



# Kenya Consumer Segmentation Study



## Research Report

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# Project Context

# Project Context 1/2

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Exposure to smoke from traditional cookstoves and open fires – the primary means of cooking for nearly three billion people in the developing world – causes over four million premature deaths annually, with women and children particularly affected. Toxic cookstove smoke contributes to a range of chronic illnesses and acute health impacts and reliance on traditional biomass for cooking forces women and children to spend many arduous hours each week collecting fuel. The unsustainable use of traditional biomass for cooking also increases pressures on natural resources while simultaneously contributing to climate change at the regional and global level.

The **Global Alliance for Clean Cookstoves** was launched in 2010 with a mission to catalyze the uptake of clean and efficient cookstoves through a market-based approach to save lives, improve livelihoods, empower women, and protect the environment.

Globally, despite decades of work to increase adoption of clean cooking solutions, and the engagement of hundreds of organizations active in the sector, the market remains fairly immature and fragmented. The majority of enterprises across the cookstove and fuels value chain are small and medium enterprises (SMEs). Further down the value chain, distribution to rural areas can be expensive and complex and often constrained by insufficient working capital to stock a range of products.

Demand for cleaner cookstoves and fuels has historically been constrained by low consumer awareness of the benefits of cleaner solutions coupled with a cultural attachment to traditional cooking methods and fuels. In order to design effective policies and programs to scale up the use of cleaner cooking alternatives, it is imperative that the barriers to improved cooking technologies be well understood at the household level.

**This study is one of a series of studies commissioned by the Alliance to develop a better understanding of consumer needs and preferences around cookstoves and fuels, as well as other key factors related to effective marketing and sales of stoves and fuels, including messaging and promotion, pricing and payment schemes and distribution channels.**

# Project Context 2/2

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**This study focuses on Kenya, one of eight Alliance focus countries** that have demonstrated considerable potential to foster a robust market for clean cooking solutions. The Alliance's activities in Kenya are guided by a Country Action Plan (CAP) that was developed through locally-led consultations with national stakeholders and adopted in April 2012. The CAP serves Kenyan stakeholders, government and private, as a blueprint to monitor progress toward the 7 million household goal.

The Alliance works closely with the Clean Cookstoves Association of Kenya (CCAK) to implement the recommendations from the CAP and sought input from its members on the design and planning of this study, as well as feedback on the results.

# Overview of the ICS Sector in Kenya

# Overview of the ICS Sector in Kenya 1/2

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Improved cookstoves have been promoted in Kenya since the 1980s following the UN conference on new and renewable sources of energy held in Nairobi in 1981. Stakeholders involved in the initial dissemination activities included The Ministry of Energy, GIZ (formerly GTZ), Practical Action (formerly Intermediate Technology Development Group), Bellerive Foundation, USAID and UNICEF. Some of the initial programs promoting improved cookstoves included the Kenya Renewable Energy Project (KREDP) and Women and Energy Project (WEP) which aimed to develop, design and disseminate improved stoves through providing training and technical assistance to local artisans.

One of the first stoves developed was the Kenya Ceramic Jiko (KCJ) which was adapted from the Thai bucket stove. Over the years the design has improved and today it has become a widely used stove available in the Kenyan market. Wood burning stoves were also introduced through early stove dissemination activities including the Maendeleo stove and the Jiko Kisasa, both low cost fixed wood burning stoves that can be assembled in homes using locally available materials.

Later on rocket stove technology was introduced through GIZ both in a portable and fixed variety offering a high efficiency stove, although at a higher cost to the end user. Over the decades local innovation in stove design has occurred resulting in new variations such as the multipurpose Kuni Mbili and Uhai stove. Recently, other highly efficient stove models such as Envirofit and BURN have been introduced into the market. These new models are more expensive compared to the earlier improved stove types but are targeting the middle and higher income households.

# Overview of the ICS Sector in Kenya 2/2

The cookstove value chain in Kenya is largely fragmented with the majority of cookstove production done on a small to medium scale. The distribution networks are weak and rarely reach remote consumers in rural areas.

The government has been involved in stove dissemination since the first country activities and has partnered with programs mainly through the Ministry of Energy and Ministry of Agriculture. The resources they provide have been limited, however, and biomass energy often loses out to higher priorities around electricity access and generation.

Recent initiatives around climate change mitigation, universal energy access and Vision 2030 relate to the cooking sector. Kenya has also joined the sustainable energy for all (SE4All) global initiative which is led by the UN-Secretary-General. Towards this end, the country has completed a rapid assessment to help determine the main challenges and opportunities in achieving the three goals of SE4ALL, namely: universal energy access by 2030, doubling the renewable energy contribution in the overall energy supply mix and doubling the levels of energy efficiency.

The use of financial institutions to provide financing for stoves has proved a struggle for small producers in the past. However, some institutions such as Faulu, Kenya Women Finance Trust (KWFT) and Unaitas SACCO, among others are starting to develop energy portfolios. In addition, Kenya has a relatively well resourced and developed carbon market with five registered cookstove Gold Standard projects and five programme of activities (PoAs) in validation stage focusing on cookstoves.

Overall, the Kenyan stove market has a long history and is often viewed as a pioneer in the East Africa region. Despite this, many opportunities for improvement and growth exist, including advances in stove quality, increased awareness of the value of ICS, and broader access and affordability.



# Study Objectives & Methodology

# Study Objectives

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- To understand the needs of users in order to understand the factors that influence the purchase and sustained use of cooking technologies.
- To establish consumer insights that will ensure improved cooking solutions meet the targets' immediate and long-term needs related to cooking and household energy.

## Specific objectives

- To examine user behaviors related to cookstoves and fuels
- To identify the needs and preferences of users of cookstoves and fuels
- To establish insights around relevant marketing messages, promotion channels, consumer financing and distribution channels to maximize uptake of cleaner cookstoves and fuels

The study addressed the following five thematic areas;

1. Cooking and household energy needs
2. Cultural traditions and implications
3. Reaching the consumer
4. Market messaging
5. Consumer financing

# Target Respondents

The three consumer segments covered in the study had been preselected based on an earlier segmentation study which sought to assess the viability and successful uptake of improved cook stoves and fuels across different segments in Kenya.

These segments were identified as those with greatest potential to reach early adoption of clean cookstoves and fuels.

Region	District	Location	Fuel used	Household size	Income level (KES per month)	Head of Household profile
Central	Nyeri	Urban	Charcoal, purchased	More than 3 people in household	10,000 -20,000	24-54 years in age.  Preferably female with primary and secondary school education
Western	Kakamega	Rural	Wood, collected	Around 4 people in household	9,000 – 13,000	
Coastal	Kilifi	Urban	Charcoal, purchased	Around 4 people in household	13,000 – 20,500	

# Research Approach

The Project consisted of qualitative and quantitative components.

## Qualitative Research

This consisted of a combination of **immersions** and **focus group discussions with consumers as well as in-depth interviews (IDIs) with stakeholders from the sector**

The immersions and focus group discussions covered all the five thematic areas while playing a more major role in ensuring deep, rich information was obtained particularly with respect to cooking and household energy needs as well as cultural traditions and implications. Expert interviews focused primarily on the thematic areas of marketing messaging, reaching the consumer and consumer financing.

A total of 21 immersions, 9 focus group discussions and 18 in-depth interviews were conducted.

### Respondent definition

In-depth interview respondents involved in the study were;

- Experts in the cookstoves sector
- Manufacturers/ producers of cookstoves
- Traders / distributors of cookstoves
- Relevant partners participating in energy financing

#### NOTE:

Post completion of the initial phase of the study, a number of information gaps were identified and it also became apparent that adherence to segment criteria for the quantitative component of the study had not been achieved. It is against this background that a second wave of the study was conducted to address these critical issues emerging from wave one.

**This report is based on quantitative findings from the second wave while the qualitative information contained has been derived from both study waves.**

## Quantitative Research

The quantitative component comprised of face to face surveys with households and included sections from the five thematic areas with particular focus on cooking practices, priorities, motivations and barriers to purchase of improved cook stoves as well as the likelihood of adoption amongst the target segments.

# Sample Achievement

The tables below contain details on the actual sample achieved against target sample size.

Proposed Study Sample						
Region	Location	Primary Fuel	F2F Interviews	Immersion	Focus Group Discussions	In-Depth Interviews
Nyeri	Urban	Charcoal	276	5	2	3
Kakamega	Rural	Wood	266	5	2	3
Kilifi	Urban	Charcoal	276	5	2	3

Sample Achievement						
Wave 1						
Nyeri	Urban	Charcoal	276	5	2	3
Kakamega	Rural	Wood	266	5	2	3
Kilifi	Urban	Charcoal	276	5	2	3
Wave 2						
Nyeri	Urban	Charcoal	276	2	1	3
Kakamega	Rural	Wood	268	2	1	3
Kilifi	Urban	Charcoal	258	2	1	3

# Study Regions

The study was conducted in the Western, Central and Coastal regions of Kenya, within counties of Kakamega, Nyeri and Kilifi respectively.

## KAKAMEGA

Rural  
Wood users  
268 F2F interview  
7 Immersions  
3 FGDS  
6 In-depths

## NYERI

Urban  
Charcoal Users  
276 F2F interview  
7 Immersions  
3 FGDS  
6 In-depths



## KILIFI

Urban  
Charcoal Users  
258 F2F interview  
7 Immersions  
3 FGDS  
6 In-depths

# Understanding ICS Consumer Needs and Behavior

# Understanding how our Consumer Lives





# Day to Day Life – Housing and Land

A proportion of respondents live in semi-permanent structures made of mud or wood, with iron sheets or thatch roofs while others live in permanent stone structures. Permanent housing is more common amongst urban households.



# Day to Day Life – Housing and Land

In both rural and urban segments, most of the target families live in small houses, that have very little space and in majority of cases, with a number of relatives.



A good number of respondents particularly in the more rural area of Kakamega, live on family owned land; rural households are more spacious inside and outside, allowing for cooking in the open.



# Day to Day Life – The Kitchen

The majority of target segment households are characterized by the absence of modern kitchen appliances. For many, cooking ingredients are placed on the floor as they do not have a kitchen table. Food is in many cases served directly off the stove due to this reason.

Utensils in these kitchens mainly take the form of plastics, a phenomenon that is largely driven by financial constraints; more expensive items would also require better storage such as kitchen cabinets which are not a common feature.



# Day to Day Life – Water

Majority of these households do not have running water and as such, water in jerricans is a common feature near the cooking area. In the rural segment, water is mainly drawn from a nearby river or stream while the more urban segments have water from taps or boreholes as well.





# Stove Mobility

Food preparation takes place either inside or outside the main house.

Households with a kitchen either as a separate structure or as part of the main house mostly prepare their meals indoors. Most women appear to be aware of the need to open the windows when cooking indoors.

In households without a kitchen, cooking generally takes place outside. There is a high incidence of cooking outside especially when wood is used because of smoke, and this is more common in the rural segment.

For the urban families living in rental houses, a good number are not allowed to cook inside with wood and in some cases, indoor charcoal cooking is also prohibited. In such compounds, a veranda is set aside as the designated cooking area for tenants.

*"I stay in a rented house so I wish I could cook using firewood but I can't use firewood in a rented house so it forces me to cook using a stove."* Kilifi



# Day to Day Life – Food Purchase & Storage

Overall, grocery shopping is conducted by the woman, who in some cases may send other family members like children, particularly if an outlet is nearby. Food items are mostly purchased from nearby kiosks, the market or retail stores.

A good proportion purchase what they intend to cook, buying small amounts that are used for one or only a few meals. Some purchase food items to last a few cooking occasions, mainly non perishables such as grains. Vegetables are generally purchased or brought in from the garden when required to ensure freshness given that most of these households do not own refrigerators.

Larger household items such as refrigerators or proper food cabinets are not common within the study target segments. A good number of households have makeshift storage structures like small racks or tables; food is also kept in containers or plastic bags on the floor or at the corner around the cooking area.

Off-shelf food is not very common in rural areas where they mainly depend on the common staple food due to their low disposable incomes.

When more perishable foods such as meat are prepared in these homes, they generally do not require a fridge for storage as quantities do not extend beyond one serving.



# Day to Day Life – Income Generation

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It appears that while some of the women stay at home and are involved in mainly subsistence farming, a section are involved in more commercial farming such as dairy farming.

A proportion of the respondents, particularly in the more urban zones, run small scale businesses. Some of the businesses they are involved in are running kiosks, selling fish (*Omena*), vegetables and fruits, as well as clothes and shoes.

Income generated by the women is generally use to supplement funds from their spouses to cater for family needs.

For some of the more forward looking women and especially the urban ones, they claim to have purchased some household items from own funds saved from business.

*“My husband. He can give you money to buy food and you can take some of that money and do a business like I’m doing.”* Nyeri.

*“Most of the money comes from him because even if it is a business he is the one who opened it for you.”.*  
Nyeri.

*“I usually rear chickens.”* Nyeri

# Household Items – Decision Making Process

Across the segments, the decision to purchase household items mainly lies with the woman of the house.

Having said that, a small proportion of households have some level of husband involvement.

It appears that husbands are particularly consulted when items in question require a substantial amount of money.

In cases where the husband is involved, a discussion on the item desired is undertaken with the husband providing all or part of the funds required if in agreement.

*“Yes once we talk he will tell me if we have to wait until he gets money at the end of the month.” Kilifi*

*“You can even buy bed sheets and pay in instalments but your husband won’t know.” Nyeri*

*“Most of the time it is the woman because she is the one who is involved.” Nyeri*

*“For the major things I must inform him, but the little things I just do them by myself.” Kakamega*

Who makes household items purchase decision			
	Kakamega	Kilifi	Nyeri
The woman	73%	89%	84%
The husband	27%	11%	16%

A few women spoke of their husbands buying household items without consulting them.

Household items purchased include stoves, radios, solar lanterns or panels.

A proportion also mentioned more expensive items such as TV, sofa sets, Biogas digesters and fridges.

**⇒ Although the woman is the main decision maker, husbands act as gatekeepers by virtue of their role as the providers of funds required.**



# Household Items – Influencers

The decision to purchase a particular household item is most likely to be influenced by the following parties;

## ☐ Friends

It emerged that friends are probably the most trusted source for information on new technologies or products; women are generally more likely to purchase items recommended by friends and particularly if items are actually seen in use in the home of the woman friend.

*“Friends also come in. you can go to visit your friend and find a cup like this, you can ask her where she bought the cup and you’ll see the advantages of the cup, then you like it.” Kilifi*

## ☐ Women Groups

A good number of women appear to draw on their groups to obtain information on products. In some cases, information is shared informally amongst members, while in others, companies distributing items such as solar lanterns have been successful in disseminating information on product benefits to groups and achieving uptake.

## ☐ Family *“They can give information to Women Groups.” Kakamega*

Cases of women adopting a new product or technology post referrals from a family member are high mainly because they place a high level of confidence and trust in them.

## ☐ Other key influencers are NGOs, CBOs, the Media e.g. radio and local traders or outlets.

# Section Summary

Overall, most of the households involved in the study live in semi-permanent structures with some of the urban families living in more permanent dwellings.

Some of the rural segment homes are on family owned land while for urban households, a good proportion are rentals.

Households in both urban and rural segments are characterized by lack of running water and limited kitchen appliances.

Food preparation takes place either inside or outside the main house with wood cooking being mostly done outside due to smoke. For the urban families living in rental houses, a good number are not allowed to cook inside with wood and in some cases charcoal, and as such, a veranda is set aside as the designated cooking area for tenants.

Decisions on food are generally made by the woman of the house. Food is purchased from nearby markets, kiosks or retail outlets and is in most cases prepared for one or two servings hence the low need for storage facilities.

Off-shelf food is not common in rural areas where they mainly depend on the common staple food due to their low disposable incomes.

Amongst particularly the urban women, a proportion run small scale businesses such as kiosks selling fruits, vegetables, clothes and shoes, with the income they generate being mainly used to supplement their husband's earnings or in some cases, saved to buy household items.

Across segments, women make the decision to purchase household items in majority of the cases and more so in Kilifi and Nyeri. The husband is however consulted in some of the decisions due to his role as the money provider and particularly when the item in question requires substantial funds.

Friends, family and women groups are a key influence when it comes to decisions to purchase household items.

# Cooking and Household Energy Needs

## Cooking Needs and Preferences



# Management of Cooking Tasks

Across the segments, cooking is mainly done by women who are the mothers. In households where daughters are old enough, they also assist particularly when mothers are not home or engaged in other chores.

Overall, most of the women spend 2-3 hours per cooking occasion for the main meals; few claim to spend as low as 30 minutes.

Time spent is mainly a function of food type. More time is spent over the weekend when foods that require longer durations such as *Chapatti* and *Githeri* are prepared.

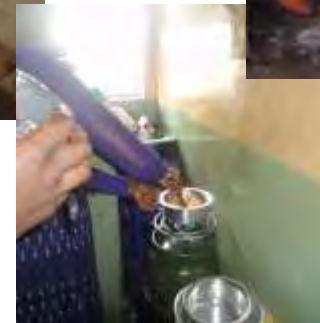
*"I spend a lot of time on the jiko because I boil beans and maize (Githeri). So when I wake up in the morning and light the jiko or firewood I will stay around the jiko up to around one o' clock."* Nyeri.

⇒ **Any ICS awareness raising or marketing efforts should focus primarily on women; working through women groups could ensure good reach.**

## Cooking Positions

It emerged that cooking positions vary and are influenced by cookstove or food type. Lack of space forces women to stand at a bench as a cooking chair cannot fit into some of the kitchens.

Meals such as *Chapatti* which require the woman's involvement through a relatively long period, tend to be performed while sitting.



# Warming Food

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Once prepared, it is generally perceived as affordable to warm food using a fast stove which in most cases uses a more expensive fuel than the primary fuel. There is clear preference for Kerosene or LPG stoves to warm food that had initially been prepared with charcoal or wood.

Some of the women (from urban settings with access to electricity) did express the desire to own a microwave in the future as they appreciate the associated convenience and time saving benefits.

*“The gas cooker, I would be very happy.... there is another one called microwave for warming food I would be happy.”* Kilifi.

⇒ **Improved cookstoves that are easy to light and cook fast would provide an ideal cooking solution in homes that currently use hard to light fuel stoves.**

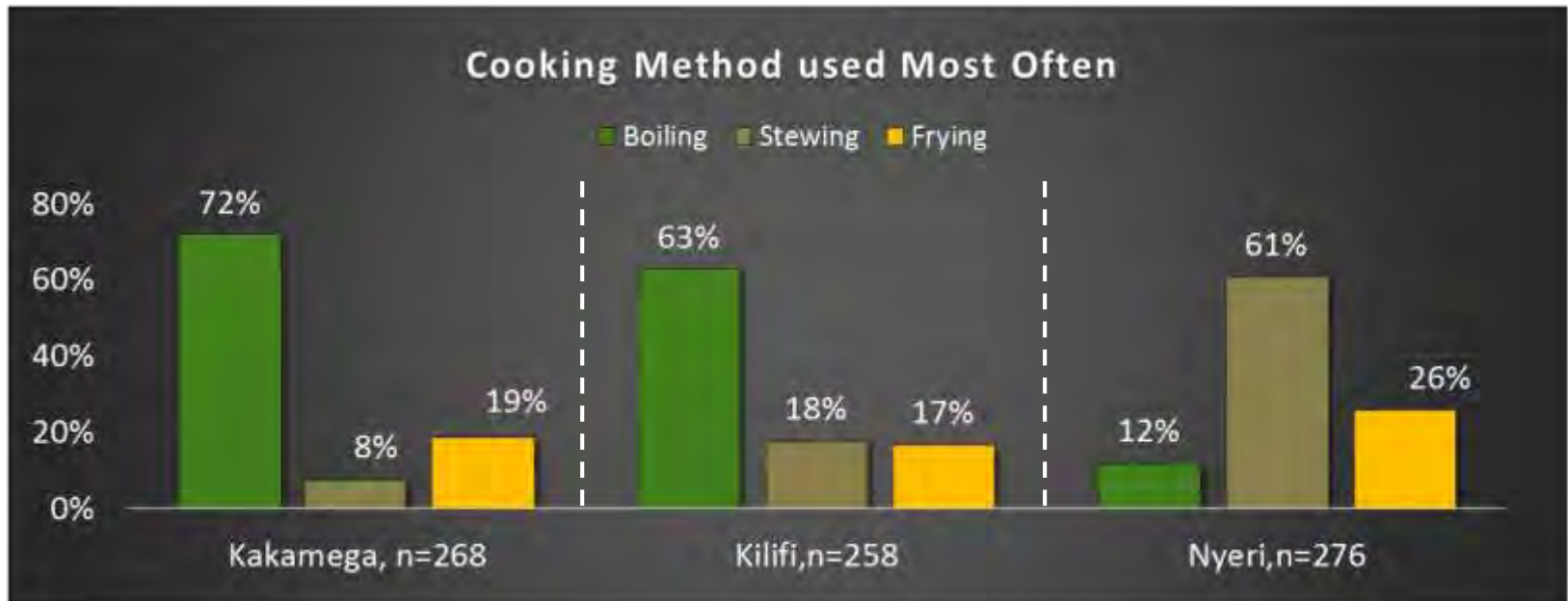
# Cooking Methods

Cooking methods vary across the segments with Nyeri recording higher incidence of frying and stewing whereas boiling is more popular in Kakamega and Kilifi.

The use of multiple cooking methods was recorded for some special foods such as boiling then frying of *Githeri* or traditional vegetables as well as the boiling, mashing then frying of *Mukimo* which is prevalent in Nyeri segment.

*"I boil so much because I don't like oil so much."* Kilifi.

*"Frying...Yes because it becomes tasty".* Nyeri.



Note: Description of common foods prepared is contained on slide 42

# Cooking Methods - Consideration Factors

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The women consider a number of factors before the decision on cooking method is reached.

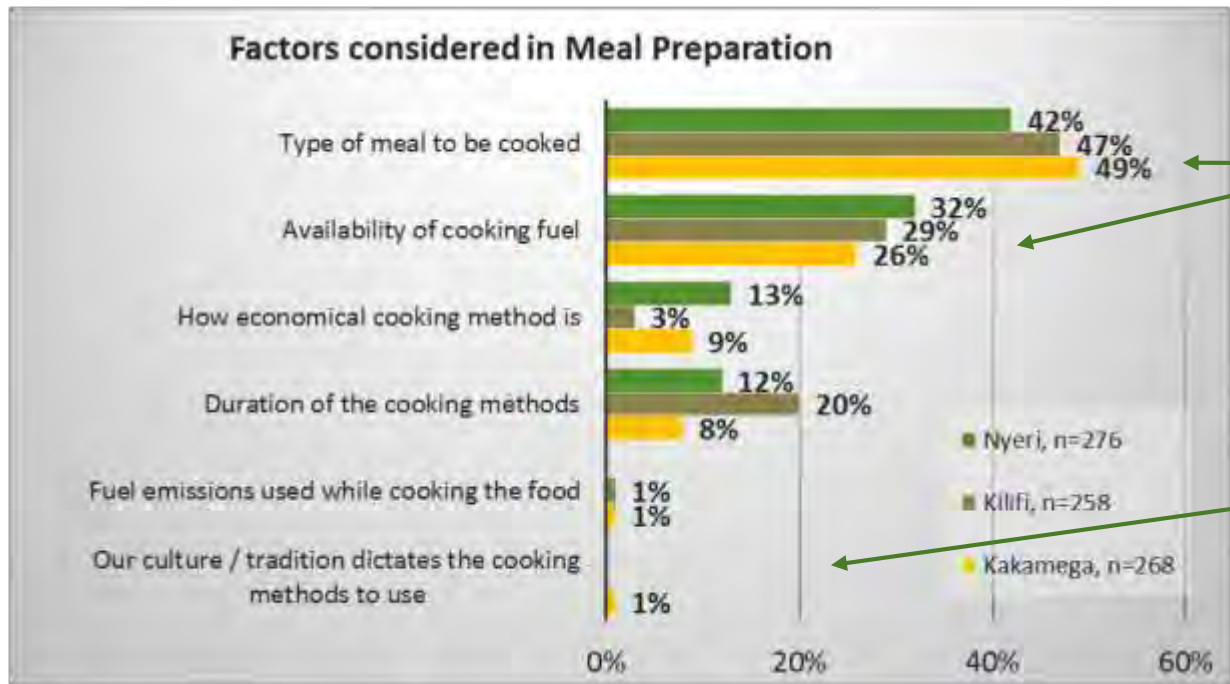
The main factors are listed below:

- **Food type/ Cooking duration;** this relates to the length of time the particular food type takes to cook as meals that take a considerable time such as *Githeri* are generally made by boiling as the first step before they are fried to enhance taste
- **Availability of fuel;** boiling is somewhat perceived as more fuel efficient, probably as it appears to waste less heat compared to frying. In cases where fuel is easily available, women are likely to employ preferred method rather than the one seen as more fuel efficient
- **Taste perception;** across segments frying is considered to make food tasty and is more prevalent in Nyeri. This is supported by the perception that food prepared for visitors or other special occasions needs to be fried.
- **Health considerations;** there were claims by some of the women that they take deliberate efforts to reduce their family's fat intake by minimizing the use of cooking oil in food preparation through methods such as boiling or steaming.
- **Accompaniment;** Foods like Ugali that are very commonly prepared in Kenyan households are not considered tasty on their own and are therefore generally perceived to require a fried dish or stew to eat with.
- **Affordability;** amongst a few, it emerged that boiling was perceived as more affordable as they did not need to use cooking oil.

# Meal preparation

The **type of meal or food type** is the overriding consideration in meal preparation and this also has some influence on other major factors such as **cooking duration** and **type of fuel** required.

**Time taken to prepare a meal** is also a consideration as the women have to consider how much of their time they need to free up given that this impacts their ability to perform other chores or run their small businesses and as expected, this is more of a consideration in urban segments.



Affordability and availability of the fuel required for the food type are also key factors

Emissions and cultural traditions received low mentions



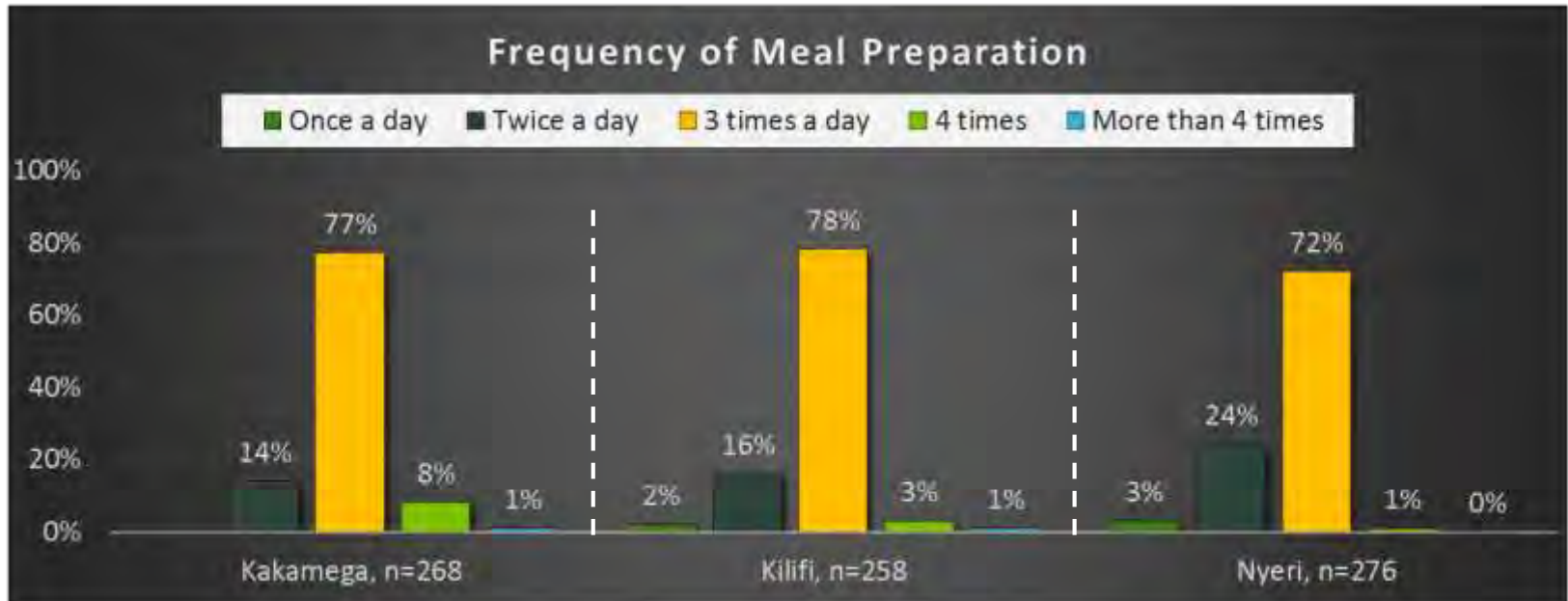
# Frequency of meal preparation

As shown in the figure below, the majority of households (70%) within the target segment prepare meals three times a day. Frequency is mainly dependent on family activities; families with school going children and parents who do not spend the day home tend to cook only twice a day i.e. breakfast and dinner.

Households with younger children are forced to prepare light meals in between the 3 standard meal times such as porridge at 4 O'clock.

*"I cook twice in a day; in the morning and evening. During lunch time people are not there so when I cook breakfast I'll cook again in the evening."* Nyeri.

*"Like three times a day...I will cook, breakfast, lunch and supper."* Kakamega.



# An overview of a full meal preparation process

The pictures below map out a meal preparation process; cooking is done on a three stone fire that requires the woman to tend to every few minutes. In most rural and some urban kitchens, ingredients and utensils are often placed on the ground mainly due to lack of space or proper table for use. Food is then served directly off the fire.



Lights thin splinters of wood under firewood



Prepares ingredients as fire lights properly



Places cooking pot on fire



Food preparation and serving taking place on the floor in an urban kitchen



Food continues to cook



Food ready; gets utensils to serve food



Serves food off the fire



# Preparation of Ingredients

Amongst these segments, meal preparation generally does not involve use of additional appliances like blenders, rice cookers, etc. In the households covered in the study, ingredients such as onions, tomatoes and some vegetables were chopped off the fingers rather than a chopping board.



# Common Meals prepared - Overview

Overall, the most popular types of food prepared are; *Ugali*, rice, *Githeri* and vegetables; a slight skew is seen towards *Ugali* in Kakamega and *Githeri* in Nyeri.

Other relatively common types of foods across the segments are *Chapatti*, beans, tea, Bananas (*Matoke*), *Mukimo*, Sweet potatoes, yams, green grams, *Pilau* and meat e.g. *Omena*, chicken and beef.

Food type	Cooking time	Fuel used	Heat level required	Frequency of preparation/ week	Number of servings for the family	Comments
<i>Ugali</i>	15 - 30 minutes	Wood, Charcoal	High heat	3 - 7 times	One serving	<ul style="list-style-type: none"> <li>• Wood is thought to cook <i>Ugali</i> best</li> <li>• Eaten with fried stew for taste</li> <li>• Kerosene/ gas not thought to cook well</li> </ul>
Rice	15 - 30 minutes	Charcoal, Wood	Moderate	5-7 times in a week (Almost daily)	One serving	<ul style="list-style-type: none"> <li>• Served with a stew e.g. beans, meat</li> <li>• Charcoal cooks rice evenly vs. wood</li> <li>• Hot charcoal coals placed on <i>sufuria</i> lid especially for special occasions (e.g. <i>Pilau</i>)</li> </ul>
<i>Githeri</i>	1 - 2 hours	Charcoal, Wood	High heat	2 - 3 times a week	1 - 2 days	<ul style="list-style-type: none"> <li>• Most boil then fry</li> <li>• Wood preferred as cooks faster due to high heat – use of traditional pot on wood makes tastier</li> </ul>
Vegetables	6 - 15 minutes	Charcoal, Wood	Moderate	3 - 5 times a week	2 per day	<ul style="list-style-type: none"> <li>• Boiled then fried</li> <li>• Soda ash added when boiling to soften</li> </ul>
<i>Chapatti</i>	30 min - 1 hour	Mostly Charcoal	Moderate	1 - 3 times a week	1 - 2 days	<ul style="list-style-type: none"> <li>• Charcoal preferred as can regulate heat to keep it moderate</li> </ul>
Beans	1 - 2 hours	Charcoal, Wood	High heat	2- 3 times a week	1 - 2 days	<ul style="list-style-type: none"> <li>• Considered generally suitable to cook on wood or charcoal</li> </ul>

# Common Meals prepared - Overview

The majority of households prepare tea for breakfast and this is normally served with bread while some also prepare tea in the late afternoon or evening to be taken before, during or after the evening meal.

