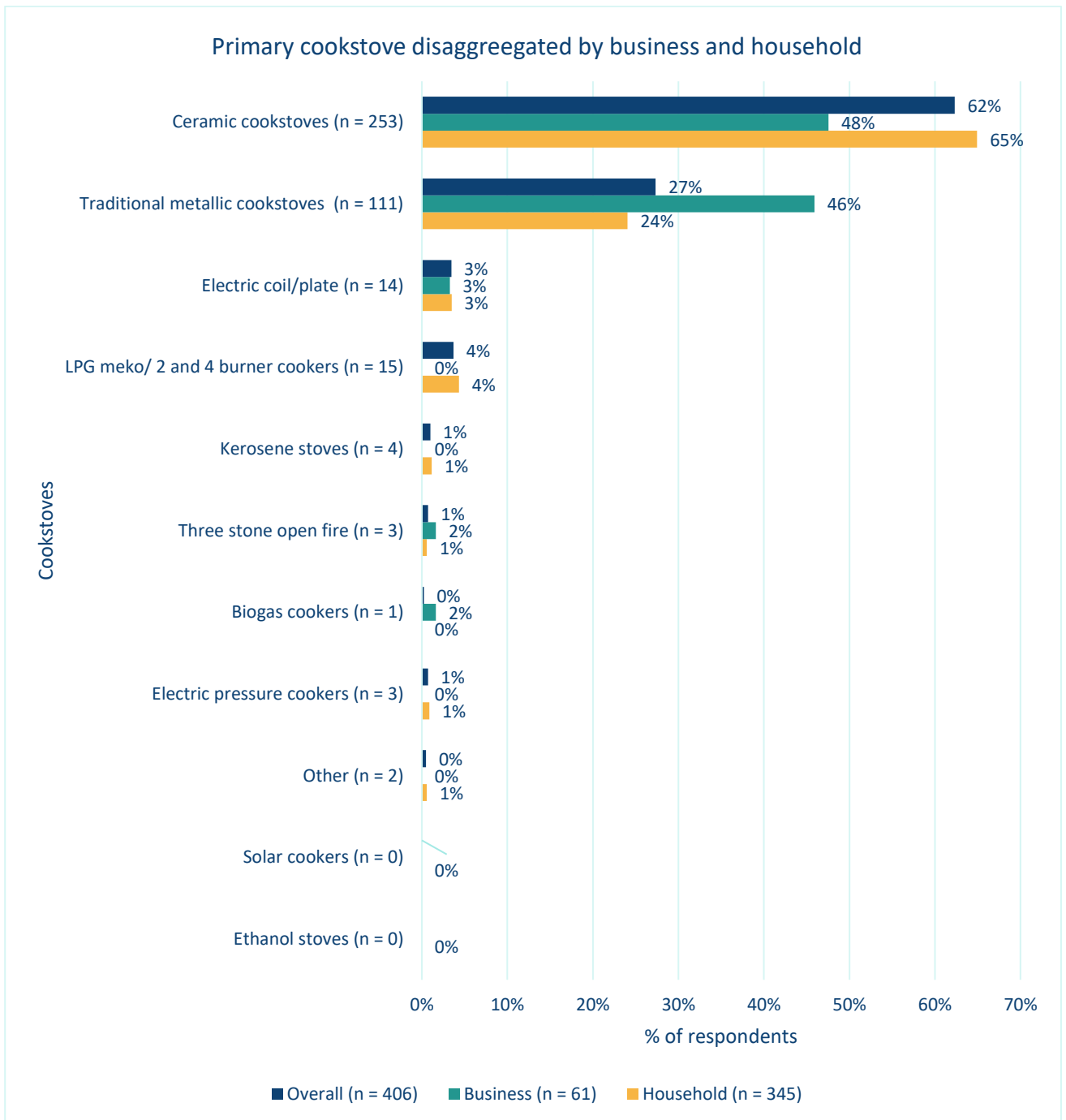


Figure 11: Primary sources of cooking in Kisenyi

For both households and food-based businesses, the main challenges associated with the use of their primary cookstoves and fuels include: the cost of cookstoves and fuels, the fact

that some fuels produce a lower quality flame that lengthens the duration of cooking, and the fact that cookstoves produce smoke that irritates the eyes. This implies that clean cooking solutions should be priced competitively against existing options, have greater efficiency to enable faster cooking, and emit less or no smoke.

Purchasing primary cookstoves

As in Table 4, 96% of respondents purchased their current cookstoves in cash (outright without a loan). This could, in part, be attributed to the relative affordability and availability of these stoves compared to other, cleaner options. The average costs of ceramic and traditional metallic cookstoves are around UGX 15,700 for households and UGX 38,000¹⁶ for food-based businesses. These stoves are often sold by street vendors and are potentially priced to enable upfront payments by customers. In addition, it would be challenging to establish a credit arrangement if the seller’s operations require a high degree of movement.

Table 4: Mode of purchase of primary cookstoves

Financing Options	Household (n = 345)	Business (n = 61)	Overall (n = 406)
Purchased through cash (n = 389)	96%	97%	96%
Received as donation (n = 12)	3%	0%	3%
Self-built (n = 3)	1%	2%	1%
Hire purchase/pay as you go (n = 1)	0%	2%	0%
Loans (n = 0)	0%	0%	0%
Other (n = 1)	0%	0%	0%

It is worth noting that one out of the 61 food-based businesses obtained its cookstove through hire purchase (a pay as you go scheme). The amount spent for this was UGX 50,000, facilitated through direct credit from the cookstove suppliers. This suggests an existing personal relationship between the buyer and the seller worth interrogating to inform learning. Awareness among households and food-based businesses could increase demand for such financing models.

3.2 Secondary cookstoves

Secondary cookstoves are additional stoves owned and used either simultaneously or by themselves, to complement primary cookstove applications or address primary cookstove inadequacies – if, for example, cookstove use is time-consuming (lighting and cooking), or if

¹⁶ The costing of primary cookstove vary based on the sizes, material and design used in fabricating them.

a different pot size is needed¹⁷. As seen in Figure 12: Prevalence of secondary cookstoves in Kisenyi 31% of household respondents and 33% of business respondents have secondary cookstoves, implying that stove stacking is rarely practiced. This is counterintuitive, since urban communities like Kisenyi are expected to have significant levels of stove and fuel stacking¹⁸. This means that 69% of respondents use one stove type to cook all their meals.

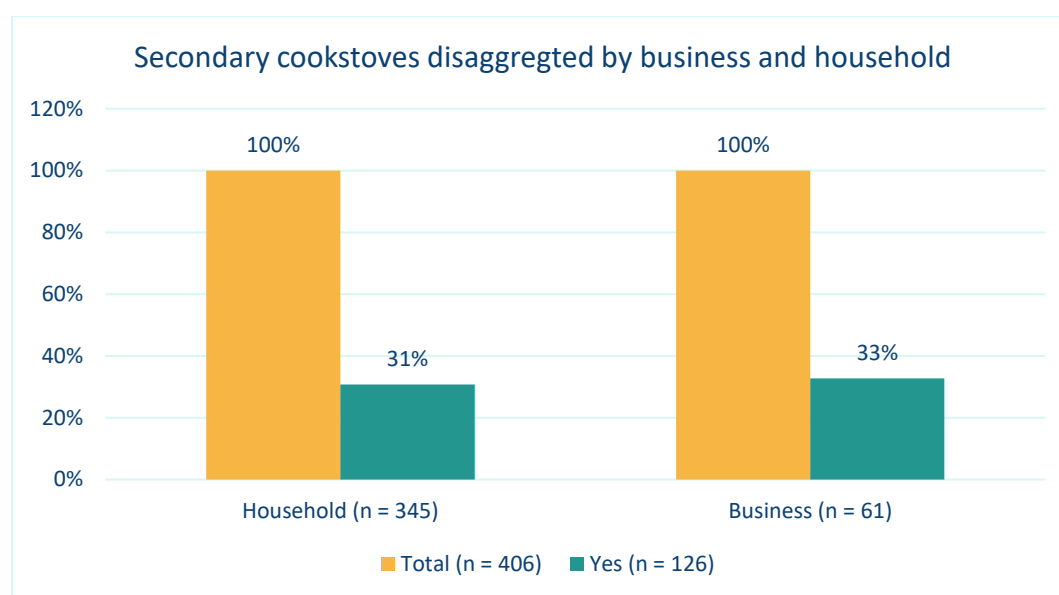


Figure 12: Prevalence of secondary cookstoves in Kisenyi

The study found that 11% of households and 2% of food-based businesses with secondary cookstoves were practicing dirty stacking¹⁹, by installing and using biomass-based and kerosene cookstoves. Clean stacking²⁰ is practiced by 34% of households and 20% of food-based businesses. Cumulatively, 32% practice clean stacking, while 10% practice dirty stacking. There is therefore potential for a gradual transition to clean cooking, with both households and food-based businesses benefitting from the use of cleaner stacks. The continued use of cleaner stacks reduces the quantities of traditional fuels and kerosene used, and increases the possibility of clean cooking being adopted as the primary solution in the long term, overcoming challenges associated with the introduction of new clean cooking

¹⁷ See more here: <https://www.sciencedirect.com/science/article/pii/S0973082620303112>.

¹⁸ Oguok et al (2022). *Uganda's cooking energy sector: A Review*. Kampala: Modern Energy Cooking Services (MECS).

¹⁹ Dirty stacking refers to a phenomenon where a household or food-based business using a clean cookstove as the primary cookstove continues to use traditional cookstoves as secondary cooking options.

²⁰ Clean stacking refers to a phenomenon where those using traditional cookstoves as their primary choice begin using clean cooking solutions as their secondary option.

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solutions²¹. As shown in Figure 13, however, stacking the same kinds of cookstoves is still common, as ceramic and traditional metallic cookstoves are still the preferred option.

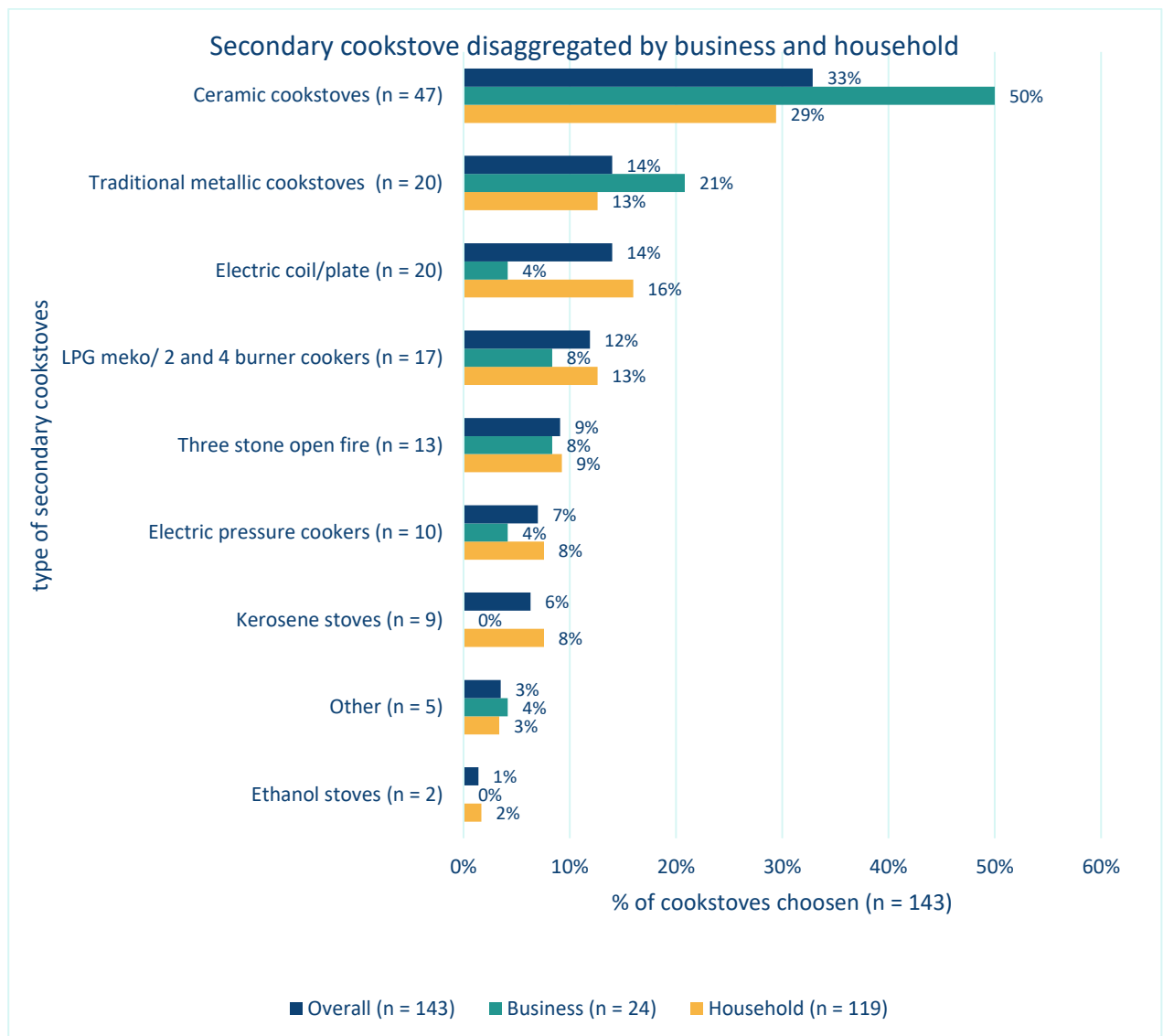


Figure 13: Secondary cookstoves disaggregated by household versus business

Secondary cookstoves are predominantly used to cook and warm pre-cooked food, boil water, and heat liquids such as tea. Clean cooking solutions should therefore be positioned as alternatives to existing dirty stacking; more effort would be needed when targeting those

²¹ Energy Sector Management Assistance Program (ESMAP) (2020). *The State of Access to Modern Energy Cooking Services*. Washington, D.C.: World Bank.

using only one stove, to enable them to at least develop a clean stack, as opposed to having different types of dirty cookstoves.

Secondary cookstoves are mostly used to complement primary cookstoves in both households and businesses. It should be noted that feedback from FGDs suggests that electricity used to cook is drawn illegally from the national grid, a challenge that suppliers of electric cooking options would need to consider in an intervention. For example, two business representatives stated that:

“I use a coil hot plate in my business of frying chapati, but I use an illegal electricity connection because I cannot afford the legal connection costs and processes are complicated.”

“As a chapati seller who uses electricity, the hot plate makes my work easy and fast. I make about UGX 20,000 in daily profit, and I process about three packets of wheat flour. My electricity is illegally connected, and I pay about UGX 20,000 a month to my landlord.”

3.3 Barriers to the adoption of clean cooking

This section demonstrates a general appetite for modern, clean energy cooking solutions. So, particularly for primary use, why is uptake low?

Figure 14 shows that close to two thirds of respondents are inhibited by the high costs of the stoves, high ongoing costs of fuel, and safety concerns – which seems to be an ongoing concern throughout this report.

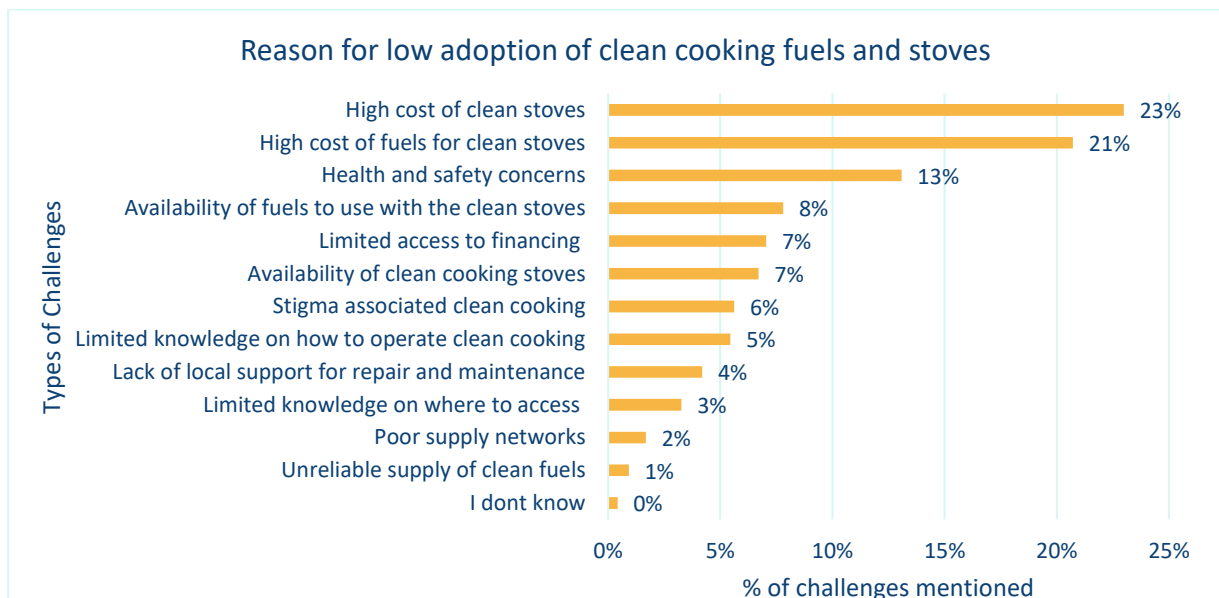


Figure 14: Barriers to the adoption of clean cooking

Reflecting this first concern, during their FGD, eight household representatives pointed to:

“The high upfront costs of preferred cooking technologies, such as gas or electric stoves. We prioritise affordability, and if the initial investment is too high, it becomes a barrier.”

It would be useful to determine how the cost of grid electricity is a cost concern (as a “fuel”, compared to other cooking fuels), considering the existence of a declining block tariff for domestic consumers²² In addition, it would be highly advisable for CCSPs to consider the holistic cost of cooking, and not just the assets distributed to customers, to avoid inadvertently adding further financial burden to users paying for fuel. To ensure sustainability, service providers supported by ENACT would be required to either 1) provide both the assets and the fuel, or 2) ensure that related fuels are readily available and affordable to end-users.

On the other hand, FGD participants stated the need for a conducive environment that not only supports ongoing community efforts on clean cooking but creates opportunities for private sector competition to lower prices and improve service delivery.

In FGD 1, a household representative suggests: *“Offer flexible payment plans for the purchase of clean cooking technologies. This enables households to spread the cost over time, making it more manageable.”*

“In densely populated areas like Kisenyi, households have limited kitchen space or cook in open-air settings. This limited space makes it challenging to install certain cooking technologies, especially larger appliances like gas or electric stoves, which may require dedicated kitchen areas or safety precautions.” – Household representative

3.4 Decision-making on cookstoves and fuels

As shown in Figure 15, 78% of respondents made the decision to purchase their cookstoves by themselves. Considering the gender of respondents, this reveals that women, to a larger extent, determine which cookstoves to purchase and use. In Kisenyi, like in other African societies, cooking is largely a social role performed by women. This implies that sensitisation efforts should largely concentrate on them.

²² [https://www.era.go.ug/index.php/media-centre/what-s-new/371-energy-minister-launches-reviewed-electricity-tariff-structure#:~:text=With%20the%20Cooking%20Tariff%2C%20consumers,st%20to%20150th%20Units\).](https://www.era.go.ug/index.php/media-centre/what-s-new/371-energy-minister-launches-reviewed-electricity-tariff-structure#:~:text=With%20the%20Cooking%20Tariff%2C%20consumers,st%20to%20150th%20Units).)

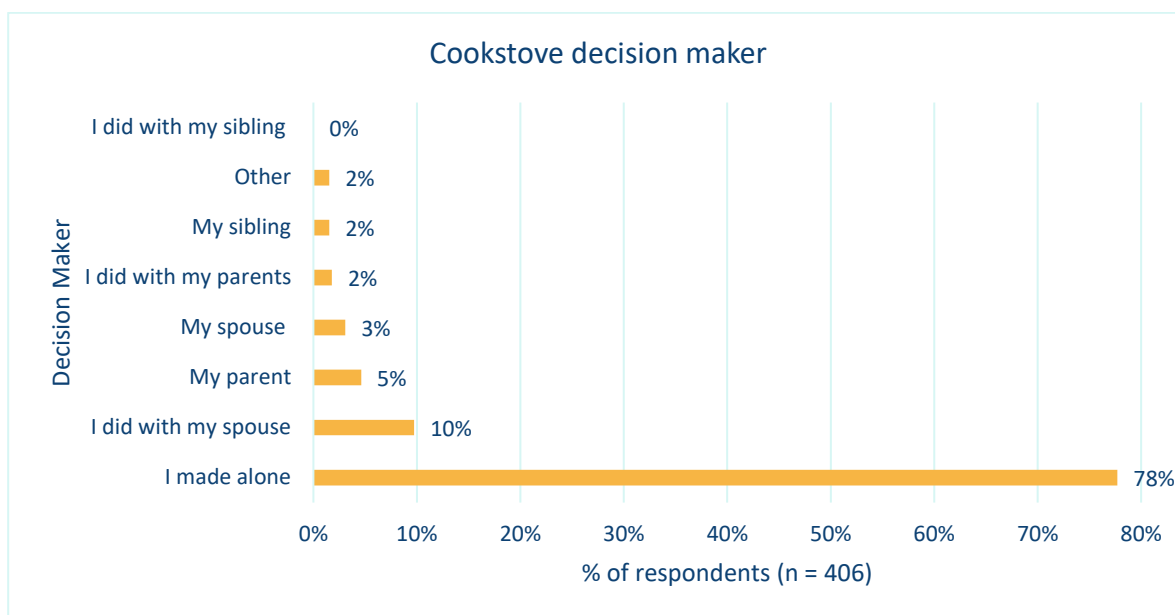


Figure 15: Household decision-making in Kisenyi

3.5 The use and purchase of cookstoves and fuels

Use of primary cooking fuel

Charcoal is predominantly used for cooking at 87%, as shown in Figure 16. This is partly because charcoal is prevalent, locally available, and is the cheapest fuel, excluding wood; a recent policy directive prohibiting the use of firewood for cooking, particularly in Kampala’s public markets, further increased demand for charcoal. As the Market Master of Usafi Market explains, “[the KCCA] no longer allows food sellers to cook using firewood, due to fear of fire outbreaks.”

Despite its prevalence, charcoal appears to be an option used out of necessity more than preference. Users, particularly food-based entrepreneurs, complained about the rising prices of charcoal, which is affecting their revenue. This makes it an opportune time to promote other, cleaner options to cater to their needs.

A business representative affirmed this during an FGD: “I use charcoal for cooking as a food vendor, but the current prices make my business incur losses.”

This has also led to the (unsanctioned) use of firewood to keep operating costs down. A businesses representative explains:

“We use charcoal and firewood to reduce the costs of only depending on charcoal, although the firewood brings a lot of fumes. If I am cooking a lot of food, like 100kg of rice, [I’ll] use firewood. We use about half a sack of charcoal daily, which costs about UGX 80,000, compared to half a truck of firewood for UGX 30,000, if we make bulk orders.”

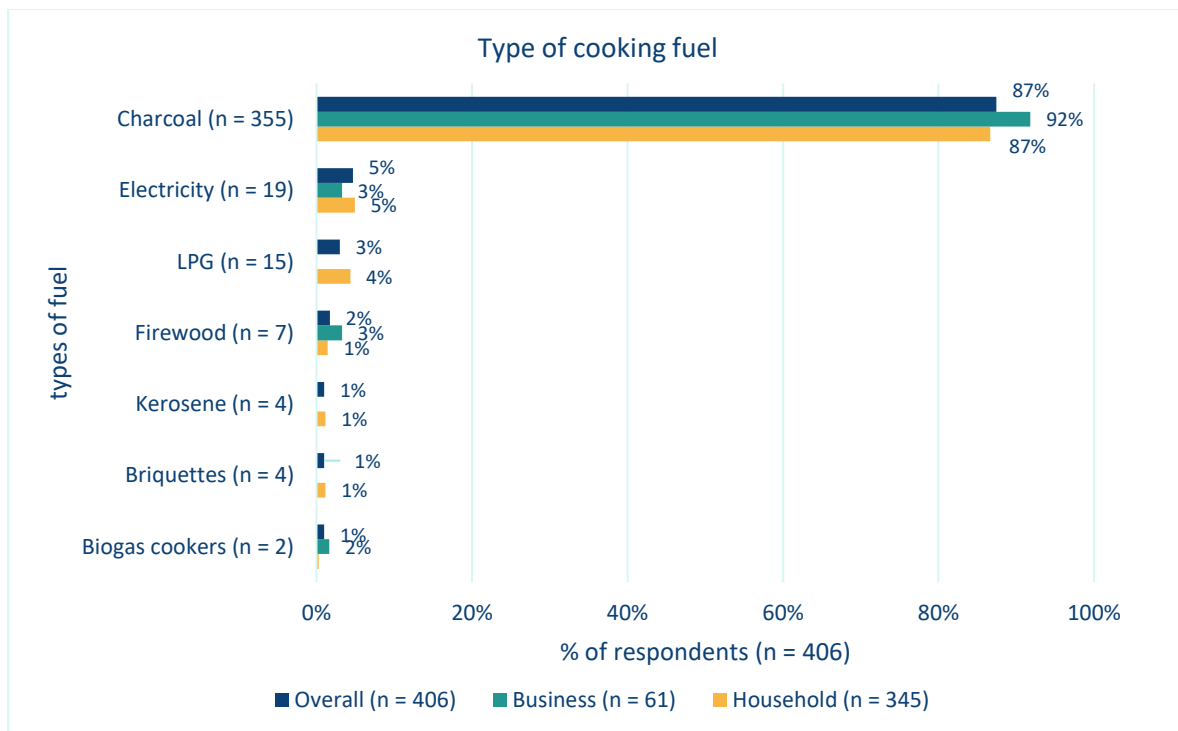


Figure 16 : Types of primary fuels used in Kisenyi

This implies that while biomass is the predominant cooking fuel used for both households and businesses, most households would prefer it in the form of charcoal. Charcoal is compatible with the two most prevalent cookstove types (traditional metallic and ceramic), while firewood is only compatible with traditional three-stone open fire technology. Food-based businesses also prefer charcoal over firewood, as it produces less smoke, allowing it to be used in enclosed spaces to sustain cooking of different dishes. It is also a versatile fuel that can be used for a variety of cooking needs, including boiling, steaming, frying and roasting²³. Businesses also report using electricity and LPG, particularly when frying foods like French fries and sausages.

Other non-conventional fuels used by residents include sawdust, coffee husks and old rugs. Coffee husks are often sought from farming villages and used in cookstoves, while sawdust

²³ Hayson et al. (2021). *Black Gold: The Charcoal Grey Market in Kenya, Uganda and South Sudan*. Geneva: The Global Initiative Against Transnational Organized Crime.

can easily be sourced locally from furniture-making shops, even within the settlement. Other fuels include dry banana peels, which are easily accessible from local markets.

Fuel purchase frequency and cost

The study sought to determine the frequency of fuel purchases, as an indicator of fuel consumption patterns and even expenditure. As shown by Figure 17, 72% of respondents buy fuel at least once a day or more, while only 13% purchase fuel once a month. This corroborates evidence above on occupation, which shows that a majority earn their living through temporary work, suggesting the need for flexibility to purchase small daily amounts, rather than high quantities less frequently.

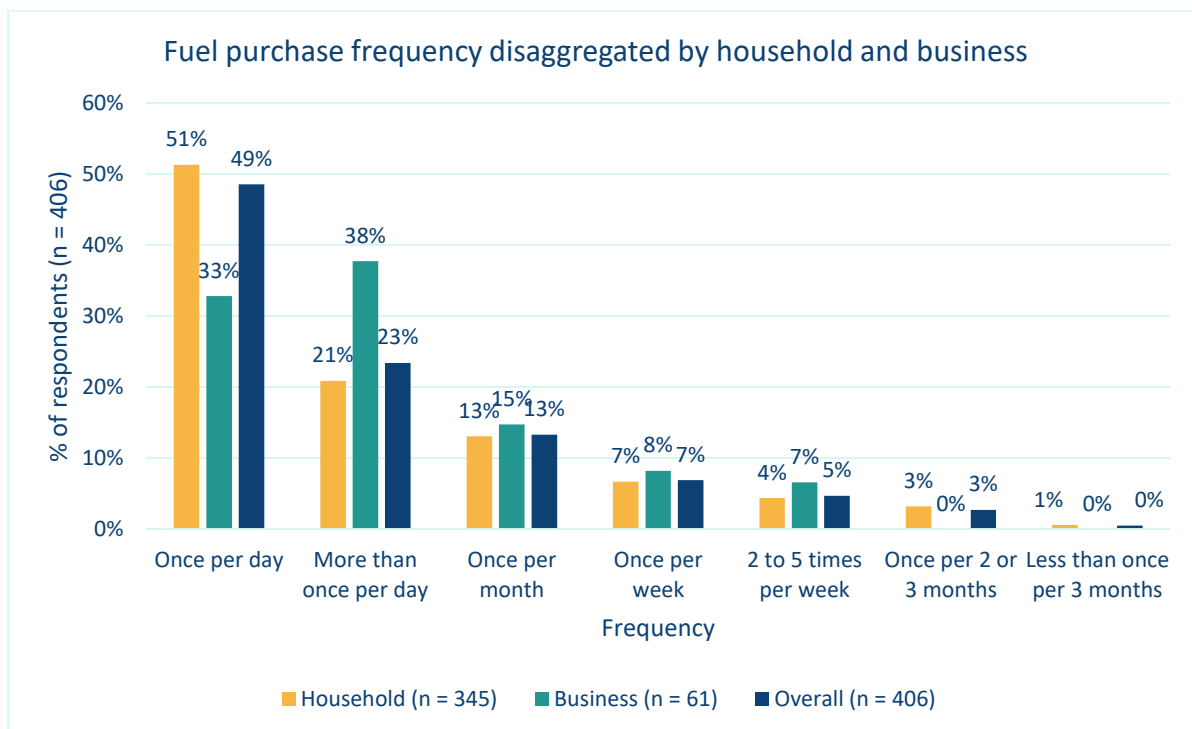


Figure 17: Frequency of fuel purchase

It is also worth noting that food-based businesses tend to purchase fuel more than once daily, suggesting a need to meet food demand or to align with cashflows throughout the day. Charcoal is currently scarce due to high demand. Its high cost prevents businesses from making huge purchases, despite their need to cook large quantities of food at once (unlike households, which have low daily demands and can use a purchase sparingly). Scarcity also means that charcoal is sought in other settlements, when not available in Kisenyi.

“If the charcoal is not available here, I look for it in neighbourhoods like Mengo or Katwe, because it’s what I know how to use. This is time-consuming.” – Business representative

The average cost of fuel (mainly firewood and charcoal) per purchase is UGX 16,400 for households and UGX 30,200 for food-based businesses. Food-based businesses’ demand for fuel is greater, hence the need to prioritise their transition; this, in turn, will reduce damaging activities upstream, like deforestation and charcoal burning. Table 5 shows the unit cost of various fuels in Kisenyi: the cost of a unit of LPG is higher than that of a unit of charcoal. Nevertheless, when the calorific value of LPG and the thermal efficiency of LPG stoves are compared to charcoal-based stoves, their cost will be lower. These positive attributes should be stressed during awareness raising by CCSPs.

Table 5: Cost per unit of fuel in Kisenyi

Fuel type	Amount (UGX)
Biogas (kg)	1,136
Briquettes (kg)	750
Charcoal (kg)	5,115
Electricity (kWh)	1,034
Firewood (kg)	3,833
Kerosene (litres)	4,971
LPG (kg) ²⁴	8,980

Cooking area

Portable cookstoves are used by 95% of surveyed individuals, with the rest using fixed cookstoves, as shown in Figure 18. The use of portable stoves allows flexibility of use, both indoors and outdoors depending on the time and need, for example in the rainy season *versus* the dry season.

²⁴ As of November 2023, the cost of refilling LPG canisters ranges from UGX 55,000 to 58,000 for a 6kg canister, and UGX 100,000 to 117,000 for a 13kg canister.