Porridge which is generally perceived as healthy is prepared in many households for breakfast and as an after school snack for school going children; some also make porridge which is considered suitable for weaning, at different times of the day for young children.

There was no mention of store-bought pre-prepared foods amongst the households covered in the study.

## Most Common Meals

BREAKFAST	LIGHT MEAL/ SNACK	LUNCH OR DINNER
Tea – with bread, <i>Chapatti</i> (leftover), sweet potatoes, <i>Githeri</i>	Porridge – Maize, Sorghum, Millet	<i>Ugali/ Githeri/ Rice</i>
Porridge	Tea – with <i>Chapatti</i> , bread	Vegetables

# Common Meals – Drivers and Barriers

A number of negatives and positives were cited for and against the common meal types.

Food type	Drivers	Barriers
<i>Ugali</i>	<ul style="list-style-type: none"> <li>• Filling</li> <li>• Fast/ Easy to cook</li> <li>• Affordable</li> </ul>	<ul style="list-style-type: none"> <li>• Not particularly tasty</li> </ul>
Rice	<ul style="list-style-type: none"> <li>• Fast/ Easy to cook</li> <li>• Ability to serve with a variety of stews</li> </ul>	<ul style="list-style-type: none"> <li>• Not filling (some)</li> </ul>
<i>Githeri</i>	<ul style="list-style-type: none"> <li>• Stores well – fried when served</li> <li>• Versatile; eaten without frying, fried with or without other vegetables, for different meals</li> <li>• Affordable</li> </ul>	<ul style="list-style-type: none"> <li>• Takes a long time to prepare</li> </ul>
Vegetables	<ul style="list-style-type: none"> <li>• Healthy</li> <li>• Generally affordable and available</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to store – purchase for same day cooking</li> </ul>
<i>Chapatti</i>	<ul style="list-style-type: none"> <li>• Stores well – also served for breakfast or snack</li> <li>• Is a family favorite – children and husband</li> </ul>	<ul style="list-style-type: none"> <li>• Takes a long time to prepare</li> <li>• Not very affordable</li> </ul>

# Cooking for Special Occasions

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Particular attention is paid when cooking for special occasions with focus being on preparing food that is tasty; this is in line with the general perception that food prepared for special functions must be fried rather than boiled or steamed.

Due to economic reasons and the ability to use large pot sizes, wood is commonly used for special functions such as dowry ceremonies, weddings and funerals. In both rural and urban areas, cooking for visitors or holidays like Christmas is normally done using wood or large sized charcoal stoves; with more flexibility in pot size evident with three stone fire as charcoal stove size is limited.

*“When I go to my mother’s place we use firewood to cook a lot of things when we have a function.” Nyeri*

A variety of foods are prepared without much variation being seen across the different types of special occasions.

*Pilau*, and to some extent *Chapatti*, are generally the most common dishes for special occasions with other recipes depending to on the region;

- In Nyeri, *Mukimo* is normally made as one of the special meals while fried free range chicken is the main delicacy for the Kakamega region.

⇒ **Preference for wood for special occasions is driven by the ability to match pot size with amount of food as in most cases, three stone fire size unlike charcoal stove, can be set accordingly; this suggests an opportunity for large sized ICS.**

# Cooking – Positives and Negatives

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Overall, cooking is perceived to define the role of women as wives and mothers.

Some pride is taken in providing good meals for the family; it is important to note that besides the mention by some of the reduction in use of cooking oil, there was not a lot of clear indications of health considerations with respect to meal preparation.

There were some references to health related to smoke from cookstoves, especially amongst mothers of young children.

Amongst all segments and more so in Nyeri, there is a clear preference for saving time spent on cooking with many expressing the desire for stoves that cook fast or allow the women to perform other chores as they cook.



# Section Summary

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Generally, cooking is done by the women with some spending up to three hours per cooking occasion.

The cooking position is determined by food type and involvement required, duration of cooking as well as the whether the kitchen has adequate space for a seat or bench.

Clear preference is shown for easy to light and fast cooking fuels such as kerosene and LPG for re-heating food.

Boiling is the most common cooking method in Kakamega and Kilifi segments while Nyeri women tend to prefer frying and stewing.

The meal preparation process is influenced mainly by type of food, with affordability and availability of fuel and cooking duration also key considerations.

Regular food preparation in most households involves the chopping of ingredients which is done off the fingers in many cases.

*Ugali*, rice, *Githeri* and vegetables are the most common meals; other foods that are prepared relatively often are Chapattis, tea, *Pilau* and to some extent, meat. While *Ugali* is more common in Kakamega, *Githeri* is prepared most often in Nyeri.

Cooking for special occasions involves large sized wood or charcoal stoves with charcoal being used more in the urban segments. Wood stoves are preferred for special occasions due to the flexibility in pot size. Main meals prepared for special occasions across segments are *Pilau* and *Chapatti*.

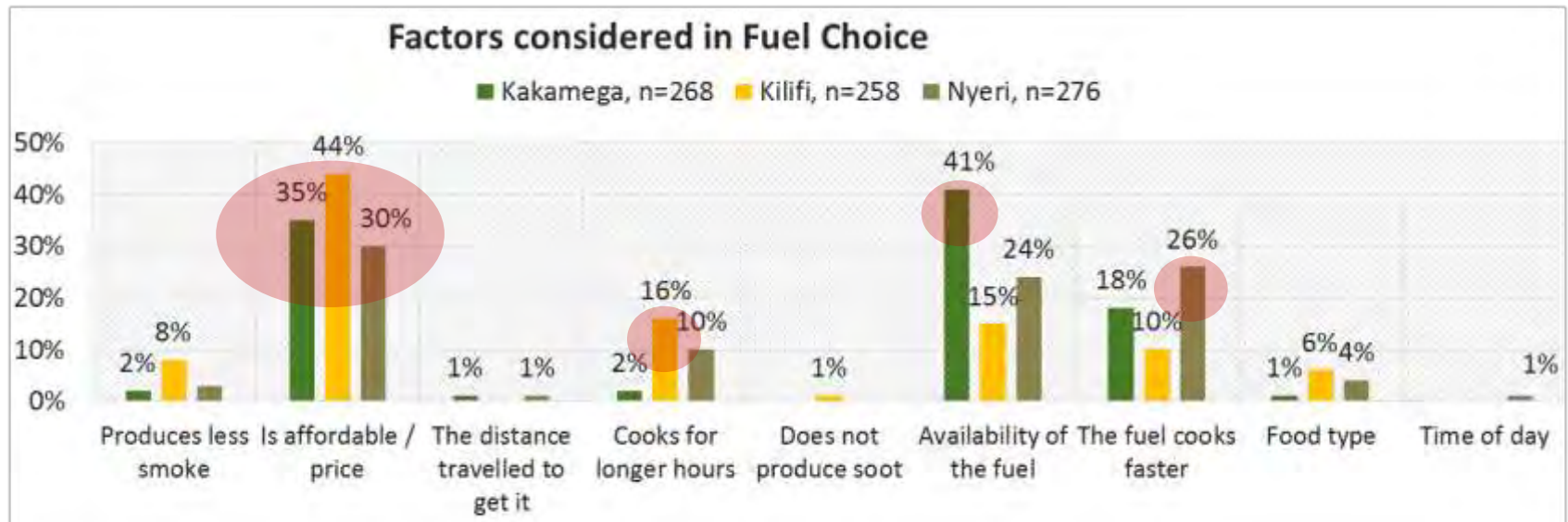
# Cooking and Household Energy Needs

## Current Fuel Types – Usage and Preferences



# Fuel Choice Factors

Affordability, availability, cooking speed and fuel duration are the key drivers of fuel choice. It emerged that consumers within the Kilifi segment are relatively more economic driven than those from Nyeri; while Nyeri consumers also show clear preference for high speed of cooking, Kilifi users are more concerned about the affordability of fuel and its ability to last long.



*"If it is something like beans you need firewood or charcoal so that it will cook faster but you can't use paraffin you will use a lot and take a lot of time." Kilifi.*

*"The fuel that cooks fast and it will save you time". Nyeri.*

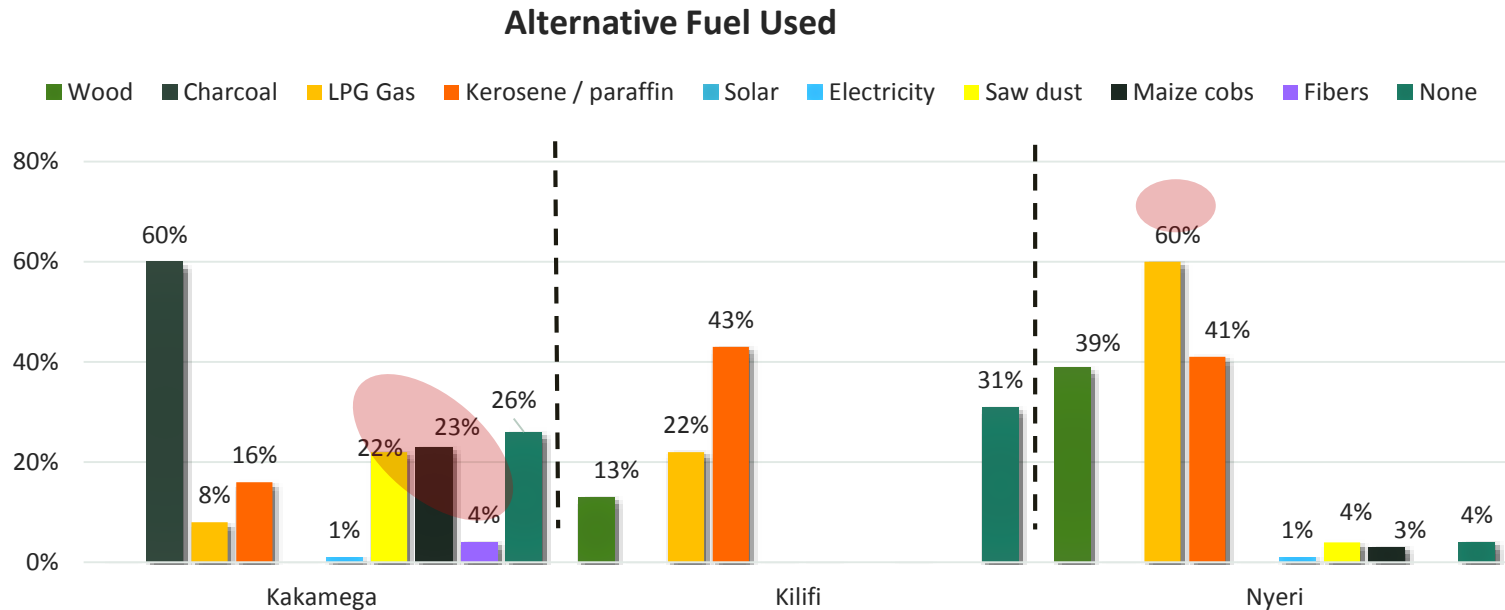
*"It also depends on the quantity of food. If it is very little food then you can cook it on a stove (kerosene). But if it is a lot of food, you will need to use Charcoal". Kakamega.*

⇒ **It is important for improved cookstoves to be perceived as affordable and capable of fast cooking.**

# Interaction with Fuel Types

**Across target segments, there is high multiple fuel usage.** Whereas the rural segments such as Kakamega are more likely to interact with wood and charcoal, urban consumers show higher usage of LPG and kerosene. The highest amount of single fuel usage reported was in Kilifi region, at only 30% of households.

Table below represents alternative fuels only; primary fuels were wood for the Kakamega segment and charcoal for Kilifi and Nyeri.



Sawdust, maize cobs and fibers are mostly used in Kakamega with consumption being dependent on availability or seasonality.

# Interaction with Fuel Types – Factors

Economic considerations are key with **affordability** being the key overall factor driving use of substitute fuels. This is a particularly strong influence within the Kilifi segment which in addition to price, show preference for **fuels that lasts long**.

For wood users in Kakamega, key considerations relate to **availability, distance travelled** and to a lesser extent, **the current weather conditions**.

*“The firewood should be dry, if wet it becomes difficult to light the fire and the food doesn’t cook well.”* Kakamega

**Speed of cooking and time of day** are factors indicating that the Nyeri segment is the most positively inclined towards cooking fuels and technologies that save time.

*“I only use paraffin (kerosene) maybe in the morning when I’m in a hurry.”* Nyeri.

*“Its because you might wake up in the morning and have problems lighting the jiko so you decide to buy the gas since its easy to light it.”* Nyeri.

Other factors taken into account with respect to alternative fuel choice include family size, warming the house, whether cooking multiple dishes, occasion and the type of heat food type requires.

Reasons for Alternative Fuel Use			
	Kakamega	Kilifi	Nyeri
Is affordable / price	-	75%	39%
Availability of the fuel	39%	8%	22%
Distance travelled	28%	0%	4%
Current weather conditions	11%	8%	9%
The fuel cooks faster	0%	8%	14%
Produces less smoke	6%	0%	1%
Cooks for longer hours	6%	0%	0%
Does not produce soot	6%	0%	0%
Time of day	0%	0%	6%
Food type	0%	0%	3%

# Interaction with Fuel Types – Segments

In Kakamega, the key substitute fuel is charcoal which is particularly popular during the wet season when availability of dry wood is limited; table below confirms alternative charcoal consumption as a function of current weather conditions.

Amongst women in Nyeri & Kilifi segments, there is reasonable use of kerosene as their alternative fuel.

Kerosene side usage is mainly driven by the need to cook fast particularly at certain times of day e.g. when preparing children for school.

The Nyeri segment shows higher LPG usage compared to kerosene as a substitute fuel. Despite the perception that Kerosene is relatively affordable, the women in this segment consider LPG Gas the more convenient fuel due to fast cooking.

		Main reason for using this fuel as an alternative to your primary fuel		
		Kakamega	Kilifi	Nyeri
Wood	Is affordable / price		27%	35%
	The fuel cooks faster		36%	17%
	Availability of the fuel		9%	24%
Charcoal	Current weather conditions	36%		
	Availability of the fuel	12%		
	Affordability	12%		
LPG Gas	The fuel cooks faster	64%	68%	53%
	Time of day	14%	12%	25%
Kerosene	Is affordable / price	2%	14%	47%
	Time of day	7%	30%	27%
	The fuel cooks faster	18%	37%	4%
	Food type	25%	5%	3%

⇒ **High multiple fuel usage particularly between wood and charcoal confirms the need to continue to promote wood and charcoal based improved cookstoves in the foreseeable future and indicates an opportunity for multi fuel ICS that use both fuels.**



# Multiple Fuel Use

Photos below show households with multiple stoves. The most common combination found in majority of households is a wood and charcoal stove. In the more urban regions, a Kerosene and/ or LPG stove is also commonly found.



**Kuni Mbili ICS and Charcoal stove**



**Envirofit Wood ICS and Charcoal stove**



**LPG Gas (portable) and Charcoal stove in use**



**Three stone fire and Charcoal stove**



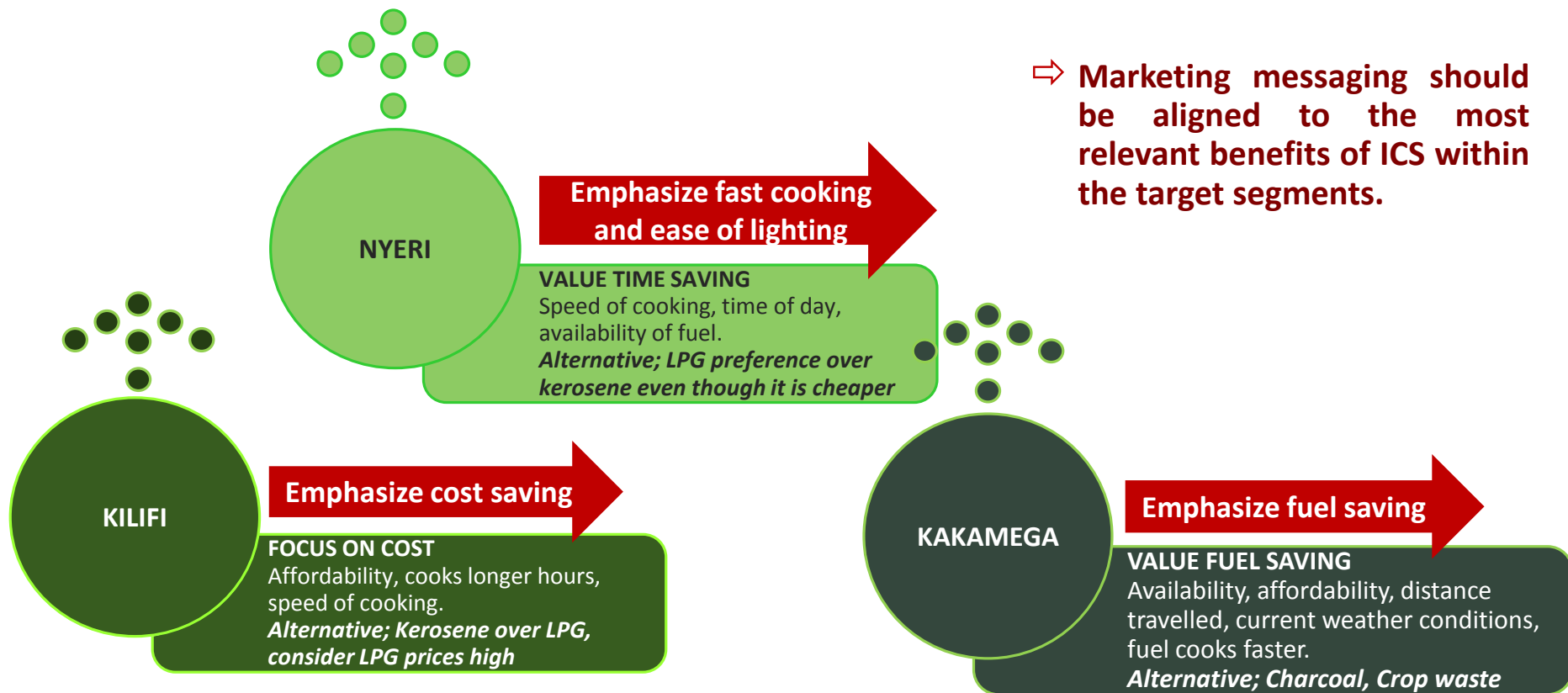
**Square Charcoal stove and Kuni Mbili ICS**



# Key Fuel Choice Motivations - Segments

Main drivers for fuel choice show some variation across segments.

In Kakamega and Kilifi, affordability has greater influence on the choice of primary and alternative fuels while Nyeri women place higher value on time.





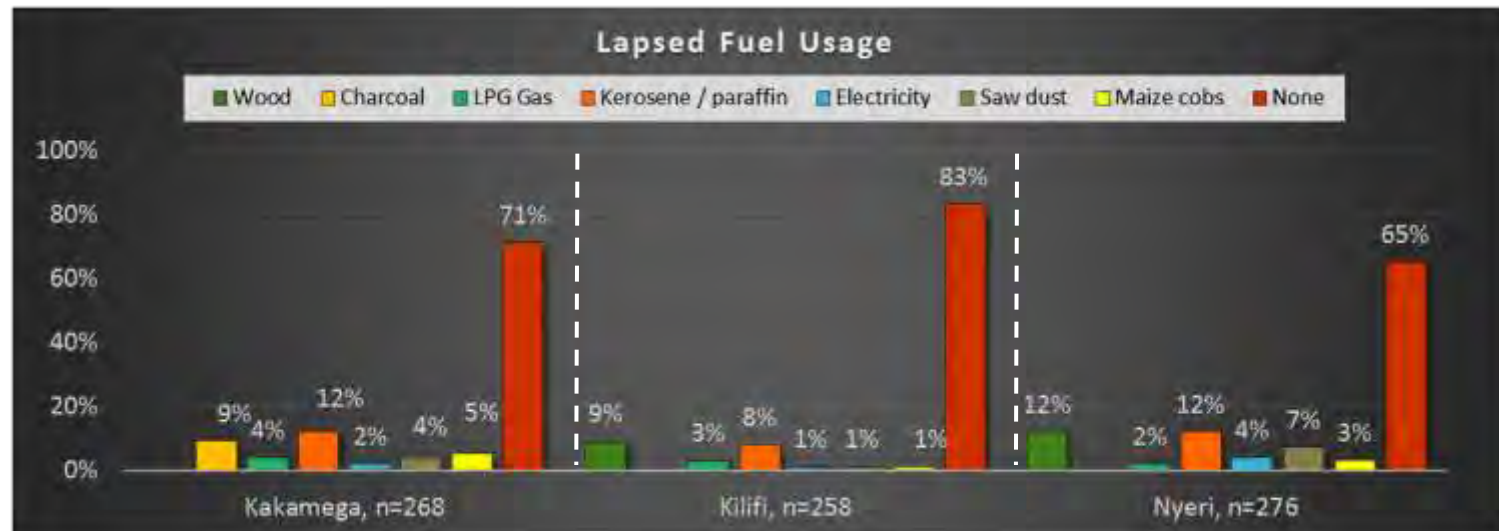
# Lapsed Fuel Use

The study also examined lapsed fuel usage; responses indicate that users largely continue to interact with the fuels they try; majority of the consumers have not stopped using a fuel that they were consuming in the past.

**Some of the key reasons for lapsed usage are:**

**Affordability;** a proportion of households have discontinued usage of fuels like LPG due to their inability to afford them and especially following the increase in family size.

**Health;** some mothers have moved into ‘safer’ fuels after having children which suggests higher concerns surrounding smoke where children are involved.



⇒ **Opportunity exists to stress negative effects of smoke and related ICS health benefits in reference to child health e.g. Ads that feature a coughing child or a child with eye problems might capture target consumers’ interest.**

# Fuel Perceptions: Wood

Wood is perceived as the fuel for the lower income households and is considered the most dirty fuel amongst all hence the prohibited use within rental housing.

*“Even firewood has no secrets. Everyone will know you have used it because of the smoke.”* Nyeri.

*“I don’t like the smoke...It (wood) makes the sufuria dirty...It irritates the eyes.”* Kakamega.

*“Firewood if not controlled can cause fire.”* Nyeri.

- **Affordability** is the main motivation for wood use amongst lower income groups
- **Fast cooking** is also a key driver for wood use given the high heat capability
- Suited for special functions’ cooking due to the **flexibility in pot size**
- Wood is **relatively easily available** particularly in rural locations
- Compared to fuels such as Kerosene and LPG, wood is also **avored for cooking the common local foods** such as *Ugali* and *Githeri* well.

Other Factors: Wood is perceived to make food tasty, suitable for long duration cooking, low in wastage once food is ready, ability to warm the house.

Positives

- **Dirty;** wood is said to stain cooking pots, walls and floors
- **Difficult to use when not dry;** when not dry, wood is hard to light and goes off when cooking
- **High involvement cooking;** does not allow the woman to perform other chores as food cooks
- **Dangerous;** wood cooking if not well controlled may lead to fires
- **High levels of smoke leading to unpleasant smell** that affects food, hair, clothes - particularly compared to gas, electricity

Other Factors:

Requires a lot of storage space, hard to transport

Negatives

# Fuel Perceptions: Charcoal

Charcoal consumption cuts across all socio-economic groups in Kenya with the higher income households favoring it as a fuel for special occasions due to large pot size. Higher prevalence of charcoal usage compared to wood is evident in urban locations due to higher disposable incomes and easy availability.

*“Charcoal stove takes too much time to light especially if you get bad charcoal you will be very hungry by the time the food is ready but firewood is fast.”* Kilifi.

*“We only use charcoal to cook chapatti.”* Nyeri

*“I will use it to cook a lot of things. I will cook food, tea, warm milk and later warm some water which I’ll use in the morning. I can do all that in one jiko”*  
Nyeri.

- **Easy availability;** most state charcoal is easily available
- **Affordable compared to Kerosene and LPG Gas;** this is aligned to the high charcoal usage as an alternative fuel across segments
- **Low involvement cooking;** charcoal allows the women to conduct other tasks as food cooks
- **Can regulate heat;** a good proportion prefer to prepare *Chapattis* over charcoal due to ability to regulate heat
- **Cooks evenly;** perception is that charcoal is best suited for meals that require to cook evenly such as rice

Other Factors: Safe compared to LPG Gas, less smoky or smelly compared to wood or Kerosene, suitable for a variety of food types and warms the house.

Positives

- **Lighting process generally takes some time** regardless of method employed and particularly if charcoal wet
- **Dirty** if compared to LPG Gas
- **High in smoke versus LPG Gas,** particularly if from some tree types or not well dried

Other Factors;

Not as fast as wood, hard to find (only some)

Negatives

# Fuel Perceptions: Kerosene

Within the study, Kerosene showed the highest usage as an alternative fuel within the Nyeri and Kilifi segments with speed being the key driver for consumption.

*When you have visitor you won't light the jiko, you will just use the stove (kerosene)."*  
Nyeri.

*"It (kerosene) lights very fast".*  
Kakamega.

*"It is expensive to buy paraffin."* Kilifi.

*"You can cook ugali using the stove but when you cook vegetables to eat with ugali the paraffin will have been finished before the vegetables are cooked."* Nyeri.

*Maybe in the morning you're cooking tea, eggs or boiling water for bathing; and maybe in the evening you're warming food."* Kilifi.

*"It is good when you are in a hurry and you don't have time to light firewood or charcoal."*

*"There's a smell it emits especially when you have finished using it is bad."* Nyeri.

- **Saving time**; ideal to use when cooking needs to be conducted quickly
- **Convenient**; favored for being easy to light and preferred for cooking light meals or food warming

Positives

- **High smoke** leading to unpleasant smell of food, clothes, hair – and affects food taste
- **Produces soot** that stains cooking pots
- **Perceived as dangerous**; due to incidents of stoves exploding, causing fires
- **Not suitable for all food types**; not preferred for Ugali
- **Expensive vs. charcoal** and especially for long duration cooking hence use as alternative rather than primary fuel

Negatives

# Fuel Perceptions: LPG

Overall, this is considered the most convenient and prestigious fuel of all with majority of women in rural and urban target segments being limited by financing. Highest side usage of LPG was evident within the Nyeri segment. Amongst the women involved in the study, one or two burners were the most common which is aligned to the fuel's usage as a substitute rather than main fuel.

*"It is very easy for it (Gas) to catch fire if you are not careful."* Kakamega.

*"Sometimes you might not have the money to refill the gas."* Nyeri.

- **Easy to use;** Gas lights easily, cooks fast and is easy to regulate depending on food type and easy to put off
- **Clean;** usage of gas does not affect cooking pots, walls or the women's hair or clothes.

## Positives

- **Expensive;** some claim they have been unable to afford refill gas cylinders after use
- **Safety;** gas cylinder are known to explode
- **Not suitable for certain food types;** perceived not to cook certain common foods such as *Ugali* well
- **No indication of fuel left;** gas goes off without warning

## Negatives

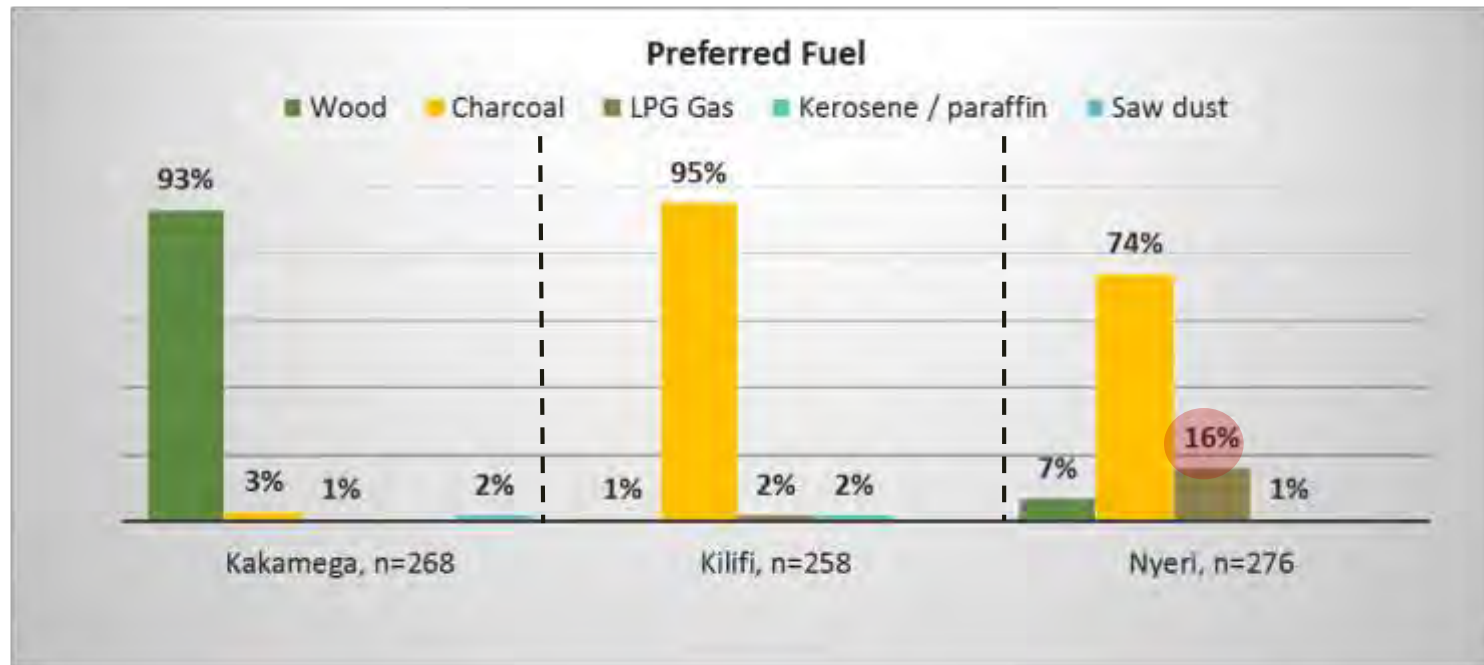
*"Gas is convenient, like in the morning when you need to prepare children to get ready for school. It is usually very early so you can't light a jiko at that time you use the gas that is fast. You are able to save time."* Kakamega.



# Most Preferred Fuel

Majority of women claim to use the fuel they prefer most; a relatively higher section of women in Nyeri (16%) prefer LPG gas to charcoal.

Affordability and availability consistently emerged as the key main reasons for non use of preferred fuel across segments.

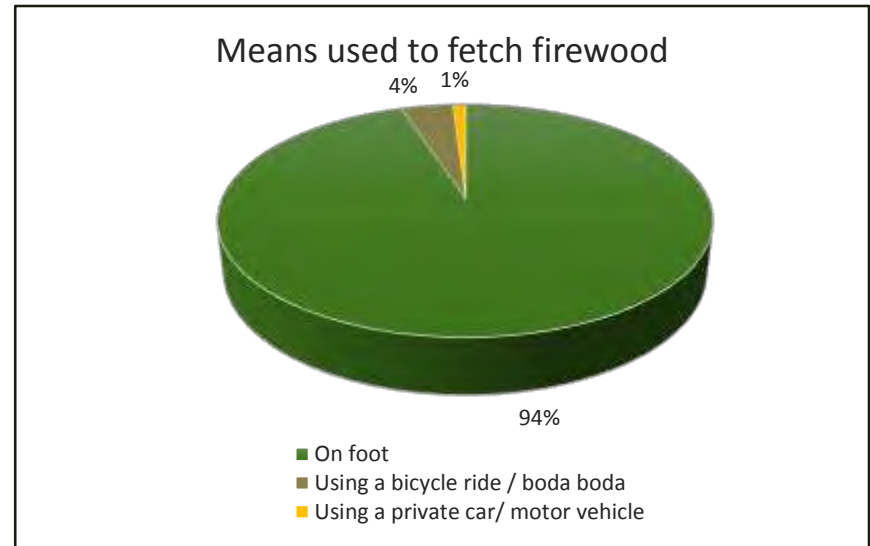
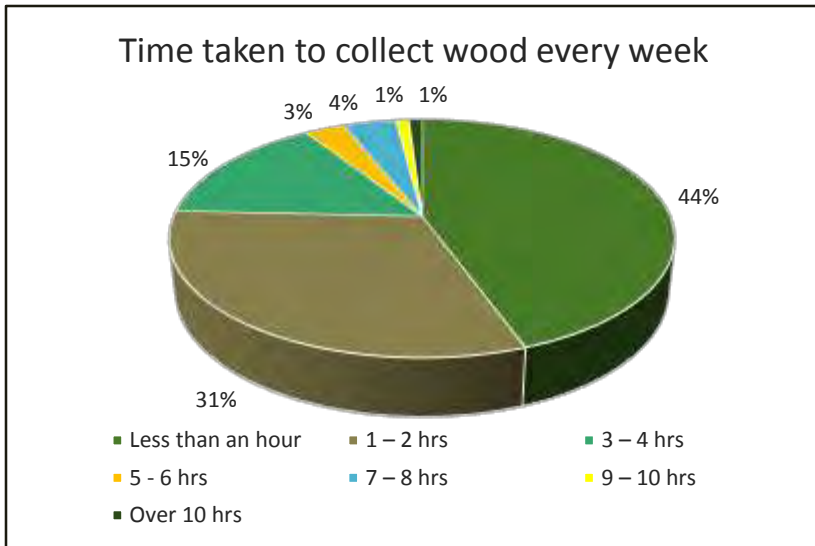


# Source of Fuel - Wood

Majority of wood users claim to collect it from their own farms while a good proportion collect wood from forests, bushes, shrubs and thickets. Only few collect wood from neighbors' farm.