Figure 18: Types of cookstove installed for households and businesses

As shown in Figure 19 and Figure 20, cooking location preference varies with the seasons. During the rainy season, a significant 38% of respondents cook within their own dwelling, often in a sleeping area. Additionally, 16% cook in a separate structure, while a mere 1% utilise their neighbours' kitchens for cooking purposes. These results lend credence to assertions that Kisenyi households prefer not to share kitchens or cook in neighbours' kitchens – cooking is culturally considered as a household affair, undertaken within the confines of a specific household. The ENACT programme infers that while community kitchens might be apt for food-based vendors in Kisenyi, as they can easily share cooking spaces, households prefer to cook their food in privacy.

Open verandas serve as cooking areas for 28% of the respondents, whilst 20% choose to cook within their own dwelling, often in a sleeping area, and an additional 14% prefer outdoor cooking. The locational changes during cooking further support a preference for movable cookstoves. Furthermore, it is noteworthy that 14% of respondents consistently choose to cook within their dwelling, albeit not in the sleeping area, regardless of the prevailing season.

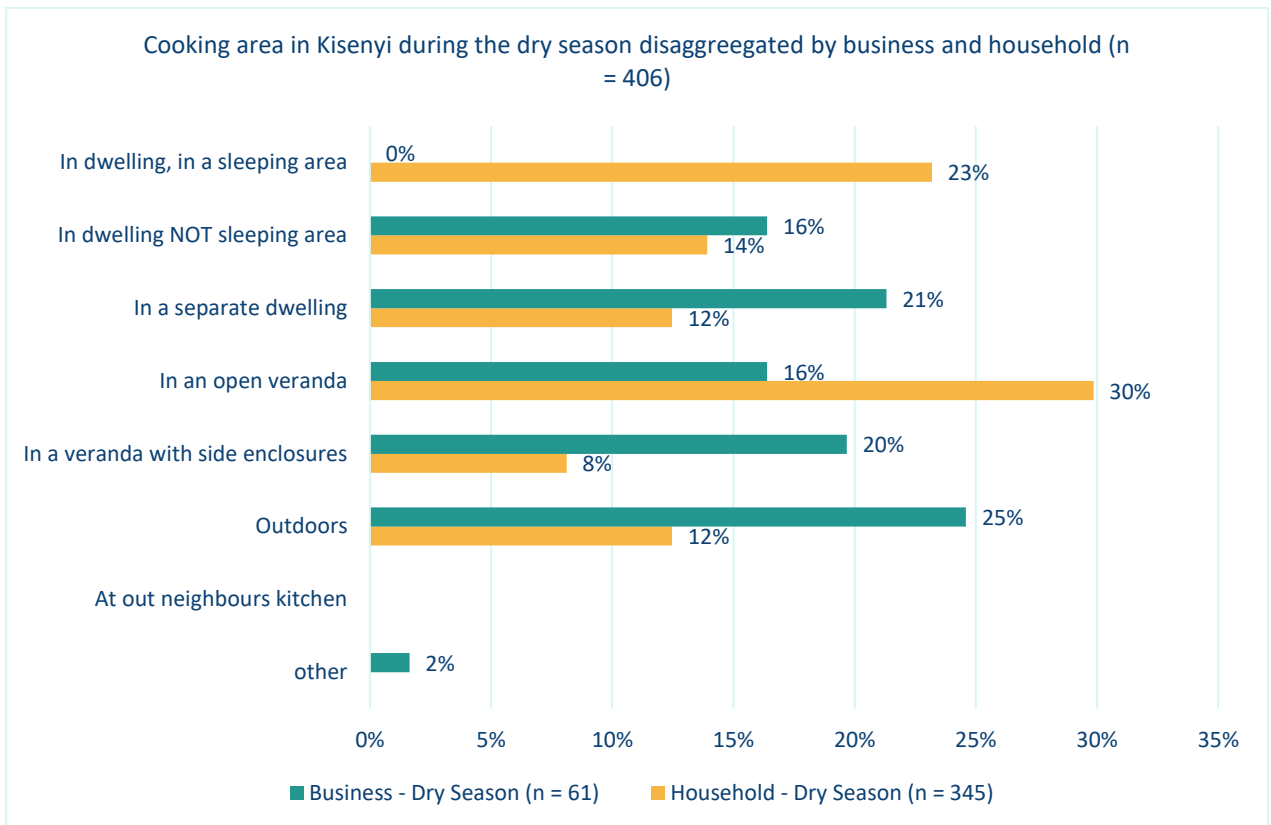


Figure 19: Preferred cooking area during the dry season

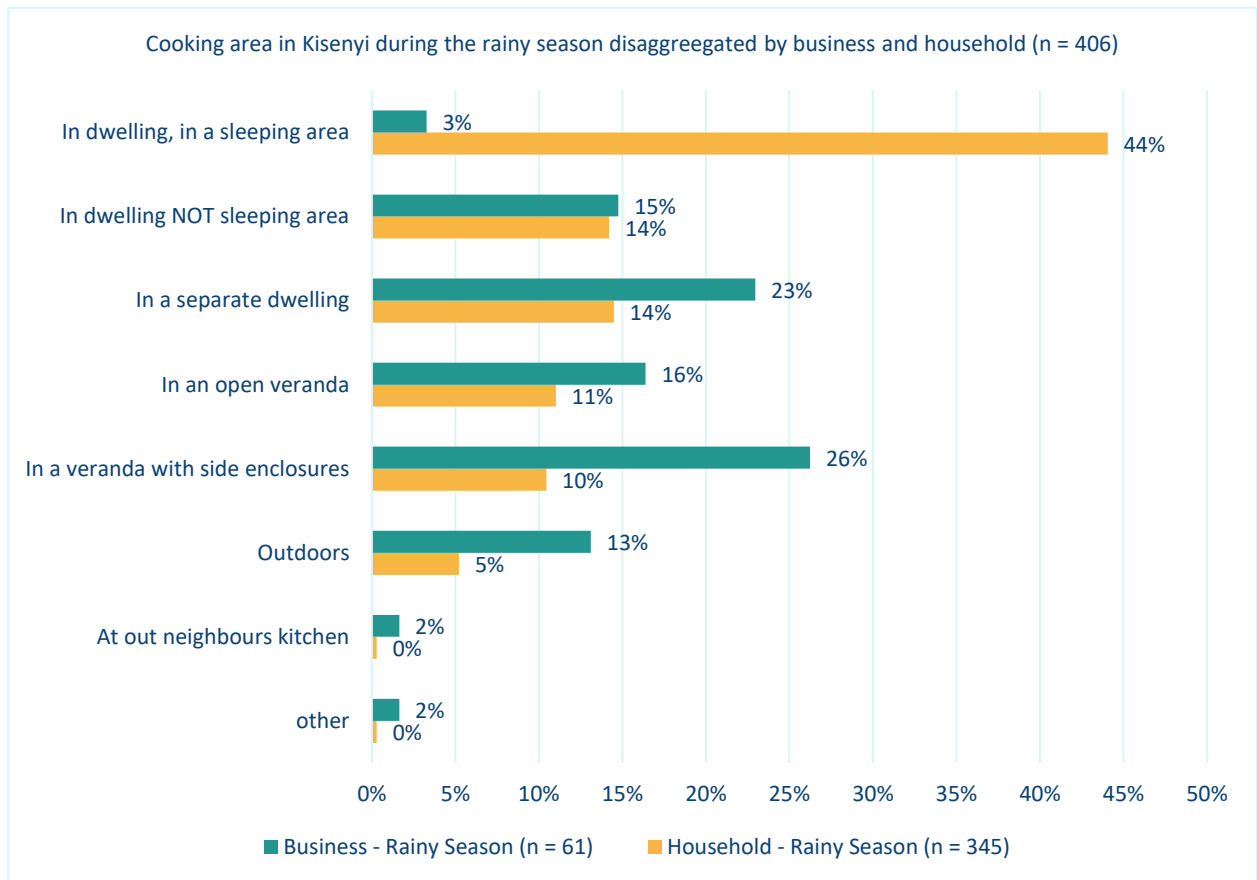


Figure 20: Preferred cooking area during the rainy season

Availability of fuel used for cooking

Common cooking fuels appear to be readily accessible within the community. Figure 21 shows that 85% of respondents can access fuel within 2km of their places of residence or work (10 to 20 minutes by foot and five minutes by motorbike). The decentralised distribution of clean cooking solutions would therefore likely be more beneficial than centralised operations, as it enables last-mile fuel distribution points in close proximity to users. One way to do this would be through engaging the existing distribution infrastructure in last-mile delivery, e.g., stove vendors, local LPG sellers, and charcoal and firewood sellers. This should ideally encompass both the technology and the fuel.

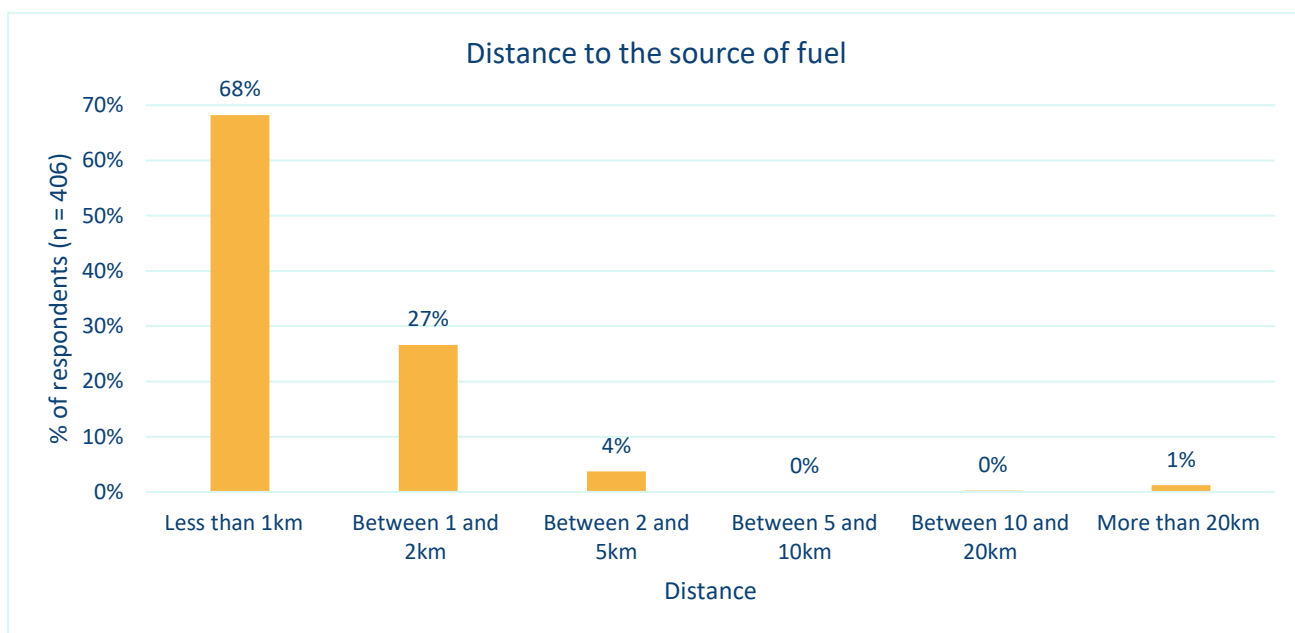


Figure 21: Distance to fuel purchase points

Charcoal is predominantly sourced more than 20km away (three hours walking or 40 minutes on a motorbike). This implies that a few households and businesses prefer making bulk purchases, from outside Kisenyi or even Kampala, at cheaper prices but with higher transport costs. The promotion of clean cooking solutions should emphasise their availability within various last mile distribution points, including kiosks, shops, supermarkets and filling stations.

Perceptions of modern and traditional cookstoves and fuels

Respondents' opinions of clean cookstoves and fuels suggest a general awareness of their benefits when compared to traditional options.

Table 6 and Table 7 suggest that, while there is a clear opportunity for awareness-raising efforts to amplify the benefits of clean cooking, more emphasis is required in raising awareness about the greater health and safety of modern cookstoves and fuels, as well as the increased availability and affordability of related modern fuels.

The availability of clean cooking fuels is confirmed by 40% of respondents, indicating their significant proximity to sale points, as seen in Table 7. This needs further investigation, to enable the CCSP to develop a robust supply chain and distribution model for fuel delivery and sale.

Table 6: Comparison of clean cookstoves and traditional cookstoves

Modern cookstoves compared to traditional cookstoves	Yes	No
Modern cookstoves have more than one burner, unlike traditional cookstoves, which have one burner	96%	4%
Modern cookstoves produce a better flame size which is of good quality compared to traditional cookstoves	97%	3%
Modern cookstoves are a faster cooking solution compared to traditional cookstoves	97%	3%
Modern cookstoves produce less smoke that hardly irritates the eye in comparison to traditional cookstoves	96%	4%
Modern cookstoves have an improved safety rating and confer better health outcomes compared to traditional cookstoves	81%	19%

Table 7: Comparison of clean cooking fuels and traditional fuels

Modern fuels compared to traditional fuels	Yes	No
Modern fuels produce a better flame size of good quality compared to traditional fuels	94%	6%
Modern fuels have a higher cooking efficiency/cook faster compared to traditional fuels	96%	4%
Modern fuels are easily available in comparison to traditional fuels	40%	60%
Modern fuels are more affordable in comparison to traditional fuels	30%	70%
Modern fuels are safer than traditional fuels	61%	39%
Modern fuels confer better health outcomes after prolonged usage in comparison to traditional fuels	78%	22%

3.6 Willingness to transition to clean cooking

As shown in Figure 22, electric cookers powered by grid electricity were respondents' most desired cooking technology, because most households and businesses are grid-connected. Kisenyi's proximity to Kampala's central business area affords grid users reliable supply, with relatively low outages compared to other areas.

“It is rare for the power to go off in Kisenyi, it is always available.” – Business representative

“In Kisenyi, there is no load shedding²⁵, since we have three power lines. When one is off, we switch to the second or third. It is not much work to switch power lines.” – Business representative

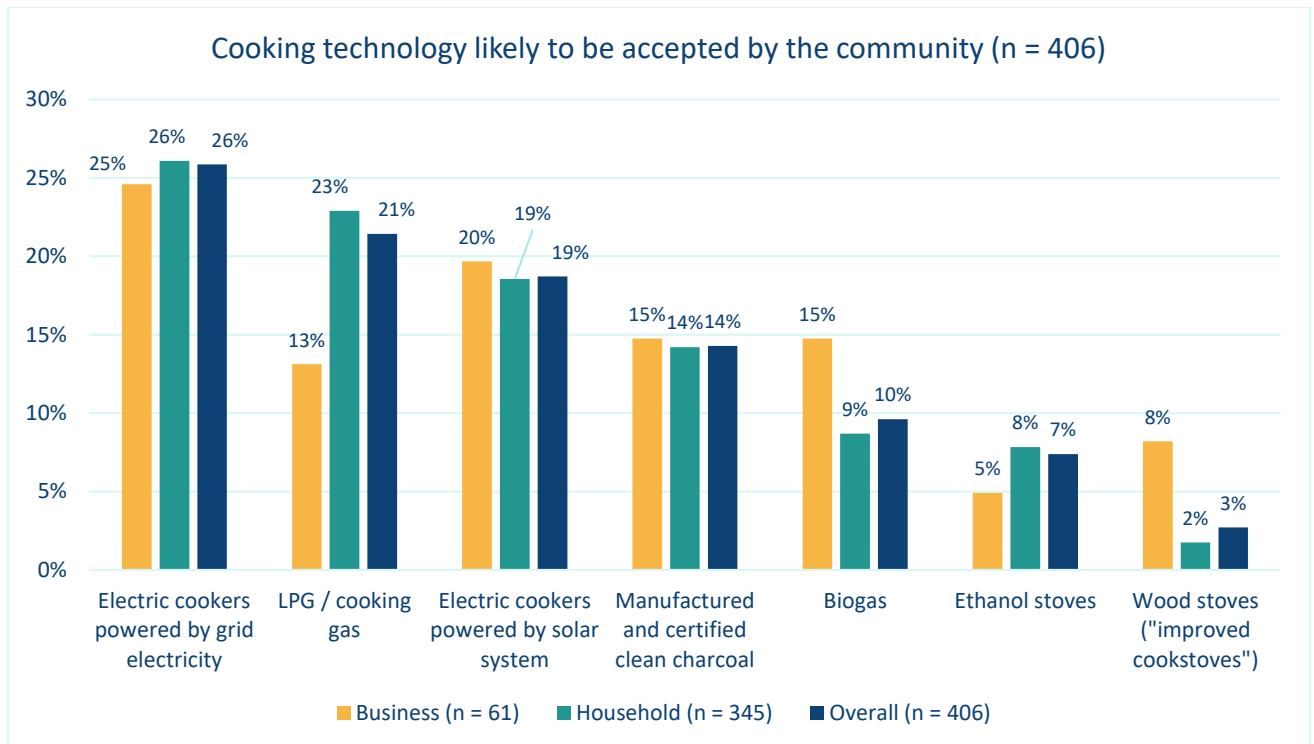


Figure 22: Cooking technologies likely to be widely accepted by the community

This willingness would be increased by the work of ENACT partners like MECS and UpEnergy, in promoting the adoption of electric pressure cookers (EPCs) and electric cooking in general. Still, the use of electric cooking is currently limited, and some community members remain apprehensive. Another reason for this is the fact that (four-burner) electric cookers take up more space, and may need a dedicated kitchen area as a safety precaution, which is not available in most households.

“Since Kisenyi is a ghetto, using gas and electricity as clean cooking energy is very dangerous.” - Business representative

²⁵ Loadshedding refers to actions undertaken by power utilities, characterised by rolling power cuts that aim to lessen the load (electricity demand) on the power supply system, when the utilities are unable to generate, transmit and distribute electric power to meet the current demand.

“This limited space makes it challenging to install certain cooking technologies, especially larger appliances like gas or electric stoves, which may require dedicated kitchen areas or safety precautions.” - Household representative

The statement above points to a lack of awareness of the fact that smaller electric appliances, like electric pressure cookers and induction cookers, are available and could be used comfortably within small houses. Before using electric cookers, however, households and businesses might have to retrofit their wiring, which is a significant cost; for entities not connected to the grid, new grid connection costs UGX 730,000²⁶, which is high for most households and businesses. This is a potential barrier to electric cooking, despite electric cookers being high tier cookstoves²⁷. Solar-powered electric cookers, meanwhile, particularly those without auxiliary power²⁸, limit the frequency of daily use, as they are highly dependent on sun hours for power²⁹.

Only 63% of households in Kampala’s informal settlements have access to electricity³⁰. Lack of access within slums limits the use of electrical appliances or the potential of electric cooking. It also encourages electrical theft and illegal connections, which make these settlements and their residents prone to fires and electrocution and reduce revenue for the utility company UMEME.

Grid-connected LPG and electric cookers appear to be popular due to higher levels of general awareness, availability and use in the community. This suggests that market activation efforts are already in place, creating opportunities for scaled adoption. The Ugandan Government and KCCA have partnered with TotalEnergies and Stabex Uganda to deliver a subsidised LPG programme in Kampala’s informal settlements, including Kisenyi. Despite the programme still being in place, most households that registered to obtain the LPG canisters have not been able to receive the canisters owing to failure by initial recipients to swap (refill) their canisters. This programme was discontinued, raising questions about the sustainability of product subsidies in achieving intended goals of having communities switch to clean cooking.

²⁶ See more on the cost of new grid connections here: <https://www.monitor.co.ug/uganda/news/national/residents-task-govt-to-lower-power-connection-fees-3863402>.

²⁷ Attributes that make these stoves high tier are as follows: they emit less than 35µg/m³ of particulate matter and less than 10 µg/m³ of carbon monoxide, their levelised cost is less than 5% of household income, they have no difference in cooking quality based on fuel quality changes, they are easily accessible at least 80% of the year and can be sourced in less than 1.5 hours per week, and they have not caused any major accident requiring professional care in the last year.

²⁸ Auxiliary power refers to emergency power. In the context of solar-powered cooking, this means battery storage that can power the system late in the night outside of sunshine hours.

²⁹ Opoku, R., Adjei, E., Dramani, J. B., Mensah, G., Nijjhar, R. & Kornyo, O. (2023). *MECS-Cooking Support on Mini-Grids (COSMO Phase 1) Project Report*. London: FCDO and Loughborough University.

³⁰ Yaguma, P., Parikh, P. & Mulugetta, Y. (2022). Electricity access in Uganda’s slums: multistakeholder perspectives from Kampala. *Environmental Research Communication*, 4 125008.

In addition, there seems to be less confidence in the health and safety of these technologies, compared to solar-powered electric cookers and improved wood stoves. Their health and safety benefits should therefore be emphasised.

Solar-based cookers were rated third in terms of cookstove preference, at 19%. However, there seems to be an awareness gap on the viability of harnessing solar energy for cooking. A participant in FGD 2 mentioned that *“we only know solar for lighting”*, and another contended that, *“solar cannot power heavy duty appliances like cookers”*. Projects introducing electric cooking via solar-powered micro-grids will need to sensitise community members, conduct demonstrations with common staples, or other initiatives to increase their willingness to transition.

Manufactured standardised charcoal-based cookstoves were favoured by 14% of both households and food-based businesses, implying their preference to sustain their current cooking behaviours which include steaming, boiling and simmering. These cookstoves are also cheaper than the other clean cooking options, which are deemed expensive.

Generally, the community has low confidence in the current infrastructure’s ability to support the cleancooking options presented in the survey; further investigation is needed into their specific concerns³¹. Some infrastructure challenges, such as electricity supply and financing mechanisms for the acquisition of cooking appliances, would need to be addressed before the delivery of products; others, such as operations and repair support, could be developed during delivery. It would be crucial to determine the scope of responsibility for CCSPs to address these issues. For instance, the development of access roads, grid connection, or sufficient public cooking spaces for food-based enterprises, which are essentially public goods, are beyond CCSPs’ capacity, and would be best undertaken by local or national government. Other initiatives include, matching private sector funding for product subsidies and developing a cross reflective tariff structure that promotes electric cooking even in informal settlements.

characteristics (highlighted in the table).

³¹ For this exercise, we interpret “infrastructure” as anything ranging from physical structures (e.g. electricity networks, roads, last mile supply points, condition of cooking areas, etc), to services (pricing/financing, operations and repair, after-sales services, etc).

Table 8 indicates which technologies would be most accepted, provided they come with interventions that reduce barriers to access. Respondents were provided with sentences which sought to gauge their awareness of clean cooking solutions' characteristics (highlighted in the table).

Table 8: Awareness of various clean cooking solutions

Clean Cooking Technology	Biogas	LPG / cooking gas	Electric cookers powered by grid electricity	Ethanol stoves	Electric cookers powered by solar system	Wood stoves ("improved cookstoves")	Manufactured and certified clean charcoal
Many people are aware of it (lots of information about it available)	16%	25%	18%	18%	10%	4%	11%
Many people are familiar with using it	18%	27%	27%	16%	8%	11%	14%
Many people already own one	6%	17%	16%	13%	5%	0%	10%
It is the most affordable of the technologies in the list	17%	8%	8%	14%	20%	18%	12%
There is infrastructure in the community to support its deployment	4%	8%	11%	8%	7%	11%	5%
There is support from local leadership to promote its use in the community	6%	2%	4%	7%	1%	4%	8%
It is safer	17%	9%	10%	12%	26%	29%	18%
It has lower negative impacts on health	16%	4%	6%	11%	19%	25%	22%
Other	0%	0%	0%	1%	3%	0%	0%

Willingness to accept and install clean cookstoves

If presented with the opportunity, 67% of respondents would acquire either an LPG, solar or electric pressure cooker, suggesting a general awareness of and desire for clean cooking technologies. Those that expressed desire for LPG would be willing to pay approximately UGX 91,277 to get one, two, or four burner stoves, while those aspiring for solar cookers would pay UGX 101,985 on average. In comparison, the actual price for the first-time purchase of LPG is UGX 195,000 to 229,000 for a 6kg cylinder and UGX 226,000 to 353,000 for a 12kg cylinder, including accessories. The cost of solar cookers is UGX 500,000 to 1,500,000 depending on size and company, a potential financial barrier to adoption.

As shown in Figure 23, no respondents expressed a desire to acquire kerosene stoves. Surprisingly, 5% of respondents, who are currently using traditional metallic cookstoves and three-stone fireplaces, would still prefer ceramic cookstoves, presumably as a step up from their current stoves.

Only 6% preferred ethanol cookstoves, implying a limited awareness in Kisenyi: while alcohol-based fuels have been promoted to replace kerosene cookstoves in East Africa and particularly Kenya, these efforts have been limited in Uganda³².

Close to a quarter (24%) of food-based businesses expressed a desire to acquire electric coils or plates, suggesting a potential market within this demographic.

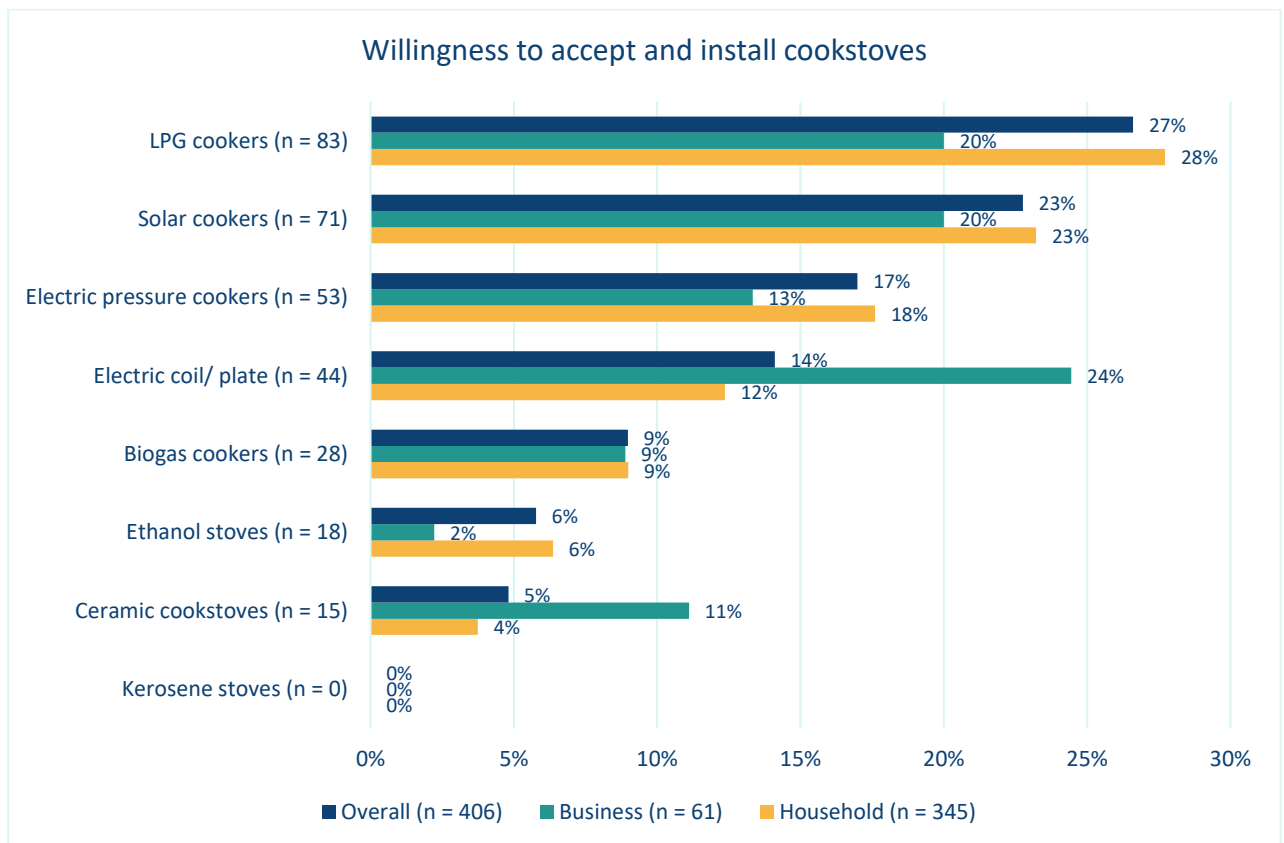


Figure 23: Willingness to accept and install clean cookstoves

3.7 Willingness to pay for a transition to clean cooking

Willingness to pay (WTP) is the maximum price a consumer would voluntarily pay for a product. In the survey, various clean cooking options were presented, with tiered prices based on their costs in Kampala. Households expressed higher WTP for a clean cookstove, at UGX 85,279, and food-based businesses at UGX 65,222. The higher willingness observed in

³² Oguok et. al., (2022) *Uganda's Cooking Energy Sector: A Review*.

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households compared to food-based businesses may be attributed to the concept of ownership. In households, the purchase and use of clean cooking solutions directly benefit the occupants, as ownership and use are internal. Conversely, in businesses, users may differ from the purchasers, and there is a greater likelihood of breakages. Additionally, the lower WTP for food-based businesses suggests that their operations are cost sensitive and likely influenced by capital expenses associated with acquiring clean cooking solutions.

Figure 24 shows that 64% of respondents would be likely or very likely to purchase LPG cookers over a six-month payment period. In Figure 25, this WTP increases to 88% when presented with a 12-month period.