It is therefore not surprising that many users spend less than 1 hour per week and travel a distance of less than 1 kilometre on foot.

Distance Travelled to fetch wood	
Less than a km	75%
About 1 km	15%
About 2 km	4%
About 3 km	3%
About 4 km	0%
About 5 km	0%
More than 5 km	1%



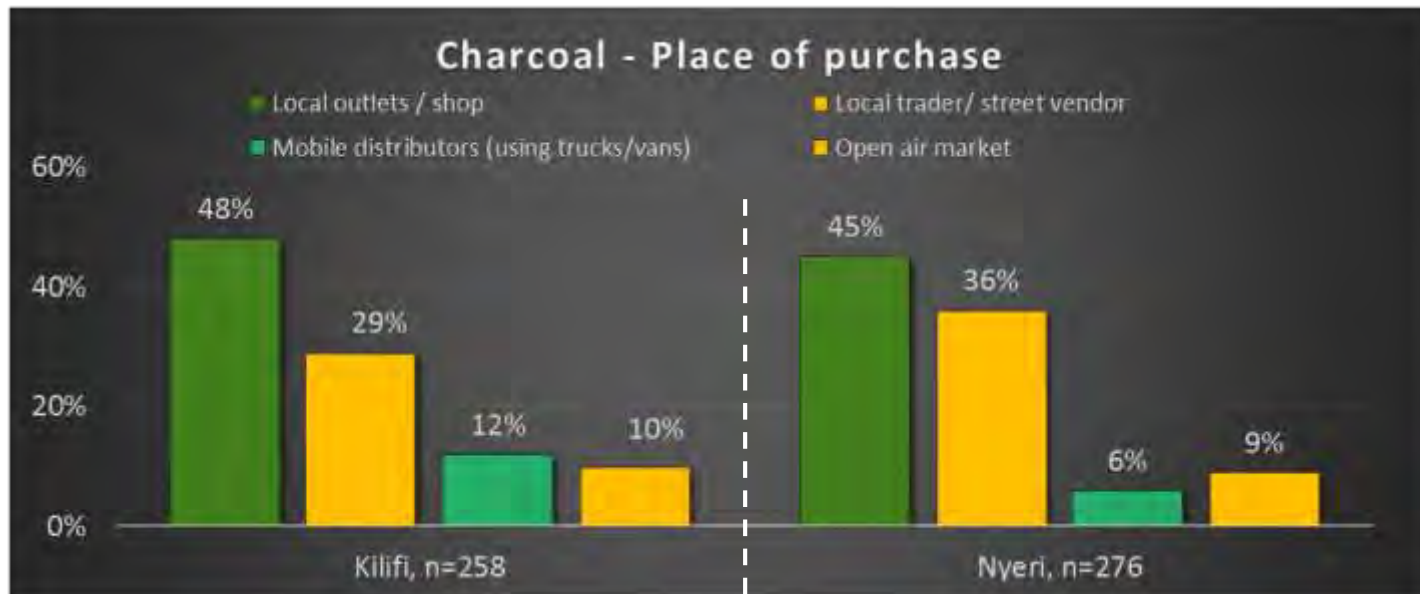
n=268



# Source of Fuel - Charcoal

In both Kilifi and Nyeri segments, charcoal is most commonly purchased from local outlets or traders and street vendors nearby; a smaller proportion of women buy charcoal from mobile distributors or the open air market.

In some areas, charcoal vendors visit homes to sell while other women mentioned purchasing charcoal and having to pay a fee for its delivery home e.g. Kes. 50.



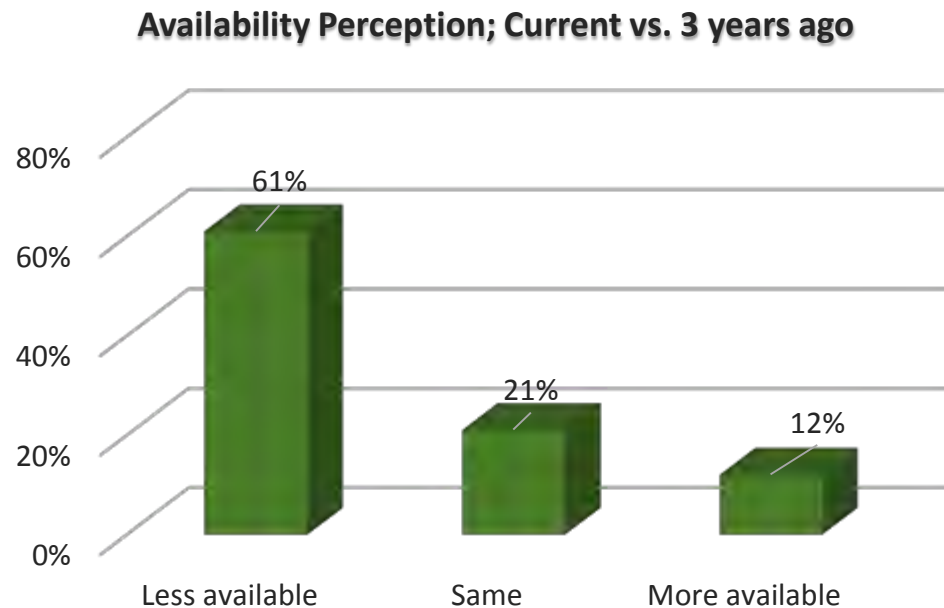
*"I get it from the charcoal vendors."* Kakamega.

*"There's someone who supplies. A small tin costs fifty shillings and a whole sack costs seven hundred shillings".* Nyeri.



# Wood – Availability Perception

According to more than half of the women, wood is generally less available than it was 3 years ago.



⇒ It is important to relate the perceived scarcity of wood fuel to the fuel saving of ICS.

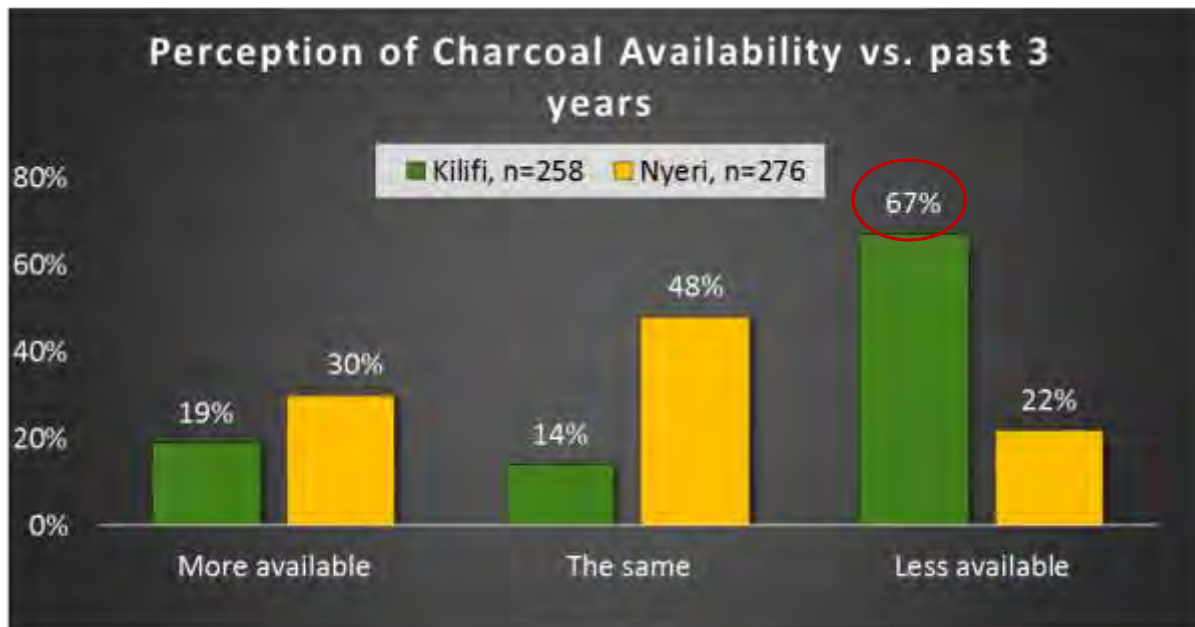
# Charcoal - Availability Perception

Charcoal availability perception is relatively positive with most considering the fuel easily available.

Having said that, charcoal is considered less available today vs. 3 years ago within Kilifi segment. This may be driven by the acquisition of large tracts of land in the region for large scale farming of crops such as sisal and pineapple, and increased individual cashew nut growing which requires clearing of land and putting of more land under farming as population continues to grow.

On a scale of 1 to 10 where 1 means 'least available' and 10 means 'easily available', how available would you say charcoal is to you?

	Kilifi	Nyeri
N	258	275
Mean	8.24	8.22



# Fuel Spend

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The frequency of charcoal purchase appears to vary greatly across household and is largely driven by household purchasing power.

For the more financially capable section of consumers, purchases are less frequent and involve larger quantities; some claim to buy charcoal as seldom as once a month with the quantities purchased going up to whole sacks.

A proportion of target consumers purchase small amounts of charcoal mostly daily, and in many cases, all of the fuel purchased is consumed during one or two cooking sessions.

Majority of the women spend an average of Kes. 150-300 per week on charcoal.

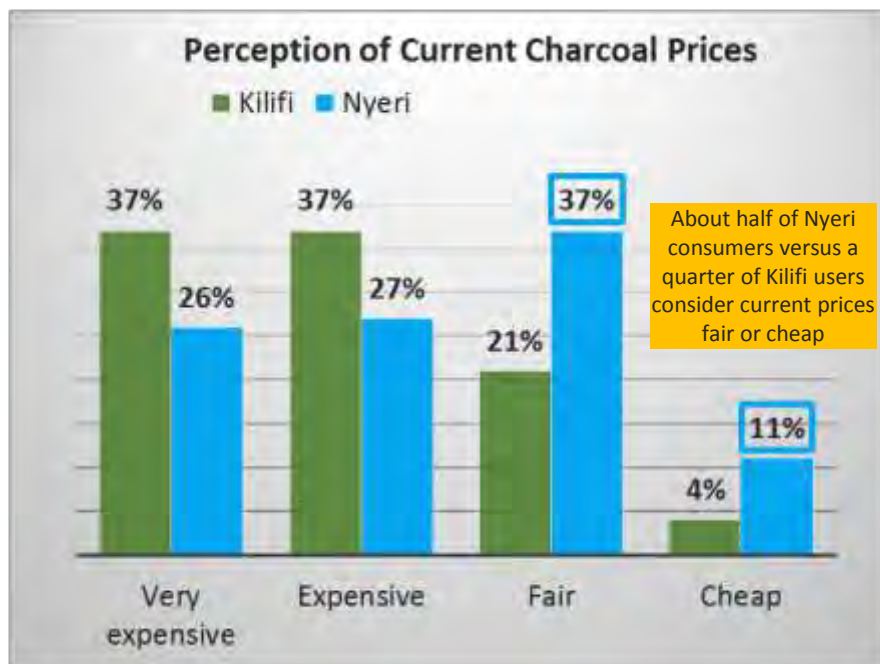
*“I buy half a sack or a whole sack depending on my ability.” Kakamega*

*“Because charcoal if you buy one sack and you substitute with other source of fuel it becomes economical and lasts for about 2 weeks.” Kakamega.*

*“I take a month with the sack (charcoal) as for paraffin when I buy half a liter it takes me like three days.” Kilifi.*

# Charcoal - Cost Perception and Trends

Perception that current charcoal prices are fair as well as the considerably higher LPG usage amongst the Nyeri segment indicates their ability to spend more on cooking fuel or products versus Kilifi users.



⇒ **Indications of potential for higher priced ICS, including LPG, in Nyeri compared to the other target segments as well as possibility of fuel savings messaging being more successful in Kilifi.**

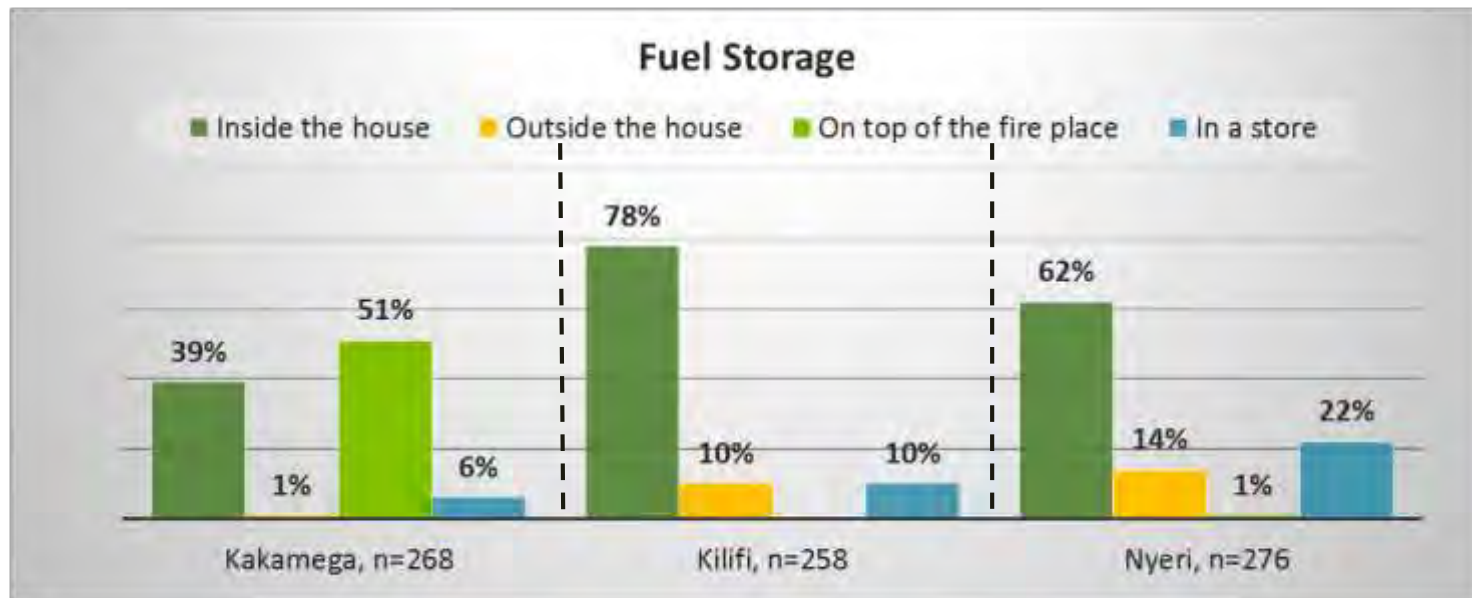
# Fuel Storage – 1/3

The majority of women (over 80%) store fuel inside the house; this in the case of charcoal is driven by the need to ensure it is secure given that unlike wood, it is acquired at a cost.

*“So that it can’t be rained on and also for security.” Nyeri.*

Another key motivation for indoor storage that relates to both wood and charcoal is the need to avoid the fuels getting wet from rain which results in their being hard to light and emitting high levels of smoke.

In areas considered relatively secure, wood is left outside which is convenient considering the amount of storage space it normally requires.



# Fuel Storage – 2/3

Indoor storage takes a number of forms including:

- Around the cooking area which could be in the kitchen, or a veranda; some construct a makeshift rack for wood
- Due to lack of space, charcoal is in many cases stored behind a door, under the sink or at the corner of a room
- A common practice observed is the storage of wood above the fire place with the intention of ensuring it dries out completely especially if collected when wet

*"I put mine inside the verandah that is where I place my charcoal and I use the sack for two weeks"*  
Kilifi



*"I also have an outside kitchen where I can store my firewood or charcoal. I arrange my firewood up".*  
Kakamega

*"I have constructed a place outside. I have put iron sheets like a store so I just put the firewood in there".*  
Nyeri





# Fuel Storage – 3/3

In some households, fuels are kept in stores separate from the main house and these range from permanent (stone) to semi-permanent structures made of iron sheets; households without proper stores will use almost any existing space including chicken houses.

Charcoal purchased in small quantities is generally stored near the cooking area for convenience in use.

For safety reasons, Kerosene is usually kept out of children’s reach in locations such as under the bed – is it also generally bought in small quantities.

*“I buy paraffin worth fifty shillings to use for a day”. Nyeri Consumer*

*“Because it is in a jerry can I put it in the house where my child cannot get it.” Kilifi Consumer*



*“I have a small kitchen that is store my firewood. The ones that are not dry I will put them up to dry.”  
Kakamega.*



# Lighting Cooking Fuel – 1/4

**The speed or level of ease with which a fuel type lights can be both a driver or barrier of fuel choice.**

## **CHARCOAL:**

A variety of methods are employed to light charcoal stoves;

- Nylon or polythene paper, newspapers
- Coconut husks
- Thin wood splinters
- Pouring of kerosene on charcoal or under at the bottom
- Use of live coals from an already lit stove, e.g. from a neighbor
- Sawdust



⇒ **Given the common perception that improved cookstoves are difficult to light, mainly due to the lack of wide enough bottom compartments for proper aeration, it is critical to explore ways to ensure ICS product improvements that meet the easy to light requirement sought by most women.**



# Lighting Cooking Fuel – 2/4

For each of the above methods, it's interesting to note that while some simply placed lighting materials on top of charcoal, others preferred the more traditional approach involving lighting of materials below charcoal in the bottom chamber.

Once the charcoal lights, the stove is left outside until smoke reduces particularly for indoor cooking; some women boil water on the stove during this time for cost efficiency.

There is an interesting belief that the addition of salt to charcoal when lighting results in smoke reduction.



**Polythene placed on charcoal**



**Polythene paper lit using matchsticks**



**Charcoal stove left outside until well lit and smoke reduces**

# Lighting Cooking Fuel – 3/4

## WOOD

While lighting of wood fuel particularly in the case of three stone fire is relatively easier compared to charcoal stoves due to aeration, consumers continue to face a challenge with respect to ICS wood stoves that are normally lit through the bottom chamber.

To light wood fires, the consumers generally use leaves, thin wood splinters or sawdust; materials used generally do not vary with stove type.

Some of the women opt to save time preferring to use kerosene which is directly poured on firewood to light while others prefer to pour it on the ashes beneath the lighting materials or wood.



**Kerosene used to light wood**



# Lighting Cooking Fuel – 4/4

## OTHER FUELS

### Sawdust

- Some women said they use sawdust along with wood to create a fire. They described using a bottle/plastic container to create a vent for aeration in the sawdust. They claim to then be able to cook with one piece of wood.

### Kerosene Stove and LPG Gas Stove

These stoves are considered very easy to light – only a matchstick is required.



*“And then you can use a bottle to make that round shape in the middle because if you don’t do that the sawdust will not burn. And then there’s an opening which is round in shape and that is where you put the firewood; you put 2 pieces and you light them up and cook.”*



# Section Summary

Fuel choice is driven by affordability, availability, cooking speed and if fuel is perceived as long lasting.

Alternative fuel use is mainly a factor of affordability with Kakamega consumers mainly opting for charcoal, while Kilifi and Nyeri consumers show reasonable side usage of kerosene with higher alternative use of LPG evident in Nyeri where consumers are less price sensitive.

Wood is perceived as the fuel for the poor and considered the dirtiest with respect to ash, soot and smoke. It is also seen as dangerous if not well controlled, requiring high involvement cooking and hard to light if wood is not well dried. Positive points for wood include affordability, easy availability, high cooking heat, and perception that it cooks local common foods well.

Charcoal usage cuts across all socio economic groups in Kenya with high income households preferring to use it for special occasions due to large pot size. Usage is higher amongst urban segments of the study with preference being driven by the fuel's easy availability and affordability vs. options such as LPG or kerosene. In addition, charcoal is favored due to low involvement cooking, ability to regulate heat and cook evenly. Issues with charcoal include dirt in terms of smoke and soot compared to LPG as well as the time charcoal takes to light.

Kerosene usage is driven by convenience due to ease of lighting which is the key reason it is preferred for warming foods. The fuel is, however, largely considered dirty in terms of smoke and soot compared to LPG, high in cost vs. charcoal, dangerous and not suitable for some of the common local foods.

# Section Summary

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LPG is undoubtedly considered the most prestigious and convenient fuel of all with affordability being the reason why interaction is limited more to the urban segments. Gas is favoured for being clean and easy to light. Having said that it is also perceived by some as dangerous, expensive vs. other fuels, not suitable for some local foods such as *Ugali* and is sometimes considered inconvenient because it does not provide an indication of fuel left.

Wood fuel is mostly sourced from personal farms, neighbouring farms or forests, thickets and shrubs. For most they travel less than a kilometre on foot and spend less than one hour per week collecting wood.

Women mostly purchase charcoal from the local outlet or street vendors spending Kes. 150 -300 a week. Compared to Nyeri consumers, the Kilifi segment appears to consider the cost of charcoal more expensive and much higher than it was three years ago which is indicative of them being more price conscious.

Most women store wood or charcoal inside mainly to avoid fuel being rained on which would make it difficult to light and more smoky. Charcoal is stored inside also due to security because unlike wood, it is acquired at a cost.

Lighting of wood involves use of thin wood splinters, leaves, sawdust or in some cases, kerosene.

For charcoal, the women use coconut husks, polythene paper, newspaper, sawdust, thin wood splinters, live coals and kerosene. Overall, charcoal is considered more difficult to light due to stoves being generally less aerated compared to wood stoves.

# Cooking and Household Energy Needs

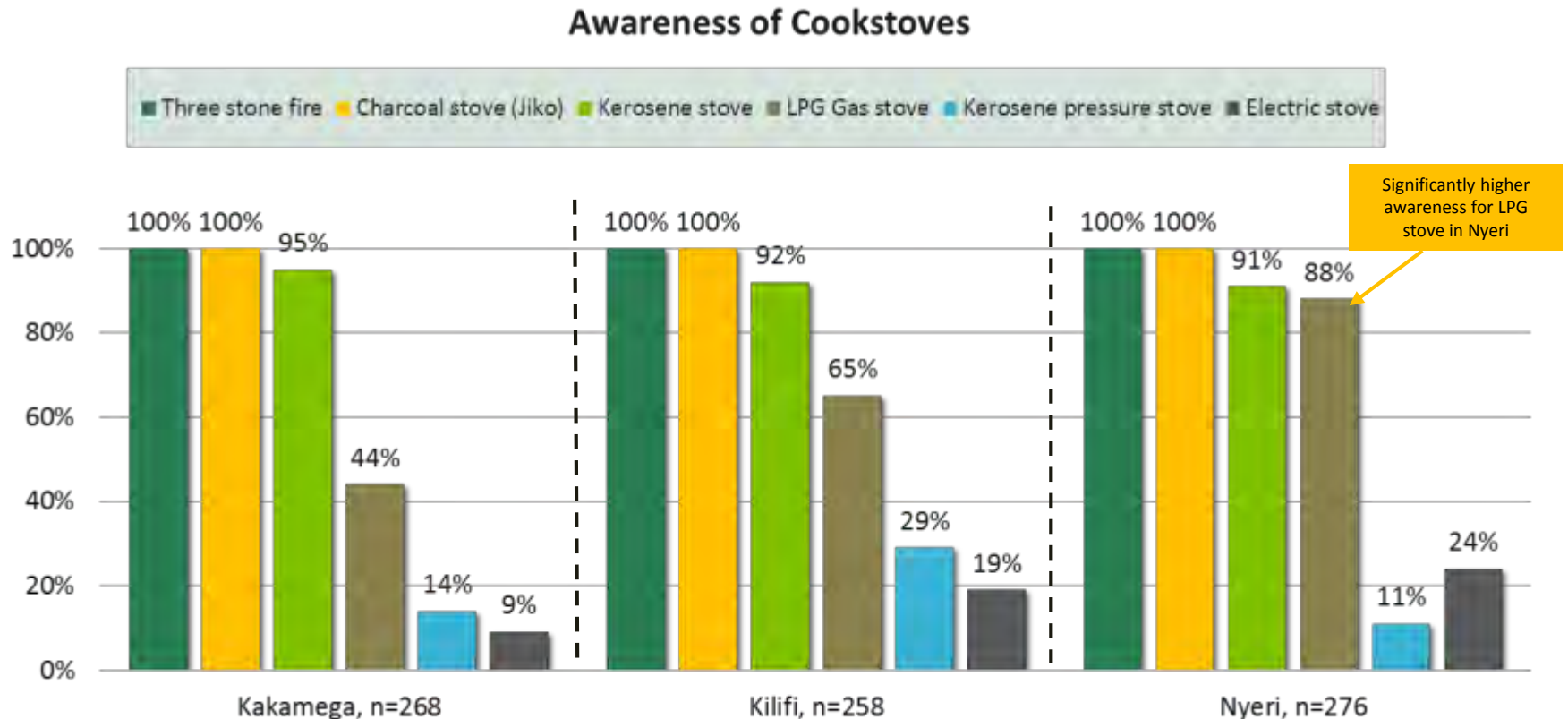
## Consumer Usage and Attitudes Towards Cookstoves





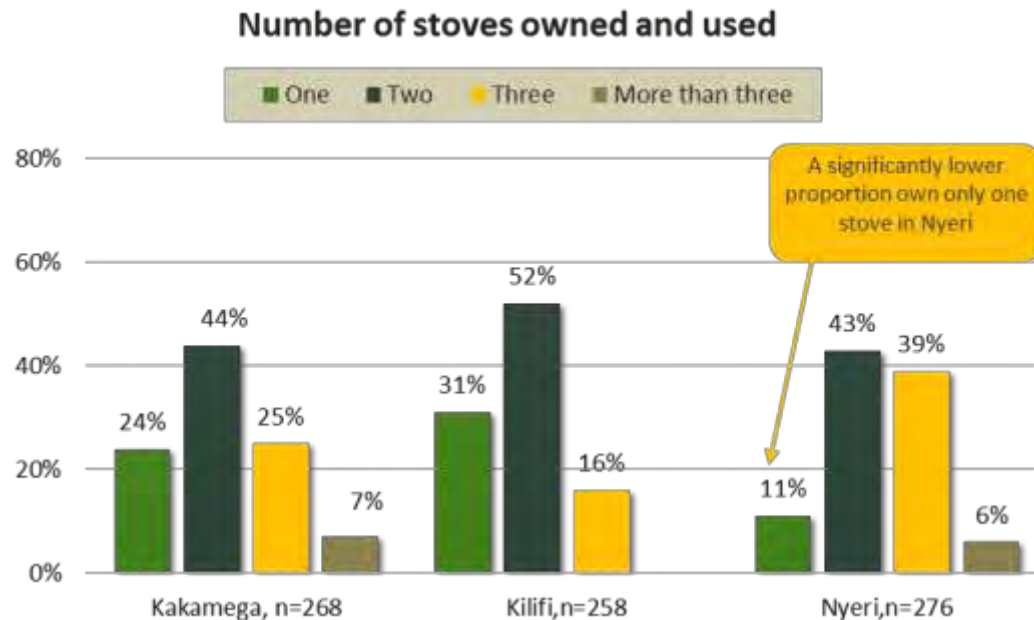
# Awareness of Improved Cookstoves

Universal awareness was registered for the 3 stone fire and the charcoal stove (*Jiko Makaan*). The Kerosene wick stove also achieved very high mentions across the segments.



# Number of Cookstoves Owned

Across segments, most women own more than one stove which is not surprising given the multiple fuel use in households.



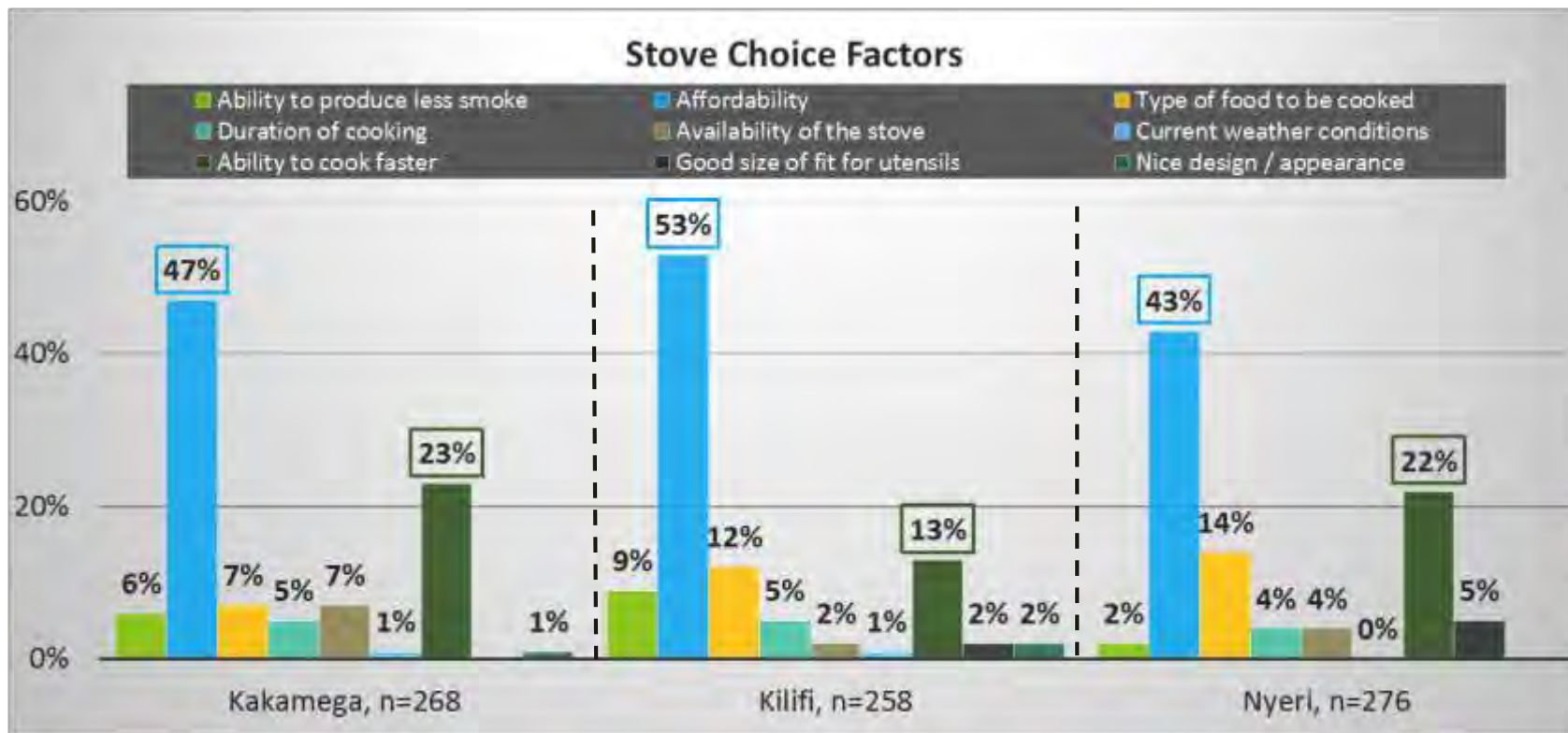


# Factors influencing Stove Choice – 1/2

Across the three target segments, choice of stove is mainly driven by **affordability** and **how fast it cooks**.