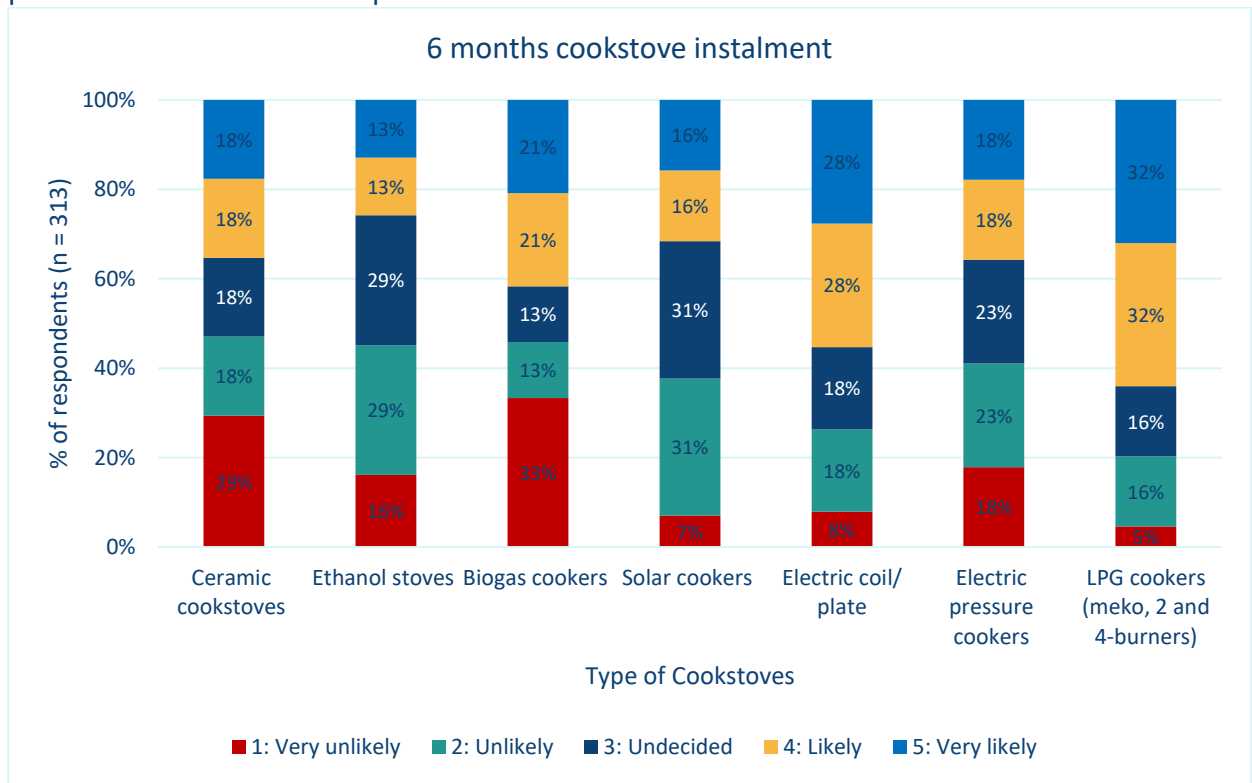


Figure 24: Willingness to transition to clean cooking with a six-month plan

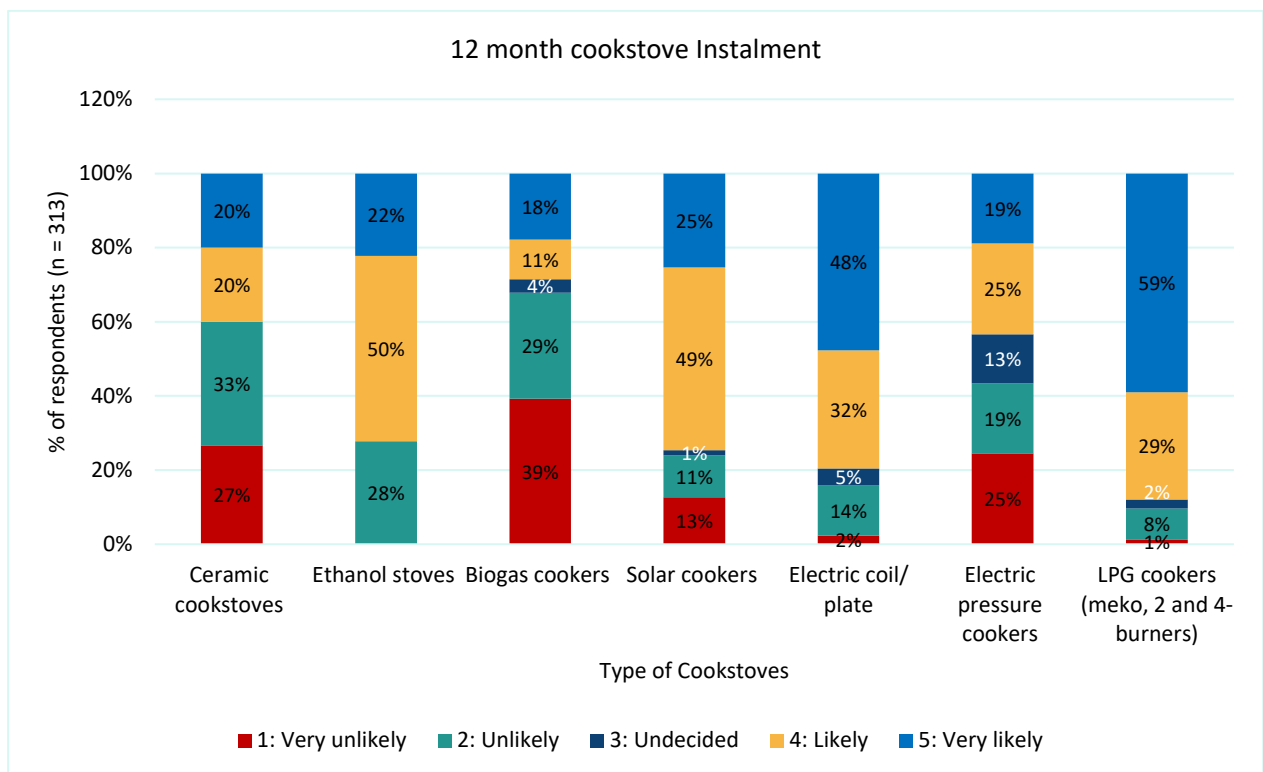


Figure 25: Willingness to transition to clean cooking with a 12-month plan

The willingness to purchase electric pressure cookers and electric coils and plates increased from 36% and 56% in a six-month payment plan, to 44% and 80% in a 12-month plan. This shows that the uptake of clean cooking solutions can be significantly increased if the repayment schedule is staggered to allow for periodic repayments. The longer the repayment schedule or loan tenure, the more appealing the product seems. Still, care should be taken to ensure that: 1) end-users are not burdened by repayments due to high interest charges, 2) CCSPs' cashflows can adequately pre-finance the product pipelines, and 3) CCSPs are adequately resourced to offer and manage credit if they are providing it.

Reasons for the rejection of monthly repayments plans

Around 37% (150 respondents) conveyed strong reservations, categorising themselves as "very unlikely" and "unlikely" to acquire cookstoves under the proposed six-month instalment plan, as presented in Figure 26. Inability to pay the monthly instalment as the primary barrier was cited by 62% of the respondents, 29% expressed concerns regarding the perceived high total cost, while 5% were concerned about the cost of fuel and reliability of the cookstoves. These reasons persisted when a 12-month plan was offered.

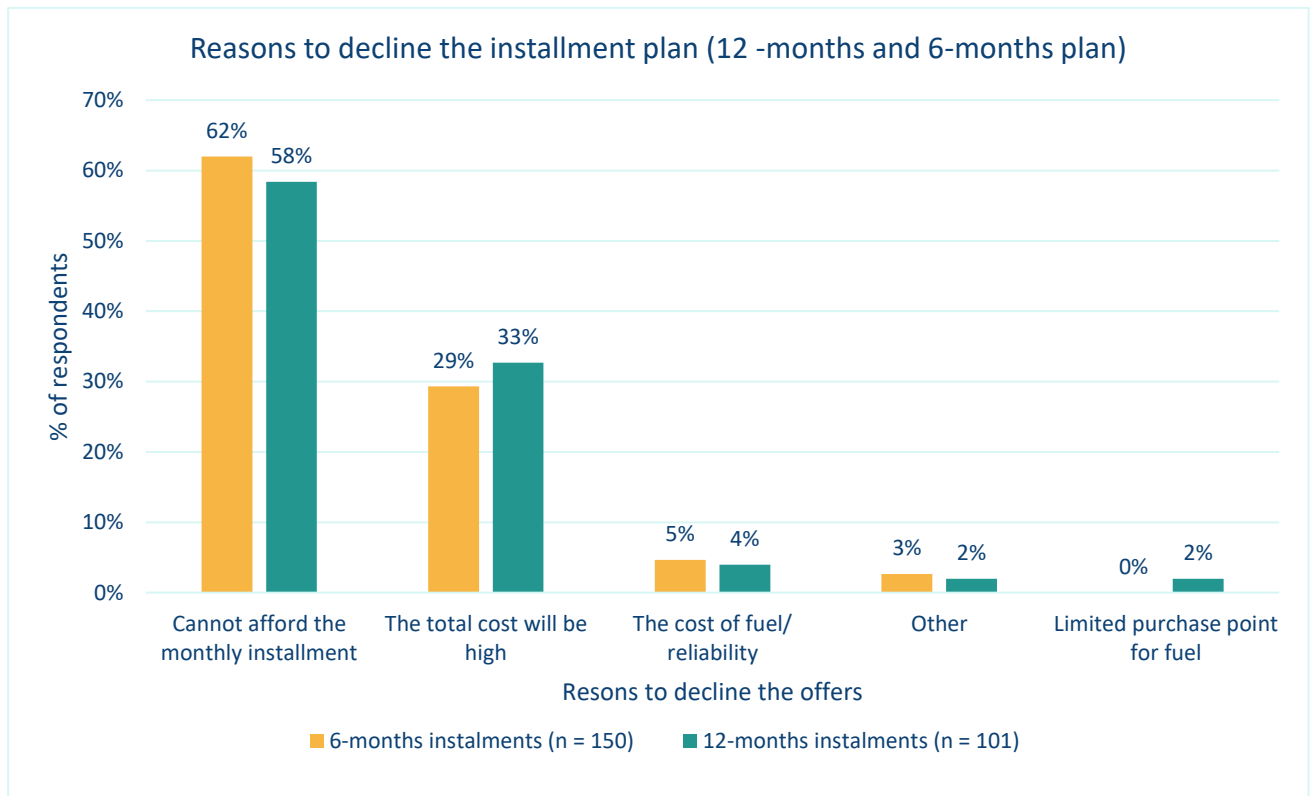


Figure 26: Reasons for declining a hire purchase option

3.8 Preferred financing sources for clean cooking

It can be assumed that financial inclusion is limited in Kisenyi. Only 26% of respondents would prefer to finance their clean cooking solutions through formal financial service providers, like commercial banks, SACCOs, micro-finance institutions (MFIs) and stockists, as shown in Figure 27, 15% would not want a loan from any source, signifying a preference for purchasing cookstoves with cash. Those that obtain financing from family and friends prefer informal arrangements and local suppliers because this increases repayment flexibility. It is critical that the community is aware of existing financial products and services that can enable them to acquire and install clean cooking solutions.

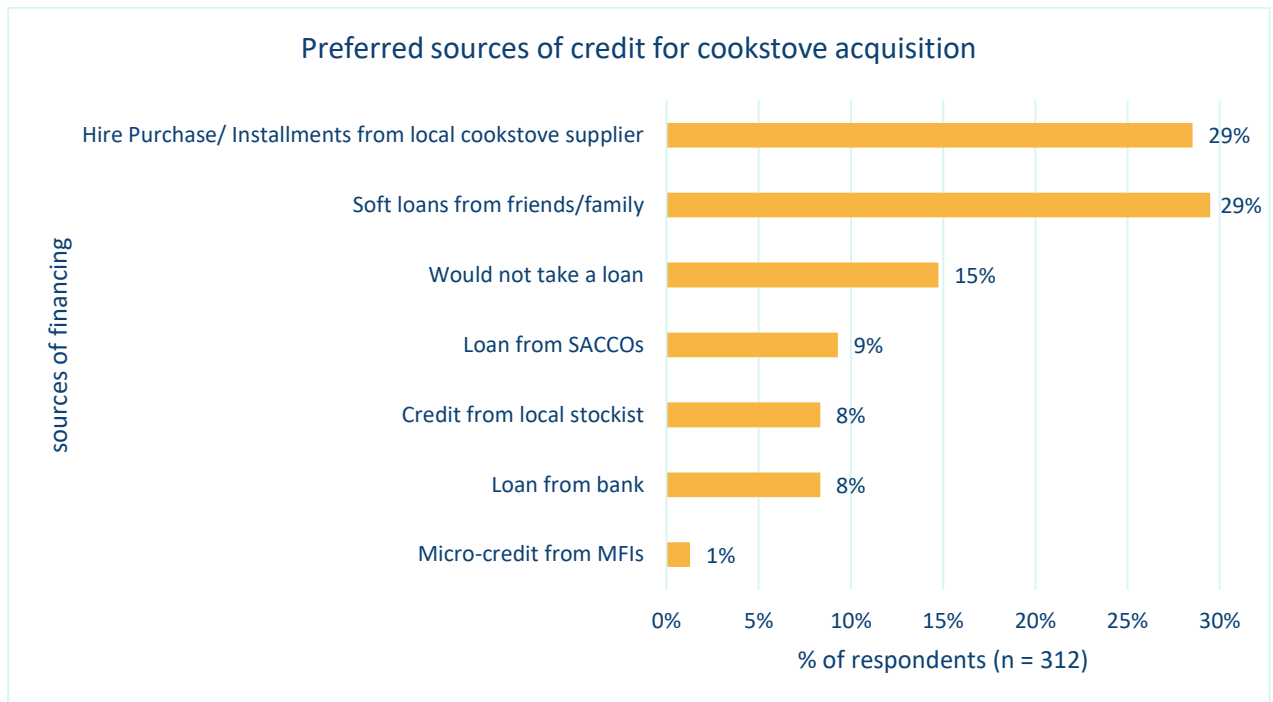


Figure 27: Preferred sources of credit for cookstove acquisitions

3.9 Preferred point of purchase

As shown in Figure 28, 73% of respondents would prefer to obtain their cooking solution from local retailers or distributors, due to lower costs and easier accessibility. Four participants in FGD 1 stated that they offer competitive prices compared to other outlets. Local retailers live within the community and are familiar with households' and businesses' economic constraints, and their pricing reflects this. Participants 5, 7 and 8 from FGD 1 affirm that local retailers are accessible, which also reduces transport costs when products are returned for maintenance or repairs.

However, 23% of respondents would prefer to obtain cookstoves from specialised shops that specifically focus on the desired cookstove. Only 4% would prefer to purchase them from supermarkets. Implementing clean cooking solutions might require partnership with existing businesses, to increase access and affordability. The CCSP(s) should consider recruiting them as vendors in their last mile efforts.

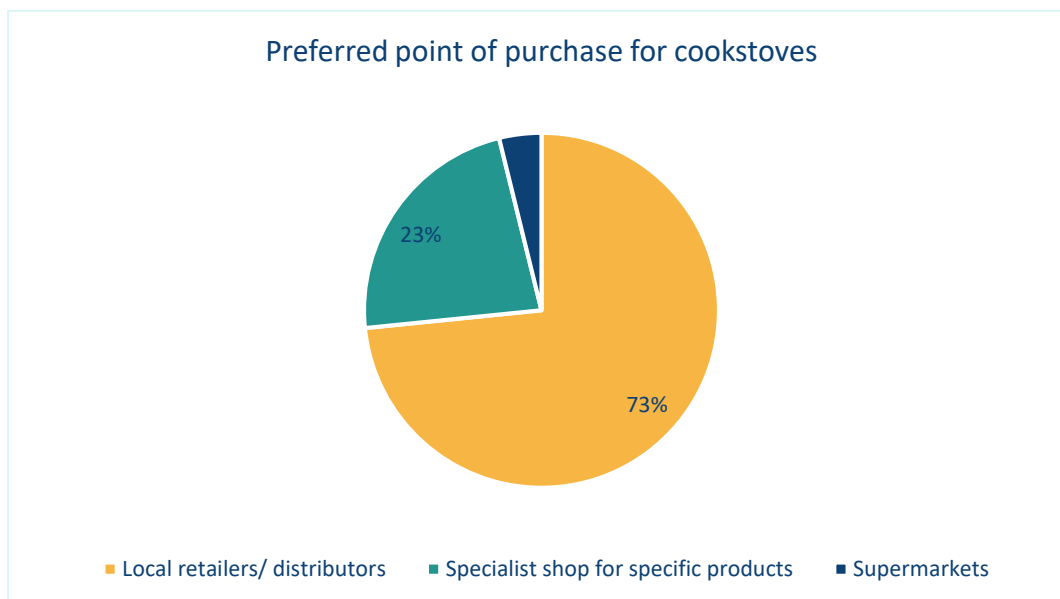


Figure 28: Preferred point of purchase for cookstoves

3.10 Factors influencing the adoption of clean cookstoves

When asked about the motivations that would influence their adoption of clean cooking solutions, slightly more than two thirds of respondents (69%) operating food-based businesses prioritised faster cooking, reduced smoke exposure, and better flame size, in contrast to 56% of the households. Around 12% of respondents also rated stoves with multiple burners highly in their choice of technologies, and another 7% highly rated compatibility with cooking pots, factors that CCSPs should consider.

More households (28%) would be more motivated to adopt clean cooking solutions because they cook faster (more efficiently), compared to 23% of food-based businesses. As seen in Figure 29, 39% of businesses state that their willingness to transition would be influenced by lower or no emissions of smoke and soot, compared to 13% of households. Around 8% of businesses and 13% of households value cooking solutions that have more than one cooking burner.

KIIs reveal a general awareness that clean cooking could help address challenges like gender equity and environmental conservation. For instance, the use of LPG has been linked to better health and protection of the environment. *“LPG use improves quality of life by offering dignity to marginalised groups in society, like women and girls, who are culturally tasked with the role of sourcing fuel used for cooking.”* Local Council II, Kisenyi III representative. Key messages in the ENACT project, to be amplified by partners like the KCCA, MEMD, ICLEI, MC-E4I and CCSPs, could include the role of clean cooking in promoting societal development, such as gender equity, better health and economic empowerment.

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One household representative observed that: “Opting for *clean cooking is a conscious choice that minimises environmental impact and health risks. It involves avoiding harmful practices like using "Kaveera" (plastic bags) while lighting charcoal stoves.*”

The cost of clean cooking solutions is a significant determining factor for residents even though only 6% of the respondents overall identified affordability as a motivating factor for transitioning to clean cooking. During the business FGD, a participant pointed out that: “*In the informal communities, people do not want to hear about expensive items. I heard that in Kenya, a person can easily buy about 10kg or 5kg of LPG. Let the supply come up with ways that can accommodate the selling of gas for any amount of money the person has. Just like it is at the fuel stations.*”

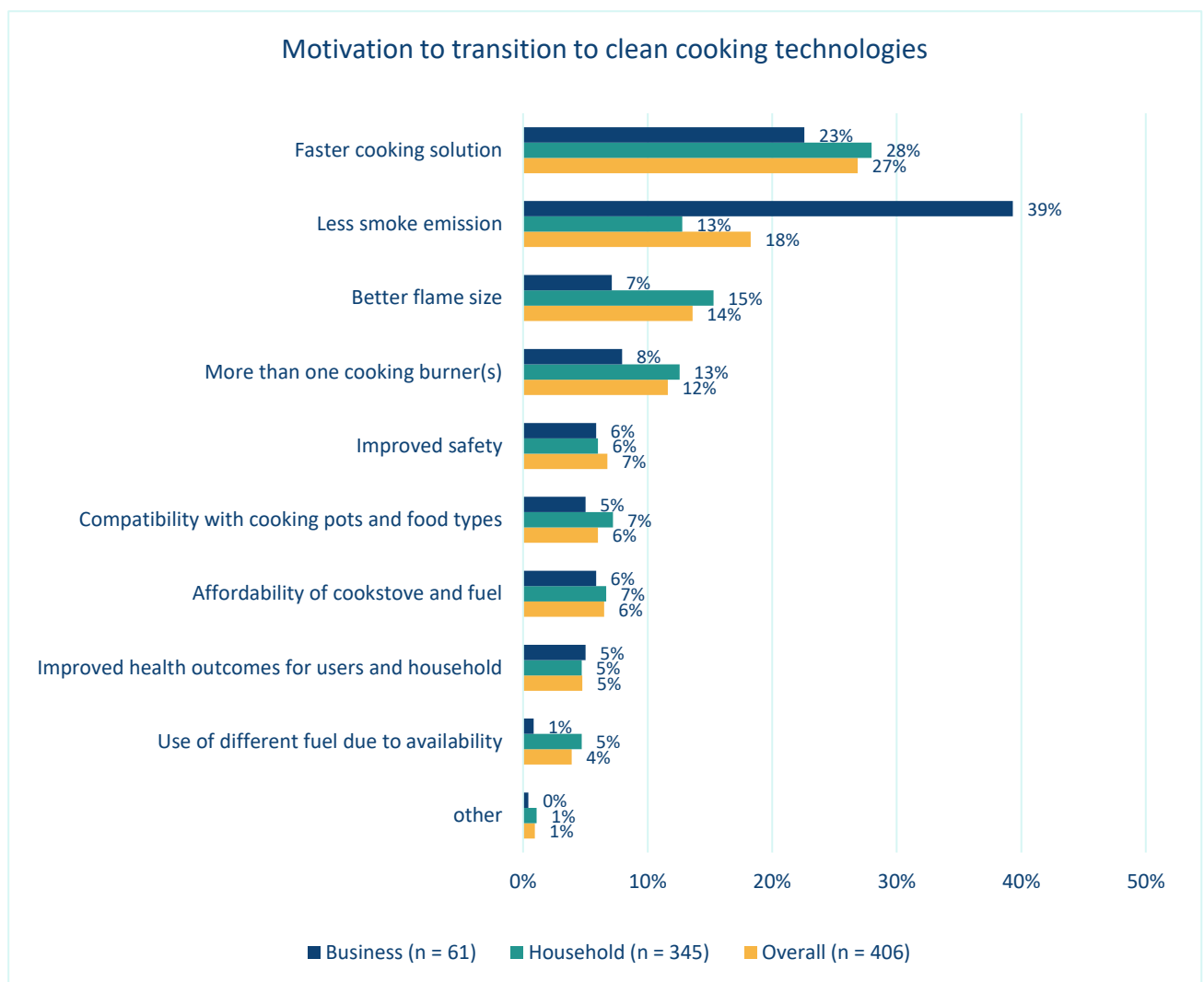


Figure 29: Motivations for transitioning to clean cooking

3.11 Health and safety issues

As Figure 30 shows, the configuration of respondents' cooking areas varies considerably. About 15% of cooking areas lack any opening, while 33% have a single opening. Slightly over half (54%) of the overall respondents use either firewood, charcoal or kerosene for cooking, in households that lack any kind of ventilation. These households are highly susceptible to air pollution, caused by the incomplete combustion of solid biomass fuel and kerosene. The particulate matter and other pollutants emitted inflame the lungs and airways, impair immune responses, and reduce the oxygen-carrying capacity of the blood. These increase the risk of diseases like ischaemic heart disease, strokes, lower respiratory infections, chronic obstructive pulmonary disease, and lung cancer³³.

Alongside the provision of clean cooking solutions in Kisenyi, cooking environments should also be improved. Households, for example, should be well-ventilated. This will often require some level of retrofitting, which means additional expenditure for either the CCSP, the household, the food-based business or its landlord.

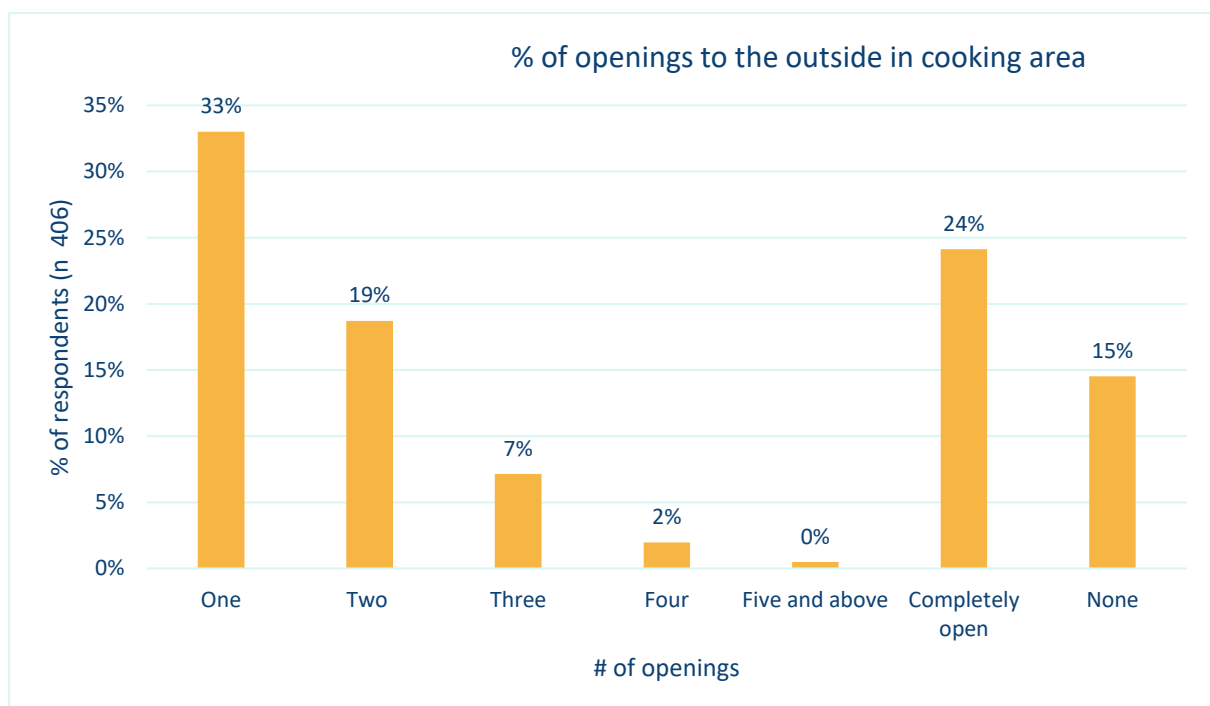


Figure 30: Ventilation in cooking areas

³³ See facts from the World Health Organization (WHO): <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>.

While the majority of respondents agree that their cooking patterns expose them to harmful air pollution, they are resigned to the fact that their cooking decisions are more significantly influenced by other factors, like the price of fuel.

One business representative pointed out that, *“fumes from the firewood are dangerous and everyone with a restaurant should have a built kitchen, but this is not easy in our slum setting”*. They agree that improved cooking environments are needed to improve air quality, but are hindered by finances and the limited availability of space.

In contrast, 24% of respondents cook in entirely open spaces. Participants generally disapprove of cooking in open spaces, and only do so out of necessity.

One household representative adds that: *“We face constraints related to the limited space available for cooking and the open nature of our cooking areas. In densely populated areas like Kisenyi, households have limited kitchen space or cook in open-air settings. This limited space makes it challenging to install certain cooking technologies, especially larger appliances like gas or electric stoves, which may require dedicated kitchen areas as a safety measure and to ward off the theft of appliances.”*

Around 19% of respondents' cooking areas are equipped with two openings. Less than 10% have three or more openings.

As shown in Figure 31, about two thirds (67%) of the overall respondents (i.e. 406) report the presence of lung or breathing-related illnesses in their households. This can partly be explained by dirty cooking practices³⁴, along with a heightened concentration of atmospheric pollutants from vehicular emissions and industrial pollution within Kampala³⁵.

³⁴ <https://doi.org/10.1101/2022.07.28.22278151>

³⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6747035/>

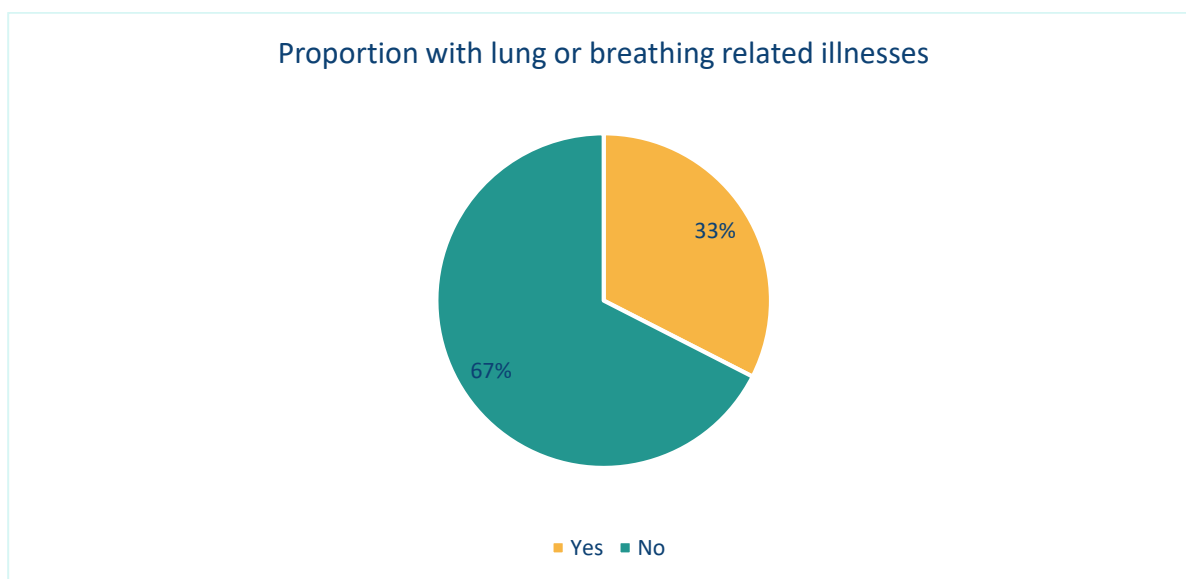


Figure 31: Prevalence of respiratory ailments

As shown in Figure 32, injuries associated with certain cookstoves and fuels are also common. Out of those that have experienced cooking related injuries (overall), 59 respondents have suffered from burns, fires and intoxication 21 have experienced itchy and watery eyes, and 17 have suffered light and heavy coughs, asthma and other respiratory problems. There were no reported deaths or permanent injuries associated with cooking.

Ceramic cookstoves were associated with 59 injuries, traditional metallic cookstoves with 37, LPG with five, and electric cookers and appliances with one. Clean cooking solutions thus reduce the risk of injury, which can be promoted as a key message. Messaging should focus on reducing community fears about the adoption of LPG and electric cooking. As stated by two business representatives:

“Gas would have been better for clean cooking, but it is dangerous with the kids, because you may not know whether they have opened it or not – so if they are giving us gas, they should first sensitise us more on that kind of clean cooking.”

“Since it’s a ghetto, using gas and electricity as clean cooking energy is very dangerous.”

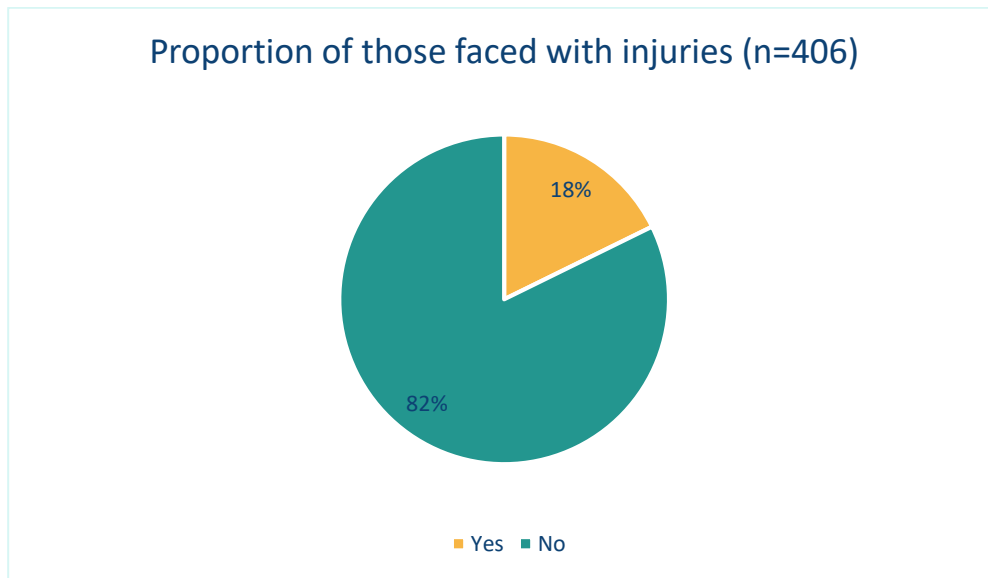


Figure 32: Prevalence of cooking-related injuries

Figure 33 confirms that the proportion of injuries amongst users of traditional and clean cookstoves ranges between 12%-18% respectively. This suggests that injuries are not solely linked to the cookstove type but also to other factors like fuel type used and cooking habits, which are worth interrogating in future studies. Therefore, the emphasis on safety while cooking should be an ongoing focus, irrespective of the cookstove type.

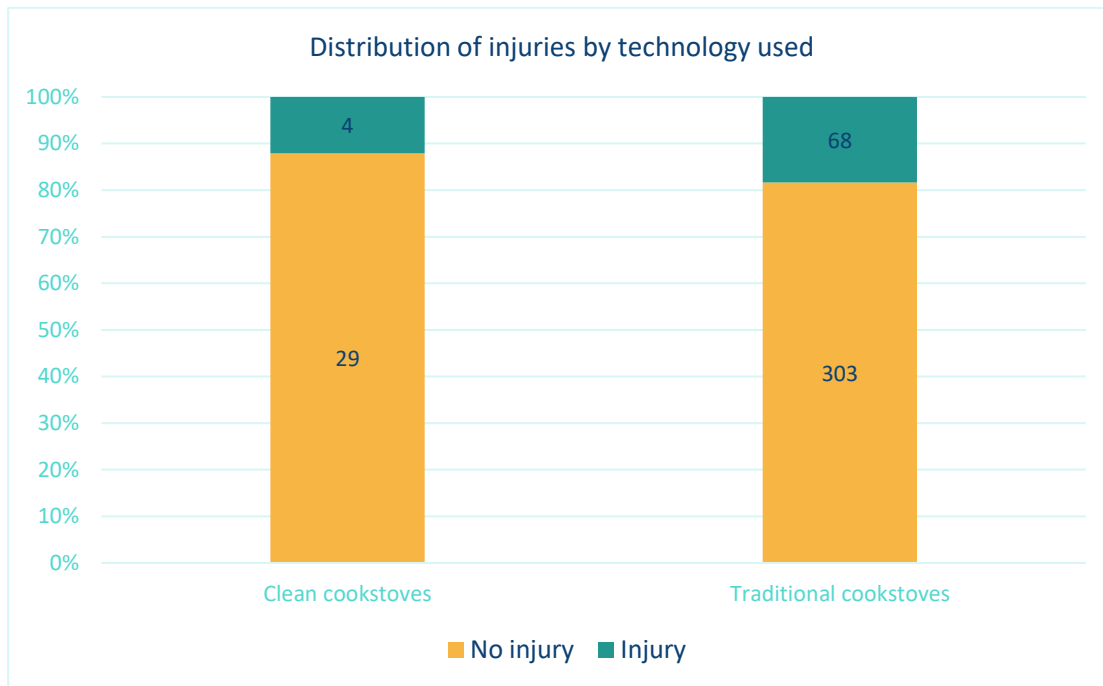


Figure 33: Injuries by proportion of cookstove category used

4 AWARENESS, SENSITISATION AND MESSAGING

This section discusses the levels of awareness of clean cooking initiatives, the community's main awareness-raising channels, and key messages that increase willingness to accept, pay for and transition to clean cooking.