*“Quality.... I cannot take something that is going to break...You want something that will last for long”. Nyeri.*

*“That you can use it to cook several things and it will not be as costly.” Kakamega.*



# Factors influencing Stove Choice - 2/2

## Other factors that emerged as key considerations in stove choice include;

- Suitable for cooking of a variety of food types; the women show preference for a stove that can cook many types of food. This is something that drives charcoal stove purchase due to the ability to regulate heat. Charcoal stoves are believed to cook foods like rice evenly and considered suited for long duration cooking of foods like *Githeri*.
  - Availability of stove is also a factor as there appears a perception that some stoves, particularly ICS are not easily available.
  - Cooking stability was cited during immersions as critical particularly because this is required to prepare *Ugali*, one of the most popular foods across the whole of Kenya.
  - Stove pot size vs. family size; considering that the majority of target women have relatively large families and prepare foods like *Githeri* that are made in large quantities for multiple servings, the size of stove is one of the factors taken into account by many women when buying a stove.
  - Smoke reduction was a priority for some women, but the number citing this as an important consideration was small.
  - Overall, having an aesthetically pleasing design does not appear to be a key consideration.
- ⇒ **Future efforts to drive ICS adoption should emphasize economic benefits and speed which are easier to relate to - secondary focus on other ICS benefits such as reduced smoke may require more education for impact.**

# Most Common Stoves Found

- 3 Stone Fire
- Traditional Metal Stove
- Kenya Ceramic Jiko (KCJ)
- ICS – Jiko Kisasa, Kuni Mbili, Rocket Mud Stove
- LPG Gas
- Kerosene Stove



# Main Stoves – Wood

## 3 STONE FIRE

- Oldest cooking style in Kenya
- Uses firewood
- Three stones arranged to hold cooking pot; some place a grill above stones
- Firewood fed through the three inlets between the stones



Positives	Negative
No cost	Smoky vs. all other fuels
Flexible pot size; can cook for a few or for special occasions	Dirty; ash on floor/ ground
Well aerated; lights easier than closed up stoves	A good proportion of the heat is lost as it is not possible to control flames
Cooks fast and is suitable for common food such as <i>Ugali</i>	Dangerous, can cause fire if not well controlled
Makes food tasty	High involvement; cannot perform other chores while cooking

# Main Stoves – Wood

## JIKO KISASA (ICS); ‘Kisasa’ is Kiswahili name for modern

- Wood fuel
- Clay liner that is installed at the home
- Constructed using cement, ballast and other materials based on owner’s requirements
- Some buy materials and then only pay artisans for labor (more cost effective)
- One or two pots generally
- Highest ICS awareness and adoption, especially in Kakamega where significant efforts have been made by sales agents/ artisans
- Finished cost – Kes. 400, 700, 1,000 depending on number of pots; (Kes. 200-300 for liner)



*“I use it when I have a lot of work but not all the time. It uses firewood and it is cheap to use it”. Nyeri.*

*“I constructed mine with stones, cement and all other materials which I mixed. It was constructed by two men who took three days to construct it. You have to give it time as you pour water on the stones so that they become strong and not break.” Nyeri.*

Positives	Negative
Relatively affordable	Dirty; hardly any smoke reduction, dirt on floor, ash
Some level of fuel saving particularly when well constructed due to clay liner	Prone to easy cracking depending on artisan’s skill and quality of materials used
Flexibility in design; number of pots and aesthetics based on users’ requirements	Not considered very fuel efficient post use (some)
Faster cooking compared to standard stoves	High involvement; cannot perform other chores while cooking

# Main Stoves - Wood

## KUNI MBILI (ICS)

- Wood fuel
- Clay liner fitted inside metal casing
- Portable
- One pot
- More common in Nyeri and Kakamega



Positives	Negative
Relatively affordable	Dirty; no significant smoke reduction, dirt on floor, ash
Some level of fuel saving particularly when well constructed due to clay liner	One pot – cooking more than one dish at a time would require additional stove
Flexible pot size; can cook for a few or for special occasions	Not considered very fuel efficient post use (some)
Faster cooking compared to standard stoves	Prone to easy cracking depending on artisan's skill and quality of materials used
	High involvement; cannot perform other chores while cooking

# Main Stoves - Charcoal

The photos below show a traditional metal charcoal stove and the KCJ with the main difference between them being the clay liner.

## KENYA CERAMIC JIKO (KCJ)

- Charcoal fuel
- Clay liner in metal casing; many versions of KCJ in the market
- Oldest ICS in the market
- One pot
- Currently more common vs. traditional metal stove in more urban locations



### Positives

Relatively affordable

Some level of fuel saving particularly due to clay liner

Suitable for common food types such as *Ugali*, *Githeri* and rice

Faster cooking compared to TMS

Low involvement; can perform other chores while cooking

### Negative

Dirty; hardly any smoke reduction, dirt and soot

One pot – cooking more than one dish at a time would require additional stove

Not considered fuel efficient

Cannot remove fuel once food is ready; wastage sometimes



## TRADITIONAL METAL STOVE (TMS)

- Oldest charcoal stove, takes different shapes and sizes across regions and artisans
- Made of metal



# Kerosene Stoves

## KEROSENE STOVE

- Kerosene with wick
- Made of metal
- Portable
- One pot



Positives	Negative
Easy to light	Dirty; unpleasant smell affects food, hair and clothes
A fast way to cook light foods or warm meals	One pot – cooking more than one dish at a time would require additional stove
Low involvement; can perform other chores while cooking	Expensive compared to wood or charcoal
	Dangerous; stoves known to explode and cause fires



# LPG Stoves

Positives	Negative
Convenient to use; easy to light and put off, cooks fast	Expensive compared to wood, charcoal and kerosene
Clean; does not stain cooking pots, walls or produce smoke	No indication of amount of fuel remaining; goes off without warning
Available in different size stoves to suit income and kitchen size	Not safe; gas cylinders can explode and cause fire
Some models can perform a variety of other functions such as grilling, baking	Not preferred for some local foods such as <i>Ugali</i>
Low involvement; can perform other chores while cooking	

## LPG STOVE

- Gas in smaller size cylinders i.e. 3kg
- Preference for smaller, portable versions
- One or two burners



# Main Stoves - Wood

Other less common ICS we came across during the study - Rocket mud stove, Envirofit.



Interesting stove in use....



Charcoal stove that is used to grill meat as well (Nyeri)

# ICS – Consumer Understanding

When asked to describe an improved cookstove, the women were agreed in opinion that it was ***‘better than the usual jiko’***.

*“It has something more from the normal jiko.” Nyeri.*

*“It is that Jiko that will eliminate all the problems I have with my other jikos. It shouldn’t have any of those like the smoke.” Kakamega.*

*“It is made well and you only need to use two or three pieces of wood and that is enough.” Kakamega.*

*“I see a stove that has two burners and it is easy to use and very convenient.” Kakamega.*

***It emerged that KCJ was not perceived as an improved cookstove with the women referring to other types such as Kuni Mbili and Jiko Kisasa.***

**\*\* Reference to ICS in this report therefore relates to other ICS and NOT the Kenya Ceramic Jiko (KCJ). KCJ was not automatically considered an improved cookstove by all as ICS related benefits such as faster cooking, smoke reduction, and fuel saving are less obvious particularly if compared with the imported ICS.**

KCJ



OTHER ICS – LOCAL AND IMPORTED



# ICS Positive Associations – Drivers

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Overall, there are a number of favorable perceptions relating to ICS amongst the target segments.

This perception is driven by the following associations (that were consistent before and after consumers received a description of ICS):

- Time saving as they cook fast
- Produce less smoke
- Fuel saving due to lower than usual fuel consumption
- Appealing in design compared to the conventional wood or charcoal stoves
- Some also were of the opinion that ICS should be durable and have multiple burners.

⇒ **There appears to be some reasonable understanding of ICS benefits suggesting that for some target consumers, lack of uptake may be a function of other aspects such as affordability and availability as well as negative value perception.**

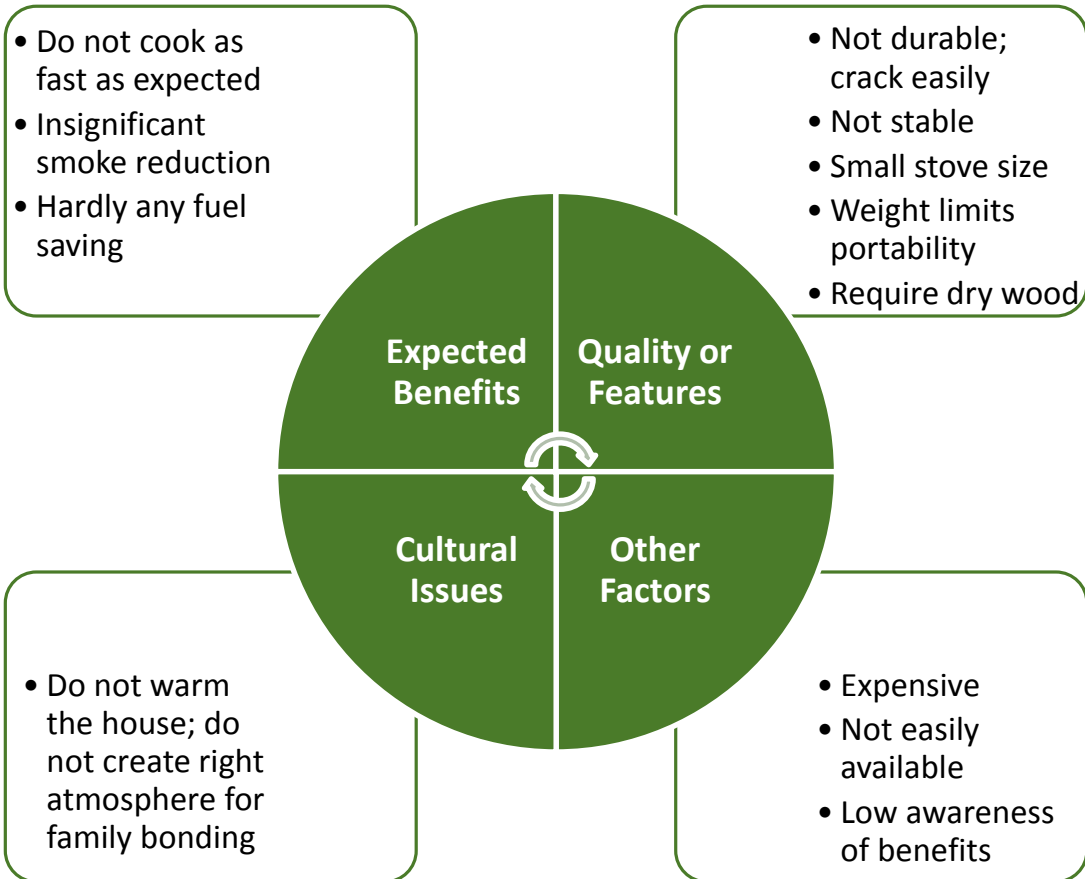
# ICS Negative Associations – Barriers

## NEGATIVE ASSOCIATIONS

It became apparent that there are a number of unfavorable associations of ICS amongst the target segments.

*It is important to note that part of this information is based on claimed actual experience, most of which involved local clay stoves.*

*“Even the expense is too high. You have to budget for it.”  
Kakamega.*



⇒ **It is critical to ensure quality standards and effective after sales service to control negative ICS perception which is likely to limit consumer interest and adoption.**

# ICS - Suggested Improvements

As expected, consumer suggestions for improvement are very well aligned to negatives highlighted and relate mostly to stove quality and features.

**This confirms the urgency for the implementation of quality standards and better designs within the sector.**

**NOTE:** When asked how much they were willing to pay if improvements were made, consumers were reluctant to adjust price upwards.

*"That stove should not be expensive."* Kilifi.

*"If it is very expensive should be one thousand shillings."*  
Kilifi.

## Expected Key ICS Benefits

Lower smoke levels  
(chimney to let out smoke)  
Higher fuel saving  
Faster cooking  
Easy to light (well aerated)

## Stove Quality & Features

### MOST IMPORTANT

Durable; not crack easily  
Stable; for all food types  
Portable; Light in weight  
Ability to regulate heat  
Allows you to perform other chores as food cooks  
Different sizes  
Multiple burners  
Should not go off while cooking

Place for ash to collect, not have to empty always  
Metal should not rust  
Raised or low stoves to suit preferred cooking position

## Other Factors

### **Affordable**

Easily available  
Warm house  
Black in color; to avoid unappealing look after use

⇒ **Despite the high number of stove quality and features suggestions, it is important to note that affordability remains a major barrier inhibiting adoption.**



# A few quotes on suggestions for ICS

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*"I would like it to have two in one I would like one side to have water and the other vegetables." Kilifi.*

*"The aeration of the jikos. Because sometimes it is very hard for the jikos to light." Kakamega.*

*They should be made of different sizes, because sometimes you will find that you need a small one and there are only the big ones available." Kakamega.*

*"The jiko should be made with like two or three burners, so that when you need to cook you can cook different things at the same time." Kakamega.*

*"I would like a place where the ashes can go I don't want to carry outside to go and pour the ashes." Kilifi.*

*It should have two burners, have a chimney, it should have a very good setting and it should be low. It should be made very beautifully." Kakamega.*

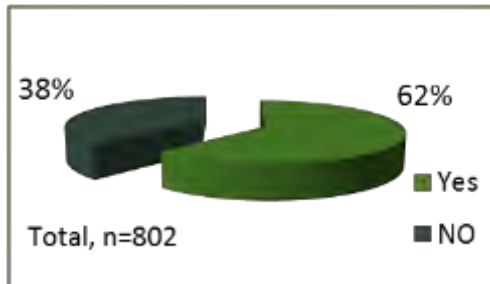
*The smoke... they could make it in a way that the smoke will not reach you because that smoke is not good." Kilifi.*

*It should have enough holes to emit the smoke." Kakamega.  
I would want them to make one that has a chimney to emit the smoke." Kakamega.*

*"It should have a pipe that takes the smoke to the river and maybe it can be made in a way that behind has a chimney that is raised and the ashes should go to a certain container then you lift it."  
Kilifi.*

*"You can cook with it while seated and another one which is tall and you can cook with it while standing."  
Nyeri.*

# ICS - Source of Awareness



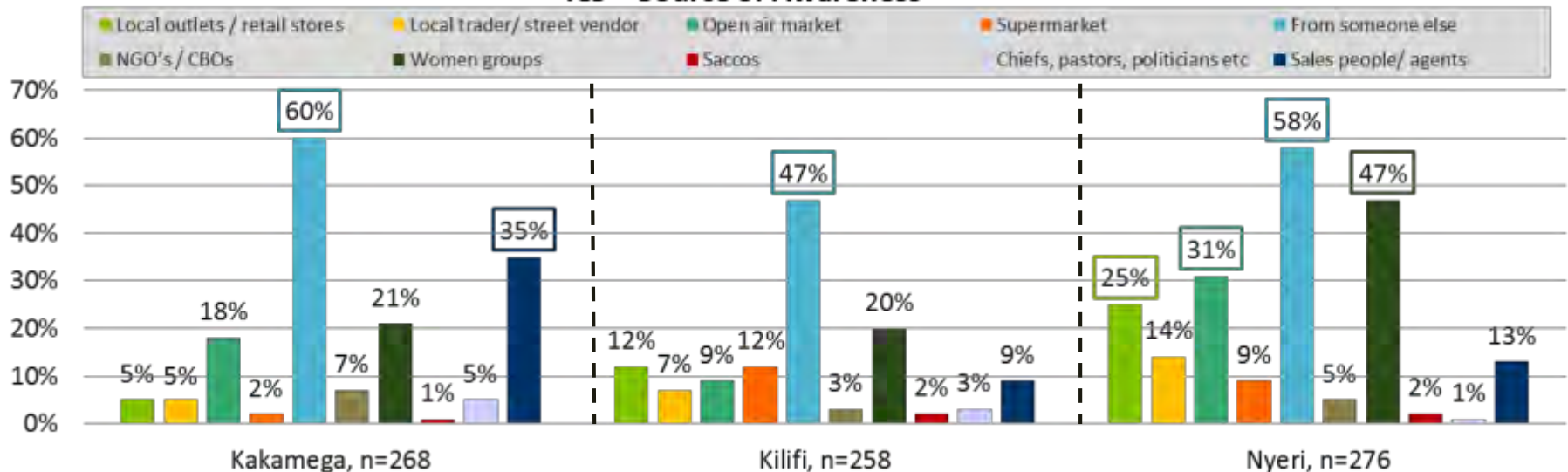
Almost two thirds of the women (62%) have been exposed to some form of ICS communication.

Main source of communication across segments was word of mouth followed by women groups, particularly in Nyeri. Other key sources are sales agents for Kakamega as well as open air market and local outlets for Nyeri.

*"I saw the jiko at my friend's place and she directed me to where I can buy it then I went and bought it."* Nyeri.

*"I have never thought about it because I have never seen or even heard about it I only know the one I use."* Kilifi. *"In the market."* Nyeri.

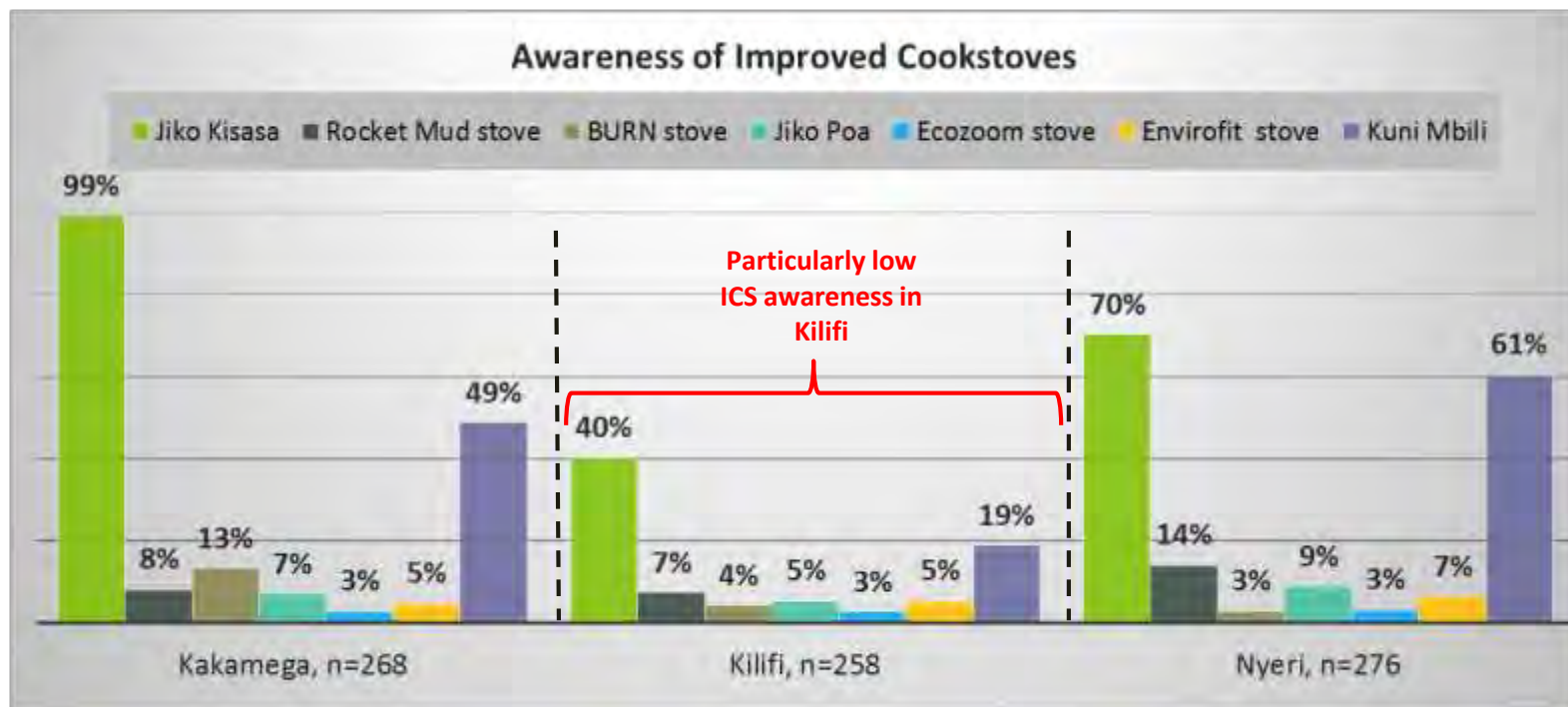
ICS – Source of Awareness



⇒ ICS perception and adoption will continue to be significantly influenced by WOM; negative consumer feedback must be minimized to limit spread of negative ICS perception

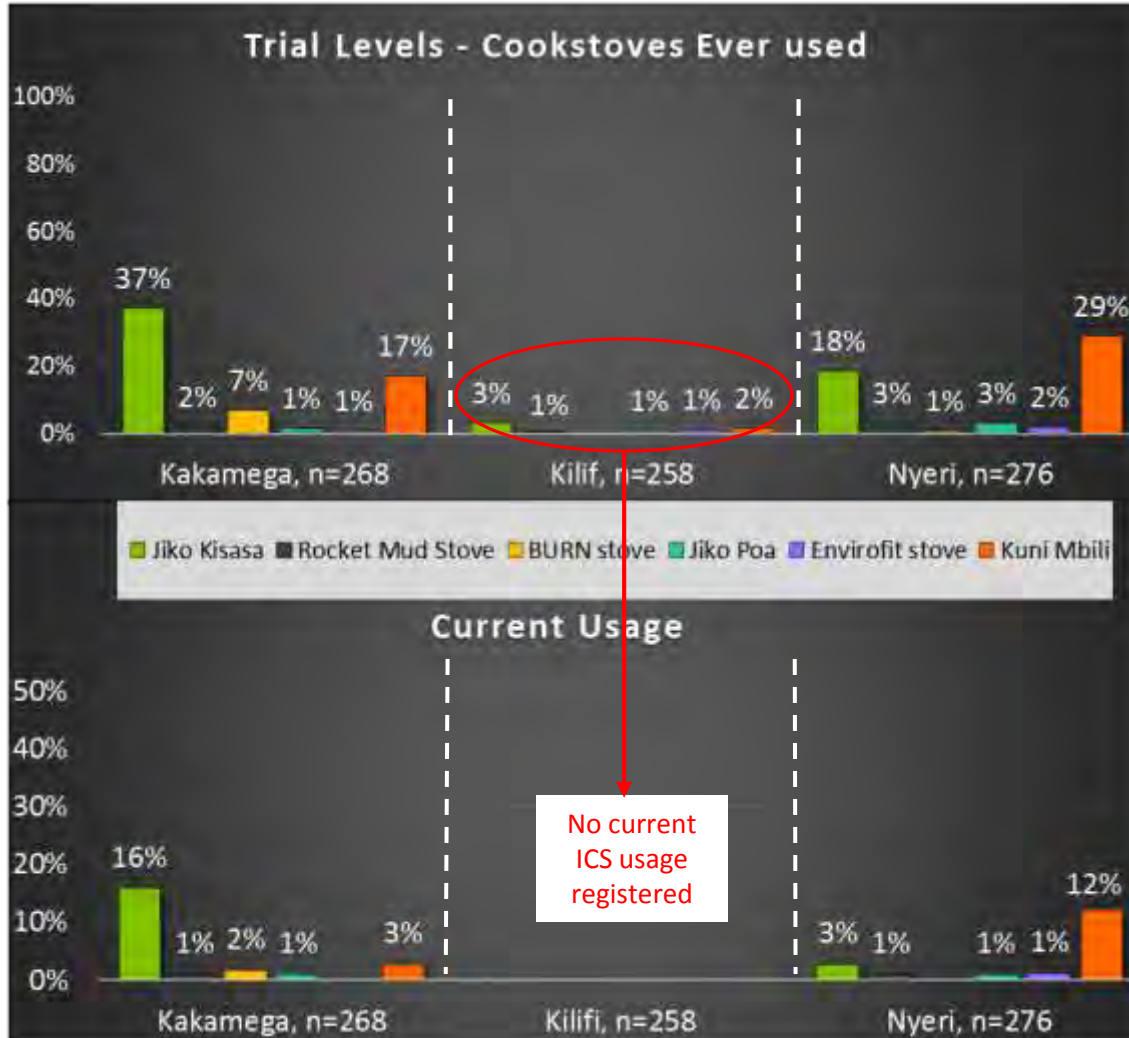
# ICS – Consumer Awareness

Jiko Kisasa and Kuni Mbili are the most well known ICS brands. Jiko Kisasa posts very high awareness in Kakamega which is not surprising considering this region is a GIZ cluster of focus. ICS awareness levels are generally much lower in Kilifi.



⇒ While the Jiko Kisasa is widely known, especially in Kakamega, there is need to intensify awareness creation of the range of ICS products available if they are to achieve reasonable levels of adoption in the foreseeable future.

# Interaction with ICS



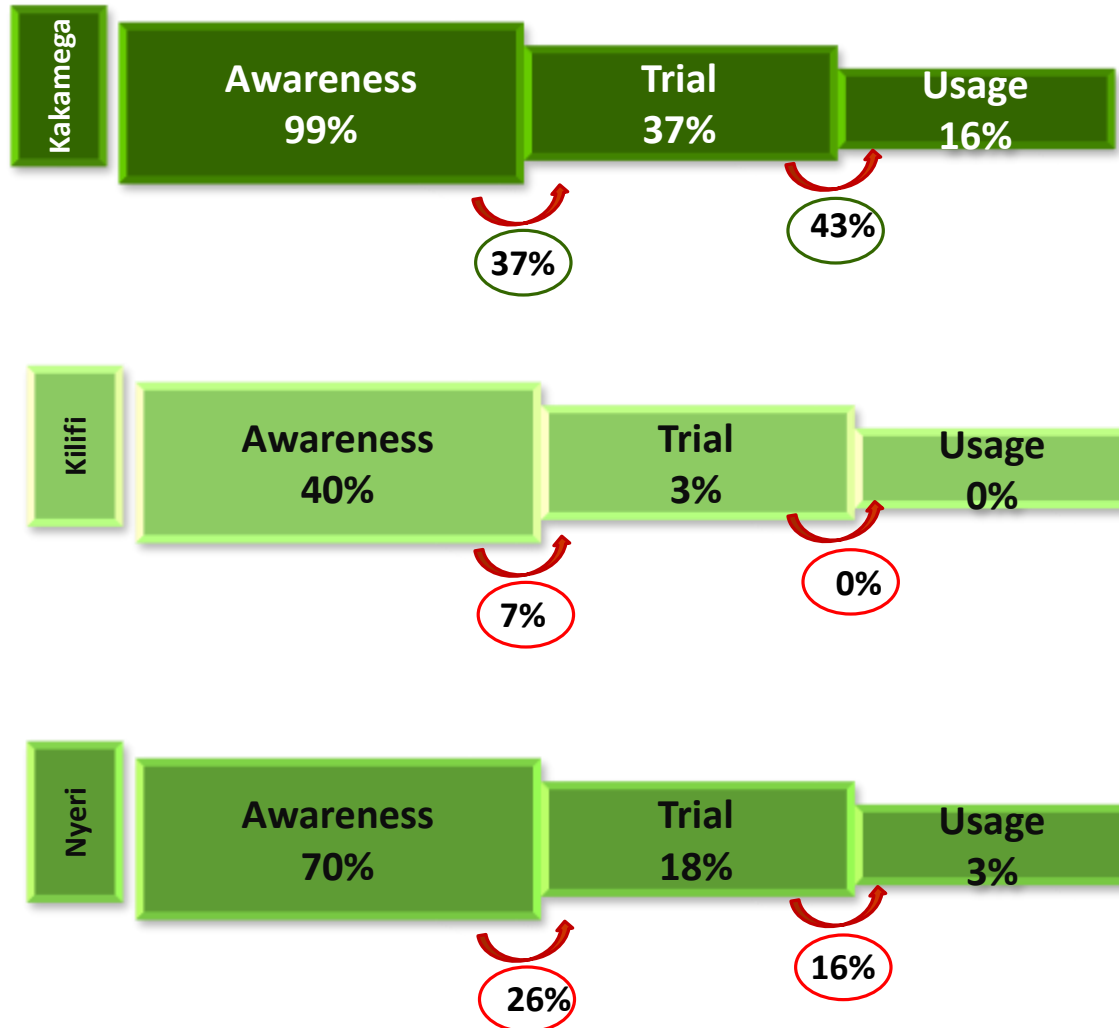
As expected, healthier levels of trial and usage were registered for Jiko Kisasa and Kuni Mbili.

While Jiko Kisasa registered highest levels in Kakamega, Kuni Mbili trial and usage is higher in Nyeri.

For Kilifi, very low trial and no current usage was registered.

# Main ICS Stoves – Jiko Kisasa (wood stove)

(Bases can only support conversion analysis for Jiko Kisasa and Kuni Mbili)

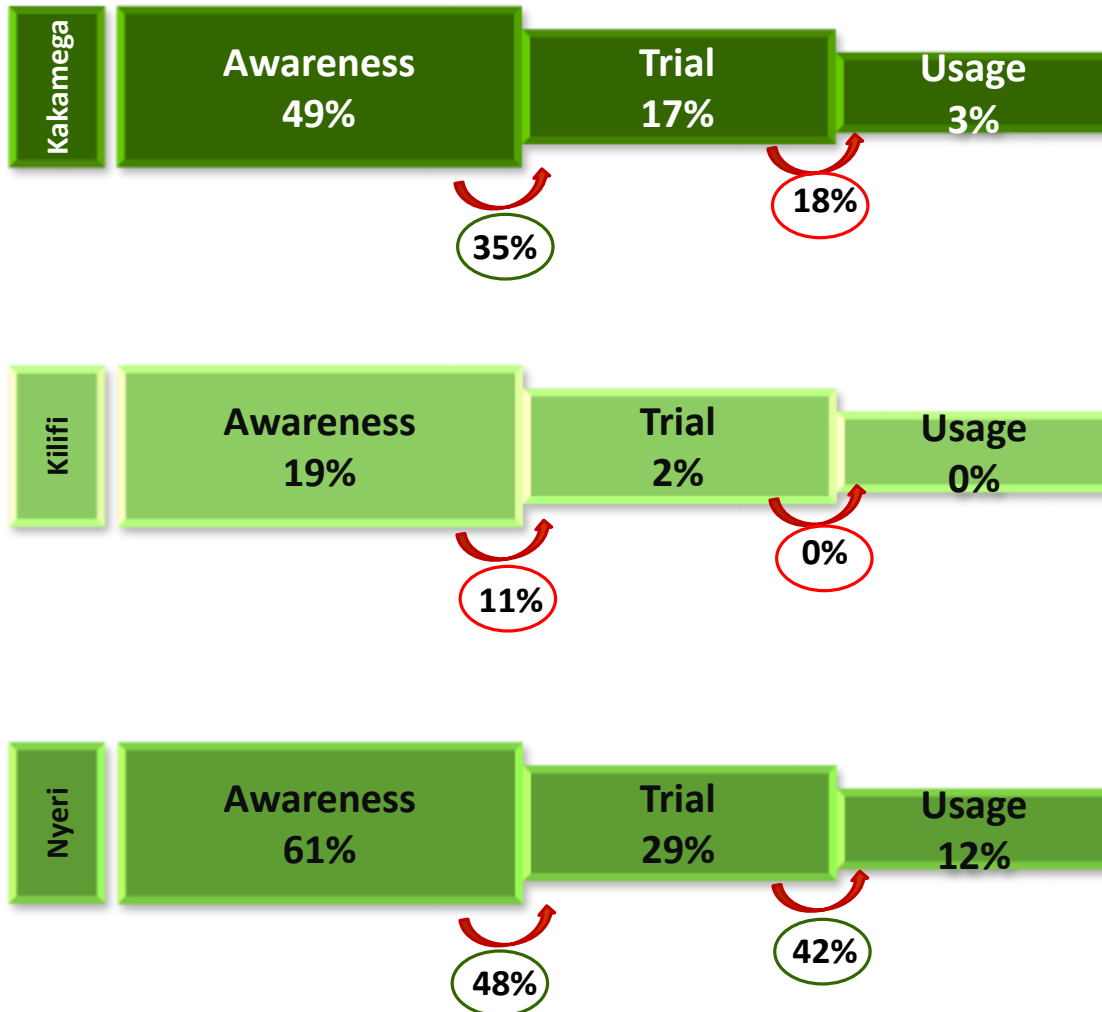


In Kakamega, Jiko Kisasa is converting awareness into trial and trial into usage relatively well.

Kilifi conversion is very poor across the three levels; this could be due in part to the fact that charcoal (not wood) is the primary fuel used by the women surveyed.