4.1 Clean cooking initiatives in Kisenyi

Clean cooking awareness

Despite previous efforts by various organisations and institutions to raise awareness about clean cooking in Kisenyi, less than 10% of respondents were aware of and directly engaged in previous clean cooking campaigns, as indicated in Figure 34. Nevertheless, there is some general awareness of clean cooking solutions, supported by some utilisation of these technologies, even if only as secondary sources.

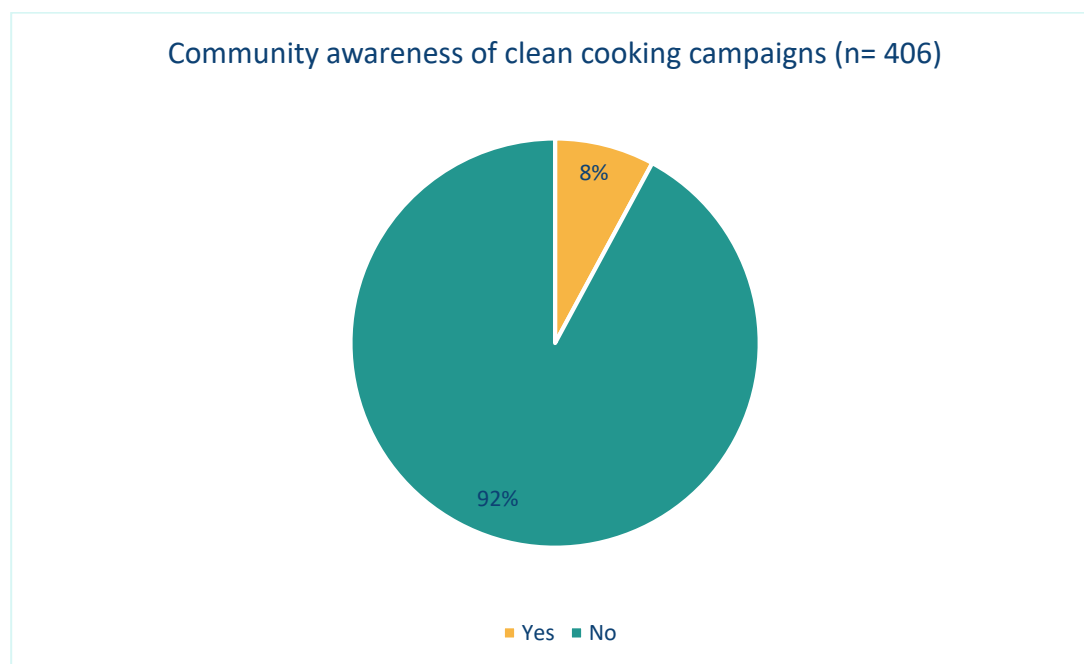


Figure 34: Clean cooking access campaigns carried out in the past in Kisenyi

Despite this, 92% of respondents had not encountered any public communications or campaigns relating to clean cooking in Kisenyi.

Previous initiatives primarily focussed on training women in the manufacturing of improved biomass cookstoves and briquettes. However, the intensity of the awareness raising, and the timelines involved are often unclear as highlighted in Table 9.

Table 9: Duration of campaign

Duration	Total	Percentage
Less than three months	9	28%
I can't remember	18	56%
Four to six months	3	9%
Ten to twelve months	2	6%

ENACT will try to align messaging on the following:

- Promoting the clean cooking solutions that ENACT is supporting;
- Promoting clean cooking for income generation; and
- Improving hygiene and safety conditions for cooking.

A recent government-led initiative, in partnership with TotalEnergies and Stabex, is raising awareness to promote the adoption of LPG in Kampala's informal settlements and support the distribution of subsidised LPG equipment (13kg canister and burner kits). Unfortunately, they hold that a majority who have filled forms have been unable to receive the kits because initial beneficiaries failed to refill their gas cylinders, reducing the quantities available. Respondents generally feel that this initiative, while known to them, seems to benefit residents in other informal settlements but not Kisenyi. One KII respondent said that, *"only 30 LPG canisters were distributed at subsidised rates in Kisenyi, to households that have permanent structures."*

One household representative said that he had heard of an organisation in Kisenyi called Plan International, which was teaching women how to build clean cooking or energy-saving stoves.

Platforms utilised for raising awareness

In previous clean cooking campaigns, respondents have mainly been engaged through door-to-door visits, radio announcements and social gatherings. These avenues were also

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considered by respondents to be the most impactful, as shown in Figure 35 and Figure 36, because they are commonly used within the community. There are high levels of radio listenership in Kisenyi, and door-to-door visits and social gatherings enable meaningful, informative discussions between those raising awareness and the target community.

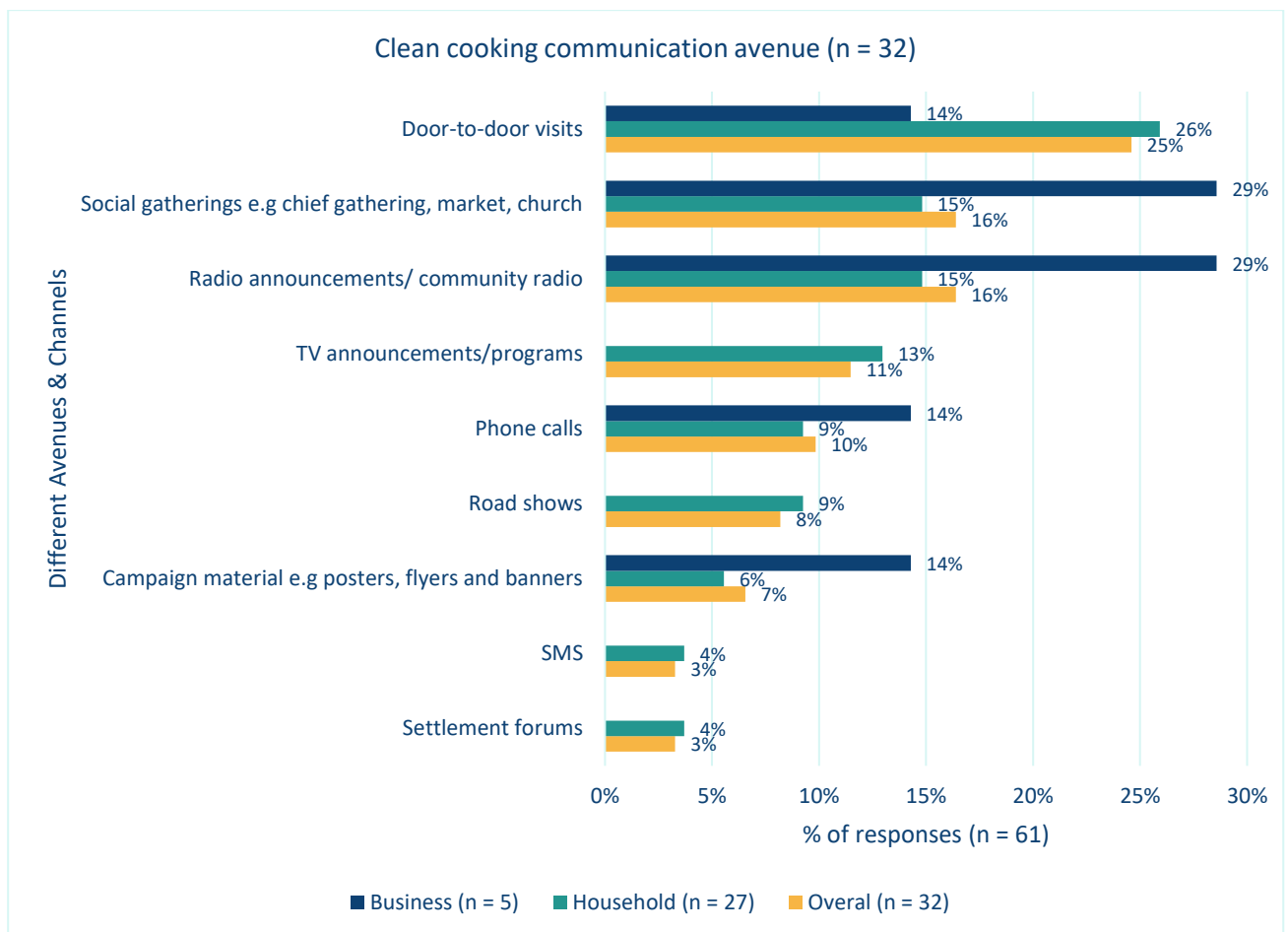


Figure 35: Clean cooking communication avenues

The ENACT project will therefore explore the use of door-to-door visits, social gatherings and radio announcements as awareness-raising strategies. Although digital channels such as SMS and social media rank low, they could still prove valuable for amplifying announcements and invitations to events related to clean cooking, especially considering the increased reliance on digital platforms during and since the COVID-19 pandemic. The former avenues also tend to be resource-intensive and time-consuming compared to digital options.

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It may also be worth pairing forms of communication to impart key messages. For example, print media could be paired with in-person approaches (door-to-door, social gatherings), to allow participants to further engage with the messages in their own time. Cooking demonstrations could be also incorporated into social gatherings, door-to-door visits and settlement forums.

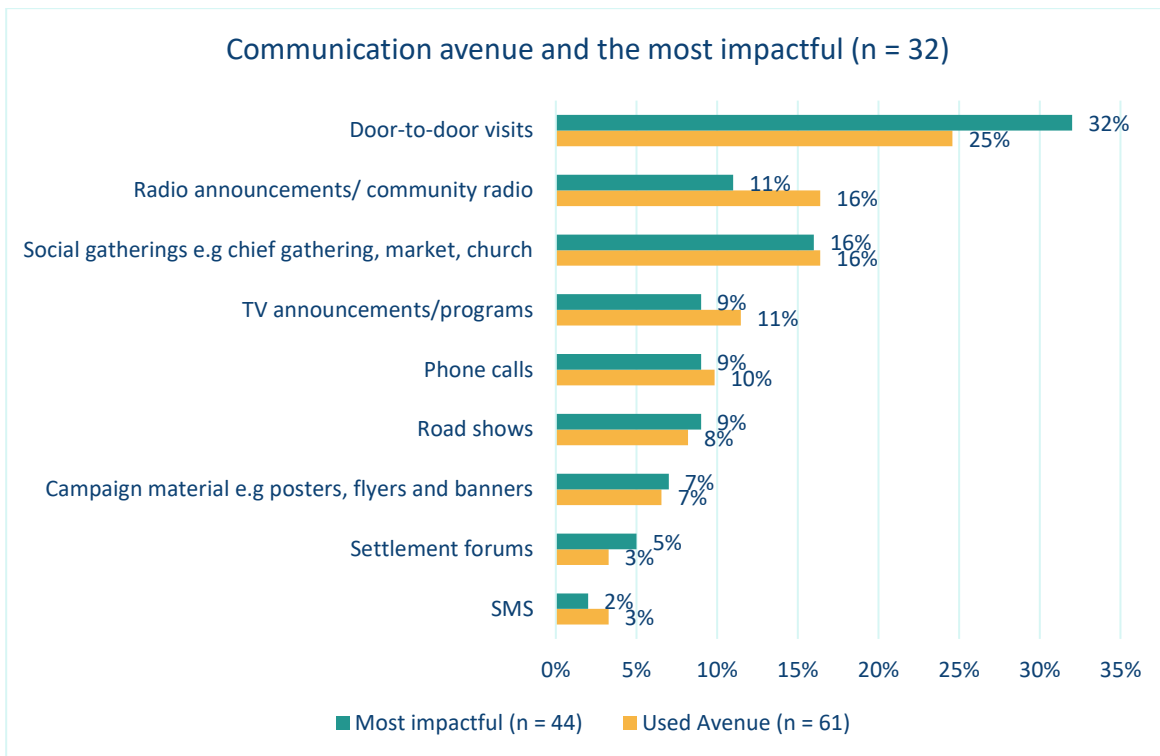


Figure 36: Most impactful platforms for raising awareness

A key informant observed that, “community radios have been relied upon by local leaders to disseminate information on government programmes, community announcements and emerging issues, leveraging on their large listenerships.”

SMS, meanwhile, is often associated with unsolicited messaging by scammers, so is lowly rated. Broadcasting platforms like radio or television would be most effective, if used in the evenings:

“People like to watch Bukedde TV, especially at around 10pm (Agataliiko Nfuufu), when the viewership soars.” – Household representative

Key informants suggested using community leaders and early adopters to advocate for clean cooking, as well as demonstration events that allow participants to interact with the products. Community leaders are especially integral to raising awareness in refugee communities, in which comprehension of print material in the Luganda language may be limited. In addition, it would be beneficial to leverage other networks that influence the community, such as religious institutions, the NSDFU, women and youth groups, cultural leaders like the Kabaka of Buganda, the Prime Minister of Buganda, also known as the Katikiro, and refugee groups.

4.2 ENACT support to complement awareness-raising activities

While awareness-raising efforts aid the transition to clean cooking, other interventions can enhance the quality of these efforts and accelerate uptake. As shown in Figure 37, respondents feel that ENACT has a significant role to play: firstly, by facilitating the affordability of clean cooking solutions through user-centric and sustainable approaches, and secondly, by supporting ongoing education on clean cooking access and safety, supporting local supply infrastructure to improve last mile delivery, and facilitating access to financing to acquire clean cooking products.

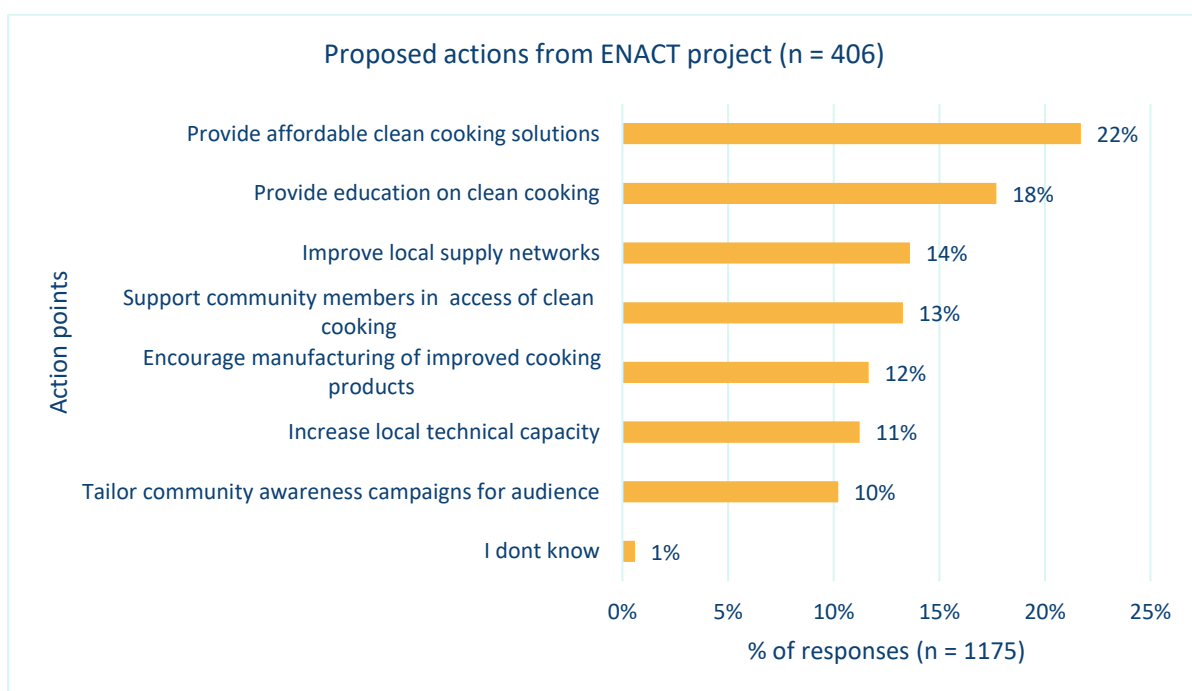


Figure 37: Support from the ENACT project and partners on awareness creation

4.3 Other community recommendations on raising awareness

Kisenyi residents asked to be notified of awareness-raising activities at least three weeks in advance, to allow proper planning. In addition, FGD participants suggested including some activities on Sunday afternoons, particularly roadshows and door-to-door visits, as most residents would then have time to participate.