Nyeri conversion is particularly poor from trial to current usage. This could again be due in part to the fact that charcoal (not wood) is the primary fuel used by the women surveyed in this segment.

# Main ICS Stoves – Kuni Mbili



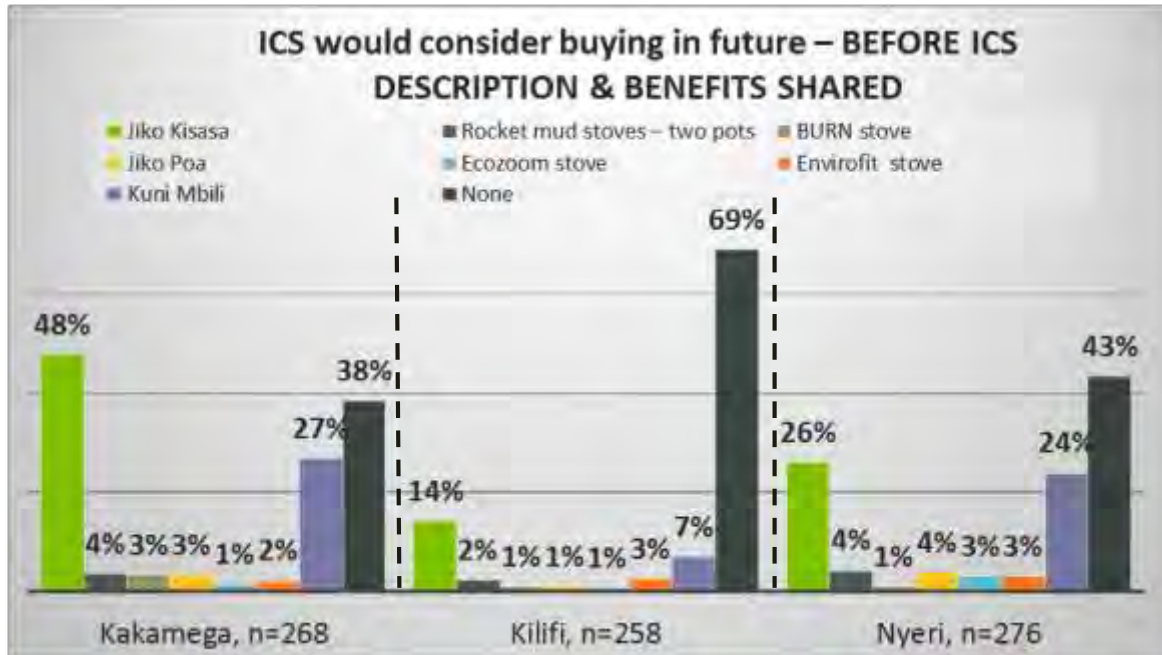
Kuni Mbili appears to be experiencing low conversion particularly between trial and current usage. This may suggest the need for design improvements for this model.

Very low awareness levels of the Kuni Mbili were recorded in Kilifi

Surprisingly, Kuni Mbili in Nyeri shows the best conversion rates across the target segments; despite the fact that charcoal is the main fuel used by this segment. However, 39% of women surveyed in Nyeri did mention using wood as an alternative fuel.



# ICS – Future Disposition



Respondents were initially presented with pictures of the different ICS and asked about their intent to buy them in future; overall, levels were low although reasonable figures were registered for Jiko Kisasa and Kuni Mbili.

Post description of ICS and benefits, the proportion that would consider buying an ICS in future rose significantly across segments.

⇒ **Effective communication of ICS benefits would promote consumer interest and adoption.**



If would consider buying an ICS in future (Non Users)			
	Kakamega	Kilifi	Nyeri
	204	253	223
Yes	92%	98%	88%
No	8%	2%	12%

*“If we see it we would even start organizing our finances today so that we buy it.” Kilifi.*

*“If it is different and the disadvantages it had have been solved then I would try it because it looked smart from outside.” Kilifi.*



# Section Summary

As expected, universal awareness was registered for three stone fire and the charcoal stove (KCJ or TMS) while kerosene wick and LPG stoves also recorded high awareness.

Stove choice is governed mainly by affordability as well as cooking speed and food type.

Across segments, most women own more than one stove which is not surprising given the multiple fuel use in households.

Almost two thirds of the women surveyed have been exposed to some ICS communication.

The most key source of awareness across segments is word of mouth while groups and open air market also have played a role in Nyeri as well as sales agents in Kakamega.

The key positive associations of ICS include fuel savings, time savings, smoke reduction and appealing design.

Unfortunately, ICS are also negatively perceived by some as not delivering expected benefits such as significant smoke reduction, fuel or time savings - a perception that is mostly related to local improved mud stoves.

Suggested improvements for ICS include increased durability, stability and portability (lighter in weight). Women also mentioned they would like ICS to be durable, easy to light, cook fast and able to regulate heat. Other improvements mentioned related to multiple burners, different size pots, ability to warm the house, and low involvement cooking.

Most popular ICS stoves with respect to awareness and adoption levels are Jiko Kisasa and Kuni Mbili which are more prevalent in Kakamega and Nyeri respectively; Kilifi shows lower awareness and hardly any current ICS usage.

# Cultural Traditions and Implications



# Cultural Traditions

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Across segments a number of cultural practices that could limit adoption of ICS emerged as listed below;

## Cooking the way your mother, your community always has

- Social acceptance appears to be a driving factor influencing many aspects of the women's lives including their cooking practices. Many women claimed to cook the way their mothers or community always has and this phenomenon is more common in the kind of target segments under study where communities have regular interaction between households or families.
- The desire to conform appears higher in the Kakamega segment as many live in family homes; new wives in this area do not get allocated a cooking area or kitchen until after some time, forcing them to align to their in-laws' way of cooking technologies. Additionally, newly wed women are sometimes required to cook on a 3 stone fire as confirmation of being capable wives.

*"I've used the same fuel from where I came from and where I was married to. I adapted to it and I see my children also adapting to it".*

Nyeri

*"Like when you get married and go to your own home, you have to cook on the three stones to show that you are really capable of it."*

Kakamega.

⇒ **ICS acceptance may be hindered by the need for social acceptance particularly in the more rural communities where consumers are likely to conform to the familiar cooking practices of their communities, rather than adopt new cooking technologies. There may be opportunity to work with highly regarded opinion leaders such as teachers in rural areas to accelerate ICS adoption.**

# Cultural Traditions

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## Speed of Cooking

Overall, there appears to be very limited use of cooking styles such as simmering or cooking on low heat with most women being keen on fast cooking as evidenced by their preference for fast cooking fuels and stoves.

- ⇒ **The perception that ICS do not generally cook much faster compared to conventional stoves may limit adoption amongst the target segments. This is more important for Nyeri where speed of cooking is a main driver of LPG alternative usage. ICS should ensure delivery of this commonly perceived benefit.**

## Pot Size

The majority of households covered in the study have at least 4 members and as such, routinely require large pot sizes for cooking while the majority of ICS are relatively small in size.

- ⇒ **Inability to prepare meals in adequate quantities for the family is likely to continue to negatively impact consumer acceptance for small sized ICS.**

## Warming the house

For some households, cooking with wood and charcoal is also positively perceived due to the ability of warming the house and creating an atmosphere for family bonding.

*“Jiko is good because during the cold season you can use it to warm the house.” Nyeri.*

- ⇒ **Overall, benefits of ICS need to be perceived as worth the trade off they would need to make if they moved from conventional stoves. This is likely to be more of an issue in cold regions.**

# Cultural Traditions

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## Ability to cook for long duration of time

A number of common food types such as Githeri require long cooking periods of at least 2 hours in some cases (depending on fuel) and as such, the women prefer using fuels such as charcoal that allow them to make good use of their time as they can perform other chores while the food cooks.

⇒ **Adoption is likely to be higher for ICS that does not require users to add fuel during the cooking process.**

## Perception that certain food types are best prepared on the more conventional stoves

According to some of the women, certain food types such Ugali can only cook well if fuels such as wood or charcoal are used with Kerosene, LPG and Electric stoves not seen as being as suitable. In line with this is the perception that ICS stoves are not appropriate for preparation of some common foods due to the kind of heat they are perceived to generate.

*“Ugali, like you can’t cook it on the stove because it won’t cook well. And if you cook it on the stove you can’t give it to your elderly parents.” Kakamega.*

⇒ **ICS communication should stress stoves’ ability to generate the required level of heat to cook popular foods such as Ugali well.**

# Cultural Traditions – Fuel Related Barriers

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In addition to stove related cultural barriers, it is worth highlighting that there is also a set of barriers that may inhibit ICS uptake based on fuel type.

Traditionally, certain fuel types are expected to be used during certain occasions or for preparation of particular food; it is believed in certain communities such as Kakamega, that food for burials must be prepared using wood while there is some cultural preference for cooking of *Githeri* with wood.

Certain food types are considered best prepared on moderate heat; charcoal stoves generally can be regulated to make *Chapattis*.

Some fuels are associated with more even cooking; charcoal rather than wood is considered more ideal for cooking certain food types like rice.

The perception that wood ensures tastier food compared to charcoal is believed by some.

# Section Summary

A few cultural traditions appear likely to constrain acceptance of ICS within segments.

The need to conform socially by cooking the way your community always has may be a hindering factor, particularly in the more rural segment of Kakamega.

The tendency to prefer fast cooking stoves that allow one to save time is another consideration that may hinder adoption of ICS unless they are perceived to cook faster than conventional stoves. This is more likely to hinder adoption in Nyeri where speed of cooking is a key consideration in stove choice.

In addition, with the target households having at least 4 people, some ICS may not be large enough for some of the homes leading them to prefer other larger pot size stove options.

The ability to cook for long durations with low involvement is another factor sought after, particularly when preparing foods such as Githeri that take hours to cook.

Cooking with conventional stoves provides the benefit of warming the house and creating an atmosphere for family bonding, something that ICS would not offer; this may be a limiting factor particularly in colder regions.

Finally, the perception that some of the common foods such as Ugali require the kind of heat generated by wood or charcoal stoves rather than the kind of heat produced by kerosene, LPG or ICS, is also likely to limit acceptance amongst some consumers and more so in Kakamega.



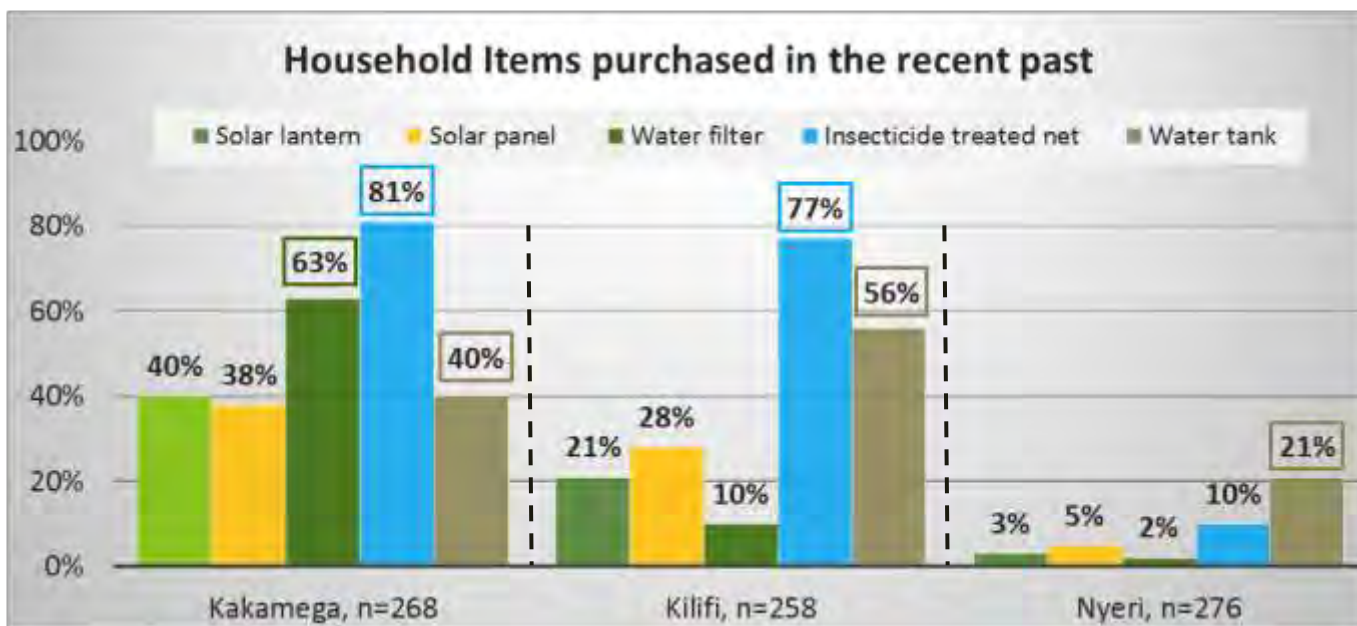
# Reaching the Consumer



# Other H/H Items- Reaching the Consumer

Purchase levels were registered across the target segments for a selected number of similar products namely, solar lanterns, solar panels, water filters, water tanks and insecticide treated nets (ITN).

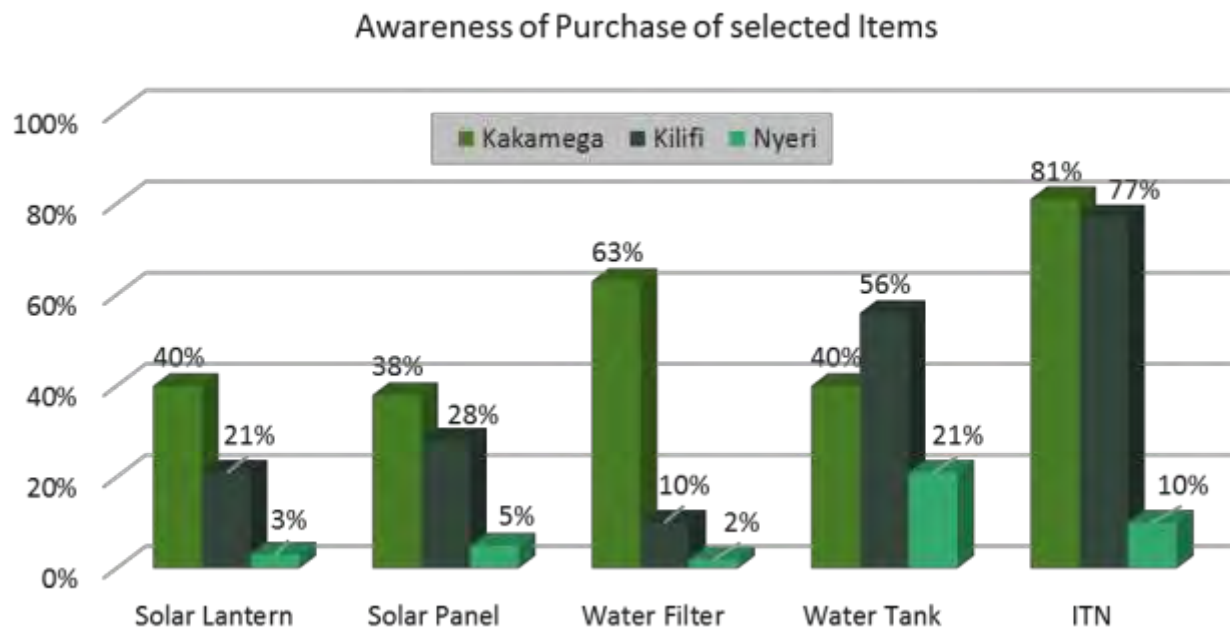
Overall, ITN was the most acquired product followed by water filters in Kakamega and water tanks in Kilifi; figures for Nyeri were comparably lower with the only reasonable levels having been recorded for water tanks.



# Selected Household Items – Acquisition Awareness

The selected household items (solar lanterns, solar panels, water filters, water tanks and insecticide treated nets) have been purchased by some of the women or people they know in the recent past.

Lower awareness levels in Nyeri may be due to area being more urban and the population more well off e.g. higher electrification rate lowering need for solar products.



**Note: Low awareness in Nyeri limits further analysis for some of the household items**

# Selected Household Items - Source of Awareness

## The influence of word of mouth is significant across all segments and items.

Efforts by NGOs and CBOs appear to be cluster based hence the huge variations such as being linked with 74% of awareness in Kakamega versus only 4% in Kilifi for water filters.

In Kilifi, local outlets are a key source of awareness across the items while women groups appear more of an influence in Nyeri. Saccos and local leaders such as chiefs or politicians received very low mentions as sources of awareness.

Despite radio and TV being relatively popular, there has been limited information on these products shared through these media.

Source of Awareness	Water Filter		Water Tank			ITN			Solar Lantern		Solar Panel	
	Kakamega	Kilifi	Kakamega	Kilifi	Nyeri	Kakamega	Kilifi	Nyeri	Kakamega	Kilifi	Kakamega	Kilifi
<b>Those aware of purchase of the selected items</b>	<b>169</b>	<b>27*</b>	<b>108</b>	<b>144</b>	<b>58</b>	<b>218</b>	<b>199</b>	<b>28*</b>	<b>106</b>	<b>54</b>	<b>103</b>	<b>72</b>
From someone else	34%	33%	59%	14%	28%	30%	16%	21%	69%	24%	68%	22%
NGO's / CBOs	74%	4%	3%	6%	0%	25%	25%	0%	26%	0%	11%	3%
Local outlets / retail stores	1%	37%	26%	56%	38%	11%	46%	39%	14%	43%	19%	40%
Sales people/ agents	11%	4%	9%	12%	14%	10%	7%	11%	14%	11%	12%	11%
Open air market	6%	0%	34%	15%	22%	6%	8%	11%	12%	2%	18%	4%
Women groups	8%	15%	19%	17%	31%	11%	12%	21%	9%	15%	10%	25%
Supermarket	2%	30%	21%	22%	12%	6%	22%	21%	7%	13%	14%	18%
Local trader/ street vendor	1%	15%	13%	17%	24%	2%	13%	18%	4%	13%	8%	11%
Media e.g. TV, Radio, Paper	-	-	4%	3%	0%	10%	1%	4%	22%	2%	20%	0%

# Selected Household Items – Acquisition Source 1/2

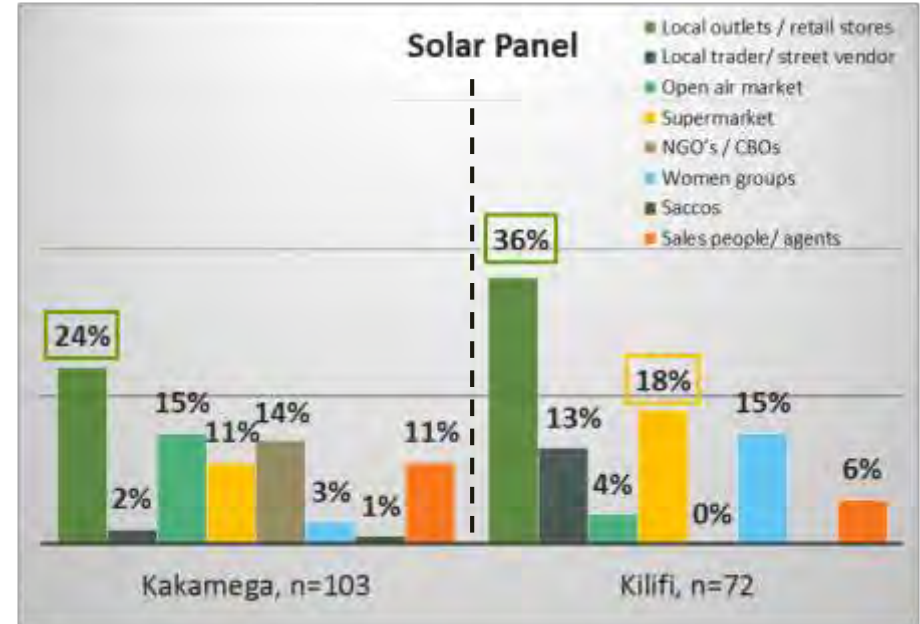
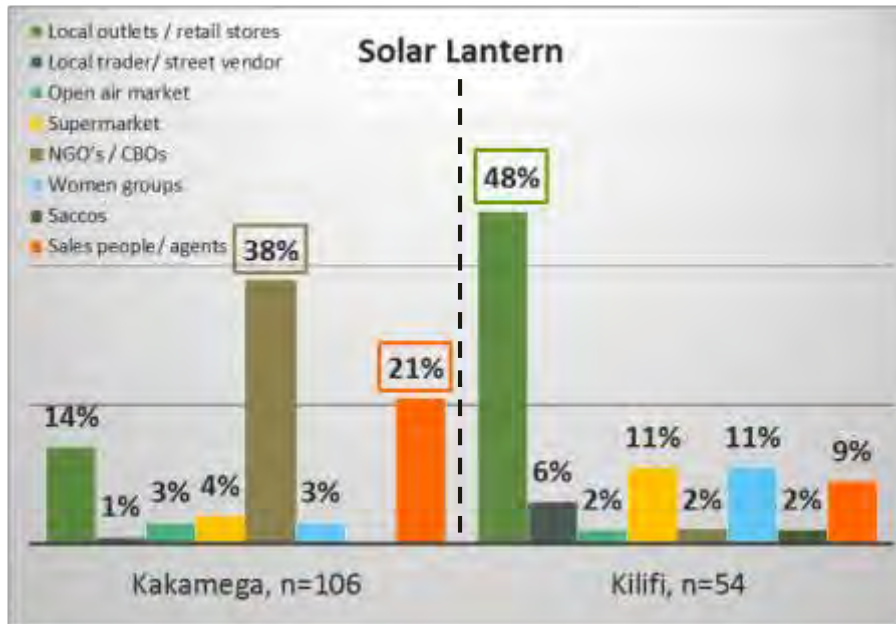
Overall, consumers in both Kakamega and Kilifi have acquired solar products mainly from local outlets or retail stores.

In Kakamega, a good proportion have acquired solar lanterns from NGOs, CBOs and to some extent, sales agents.

*“They are people going round.... they will even come to your house.” Kakamega*

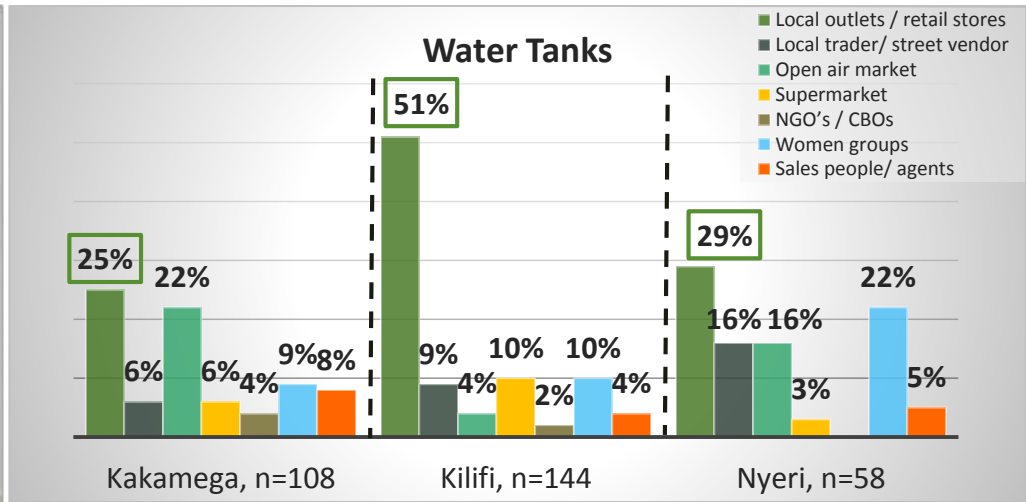
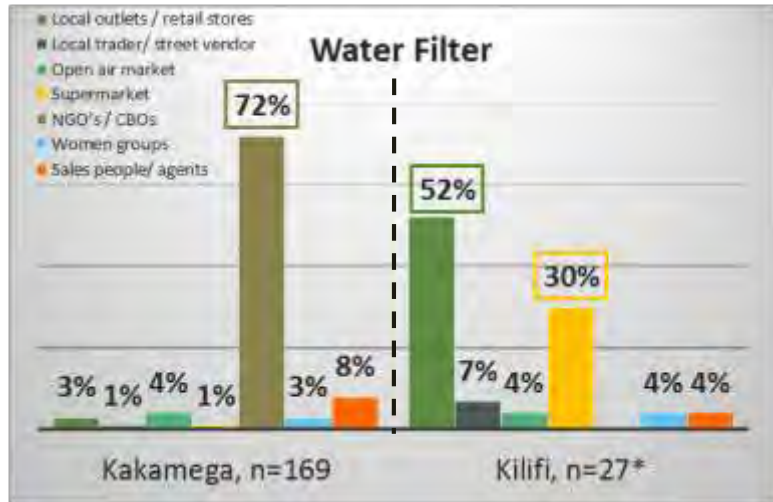
*Mostly you will get them from the supermarket, and you also get things like pots from the market.” Kakamega*

*“There are also shops that are stocked with household goods and you can buy from there.” Kakamega*

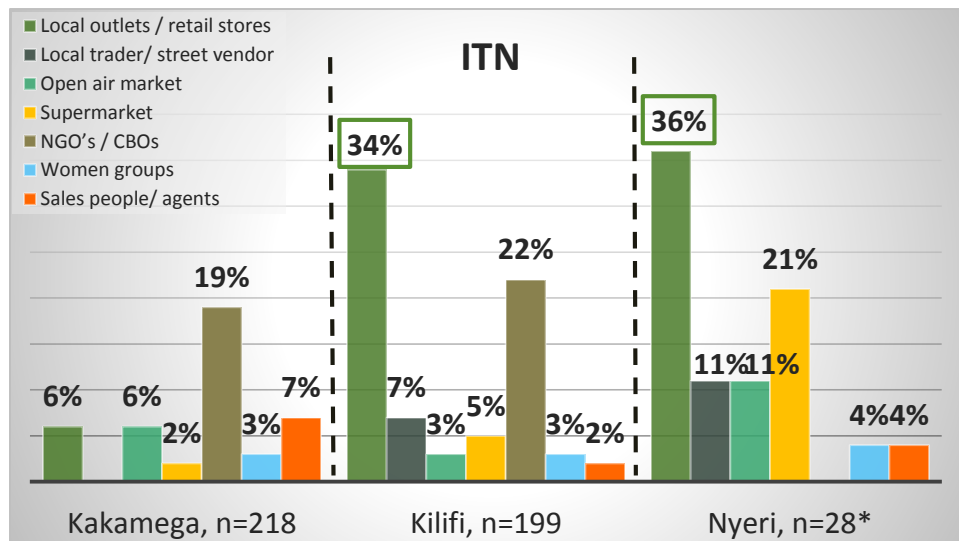


Note: Low awareness in Nyeri limits further analysis for some of the household items

# Household Items – Acquisition Source 2/2



\*Caution; small base



With the exception of Kakamega region, local outlets are the primary source of water filters, water tanks and ITN.

In Kakamega, ITN and water filters have mainly been distributed by NGOs/ CBOs rather than profit making ventures.

*"Like the mosquito nets, we get it from the health workers."* Kakamega.

*"Like the tanks, Kenya Women bring it to the women."* Kakamega.

⇒ **The creation of awareness and distribution of new technologies and products should aim to involve the familiar channels to facilitate easier adoption.**



# Other H/H Items - Reaching the Consumer

In looking at the data across segments and household products, great variation is evident with respect to where target customers acquire products from.

Overall, local outlets are the most popular point of acquisition across segments unlike Saccos which register very low figures across segments.

Sales agents and NGOs/ CBOs register record higher figures in Kakamega for solar lanterns, solar panels and water filters. As expected, groups continue to play a more key role in Nyeri where they have mainly been involved in the distribution of water tanks. Although supermarkets recorded higher figures for water filters in Kilifi, it emerged that supermarkets which are mostly located in major towns generally serve as the main source for bigger items such as TVs, fridges and furniture.

Channel	Solar Panel		Solar Panel		Water Filter		Water Tank			ITN		
	Kakamega	Kilifi	Kakamega	Kilifi	Kakamega	Kilifi	Kakamega	Kilifi	Nyeri	Kakamega	Kilifi	Nyeri
Local outlets / retail stores	14%	48%	24%	36%	3%	52%	25%	51%	29%	6%	34%	36%
NGO's / CBOs	38%	2%	14%	0%	72%	0%	4%	2%	0%	19%	22%	0%
Sales people/ agents	21%	9%	11%	6%	8%	4%	8%	4%	5%	7%	2%	4%
Supermarket	4%	11%	11%	18%	1%	30%	6%	10%	3%	2%	5%	21%
Women groups	3%	11%	3%	15%	3%	4%	9%	10%	22%	3%	3%	4%
Open air market	3%	2%	15%	4%	4%	4%	22%	4%	16%	6%	3%	11%
Local trader/ street vendor	1%	6%	2%	13%	1%	7%	6%	9%	16%	0%	7%	11%
Saccos	0%	2%	1%	0%	0%	0%	0%	1%	0%	0%	0%	0%

➔ **Even as the use of less conventional distribution channels for household items grows, it will remain critical to ensure expansion of ICS products' presence across local outlets or retail stores.**

\*\* Bases too low for some products in Nyeri



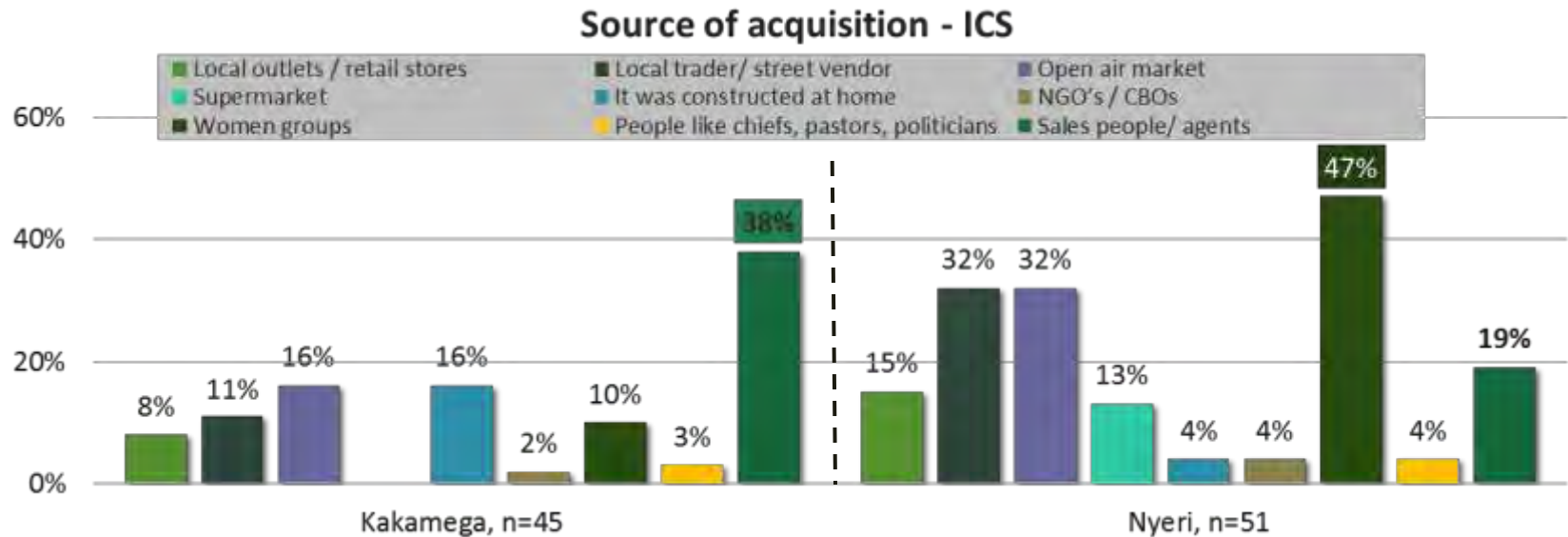
# Reaching the Consumer - ICS acquisition

For women who already own some type of ICS, women groups in Nyeri emerged as the highest acquisition source across target segments followed by sales agents in Kakamega. About a third of Nyeri consumers (32%) acquired their ICS from local traders or open air markets.

It was not surprising to note higher incidence of stoves constructed at the home in the Kakamega segment considering the reasonable adoption of Jiko Kisasa in the area.

Limited info was available for Kilifi, which shows the lowest ICS penetration across segments.