One FGD participant affirms that:

“The days and times of the sensitisation should be well-calculated to ensure that the community participates well. The people should be informed at least three weeks before.”

Residents also emphasised the need for continuous and bi-directional engagements, as they often do not receive feedback from development programmes on the progress of activities, which has limited both interest and impact in the community. With this in mind the ENACT project should engage community members as champions or ambassadors within awareness-raising campaigns.

“Giving feedback to the community is essential because the community’s need is present. This can be acted upon quickly to support adaptive measures, like the safe use of electricity, LPG and other technologies.” - Household representative

5 RECOMMENDATIONS

While there has been some progress on clean cooking access in recent years, adoption levels are still low, and the goal of universal access by 2030 is ambitious. Sustaining awareness levels, and catalysing the market through innovative deployment models, are both essential. This section outlines some recommendations to guide stakeholders and help the ENACT project achieve its objectives.

5.1 To service providers on community engagement

1. **Leverage learnings from the most effective clean cooking awareness raising efforts carried out in the community:** Awareness raising strategies involving door-door communication, social gatherings, and community radios seem to resonate well with community members in both clean cooking and non-clean cooking awareness raising activities. To the extent possible, it might be valuable to raise awareness in partnership with other organisations that are doing or have done this in Kisenyi, as it would enable shared efforts and learnings. Examples include refugee groups, mosques, churches, National Slum Dwellers Federation of Uganda (NSDFU), and cultural leadership such as the King of Baganda's envoy. In addition, there is a strong preference to engage the community during Sundays as presumably, community members would have the time to participate.
2. **Consider combining face-to-face approaches and digital platforms in awareness raising:** While there is strong preference for the awareness raising strategies outlined above, the survey revealed potential to introduce digital platforms such as WhatsApp, and Facebook, which would be relatively cost-effective methods to reach a wider audience. These approaches would also minimise the use of printed material and allow room to update and disseminate messages as needed.
3. In addition to the health and environmental benefits of clean cooking, **the Kisenyi community would find it most useful to communicate the price of products and fuels, financing for these solutions, cost benefits of clean cooking products, and opportunities to leverage clean cooking for income generation:** We recommend that, for optimal outcomes, these are embedded in the community engagement plan and key messaging material, and where possible, that the messages are raised in collaboration with the clean cooking service providers and other relevant parties, e.g., financial service providers, the Uganda National Association of Clean Cooking (UNACC), or the Kampala Capital City Authority (KCCA).
4. **Monitor the awareness-raising strategy.** The development of a monitoring, evaluation and learning (MEL) framework will go a long way in strengthening the strategy, by enabling it to evolve on the ground. The framework would also act as a means of

recording knowledge, which can be adopted in future projects in Kisenyi and other urban areas.

5.2 To clean cooking service providers in Kisenyi or similar communities on clean cooking product deployment

1. **Diversify the clean cooking products offered in the community to align with demand:** Survey findings reveal a high preference for LPG and electric cooking kits in the community. A partnership between service providers to offer these solutions would help to secure a wide market.
2. **Target marketing of products for both primary and secondary use:** While majority of households and food-based enterprises in Kisenyi do not stack cooking kits, evidence shows diversity in products used for secondary use, including clean cooking technologies. This also presents an opportunity to market the clean cooking products for both primary and secondary use. Clean cooking service providers (CCSPs) might need to further investigate the day-to-day use of cooking assets for primary vs secondary purposes, which was out of this survey's scope, and tailor their marketing strategy to address both fronts.
3. As part of the targeted marketing recommendation above, and **for sustainability, it is recommended that CCSPs deliver marketing activities with a long-term vision of influencing gradual behavioural change to full clean cooking transition.** Hands-on marketing methods such as demonstrations and recruiting early adopters as ambassadors would help strengthen the behavioural change messaging. It is also strongly recommended that CCSPs allocate adequate resources to build a robust after sales support structure, to provide technical support to end-users as needed, and provide the necessary information to aspiring buyers.
4. **Introduce user-centric payment models to enhance affordability:** Close to two thirds of survey respondents reported high costs of the clean cooking assets and high ongoing costs of fuel as major barriers to adoption of clean cooking. While there is a general willingness to acquire clean cooking products on credit, e.g., by staggering payments over 6- to 12-month instalments, **it may be worth putting some consideration on the avenues of credit.** Only 26% of those interviewed would be comfortable seeking financing through formal means such as microfinance institutions, SACCOs and banks, while 29% would prefer to get credit directly from the cookstove supplier/distributor. **It would also be worth considering tailoring instalments to align with customer cashflows, as 96% of respondents earn income from the informal sector.** The study confirmed a general inclination towards daily purchases of small quantities of fuel, most likely based on income flows.

5. **Develop partnerships for product and finance delivery:** The fact that 29% of respondents would seek financing from family and friends to acquire clean cooking solutions suggests a financially excluded demographic in the community. There may be opportunities for partnerships with local financial service providers to support asset financing, and where possible, allow this group to build a credit history that they could leverage to reap other benefits of financial inclusion. This, as with other systemic interventions, would take time, but is crucial to developing a sustainable model.
6. **Consider the holistic cost of cooking in the pricing model:** Whilst the survey did not dive into the day-to-day unit economics of cooking for households and food-based enterprises, we observe the cost of the cooking assets is just as important as the cost of the fuel to be used with them. 21% of respondents expressed concerns with the ongoing cost of fuel to use with the clean cooking technologies, while there was generally low confidence in the presence of infrastructure to sustain product deployment. CCSPs are encouraged to consider how the prices of their products affect the cost of cooking for their target customers.
7. **Consider the cooking environment of potential end-users.** The survey reveals that, depending on the season of the year, households typically cook either on their verandas or indoors (mostly in their sleeping areas), while food-based enterprises often cook outdoors. This suggests limitations in cooking space. Electric cookers and LPG kits, which are the most desired cooking solutions in the community, offer fuel security at any season of the year and are less polluting, but may not necessarily be compatible with the cooking space, especially if not safely handled indoors. For solar powered cookers, sufficient outdoor space and security is also required for the panels, as well as sufficient indoor space for back-up battery storage (if needed).
8. **Continue awareness raising on the benefits of clean cooking in addition to marketing products:** It is highly recommended that CCSPs not only raise awareness on clean cooking in general, but that this is done continuously. Lessons learned and best practices carried from other awareness raising efforts by the ENACT team and ACTogether should also be embedded in CCSPs' community engagement strategies.

5.3 To development partners

1. **Complement clean cooking interventions with targeted technical advisory (TA):** Examples include supporting development of a robust sustainability plan, identifying and collecting the right data to inform impactful intervention and commercial growth, as well as supporting the delivery of targeted and inclusive awareness raising efforts. Development partners like ICLEI Africa and E4I-MC could also support in facilitating

partnerships between CCSPs and local government in delivering financially viable and socially impactful clean cooking solutions in urban informal settlements.

- 2. Include representatives from the City Council for sustainability and capacity-building purposes:** For project objectives to remain sustainable, there is a need for the continual capacity building of staff, in terms of city energy planning, for example, and opportunities for public-private partnerships. ENACT engaged two junior officers from the KCCA from this project's inception to the baseline survey phase, and intends to continue providing a platform for them to learn how to increase the project's sustainability.
- 3. Establish a monitoring and evaluation (M&E) framework for awareness-raising strategies at the beginning, involving all partners and documenting lessons learned:** By generating ongoing insights, this will ensure that strategies can evolve on the ground, to maximise their success.

5.4 To public sector partners – Kampala Capital City Authority, the Ministry of Energy and Mineral Development, and other policy makers

- 1. Complement private sector efforts by providing supportive public infrastructure:** Certain infrastructure needs to be in place to enable adequate service delivery. For example, end-users may require support with safely wiring their residence or renovating their cooking areas to enjoy the benefits of electric cooking, and adequate access roads are needed for LPG distribution and rapid response in case of accidents. Local last mile distributors would require support with registration and licensing so they can stock and sell clean cooking products. It would be worth exploring partnerships with the community in developing this infrastructure, potentially as part of a more integrated slum upgrading plan³⁶.
- 2. Develop inclusive energy policies and communicate them effectively:** Use trusted channels, the community prefer as well as include messages that stress on common goals for all stakeholders, for example the ban on use of firewood for cookery business in public markets is meant to protect business from occasional fires thereby protecting livelihoods. Effective communication of policies and strategies will encourage build-up of trust, reduce potential misunderstanding, increases participation and voluntary adoption of the envisaged actions thereby reducing the need for policing.

³⁶ ENACT published a few case studies demonstrating the value of partnerships in delivering energy access solutions in urban informal settlements in the global south. See https://africa.iclei.org/wp-content/uploads/2021/03/2021_Case-Study_ENACT_Benchmarking-energy-access.pdf for more information.

- 3. Finance clean cooking awareness-raising events by working with partners:** Awareness-raising endeavours are critical to households' and businesses' transition to clean cooking, and the access to finance can help sustain them.
- 4. Ensure deployment of standardised, quality and safe clean cooking technologies and fuels:** The Uganda National Bureau of Standards (UNBS) should ensure that only products with assured quality and operability are authorised for deployment and use in Uganda. This will ensure that clean cooking solutions deployed by CCSP are not only safe for use but also durable, thus alleviating concerns regarding safety and cost of repairs and ultimately enhancing adoption.

BIBLIOGRAPHY

- Dallmann, D., Marquis, G. S., Colecraft, E. K., & Dodoo, N. D. (2023). MARITAL TRANSITION IS ASSOCIATED WITH FOOD INSECURITY, LOW DIETARY DIVERSITY, AND OVERWEIGHT IN A FEMALE POPULATION IN RURAL GHANA. *African Journal of Food Agriculture and Nutrition Development*, 23(1)22149- 22171: <https://doi.org/10.18697/ajfand.116.22645>.
- Energy Sector Management Assistance Programme (EASMAP). (2020). *The State of Access to Modern Energy Cooking Services*. Washington D.C: World Bank.
- Hayson, S., Mclaggan, M., Kaka, J., Modi, L., & Opala, K. (2021). *BLACK GOLD: The Charcoal grey Market in Kenya, Uganda and South Sudan*. Geneva: The Global Initiative Against Transnational Organized Crime.
- International Labour Organization. (2023, October 4). *Classifications of working age population*. Retrieved from ILOSTAT: https://www.ilo.org/shinyapps/bulkexplorer37/?lang=en&segment=indicator&id=EAP_TEAP_SEX_AGE_EDU_NB_M
- Juntarawijit, C., & Juntarawijit, Y. (2020). Cooking with biomass fuel and cardiovascular disease: a cross-sectional study among rural villagers in Phitsanulok, Thailand. *F1000Research*, 1-23.
- Mulondo, M. (2023, October 04). *Literacy rate for male Ugandans reach 81%*. Retrieved from New Vision: Uganda Bureau of Statistics findings on literacy level as of 2021 https://www.newvision.co.ug/category/news/literacy-rate-for-male-ugandans-reaches-81-NV_129670
- Nafula , J. (2023, October 14). *Residents task govt to lower power connection fees*. Retrieved from Monitor: <https://www.monitor.co.ug/uganda/news/national/residents-task-govt-to-lower-power-connection-fees-3863402>
- Ndegwa, G., Sola, P., Liyama, M., Okeyo, I., Njenga, M., Siko, I., & Muriuki, J. (2020). *Charcoal value chains in Kenya: A 20 year sythesis: Working Paper Number 307*. Nairobi: World Agroforestry Centre. doi: <http://dx.doi.org/10.5716/WP20026.PDF>
- Nuru, F., Msalilwa, U., Mbwambo, S., & Balamba, C. (2015). Assessment of household charcoal consumption in urban areas: the case of Dar es Salaam City, Tanzania. *Tanzania Journal of Forestry and Nature Conservation*. Volume 84(2), 22-32.

- Oguok, J., Naluwagga, A., Abbo, M. S., & Tesfamichael, M. (2022). *Uganda's cooking energy sector: A Review*. Kampala: Modern Energy Cooking Services.
- Opoku, R., Adjei, E., Dramani, J. B., Mensah, G., Nijhar, R., & Kornyo, O. (2023). *MECS-Cooking Support on Mini-Grids (COSMO Phase 1)*. London: FCDO and Loughborough University.
- Siddharthan, T., Grigsby, M., Morgan, B., Kalyesubula, R., Wise, R. A., Kirenga, B., & Checkley, W. (2019). Prevalence of chronic respiratory disease in urban and rural Uganda. *Bulletin of the World Health Organization*, 1;97(5):318-327. doi: 10.2471/BLT.18.216523.
- Tuncil, E., Arman, C., & Fisunoglu, M. (2018). The role of gender and marital status on food choice. *Clinical Nutrition*, <https://doi.org/10.1016/j.clnu.2018.06.1488>.
- Uganda Bureau of Statistics . (2016). *The National Population and Housing Census 2014 – Main Report*. Kampala: Uganda Bureau of Statistics.
- UMEME. (2023, October 6). *ELECTRICITY RETAIL TARIFFS FOR QUARTER FOUR 2023*. Retrieved from UMEME: https://www.umeme.co.ug/umeme_api/wp-content/uploads/2023/10/Tariffs-Q4.pdf
- Wafula, S. T., Mendoza, H., Kansiime, W., Ssekamatte, T., Walekhwa, W. A., Mugambe, R. K., . . . Musoke, D. (2022). Indoor air pollutants and respiratory outcomes among residents of an informal urban setting in Uganda: a cross-sectional study. *MedRxiv*, <https://doi.org/10.1101/2022.07.28.22278151>.
- World Health Organization. (2023, October 11). *Household air pollution*. Retrieved from World Health Organization: See facts from the World Health Organization (WHO), <https://www.who.int/news-room/fact-sheets/detail/household-air-pollution-and-health>
- Yaguma, P., Parikh, P., & Mulugetta, Y. (2022). Electricity access in Uganda's slums: multi-stakeholder perspectives. *Environmental Research Communication*, 4 125008.

APPENDIX

1. Key messages for awareness raising

Table 10: Key awareness-raising messages and their thematic areas

Section	Message (English)
Title	Cook faster, cheaper, more easily and more safely with clean cookstoves.
Sub-title	Why cook on a stove that fills your lungs with smoke and soot, when you can have one that is clean, efficient and affordable? Improve your health, protect the environment, empower women, save time, and save money. Transform your life with clean cooking.
1. Save money	Cook with less fuel.
	The stove lasts longer.
	Control heat, waste less energy.
2. Save time	Spend less time starting the stove.
	Cook faster.
	Spend less time collecting fuel.
	Free up time for other productive activities.
3. Cook easily and conveniently	Quality fuels available all year round.
	Cook in a clean and soot-free environment.
	Easily regulate stove heat when cooking.
	Improve the overall cooking experience.
4. Cook in a safe and healthy environment	Reduce exposure to smoke and harmful substances.
	Reduce coughing and eye irritation.
	Reduce the risk of lung and heart diseases.
	Fewer injuries and body burns.
	Reduce the risk of explosion and fires.
	Families have more time for work and rest.

5. Clean cooking empowers women and children	School children have more time to study.
	Clean cooking increases gender equality.
6. Clean cooking protects the environment	Conserve forests by reducing charcoal and wood consumption.
	Reduce the risk of soil erosion and landslides.
	Reduce the emission of harmful substances (greenhouse gasses) into the environment.

2. Images



Burner cooker with a flame



Burner LPG cookers



Manufactured electric coil



Fabricated electric coil



Tripod metallic cookstove



Ceramic metal-clad cookstove



Non-cladded ceramic cookstove



Roasting chicken on a charcoal cookstove



Boiling tea in a kettle



Briquettes in a cookstove



Boiling and simmering matooke



Roasting maize using a charcoal stove



Deep frying cassava chips



A vendor steaming vegetables



Boiling in a three-stone open fireplace



A vendor cooking by the roadside



Sample manufactured charcoal stove



Combination of cookstoves at a food-based business

3. Survey tools and raw data

For more information on the survey methodology and tools, including the questionnaire used in door-to-door surveys, FGD guides and KII guides, as well as raw data, reach out to us via iclei.africa@iclei.org or enact@iclei.org.