*“There are people who open businesses that specifically make this jikos. Like the one who made mine has that kind of shop.” Kakamega.*



⇒ **Distribution efforts should target a variety of channels in each segment with particular focus on popular channels such as groups in Nyeri.**

# Reaching the Consumer – Models in Use for ICS

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A number of distribution models are currently in use within the ICS sector in Kenya; some of the less conventional ones have developed out of the need to devise ways to achieve deeper penetration of ICS while controlling distribution cost.

**Sales through stockists, retail outlets** including supermarkets are relatively common.

**Government departments;** ICS products are stocked and distributed by officers at county, sub county or ward levels, mainly under the energy and agriculture ministries which in addition to awareness creation, act as a link between suppliers and consumers mainly comprising farmers. In addition, these departments' officers and in particular the agricultural officers, are sometimes involved in the distribution of products to farmers when they conduct extension visits.

**Distributing through entrepreneurs who have undergone stove production training;** some of these business people have outlets while others stock products at home.

**Working with a team of sales agents;** these agents are in some cases trained artisans who cover areas educating target consumers on product benefits and financing possibilities while also installing fixed improved stoves.

# Reaching the Consumer – Models in Use for ICS

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Partnerships with CBOs, NGOs, donor agencies also serve as channels through which ICS can be acquired in cases where they go beyond consumer education to actual product distribution.

Selling through groups, of women or the youth; this is being increasingly seen as very effective for increasing uptake due to the numbers involved. Groups are mainly stocking products with most only placing orders on confirmation of payment or loans to members. A number of groups are keen on income generation and are involved in sales to non-members by taking advantage of community forums and market days.

Use of 'Boda Boda' to deliver stoves to customers is also in use although this may not be a sustainable model for distributors to adopt as it normally requires the customer to pay the transport fee.

Some stove builders have opted for a more passive approach that requires customers to make orders through phone and arrange for their own transport when collecting stoves after making payment.

⇒ **Distribution models must be assessed for suitability based on segment accessibility so that only those that can sustainably deliver cost effective ICS penetration are promoted.**

# Reaching the Consumer – Emerging Models

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Some additional distribution models are also being tested to positively impact how ICS are currently distributed:

It became apparent that besides the expected models that focus on groups, sales agents or retail outlets, other creative models continue to emerge such as the ones listed below:

- Linking large organized groups such as farmers to suppliers/ distributors as well as financing institutions such as Saccos thereby providing a product and financing solution for target consumers.
- Capturing the interest of prospective buyers; some stove builders have developed innovative schemes such as requiring customers to purchase an initial ICS after which they are then trained in stove making for their own income generation.

## Creation of more structured distribution approaches

The development of a sector based database containing information on products, benefits, certified stove producers and trained artisans as well as financing institutions was suggested. This initiative could be driven by the government or other agencies in the energy sector and would serve to raise accessibility to information and products while addressing the existing stove quality challenge.

⇒ **Building partnerships is critical; sector players should aim to combine efforts to ensure distribution efforts are matched with access to financing and consumer education for sustainable ICS uptake growth.**

# Section Summary

It appears that in Kakamega, NGOs and CBOs have made a significant impact as the source of awareness and the place of acquisition of the selected household items covered in the study (namely solar lanterns, water filters, ITN) while local outlets and women groups were more common channels in Kilifi and Nyeri.

Local leaders such as chiefs or politicians, as well as mass media like radio and TV received very low mentions as sources of awareness for the selected products

Acquisition of the selected household study items was registered across segments although it was lowest in Nyeri. Lower levels in Nyeri may be due to the area being more urban and the population more well off e.g. higher electrification rate lowering need for solar products. High levels of purchase were evident in Kakamega for ITN and Kilifi as well as water filters in Kakamega and water tanks in Kilifi.

Overall, local outlets are the most popular purchase source of the selected household items while NGOs/CBOs and sales agents recorded reasonable sales in Kakamega, and women groups were popular in Nyeri.

Overall, ICS acquisition was highest through women groups in Nyeri followed by sales agents in the Kakamega segment. Local traders or open air markets were also common ICS purchase channels for the Nyeri segment. Due to low uptake of ICS in the Kilifi region, information on ICS purchase channels was limited.

Distribution models currently in use for ICS include the use of stockists and retail outlets, sales agent teams, government departments, groups, entrepreneurs and CBO/ NGO partnerships.

Some emerging approaches involve linking of large organized groups such as farmers to financing institutions like Saccos as well as capturing the interest of prospective buyers by training them to build stoves for income generation after initial purchase of a stove.

Sector players also offered a suggestion for a more structured distribution approach that could be driven by the government and would involve quality standardization efforts by having a database of certified artisans and suppliers that would provide critical information on quality as well as availability of products.

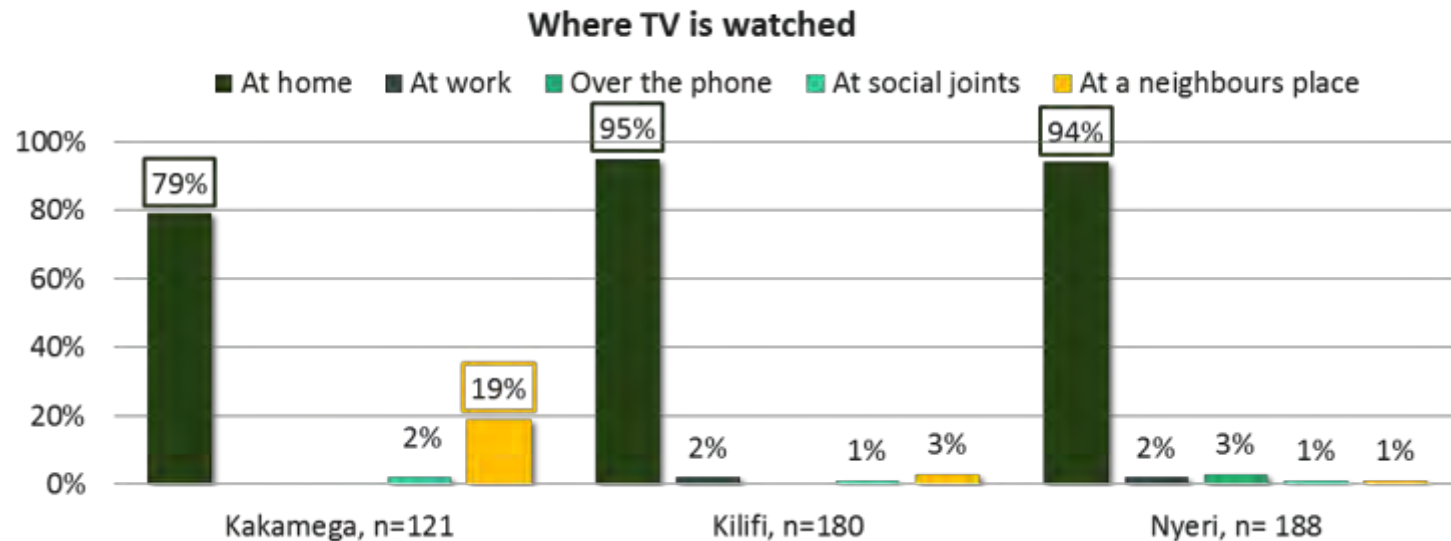
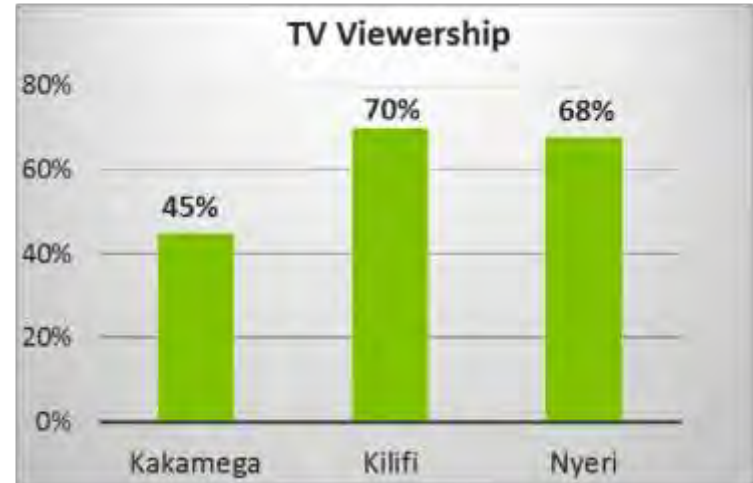
# Marketing Messaging

## Marketing Channels



# TV Viewership

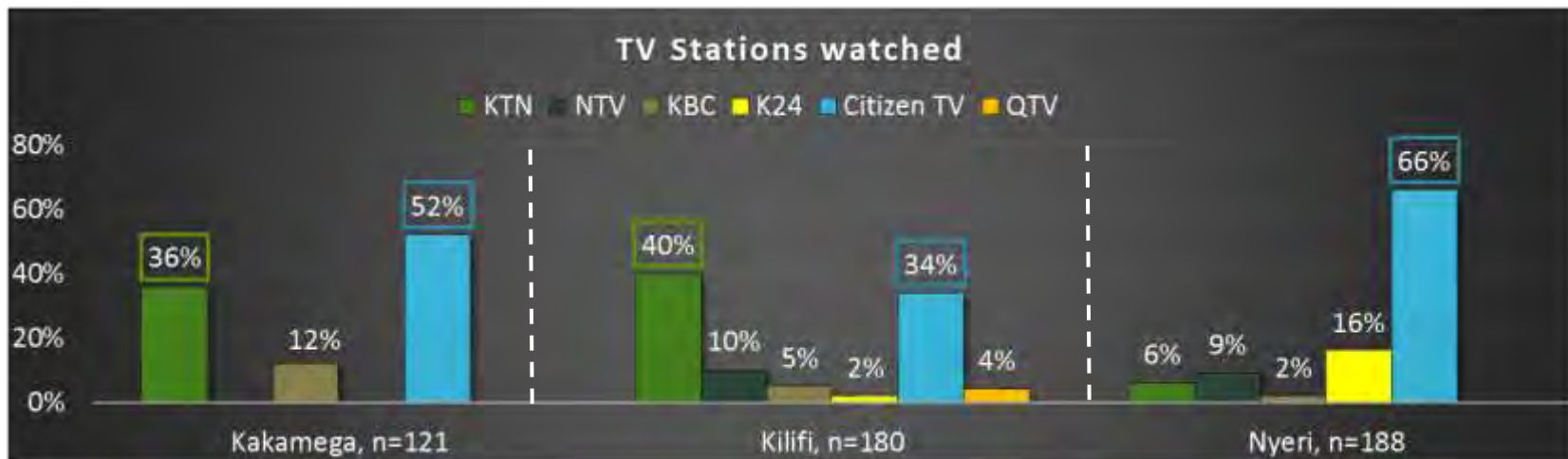
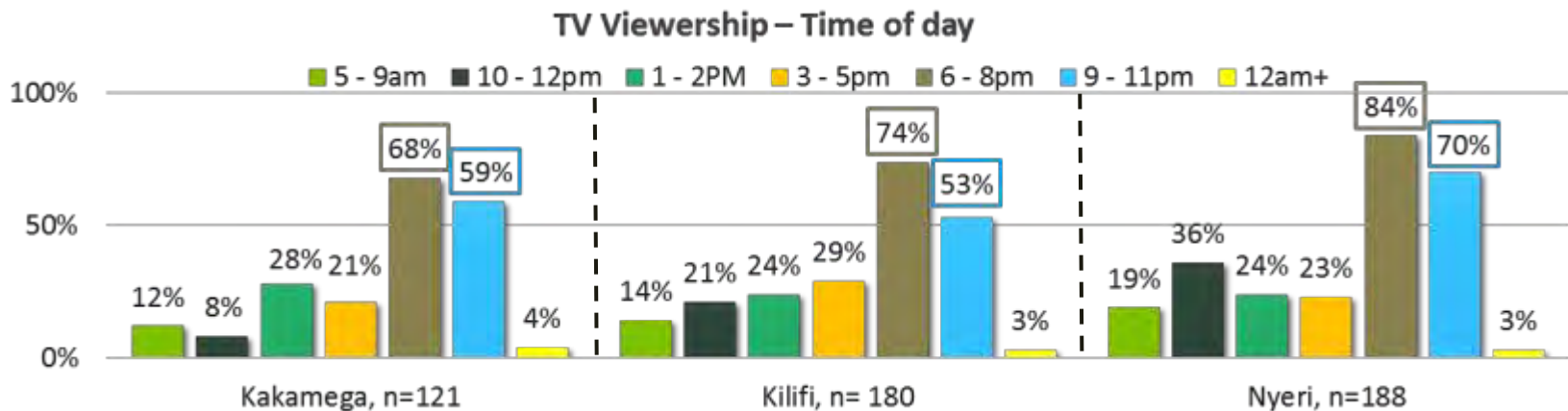
As would be expected, there is lower (although reasonable) TV viewership and a higher incidence of watching TV at a neighbors house within the lower income rural Kakamega segment compared to Kilifi and Nyeri.



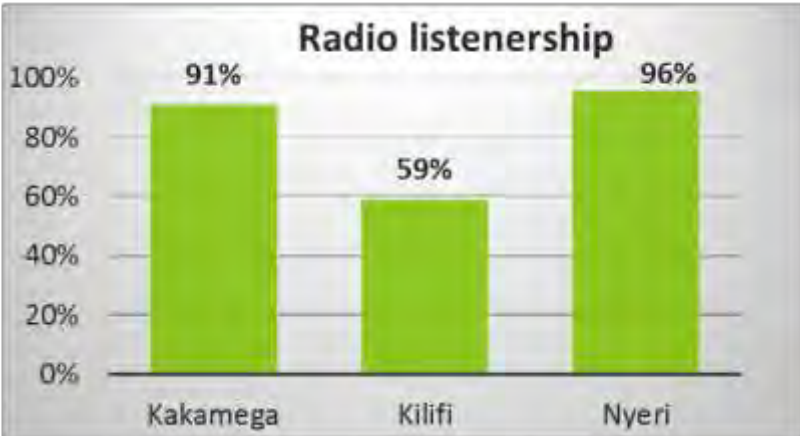


# TV Viewership

TV is watched the most between 6pm and 8pm followed by 9pm to 11pm with Citizen being the most popular station overall and more so in Nyeri. KTN is also watched often by a good proportion of the women in Kakamega and Kilifi regions.

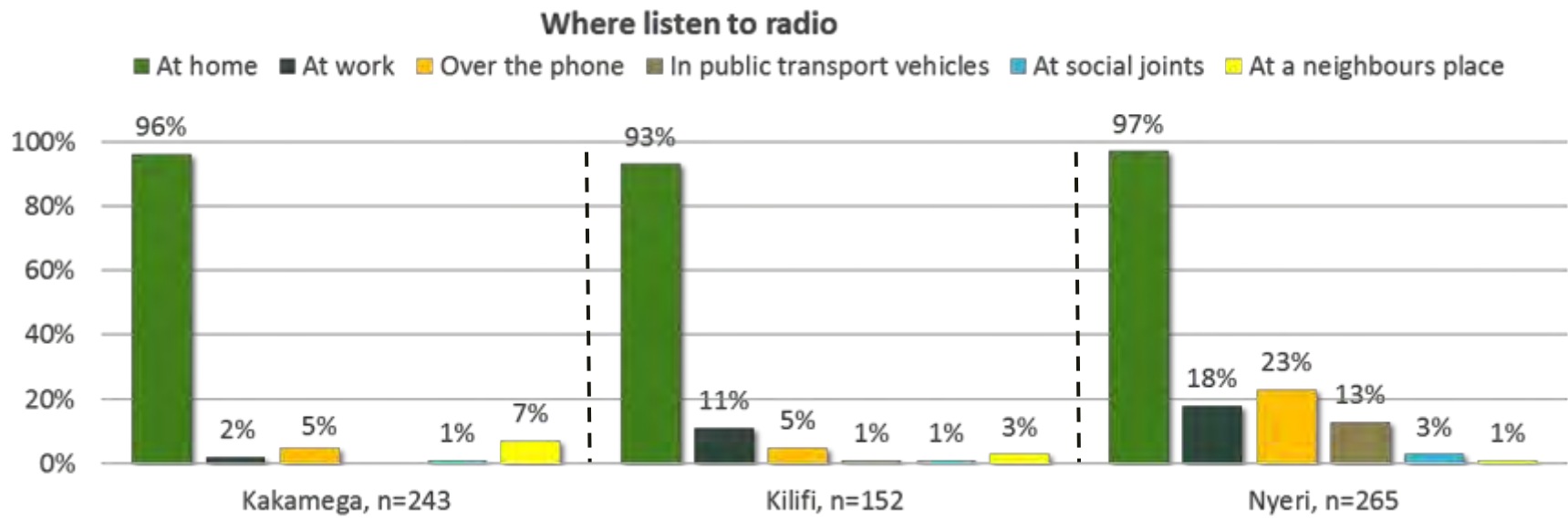


# Radio listenership



Lowest radio listenership was registered in Kilifi while Kakamega showed very high levels.

The Nyeri segment recorded both high TV viewership and radio listenership.

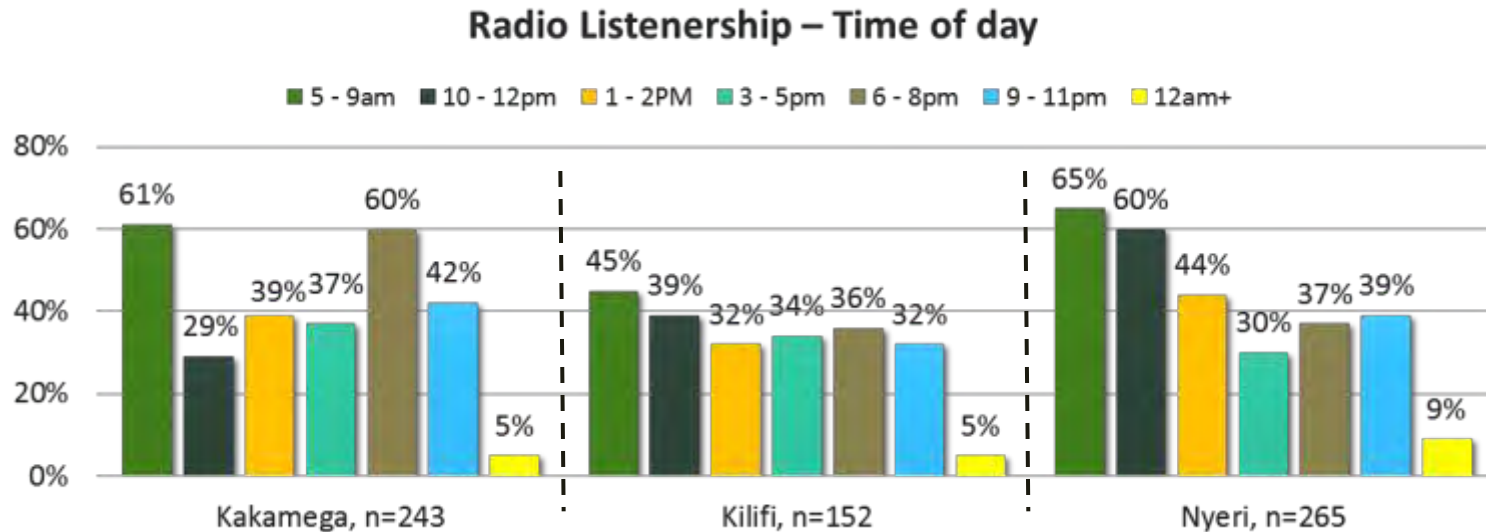


B110. Do you listen to radio?

B112. Where do you listen to radio?

# Radio listenership

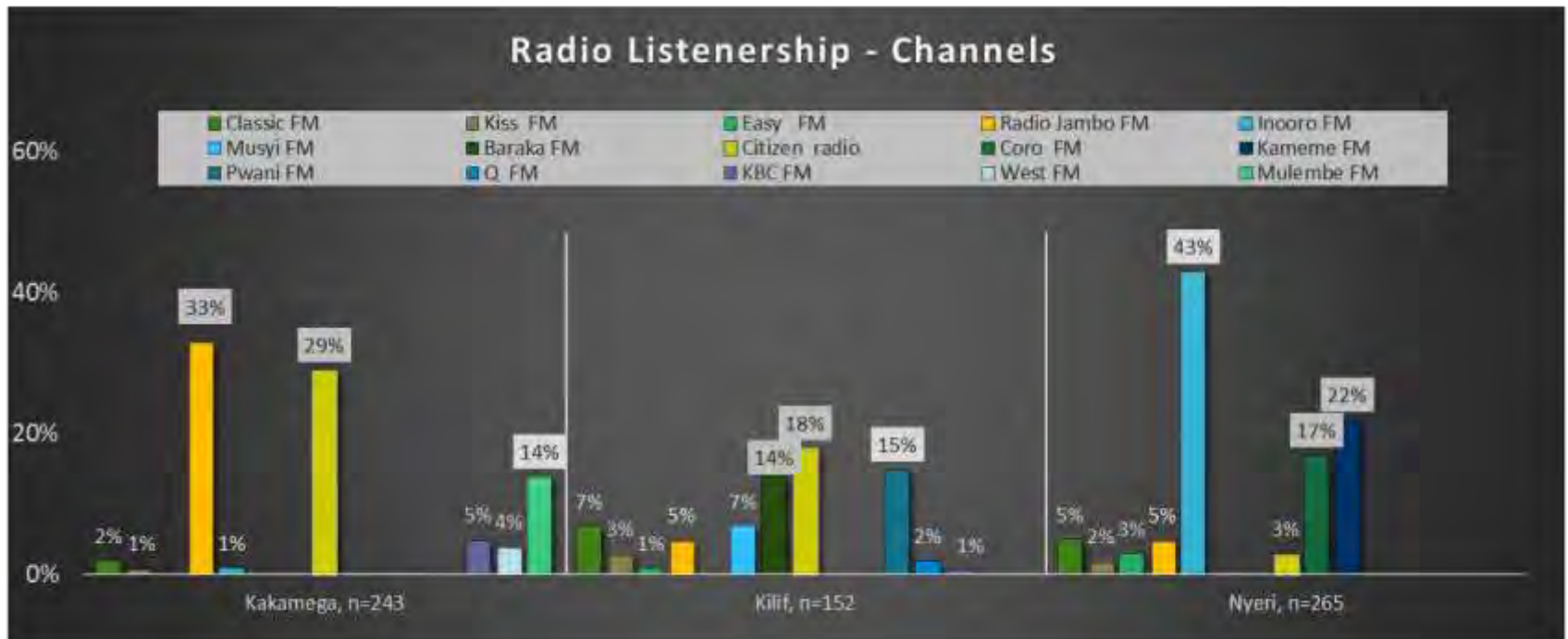
Radio listenership is generally higher between 5am and 9am across segments. Higher listenership is evident in Kakamega between 6pm and 8pm while Nyeri and Kilifi women record lower levels for radio but higher TV viewership at that time of the day.



# Radio listenership

Channels listened to vary across the regions making it apparent that it would be difficult to achieve effective reach within the three target segments through a particular channel.

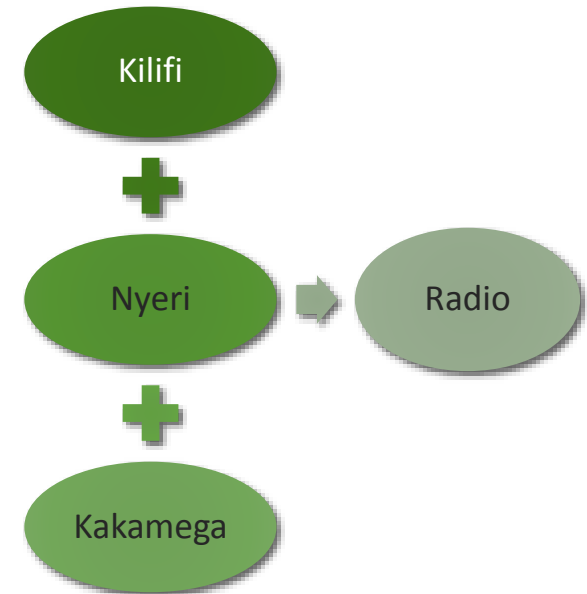
Citizen radio records some reasonable listenership in Kakamega and Kilifi; other popular channels within these two segments are Radio Jambo and Mulembe in Kakamega and Baraka and Pwani channels in Kilifi. Very low listenership was registered for Citizen radio in Nyeri, Inooro shows the highest listenership for this segment with Kameme and Coro channels also achieving reasonable listenership levels.



# Media Consumption - Summary

Segment	Radio listenership	TV Viewership
Kakamega	91%	45%
Kilifi	59%	70%
Nyeri	96%	68%

⇒ Looking at the radio listenership and TV viewership figures across the target segments, overall, local radio is the more effective medium to use and preferably between 5am and 9am in the morning.



# Other H/H Items – Marketing Messaging Channels 1/2

Numerous sources influence consumers with respect to household items.

TV, radio and word of mouth have been the most instrumental in communication of household items in general (although as mentioned earlier, these media have not been commonly used in communication of the selected study items such as solar lanterns, ITN or water filters).

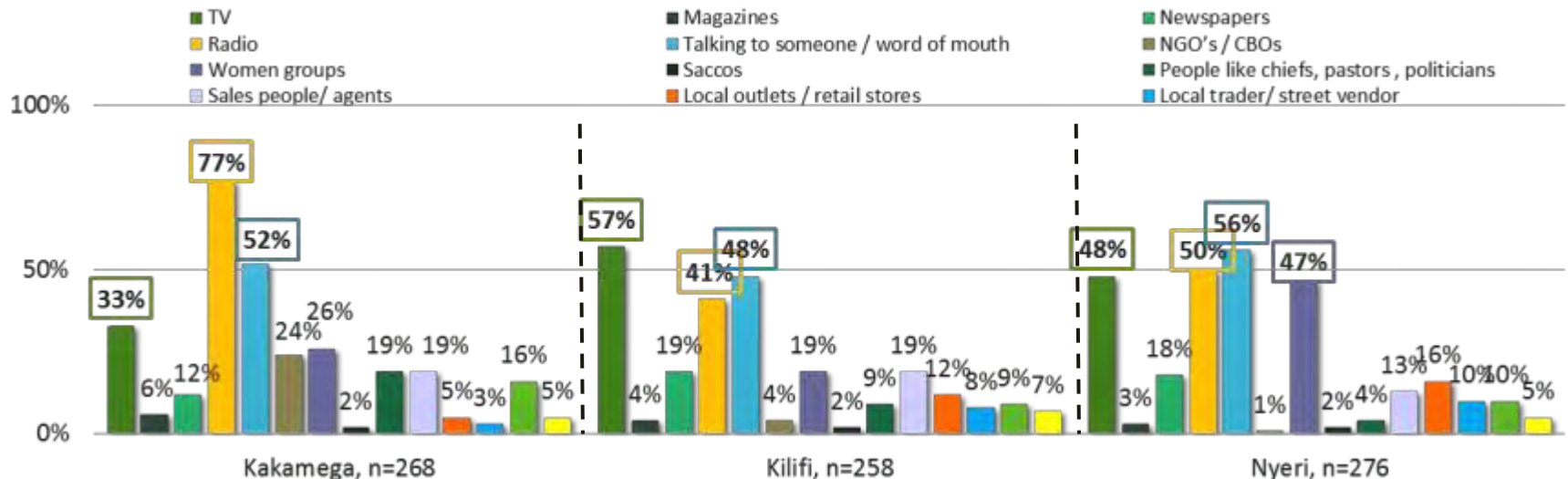
Women groups have been relatively effective in Nyeri, CBO/ NGO efforts only seem to register some reasonable levels in Kakamega.

*Some on the news and radio, some do promotions on the road  
Kilifi.*

*“Because you will find so many people and then these people will supply the message to the other people through word of mouth.” Kilifi.*

*We get it from the Radio, the TV, they tell us that such things are available.  
Kakamega.*

## Household Items – Source of Awareness



## Other H/H Items – Marketing Messaging Channels 2/2

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In addition, there were a number of less conventional avenues mentioned such as:

- **Manufacturers/Distributor and Banks/MFIs/Saccos**; these focus more on organized groups such as women groups, farmers or employees for their marketing efforts.
- **Government Departments**
  - Ministry of Agriculture Extension officers and officers based in government energy centers appear to be involved in training and in some cases, storage and demonstration of items as well as organizing field or open days during which items are featured or exhibited. They are also said to take advantage of public forums such as Chief Barazas and church services to share information.
  - Health workers have also been involved in efforts to build awareness and appreciation of benefits for insecticide treated nets (ITN) .
- **Use of SMS to share information**; this has been commonly used by agricultural officers and has proven effective due to the potential to reach many cost effectively.
- **Consumer education programs** run by non commercial agencies such as NGOs, CBOs and donor agencies e.g. GIZ, Compassion International, MYWO.

It also emerged that local leaders are playing a more active role in dissemination of information particularly where items are considered likely to transform the community positively as is the case with solar and ITN.

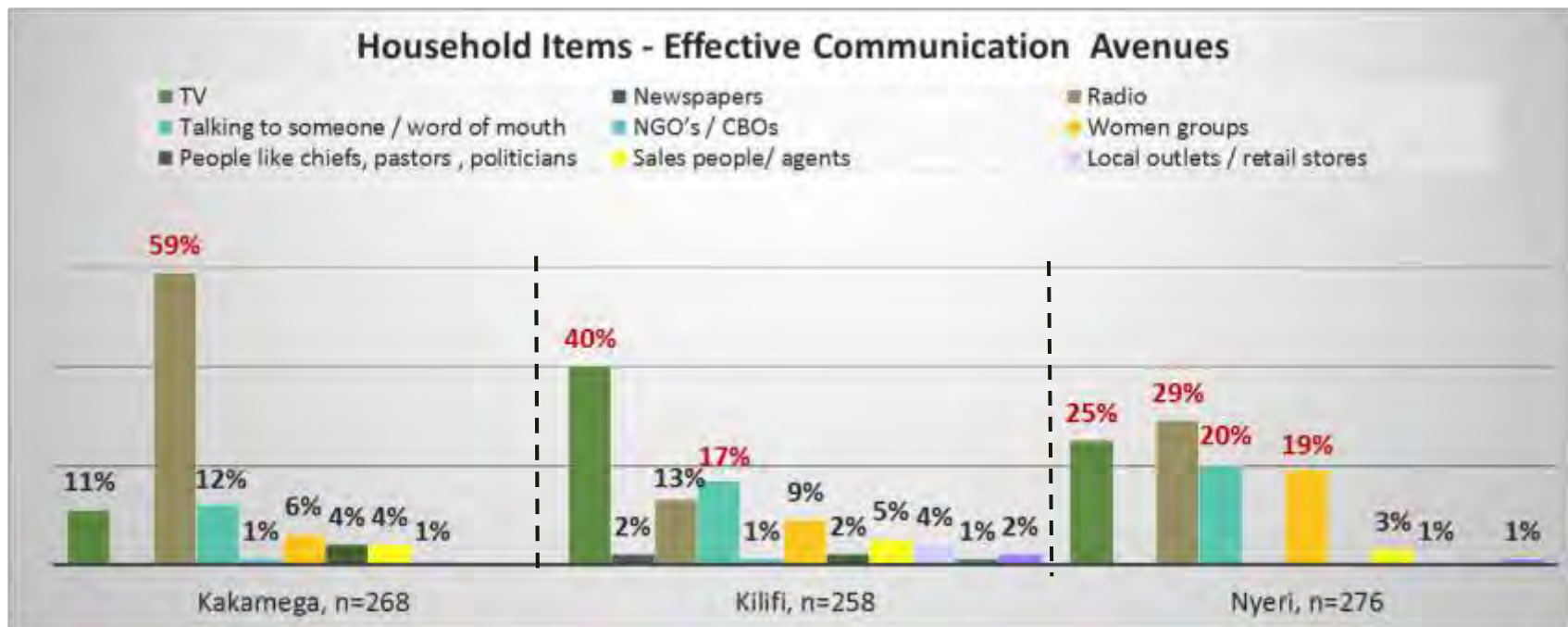
*“It is important to go to the chief because he will call village elders and tell them like those who had mosquito nets.” Kilifi*



# Other H/H Items - Effective Communication Channels

Radio communication is clearly considered most effective in Kakamega, while in Kilifi TV and word of mouth are thought to have been most successful.

For Nyeri, more sources were considered as effective including TV, radio, word of mouth, and women groups.



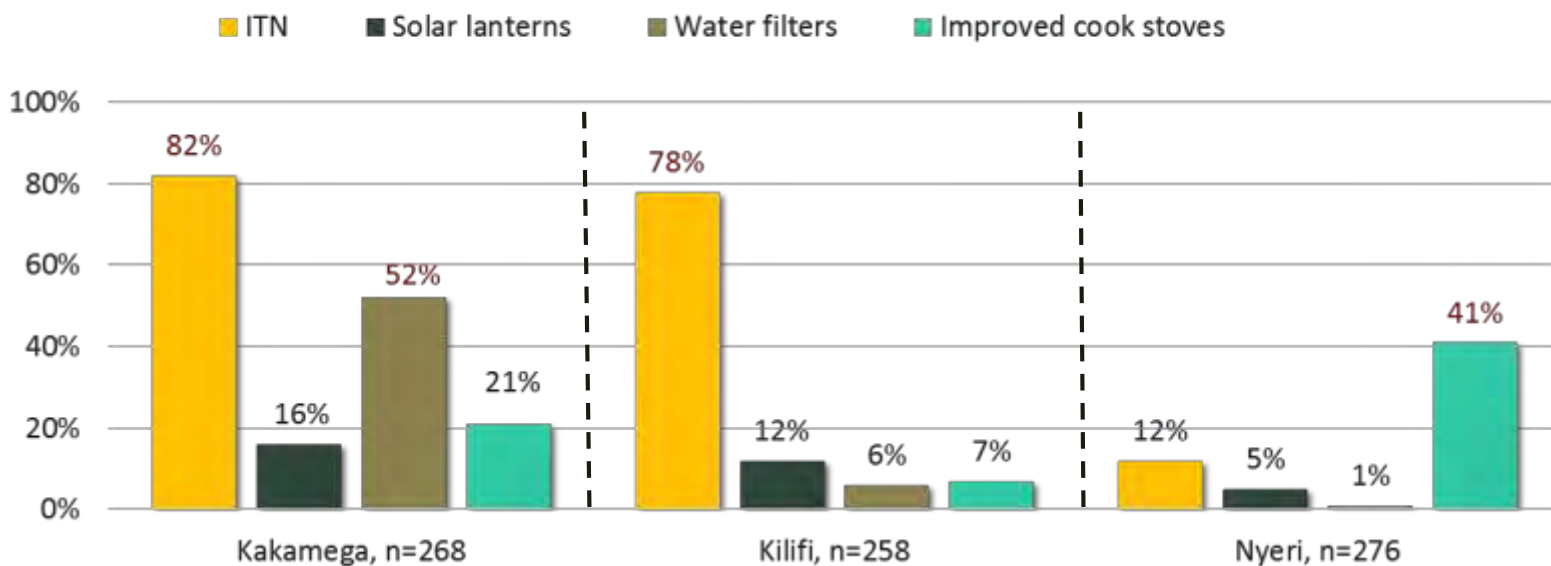
⇒ Popular communication channels that have proven effective for other products should be used to boost awareness and promote understanding of ICS benefits

# Other H/H Items – Effective Communication

Information about insecticide treated nets (ITN) are considered as having been effectively communicated in both Kakamega and Kilifi as well as water filters in Kakamega.

The highest mention of effective communication relating to ICS was registered in Nyeri at 41% while the lowest mentions were recorded in Kilifi (7%). This supports earlier findings on awareness levels of ICS in these regions.

**Household Items - Effective Communication**



# Marketing Channels – Models in Use for ICS

It is encouraging to note the increasing level of creativity and flexibility being exercised by sector players as a means to drive ICS adoption.

Some of the initiatives mentioned were:

- **Showcasing homes where ICS is successfully in use;** this is likely to be very effective as post use value perception of ICS is reportedly positive in some cases even amongst those who considered ICS expensive when purchasing
- **Ensuring outlets where customers ‘touch and feel’ products and observe effective product demonstrations;** this is important given that demos are known to positively impact trial intent.
- **Initiatives that engage and entertain target consumers;** road shows, as has been seen with products such as solar lanterns, as well as radio talk shows such as those run by the ministry of agriculture which involve short skits on benefits are considered impactful.
- **Taking the product to the people;** in Kakamega, the good levels of uptake particularly for Jiko Kisasa are a function of door to door selling by artisans who double up as sales agents.
- **Reduction in after sales issues** due to the effective dissemination of product information including aspects such as how to light and store stoves.

⇒ **There is opportunity to use and expand the above approaches to promote ICS awareness and understanding of benefits amongst target segments.**

# Marketing Messaging

## Message Testing

**Jikopoa Efficient Wood Cookstove**

Introducing the new and improved Jikopoa!

- Sleeker Design
- Easier Lighting
- Better Looking
- Same Performance and Durability
- Still Made in Kenya

- > Cuts fuel use by 45%
- > Cuts emissions by 70%
- > Reduces toxic emissions
- > Cooks faster than traditional methods

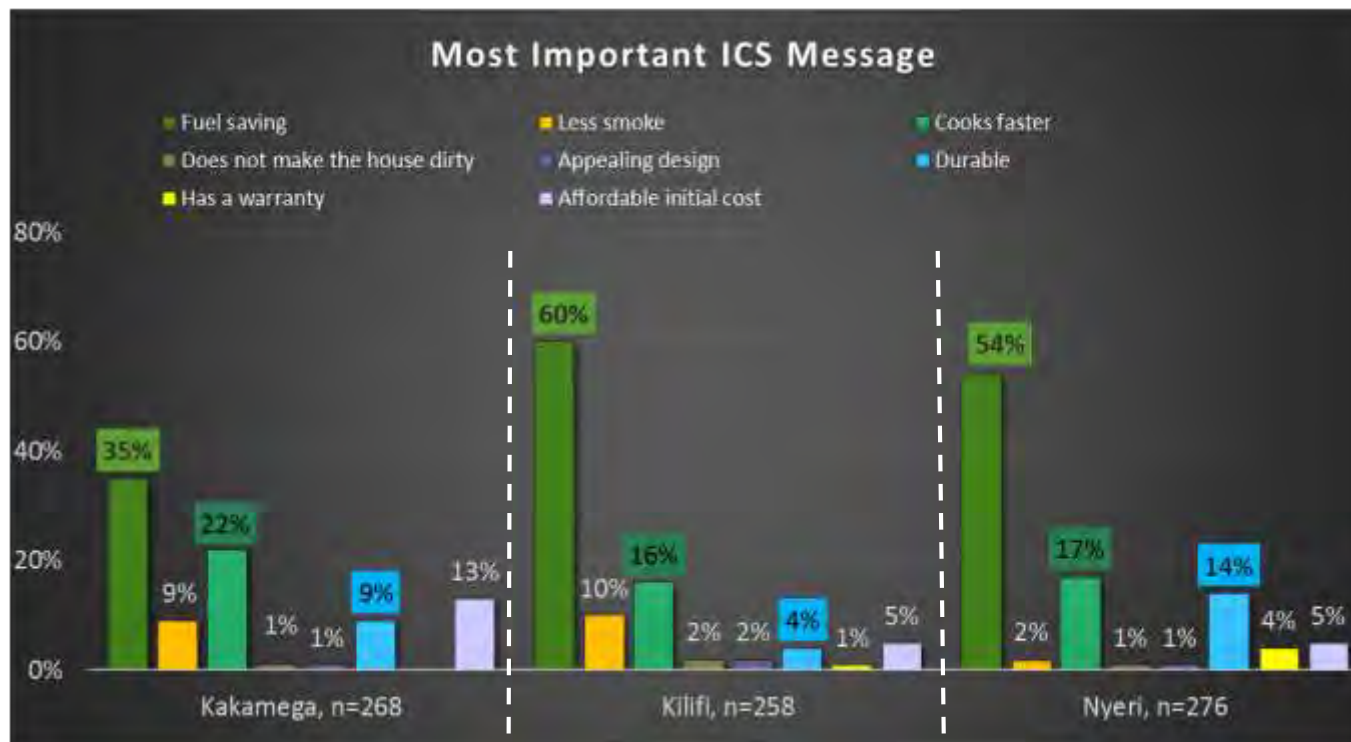
Save time, money and health while cooking in a modern kitchen!

**JIKOPOA**  
KIKOPOA CHANGIJI KWAKWA HATA KWA KUWA  
\* Kuandaa chini jinyote khandi za Paradiise kama

# Most Important Message for ICS

Considering stove choice factors, it is not surprising that fuel saving and fast cooking are considered the most key messages for ICS communication.

The desire to be assured of stove durability is most probably driven by the common concern that local improved cook stoves do not last long as they crack easily.



⇒ **The need for ICS communication to emphasize fuel saving and fast cooking cannot be overstated.**

# Communication Concepts

Below is a summary of three ICS communication concepts that were tested with the target segments; the first message focused on fuel savings while the second highlighted the appealing design and the third emphasized the reduction of smoke.

## COMMUNICATION CONCEPT 1:

*An improved cook stove will save you money! They have been specifically designed to transfer heat from stove to pot more efficiently and require less fuel for each meal. These cook stoves allow you to save up to 40% on your cooking fuel budget.*



Fuel Savings – through efficient heat transfer

## COMMUNICATION CONCEPT 2:

*The old cook stoves many of us are using are ugly, rusty and make cooking feel like a more of a chore. The range of our innovative new cook stoves are well-designed and made from the best materials. Modern equipment makes cooking a pleasure.*



Aesthetically pleasing, enrich the cooking experience

## COMMUNICATION CONCEPT 3:

*Old cook stoves produce a lot of smoke. They leave your kitchen dirty, your eyes itchy and your throat scratchy. New Cook stoves help to reduce smoke while cooking for a cleaner cough-free kitchen.*



Smoke reduction for a cleaner, healthier kitchen

## ICS BENEFITS

# Communication Concepts

All the concepts were considered easy to understand, relevant and relatively believable with the women consistently identifying the intended benefits.

The preferred concept was Message III which related to smoke reduction benefits.

<p><b>COMMUNICATION CONCEPT I</b>  <b>Fuel Savings – through efficient heat transfer</b></p>	<p><b>COMMUNICATION CONCEPT II</b>  <b>Aesthetically pleasing, enrich the cooking experience</b></p>	<p><b>COMMUNICATION CONCEPT III</b>  <b>Smoke reduction for a cleaner, healthier kitchen</b></p>
<p>Comprehension: message was considered easy to understand.</p> <p>Message takeout: The stove saves fuel and time due to lowering fuel consumption and cooks fast hence saving time.</p> <p>Believability; message was perceived as credible.</p> <p>Uniqueness; emphasis on fuel and time saving.</p> <p>Persuasive power; could be convinced to purchase due to savings potential.</p> <p>Relevance; targets them i.e. women, mothers</p>	<p>Comprehension: the women found the message clear or easy to understand.</p> <p>Message takeout; stoves are good for cooking.</p> <p>Believability; credible.</p> <p>Persuasive power; Could cause them to buy.</p> <p><b>Relevance; Targets them i.e. women, mothers but how a stove looks is not a key consideration.</b></p>	<p>Is easy to understand</p> <p><b>Believable as does not claim stoves produce no smoke at all</b></p> <p>Message takeout; healthy and safe i.e. good for eyes, chest.</p> <p><b>More appreciated for wood and interpreted to mean they could cook inside (even with wood).</b></p> <p>Benefit of cleaner kitchens.</p> <p>Uniqueness; reduction of smoke</p> <p>Persuasive power; would consider buying such a stove.</p> <p>Relevance; targets them i.e. women, mothers</p>
<p><b>Communication Message III was the most preferred mainly because it was considered honest with respect to the smoke reduction claim while conveying relevant benefits of health, a cleaner kitchen and the possibility to cook inside when using wood.</b></p>		



# Communication Concepts

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Overall, the women considered it important for communication to highlight ICS benefits in comparison to the conventional stoves.

Savings is generally considered a key benefit to emphasize although it emerged that aspects such as health or the ability to cook inside were also factors that could influence stove purchase.

Overall, there is a perception amongst the women that they would need to see stoves, use them and prove they delivered on benefits before they could commit to preferring them over standard stoves. This may be a function of negative experience with other products or even ICS.

Also, many women seemed to perceive ICS as targeted more towards charcoal users – probably because there is a strong association of savings with improved cookstoves which is seen as less relevant for wood users due to wood’s relatively higher availability and the fact that it is in most cases collected at no cost.

*Yes it is because they have said that it has a little smoke but if they had said there is no smoke at all there would be question marks.” Kilifi*

*It says that even I put a little charcoal that fire will still be enough for my food to be ready. So much especially if I won’t cry again and my kitchen will not be dirty and my chest will be fine. - Kilifi*

# Suggested Considerations

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There were suggestions made by sector actors regarding marketing campaigns. These included;

**Launch a national campaign** e.g. government Polio campaign; these are likely to reach many target customers and should be a sector effort given that suppliers/ artisans would not be in a position to fund these individually.

**Pay attention to match efforts with target profile;** use of radio vernacular is considered to be particularly effective.

**Ensure product availability;** marketing efforts should be supported by product availability in the market to avoid consumer frustration and maximize uptake potential.

**Use of more pictorial rather than text based materials;** consumers consider these more engaging and easier to understand.

**Use of women to convince others;** successful women entrepreneurs, influential teachers, women groups reps are likely to be more effective in endorsing products.

**Capture attention through an issue the target already identifies with;** a good example is the approach used by agricultural extension officers who request chiefs to organize meetings for farmers to get seeds, fertilizer without highlighting the information sharing objective. Once meetings are convened, the officers then use them to discuss intended agenda.

**Emphasize benefits that the target identifies with most easily;** a good example is the highlighting of the need to conserve fuel for increased rainfall to farmers and providing ICS as a means to achieve this goal

# Success Stories

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There was mention of some marketing campaigns that are considered successful, with a few key ones mentioned below:

- **Quail farming**; effective communication via radio that highlighted benefits in way of potential profits while advising farmers where inputs (i.e. chicks) could be sourced. Although farmers were later frustrated due to lack of demand, the campaign generated country wide interest.
- **School hand washing campaign**; the campaign focused on the impressionable target of children, and it is believed that they continue to influence mothers and the rest of family to change behavior as a result of the campaign.
- **National Polio campaign**; the campaign was wide in reach, explained the need and how one could get free vaccine and was then further supported by some door to door vaccination efforts in particular areas.

⇒ **The importance of achieving wide reach, effective sharing of relevant benefits as well as ensuring product availability is critical to achieving successful marketing and in turn, adoption of ICS.**

# Section Summary

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Higher TV viewership was evident in Kilifi and Nyeri compared to Kakamega which recorded high radio listenership levels.

Most common TV viewing times across segments are 6pm – 8pm and 9pm - 11pm in the evening while radio is mostly listened to between 5am and 9am in the morning. High radio listenership between 6pm – 8pm was recorded in Kakamega while TV viewership is highest during this time for the other two segments.

Citizen is most viewed channel overall and more so within the Nyeri segment while KTN is also popular in Kakamega and especially in Kilifi.

Citizen radio station enjoys reasonable listenership in Kakamega and Kilifi. For Kakamega, Radio Jambo and Mulembe FM also record high levels. In Kilifi the other popular stations are Pwani and Baraka FM while in Nyeri preference is for Inooro FM followed by Kameme and Coro stations.

TV, radio and word of mouth are the most key sources of awareness for household items in general (it should be noted that these have not been commonly used for the specific household items examined in the study).

Looking at the selected household items examined in the study, the most effective communication appears to have been for ITN in Kakamega and Kilifi, while a large share of women reported effective communication for ICS in Nyeri.

# Section Summary

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Overall, the most important messages across segments revolve around fuel saving, fast cooking and durability. Through specific message testing however, it emerged that health benefits and the ability to cook inside were also factors that could influence stove purchase. In general, women appreciated messages that seemed honest and focused on them as women and mothers.

Marketing approaches used in other sectors that could be applied to ICS include use of government health and agricultural extension officers, SMS, organized groups, and communication targeted at children.

Models currently used for ICS that are considered to have worked include showcasing of homes with products in use, engaging and entertaining avenues such as road shows and radio talk shows as well as outlets where customers can interact with the product and receive product demonstrations. In addition, door to door selling by agents was also mentioned.

Some suggested ideas for marketing include launching of a national campaign, use of vernacular radio stations, use of women as ambassadors, and use of pictorial rather than text based messages.

Success stories from other sectors demonstrate the importance of achieving wide reach, effective sharing of benefits and where products can be purchased, and ensuring adequate product availability to service resultant demand.

# Consumer Financing



# Selected Household Items – Main Payment Modes

Looking at the payment modes that have been employed in the purchase of household items similar to ICS, cash payments and credit were the most common.

Other financing modes that received relatively lower mentions included groups, NGOs and MFIs.

Overall, more of the items had been purchased through instalment payments in Kakamega segment compared to other segments given their lower income level while higher proportion of items were paid for in cash within the Nyeri segment.

In the case of ITN or water filters, these have mainly been acquired at no cost in Kakamega having been distributed by NGOs/ CBOs rather than profit making ventures.

*“Some are cash and some on credit. Others on merry go round.” Kakamega.*

*“Cash.” Nyeri.*

*“There are those who can afford cash while others can’t.” Kilifi.*

*“But cash is better because you pay loan with interest.” Kilifi.*

*“One that is affordable we buy it with cash, and that which we can’t afford on loan.” Kakamega.*

	Solar Lantern		Solar Panel		ITN			Water Filter		Water Tank		
	Kakamega	Kilifi	Kakamega	Kilifi	Kakamega	Kilifi	Nyeri	Kakamega	Kilifi	Kakamega	Kilifi	Nyeri
	106	54	103	72	218	199	28*	169	27*	108	144	58
Paid in cash	36%	65%	51%	69%	18%	50%	89%	5%	74%	65%	66%	74%
Purchased on credit	49%	11%	23%	10%	0%	1%	0%	0%	11%	16%	13%	14%
At no cost	2%	2%	1%	0%	80%	45%	4%	91%	7%	0%	1%	0%

Note: Figures do not add up to 100% as there were cases where means were not known for items acquired by other people

Note: Low awareness in Nyeri limits further analysis for some of the household items



# Other H/H Items - Financial Channels Accessed

Personal savings, funds from the husband and chamas/women groups are the main financing channels for women across segments with family or friends also being a source for a reasonable section of the women. In some cases, the women said they ‘share’ the cost of household items with their husbands.

Overall, formal credit financing through Saccos or banks is very low while hardly any retailer based credit is evident. It was interesting to note the high use of mobile money credit (Mshwari) in Kakamega.

*“I can take money from the chama.”* Nyeri.

*“I am in business so I save.”* Kilifi.

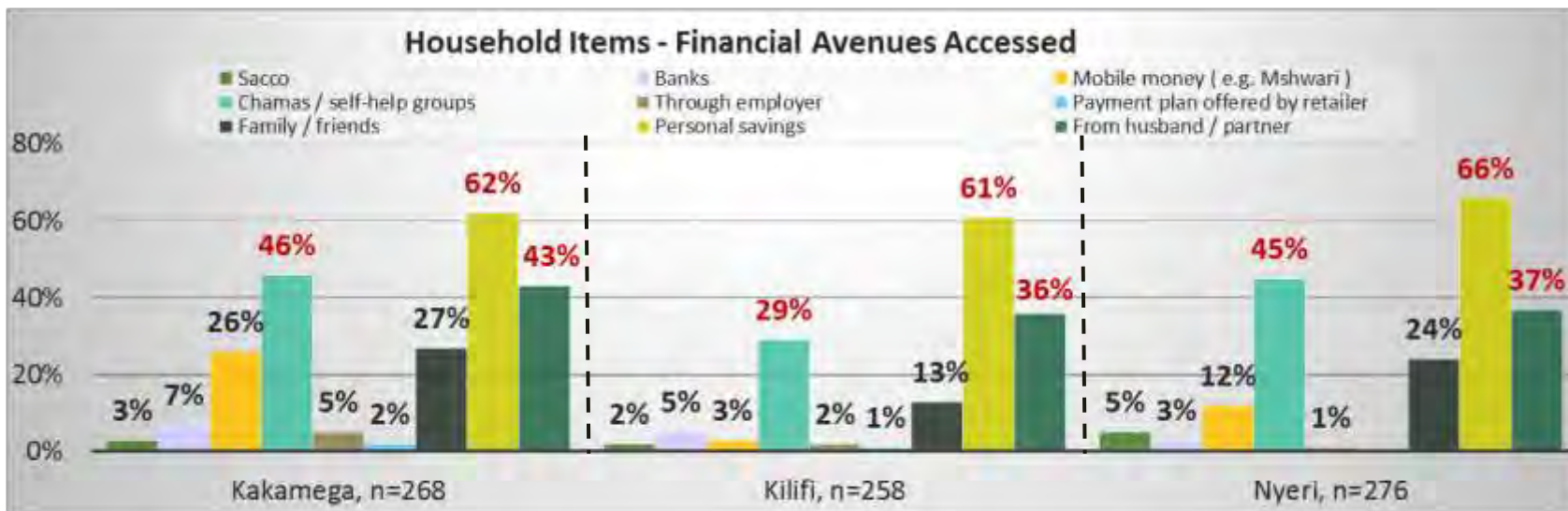
*“Others on merry go round.”* Kakamega.

*“Most of the time both of you share the cost”.* Kakamega.

*“I will organize myself.”* Kilifi.

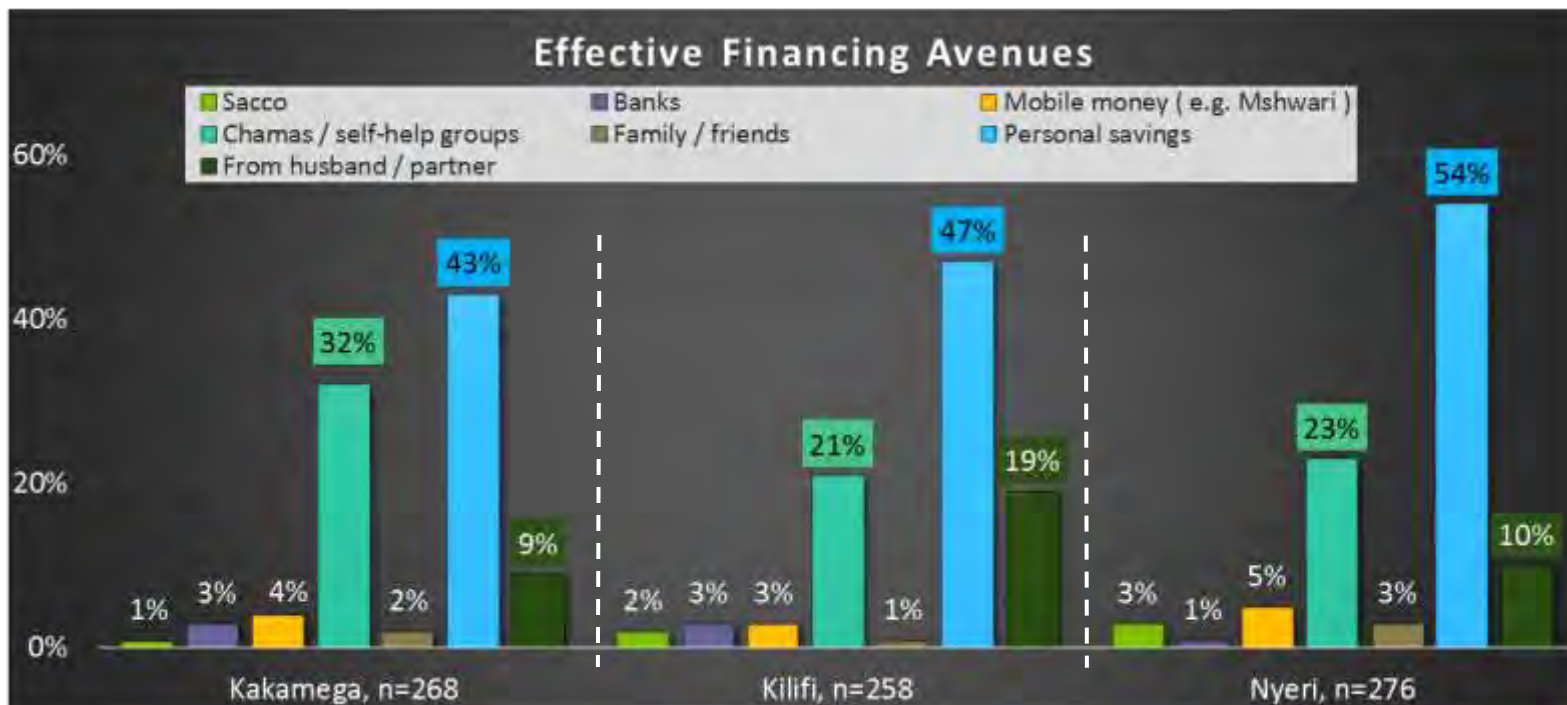
*“My husband.”* Nyeri.

**With the exception of financing from groups, it is important to note most of these funds are not given a loan but as a form of assistance or support.**



# Consumer Finance – Most Effective Channels

Preference is for low risk options such as groups and personal savings to finance the purchase of household items with the women perceiving banks and MFI financing to come with very high interest and the likelihood of losing whatever is committed as collateral.



⇒ There appears to be an opportunity to educate the target ICS customers on financial awareness with the particular intention of addressing the fear of borrowing.

# Willingness to acquire a loan

Loans obtained by the women in the past have mainly funded income generation ventures and school fees, but some women did mention taking loans for household items such as TVs, biogas, LPG stoves and furniture.

The Kakamega segment appears most open to taking loans for household items. In Nyeri, many women are of the opinion that loans should be for income generation activities. There appears to be some perception in this region that obtaining a loan for household items particularly if one is married is an indication of financial problems. Purchase of household items in Nyeri is mainly funded through personal savings and groups with only the more expensive items such as LPG stoves or TVs being purchased on credit.

*“Most of the people who take loans do that because maybe they want to start a business.” Nyeri.*

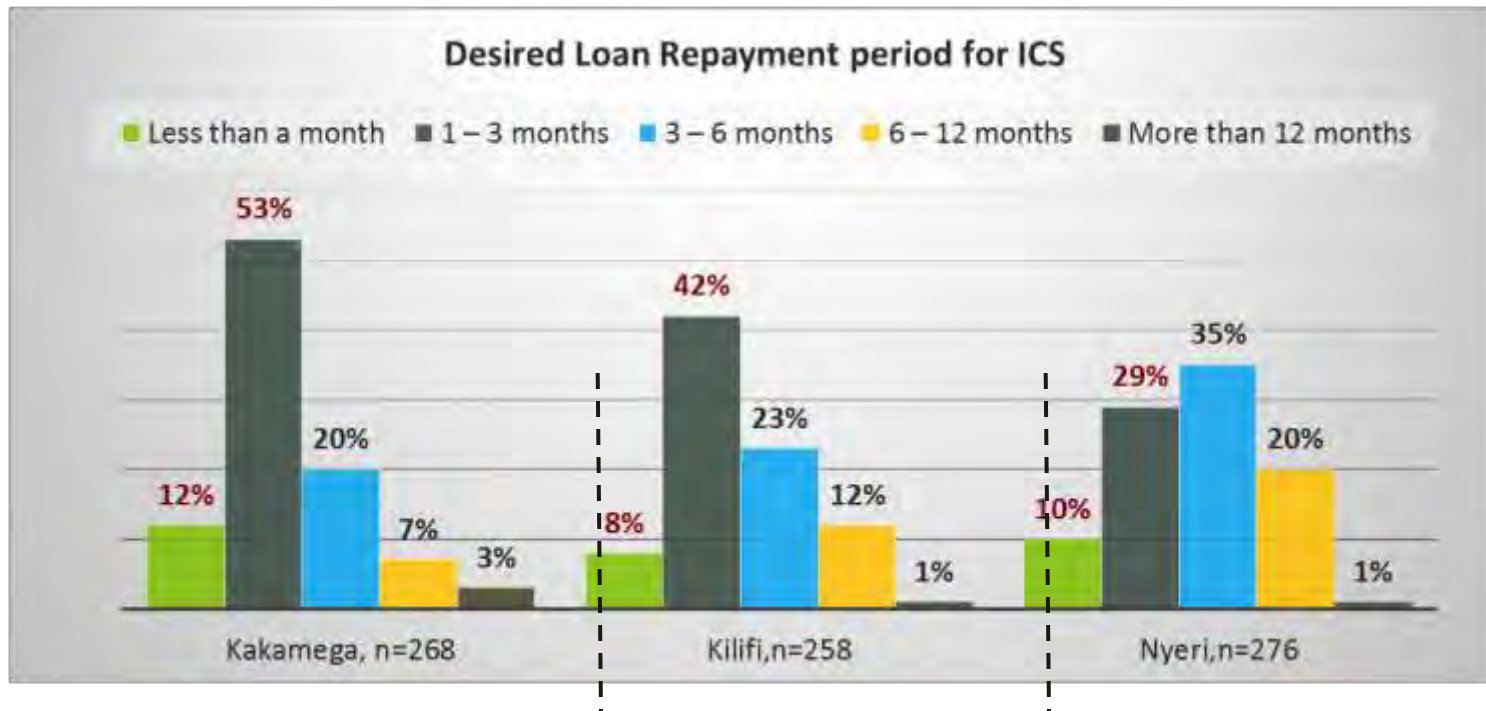
Overall willingness to acquire a loan for the item			
Household item	Kakamega	Kilifi	Nyeri
Solar lantern	5.68	4.5	<b>3.17</b>
Solar Panel	5.68	4.36	<b>2.95</b>
Water Filter	4.96	4.56	<b>2.72</b>
Improved cookstove	<b>7.23</b>	<b>7.13</b>	<b>6.14</b>
Insecticide treated net	5.78	6.31	<b>4.38</b>

⇒ Overall, the women’s higher willingness to purchase an improved cookstove on credit versus other household items indicates the possibility of increased ICS adoption if innovative financing interventions were available.

# Repayment of ICS loan

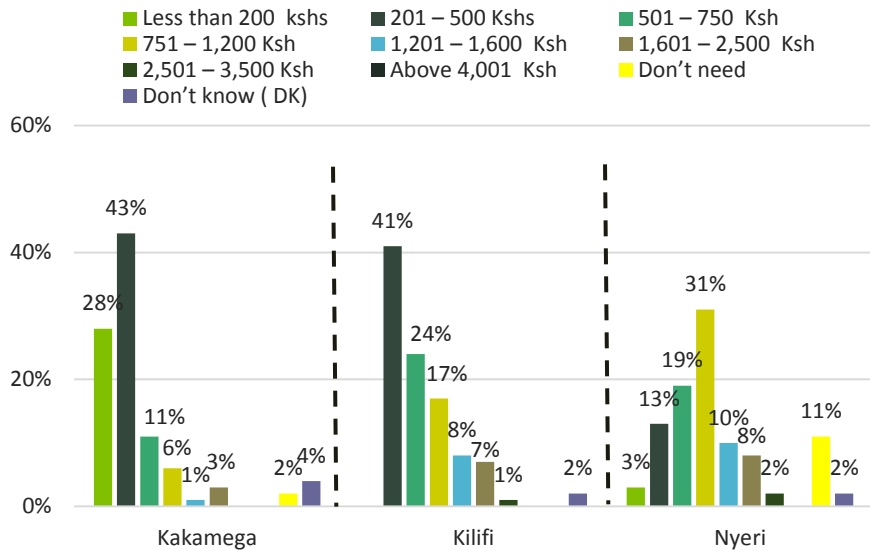
Women in Nyeri are generally more comfortable with longer repayment periods while at least half of their Kilifi and Kakamega counterparts would prefer to pay within 3 months.

According to most of the women, loans would be serviced through business income or funds from their spouse.

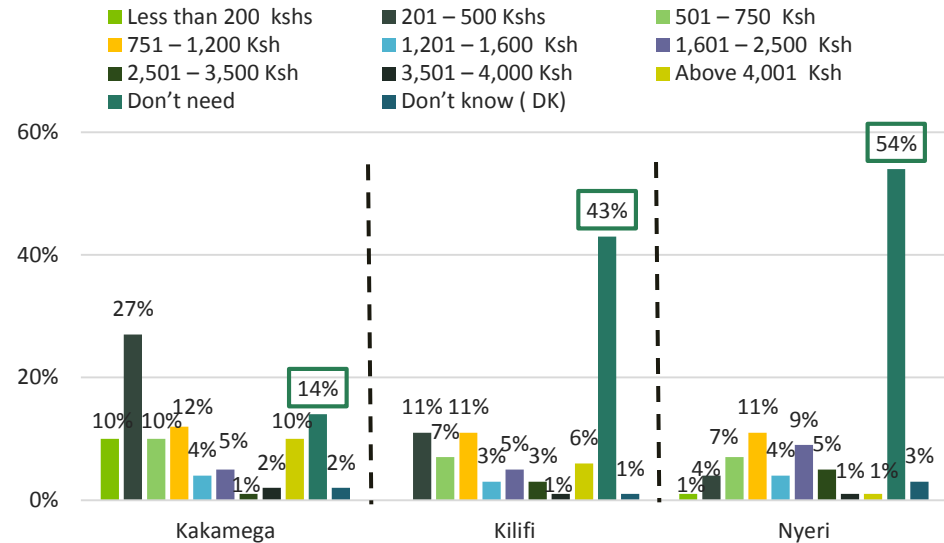


# Price willing to pay and take loan for ICS

Price would be willing to pay for a new ICS



Price at which would consider ICS financing



Kakamega and Kilifi consumers are willing to pay relatively lower prices for an ICS compared to those from Nyeri, with the majority not willing to pay more than 750 Kes.

Nearly half of both the Kilifi and Nyeri segments indicated they would not consider financing for ICS, while Kakamega segment consumers showed more interest.

The price the women are willing to pay for an ICS, the amount at which the women would consider taking a loan as well as the high proportion that think they would not need financing are a function of the prices paid for ICS (mostly local) bought in the past that range between Kes. 300 and Kes. 700.

# Price Segmentation of the ICS market

It should be noted that it became clear that unlike other sectors where there may be a cross section of prices, the ICS market in Kenya is divided into two segments:

## High Price segment

This segment is characterized by high quality mostly imported stoves. These are made with more durable materials to withstand high temperatures. Some of the stoves in this segment are Envirofit, Ecozoom and BURN.

**PRICES RANGE FROM Kes. 2,500 to 6,000.**



## Low Price segment

Stoves in this segment are locally made by a variety of producers ranging from relatively established stove builders to individual artisans. The bulk of ICS customer complaints relate to this segment with issues such as stoves cracking easily or not delivering on claims relating to fuel and smoke reduction or fast cooking being the most common. Brands under this group are Jiko Kisasa, Kuni Mbili and Rocket mud stoves.

**PRICES RANGE FROM Kes. 350 - 1,000**



⇒ **Given the cited WTP for an ICS, it's clear that adoption of more expensive imported ICS stoves will be difficult to achieve without more education on the value of the associated benefits.**



# Financing Channels - Examples

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Some channels that have been used to finance purchase of ICS and other household items:

- **Saccos** such as Biashara, Imarika; farmers (mostly) have obtained items on loan to reap through deductions from their earnings from tea, coffee etc. This approach is however limited to Sacco members.
- **Distributors/ suppliers/ retailers**; a small section of these run credit schemes requiring customers to pay a deposit and repay the balance amount over some months.
- **Artisans**; it appears that a section of artisans construct stoves on payment of part of the cost allowing customers to settle outstanding amount thereafter.
- **Banks and MFIs** such as Equity, Kenya Women, Faulu, Yehu, SMEP, Milango Financial Services were mentioned although they seem to be in the early stages of engaging within this sector.

⇒ **Innovative financing is especially important for uptake of more expensive imported ICS, given that their upfront cost forms a significant proportion of the target segments' household income.**



# Financing Avenues - Groups

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**Understanding Groups** as a key financing avenue is critical particularly in the light of the fact that affordability remains a major hurdle in the context of ICS adoption. In majority of cases, groups comprise of women with youth or men accounting for a significantly smaller proportion of all groups or chamas.

Some of the products that have been financed through groups are solar water heaters, solar lanterns and tanks.

*"There are some banks their interest is so high so I prefer the groups." Kilifi*

Groups are generally characterized by the following features:

- Daily, weekly or monthly saving of an agreed amount across members.
- Use of the 'merry-go-round' approach is common i.e. member contributions are pooled together to acquire agreed products for one or more members at a time until members are covered.
- Group guaranteeing which requires the borrowing member to complete forms along with the group leaders' signing as a sign of commitment by the group to ensure repayment if the member defaults. This practice greatly improved groups' chances of acquiring financing from lending institutions and product suppliers/ distributors.
- In some cases, group members agree to save for a particular product (usually over their usual contribution) after which funds are consolidated to pay for a bulk order.

⇒ **Increased focus should be placed on groups considering their growing influence particularly on women and their ability to self finance purchase of household items.**

# Section Summary

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Across segments, funds to purchase household items are mostly sourced from personal savings, spouses or women groups/chamas.

Formal credit such as borrowing from banks or MFIs is low with the perception being that these charge too high interest and pose the risk of loss of collateral in the event of default.

Loans taken by the women have mainly been used for business and school fees, with some instances of purchase of household items via loans, mostly for more expensive items such as TVs and furniture. In Nyeri, women are generally not keen on borrowing for household items with the perception that taking a loan indicates financial problems.

If loans are taken, Nyeri women seem the most willing to take higher loan amounts and are also open to longer repayment periods while at least half the women in Kakamega and Kilifi prefer to pay back a loan in 3 months or less. Across segments, loans if taken, would be mostly serviced with income from their businesses or their spouse.

Overall, despite some willingness to take loans, the clear preference is for low risk options such as savings.

The ICS sector appears to be made of two segments. The higher price segment is characterized by imported stoves that have durable materials and retail at Kes. 2,500 – 6,000.

The lower segment is mainly local mud stoves that are associated with most of the quality issues and non delivery of expected ICS benefits. The price range for these stoves is Kes. 350-1,000.

# Section Summary

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Overall, the willingness to buy ICS is higher compared to the other selected household items covered in the study, but the price women are willing to pay for an ICS is well below the cost of many imported stoves.

When asked the price they were willing to pay for an ICS, the women gave low prices particularly in Kakamega and Kilifi where the majority were not willing to pay more than 750 Kes. The Nyeri segment gave slightly higher prices, with over half at 750 Kes or more.

In terms of financing for ICS, close to half of both the Kilifi and Nyeri segments indicated they would not consider financing for ICS, while Kakamega segment consumers showed more interest, with nearly half indicating they would seek financing for stoves that cost Kenya Shilings. 750 and below.

Financing mechanisms currently being used for ICS include Saccos, as well as installment plans offered by retailers and stove suppliers/builders. Banks and MFIs are also emerging as means to finance ICS, although many of these programs are still in the early stages.

Groups were cited as important channel to focus on, given their popularity with women and success in financing other products. Examples of group financing include group saving such as merry-go-rounds and group guarantees for loans.

## Conclusions and Recommendations

# The importance of women

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Overall, women are central to the adoption of ICS given that they are mainly responsible for cooking and are the main decision makers with respect to household items. The role of men should not be overlooked, however, given that they often provide funds for purchase of household items.

For the women included in the study, cooking remains a significant part of their daily lives and defines their roles as wives and mothers. They take pride in providing meals for the families and ICS promotional efforts should highlight how cleaner stoves can also be a source of pride by providing healthier homes for their families.

These women are also practical and are looking for stoves that are easy to light, cook fast, and require minimal tending so they can manage chores and family, and in some cases, work outside the home. Multiple fuel and stove usage is common across all of the segments, with the fuel used mainly driven by affordability and availability. Stove choice is also driven by affordability, as well as cooking speed. ICS promotional efforts should emphasize these features, with reduced smoke as a secondary focus that will require more education for impact.

The ability of stoves to provide even and easily regulated heat also emerged as an important feature critical to cooking many common foods.

⇒ **Targeting women and addressing their needs and preferences is critical to achieving penetration of ICS.**

# Efforts should be tailored by segment

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While affordability and accessibility were consistently the main drivers of fuel choice across the segments, important variations among the segments emerged.

Nyeri seems to have the most experience with LPG and place the most emphasis on fast cooking and is the least sensitive to price so opportunities exist to promote more exclusive use of LPG within this segment by making it more affordable and accessible.

The Kilifi segment was the most sensitive to the price of fuel and placed the most emphasis on a stove delivering fuel cost saving benefits so marketing to this segment should be tailored accordingly. This segment also showed significant use of kerosene as an alternative fuel, with LPG seen as desirable, but expensive. This suggests the Kilifi segment might be a viable secondary focus for LPG as efforts to make it more affordable come to fruition.

Since collected wood is the primary fuel for women in Kakamega, fuel savings is valued most by them. This segment also showed high use of charcoal in addition to wood, suggesting opportunities for multi-fuel ICS. Social acceptance within the community, and “cooking the way their mothers always have” is an important consideration for this segment and represents a possible hindrance to ICS acceptance. Opportunities to work with highly regarded local opinion leaders to address this issue should be explored.

⇒ **Tailoring efforts by segment will increase efficiency and effectiveness of ICS promotion activities.**

# ICS need to deliver quality that meets consumer needs

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Among the segments studied, there is reasonable awareness of ICS, with two thirds of the women having been exposed to some form of ICS communication. Overall, women understand ICS to provide fuel and time savings, produce less smoke, and be more appealing in design compared to conventional stoves. Some were also of the opinion that ICS should be durable and have multiple burners.

However, for many with past experience using ICS, negative value perceptions exist due to non delivery of the expected ICS benefits of fuel saving, fast cooking and smoke reduction and this is likely to impact consumer acceptance; this unfavourable perception mainly relates to local mud stoves.

In addition, there are numerous suggested improvements for ICS revolving around aspects such as stability, different pot sizes, easy portability, ability to regulate heat and warm the house.

Information from sector players shows that the sector suffers lack of standardization and due to the low margin on stoves, many compromise the stove production process or quality of materials. This is clearly an issue that needs to be addressed in order to restore confidence for consumers and ensure delivery of desired benefits. Also key to emphasize is effective after sales service to boost customer satisfaction.

**⇒ It is critical that the quality of particularly local stoves be improved and standardized for restoration of consumer confidence in ICS.**



# Leverage groups and other existing channels

Women groups are growing in influence countrywide and possess a key advantage by virtue of many being self financing, which helps address the ICS affordability hurdle. Some women have already accessed other products, as well as financing, through these groups and some appear to have already played a key role in ICS awareness creation, particularly in Nyeri.

The power of word of mouth emerged as a key influencer throughout the study and could be further leveraged using groups, ensuring even wider reach of education on ICS and benefits.

Local retail outlets were the most popular purchase channel for household products overall, suggesting a clear opportunity to leverage a channel regularly being accessed by the target segments. Door to door sales also appear to be an effective means of selling household products and ICS, mainly for the rural Kakamega segment.

Partnerships with government officers like agricultural extension workers and community health agents also offer opportunities to leverage their existing visits and outreach efforts to spread awareness of ICS and distribute products.

Sector players also suggested creating a database to be managed by the government or another central entity to keep track of certified artisans and suppliers and provide critical information on quality as well as availability of products for potential distributors.

⇒ **Channels already reaching the target segments should be leveraged whenever possible, with groups, local retailers and government officers offering clear opportunities.**

# Activate multiple channels for awareness raising and marketing

For awareness raising and marketing messaging, emphasis should be placed on approaches that ensure wide reach and clearly outline the most relevant benefits to the target consumers. Efforts should also be supported by product availability and should clearly indicate where the consumer can find the product.

While radio, TV and other mass media do not appear to have been used to promote the specific household items examined in the study, they were cited as an effective means of spreading information about other products and could be tested for ICS. Looking at the radio listenership and TV viewership figures across the target segments, overall, local vernacular radio is the more effective medium to use.

The most important messages across segments revolve around fuel saving, fast cooking and durability. Through specific message testing, however, it emerged that health benefits and the ability to cook inside were also factors that could influence stove purchase. In general, women appreciated messages that seemed honest and focused on them as women and mothers.

Women also emphasized that they would need to see and trial stoves to be assured they really do deliver the stated benefits, indicating the need to complement any mass media efforts with local level demonstrations and outreach. This could include “showcase homes” where ICS are already in use, as well as road shows that provide entertainment and education on ICS, as well as demonstration opportunities. The use of the aforementioned local channels already reaching the consumer should also be leveraged for awareness raising and marketing.

⇒ **Awareness raising and marketing efforts should utilize multiple channels, clearly outline benefits relevant to target consumers, and offer opportunities for women to see and test ICS.**

# Women need to be convinced ICS are good value for money

The target segment consumers are struggling to make ends meet as evidenced by the modest housing conditions and lack of kitchen appliances meaning that affordability remains a major hurdle to ICS uptake. Across segments, funds to purchase household items are mostly sourced from personal savings and spouses, with some utilizing women groups and chamas as well.

Most of them demonstrate a reluctance to borrow which is linked to a fear of loans due to limited financial awareness, and for some, in particular in the Nyeri segment, borrowing to purchase household items is perceived as an indication of financial problems. Few have accessed formal credit from banks or MFIs.

In addition, cited willingness to pay for ICS fell well below the prices of imported stoves, with close to half of the Nyeri and Kilifi segments indicating they would not be interested in financing for a stove. The Kakamega segment showed higher interest in financing for ICS and seems to have some experience using credit to purchase other products, but overall the preference among the segments seems to be for low risk options like personal and group savings.

This further supports the need to leverage groups for ICS promotion and financing, and also suggests a need to educate consumers on financing, in particular to address the fear of borrowing. Perhaps most critical is the need to convince women that ICS are good value for money and will indeed deliver an improved cooking experience.

⇒ **Considering their limited exposure and apparent reluctance towards loans as well as their low disposable incomes, reasonable ICS adoption can only be achieved if the women perceive the stoves as good value for money.**

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Interviews with CCAK Members 2014

# Appendix i: Segment Profiles



# The Kakamega Segment

How they live	Household Items	Cooking and Household Energy Needs	Cookstoves	Cultural Traditions and implications	Reaching the Consumer	Marketing Messaging	Consumer Financing
<p>Semi permanent structures mainly mud and wood with iron sheet or thatch roofing.</p> <p>Some of the homes are on family owned land.</p> <p>Households are characterized by lack of running water and limited kitchen appliances.</p> <p>Diet mainly includes common staple foods due to low disposable income.</p>	<p>Are the most likely segment to involve husbands in decision to buy H/H items.</p> <p>For the study selected H/H items, CBOs/ NGOs registered as highest source of awareness and products for ITN, water filters and solar lanterns.</p> <p>Purchases of H/H items are made more in credit than cash payments.</p>	<p>Boiling is most common cooking method</p> <p>Ugali is most common within this segment.</p> <p>Special occasion food is fried free range chicken.</p> <p>Charcoal is the main fuel alternative and is most used during wet season when wood is hard to find.</p> <p>High awareness of other fuels e.g. LPG.</p> <p>Focus on fuel saving.</p>	<p>Reasonable ICS awareness and highest for Jiko Kisasa followed by Kuni Mbili.</p> <p>Show slight concern for smoke.</p> <p>ICS awareness mainly through word of mouth and sales agents.</p> <p>Highest ICS trial and usage is for Jiko Kisasa.</p>	<p>ICS adoption may be inhibited by the need to cook the way their society always has or by the lack of large ICS pot sizes.</p>	<p>ITN is the one item amongst selected H/H items for the study that had been acquired the most.</p> <p>Sales agents and CBOs/ NGOs are the most popular source of selected similar H/H items.</p> <p>ICS acquired mostly from sales agents in this segment.</p>	<p>Higher radio vs. TV and mostly between 6-8pm; main TV channel is Citizen followed by KTN while popular radio stations are Citizen, Radio Jambo and Mulembe.</p> <p>Highest source of awareness for H/H items is radio, word of mouth and TV; radio seen as the most effective.</p> <p>Effective previous communication for ITN and water filters.</p>	<p>Higher interaction with mobile money i.e. Mshwari.</p> <p>Channels accessed for funds to buy H/H items are savings, spouse and women groups.</p> <p>Segment that is most open to loans for H/H purchase.</p> <p>Willing to pay lowest amount for an ICS and consider loan from lowest level and desire to pay in less than 3 months.</p>

# The Kilifi Segment

How they live	Household Items	Cooking and Household Energy Needs	Cookstoves	Cultural Traditions and implications	Reaching the Consumer	Marketing Messaging	Consumer Financing
<p>Some semi permanent and permanent housing comprising of stone walls, iron sheet roofing.</p> <p>Most are rentals with a common cooking area for wood.</p> <p>Many involved in small scale businesses such as kiosks, selling fruits or vegetables.</p> <p>Households are characterized by lack of running water and limited kitchen appliances.</p>	<p>Less likely to involve husbands in H/H items purchase decision especially compared to Kakmega segment.</p> <p>Local outlets are the main source of awareness as well as point of purchase for H/H items.</p> <p>Of the selected H/H items, most effective communication was for ITN.</p> <p>Segment where ICS communication was considered the least effective compared to other segments.</p>	<p>Most common cooking method is boiling, unlike Nyeri segment.</p> <p>Likely to prepare Pilau for special occasions.</p> <p>Kerosene is the main alternative fuel; LPG seen as too costly.</p> <p>Consider charcoal prices expensive and higher than were 3 years ago compared to Nyeri; charcoal considered less available vs. 3 years ago.</p> <p>Focus on fuel cost saving.</p>	<p>Lowest awareness and trial of ICS with hardly any current usage.</p> <p>Pay some consideration to smoke as a stove choice factor.</p> <p>Most ICS awareness has been generated by word of mouth.</p>	<p>ICS adoption may be inhibited by the need to cook the way their society always has or by the lack of large ICS pot sizes.</p>	<p>Water filters followed by water tanks are the H/H items said to have been acquired the most in Kilifi.</p> <p>Local outlets are particularly popular as a source of H/H items in this segment.</p>	<p>Relatively high levels of TV viewership and lower radio listenership; TV watched the most between 6pm – 8pm in the evening.</p> <p>Most popular TV channels are KTN followed by Citizen while Citizen, Pwani and Baraka are the favoured radio stations.</p> <p>Greatest source of awareness for H/H items is TV, word of mouth and radio with TV being considered most effective.</p>	<p>Channels accessed for funds to buy H/H items are savings, spouse and women groups.</p> <p>Wiling to pay less and take loan for lower amount compared to Nyeri consumers.</p> <p>If took loan, most would like to repay in less than 3 months.</p>



# The Nyeri Segment

How they live	Household Items	Cooking and Household Energy Needs	Cookstoves	Cultural Traditions and implications	Reaching the Consumer	Marketing Messaging	Consumer Financing
<p>Some semi permanent and permanent housing comprising of stone walls, iron sheet roofing.</p> <p>Most are rentals with a common cooking area for charcoal.</p> <p>More compared to Kakamega segment are involved in small scale businesses such as kiosks, selling fruits or vegetables.</p> <p>Households are characterized by lack of running water and limited kitchen appliances.</p>	<p>Less likely segment to involve husbands in decision to buy H/H items compared to Kakamega segment.</p> <p>For the study selected H/H items, groups registered as highest source of awareness with ITN and water tanks having been mostly been acquired from local outlets.</p> <p>They show the highest propensity to pay cash for H/H items.</p>	<p>Unlike the other segments, they prefer stewing and frying.</p> <p>Githeri is most common within this segment.</p> <p>Mukimo is likely to be prepared for their special occasions.</p> <p>Their desire for fast cooking and convenience drives high usage of LPG as an alternative fuel.</p> <p>Perceive charcoal prices as fairer and lower than were 3 years ago compared to Kilifi;</p>	<p>High ICS awareness for Jiko Kisasa followed by Kuni Mbili mainly from word of mouth and women groups.</p> <p>Higher trial and usage of Kuni Mbili ICS.</p> <p>Focus on speed of cooking/ time saving.</p>	<p>Most likely to be reluctant to adopt ICS if perceived as slower than conventional stoves or as not well suited for long duration cooking as required for Githeri.</p>	<p>Most acquired H/H items were water tanks</p> <p>Local outlets and groups the popular sources of products.</p> <p>Highest ICS acquisition seen from groups - and markets.</p> <p>Greatest source of awareness for H/H items is TV, word of mouth, radio and groups with these same sources also being considered the most effective.</p>	<p>High levels of TV viewership and radio listenership.</p> <p>TV watched the most between 6pm – 8pm in the evening.</p> <p>Citizen is the most popular TV channel while favoured radio stations are Inooro, Kameme and Coro.</p> <p>Most effective communication was for ITN.</p> <p>ICS communication seen as most effective in this segment.</p>	<p>Most willingness to pay more for ICS and take higher loan amounts for the same.</p> <p>They are also comfortable with longer repayment periods vs. the other segments.</p> <p>Some perception exists amongst women in this segment that borrowing for H/H items is not wise and is indicative of financial difficulties especially if married women.</p>

# Appendix ii: Additional Insights from Interviews with Sector Experts

# Sector Evolution

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The ICS sector in Kenya is characterized by great variation across a number of aspects such as scale of operations, stove types, pricing and distribution models.

Players range from those moving tens of stoves a month to other who distribute 200-600 units (local stoves) all the way up to international manufacturers moving tens of thousands of units a month.

**Overall, sector players hold the view that ICS sector is on an upward growth trend based on a number of factors:**

**Awareness and Adoption;** It is agreed that there has been a rise in the awareness and adoption of ICS in recent years with fuel savings as the core driver. The use of product demonstration is considered a key driver of consumer acceptance.

**Aesthetics;** The improved cookstove stoves have also shown clear advancement with respect to being more aesthetically pleasing in comparison to the conventional wood and charcoal stoves.

**Rising number of stoves;** Overall, the sector appears to be experiencing growth as evidenced by the increasing number of stoves in the market e.g. Kisasa, Uhai, Rocket, Kuni Mbili and other 'Jua Kali' stoves as well as the confirmation of rising uptake by most of the stakeholders.

**Institutional Stoves and expansion out of Kenya;** In addition, some stove producers are involved in the construction of institutional stoves while the larger, more established stove manufacturers are engaged in outside country sales to markets such as Tanzania and DRC

# Sector Evolution

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**Partnerships;** The creation of institutional partnerships remains desirable to manufacturers and distributors but appears to be one area in which progress has been slow. Having said that, some companies such as Envirofit have proved successful in this regard (partnership with Shell Foundation, Unilever to distribute the 'Royco Jiko').

**Focus on organized groups;** The sector stakeholders demonstrate increasing understanding of challenges as evidenced by their creative efforts to address hurdles such as consumer education and financing. In line with this, is the clear focus on marketing and distribution to organized groups such as women groups and Saccos.

**Diversification into similar products;** In addition, a good number of producers and distributors have diversified their product portfolio by selling similar products thereby ensuring business sustainability. Solar lanterns appear to be the most commonly carried product carried alongside ICS.

**The power of WOM and customer referrals;** It appears that due to the high influence of word of mouth amongst the target consumer segments, some proportion of sales is driven by customer referrals.

Having said that, there were few players who were of the opinion that the ICS sector was characterized by instability, a perception that is driven by the seasonality of ICS uptake particularly where sales are farmer based and therefore dependent on tea and coffee earnings or as well as fuel shortages.

A very small section are concerned about the rise in competition due to new entrants claiming that it has slowed down sector growth.

# ICS Sector – Summary of Challenges

Most of the challenges facing the ICS sector today can be broadly classified into four main groups based on whether they relate to product, customer, finance and distribution.

Product Related	Customer Related	Finance Related	Distribution Related	Others
<ul style="list-style-type: none"> <li>• Poor quality of stoves e.g. crack easily (local stoves)</li> <li>• Lack of standardization</li> <li>• Availability and cost of materials e.g. quality clay from Murang'a</li> <li>• Few well trained artisans (local ICS)</li> <li>• Limited after sales support (local ICS)</li> </ul>	<ul style="list-style-type: none"> <li>• Low awareness of ICS</li> <li>• Low awareness of ICS benefits</li> <li>• Low consumer purchasing power</li> <li>• Credibility of benefits; negative ICS experience also (WOM)</li> <li>• Cultural barriers e.g. does not cook foods well, cannot warm house</li> </ul>	<ul style="list-style-type: none"> <li>• Limited affordable financing for end user</li> <li>• Lack of financing at supplier level</li> <li>• Low margins lead to compromise of process and materials</li> <li>• Limited marketing funds e.g. no demo samples</li> <li>• Customer loan default</li> </ul>	<ul style="list-style-type: none"> <li>• High cost of building distribution networks</li> <li>• Costly to cover remote or vast areas</li> <li>• Expensive to transport stoves due to weight/ volume</li> <li>• Storage space required</li> </ul>	<ul style="list-style-type: none"> <li>• Wood collected at no cost by many and easily available and therefore fuel saving not relevant</li> <li>• Competition is high in some areas e.g. amongst artisans</li> <li>• Difficult to build partnerships</li> </ul>

# Product Related Challenges

According to feedback from local ICS users, the main complaint appears to relate to stoves not being durable, with a number claiming that ICS stoves break easily. This concern is key amongst these price sensitive consumers who are more exposed to cheaper conventional stoves.

## Product Related

- Poor quality of stoves e.g. crack easily (local stoves)
- Lack of standardization
- Availability and cost of materials e.g. quality clay from Murang'a
- Few well trained artisans (local ICS)
- Limited after sales support (local ICS)

The sector suffers from lack of standardization of stove quality and is characterized by a few well trained artisans.

Overall, lack of financing inhibits the producers' ability to afford quality materials and also leads to compromising of the production process by some.

Particularly with respect to local stoves which are more associated with quality issues, hardly any after sales support is offered, and as such, emerging consumer complaints are rarely effectively addressed.

Finally, producers find that quality production materials such as clay, are in some cases not easily available leading them to use of sub standard substitutes.

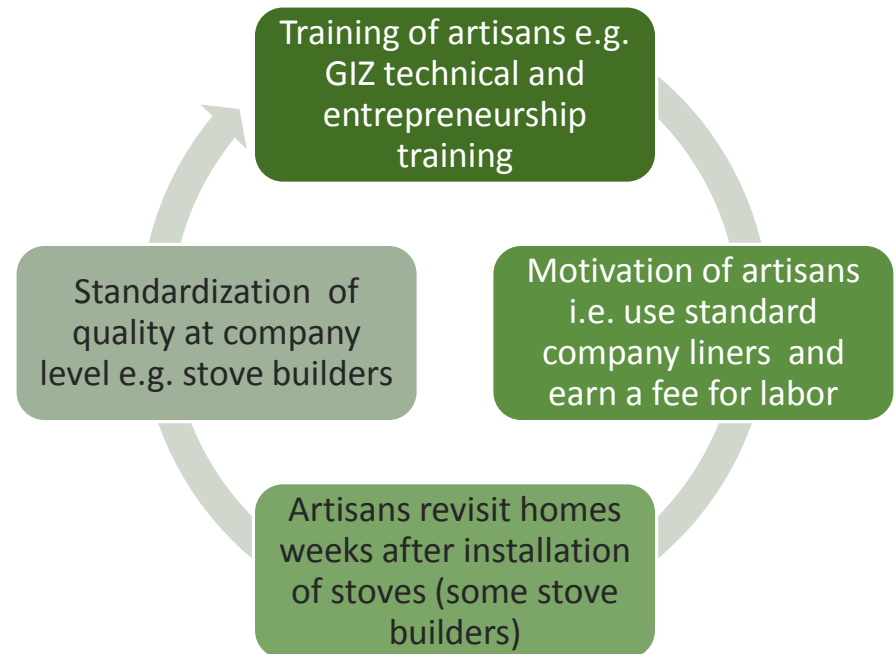
# Product Challenges – Mitigation Efforts

Despite the reasonable level of quality concerns, it is important to note that there has been increased training and education relating to stove production with respect to materials and process. GIZ appears to have been most successful at running programs to train artisans that are also said to offer training on entrepreneurship for sustainable business operations.

Larger stove products (imported ICS) generally have structured and reliable after sales mechanisms.

According to the study, some local companies are beginning to work towards achieving higher customer satisfaction by ensuring artisan visits to households two weeks post stove installation.

It also emerged that some stove builders require their artisans to install only company standard liners and ensure they stay motivated as they earn labour fee.





# Customer Related Challenges

Growth of the ICS sector continues to be inhibited by low awareness of ICS along with low appreciation of related benefits.

It also became apparent that there is increasing perception that improved cookstoves do not consistently deliver on promised benefits of faster cooking, fuel saving and reduction in smoke.

Unfortunately, even in cases where the consumer may understand and consider benefits credible, affordability remains a challenge for most of these women.

Finally, in some households where high value is placed on social conformity, customers may find it difficult to adopt improved cookstoves if expected performance is not aligned to cultural norms.

## Customer Related

- Low awareness of ICS
- Low awareness of ICS benefits
- Low consumer purchasing power
- Credibility of benefits; negative ICS experience (WOM)
- Cultural barriers e.g. does not cook foods well, cannot warm house

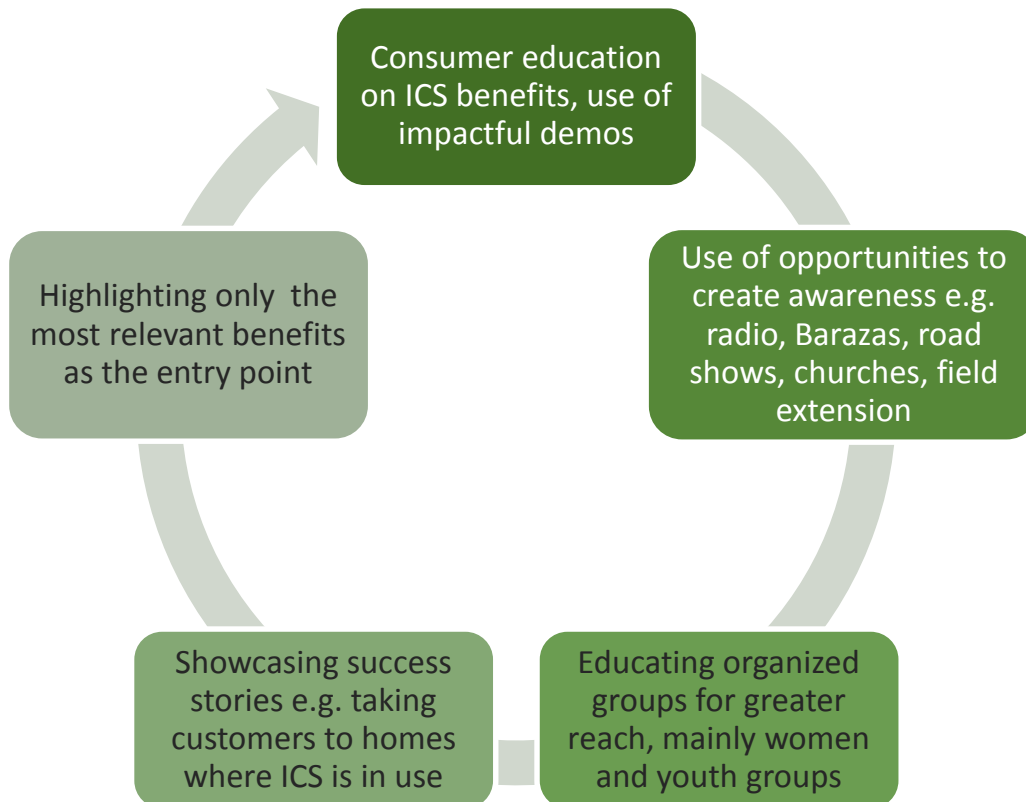
# Customer Challenges– Mitigation Efforts

Looking at the sector, initiatives to promote education continue with respect to community forums, group education and increased product demonstration.

While these ongoing efforts to promote consumer education must be encouraged, there is a lot to be gained by adopting some of the more creative solutions coming to the fore.

The innovative approach being employed by a section of agricultural officers involving organizing visits by potential customers to households with ICS success stories is notable. This approach creates the opportunity to interact with users and obtain objective information on ICS.

In addition, some of the players have become more apt at highlighting what matters most to consumers e.g. farmers are told that reduced tree felling will result in higher rainfall – hence their need to switch to ICS.



# Finance Related Challenges

Lack of innovative financing solutions at end user level present a significant hurdle to ICS adoption regardless of ICS availability or appreciation of benefits.

## Finance Related

- Limited affordable financing for end user
- Lack of financing at supplier level
- Low margins lead to compromise of process and materials
- Limited marketing funds e.g. no demo samples
- Customer loan default

Majority of the women in the study have only spent a few hundred shillings on a stove and would require some funding assistance to afford particularly the more efficient expensive ICS.

At supplier or distributor level, lack of capital negatively impacts production processes and quality of materials, with producers finding it difficult to generate quality required for prevailing end user prices. In addition, marketing efforts are limited as lack of funds makes it difficult to promote as desired.

Amongst the few suppliers who have attempted to run a credit scheme, there are concerns relating to customer default.

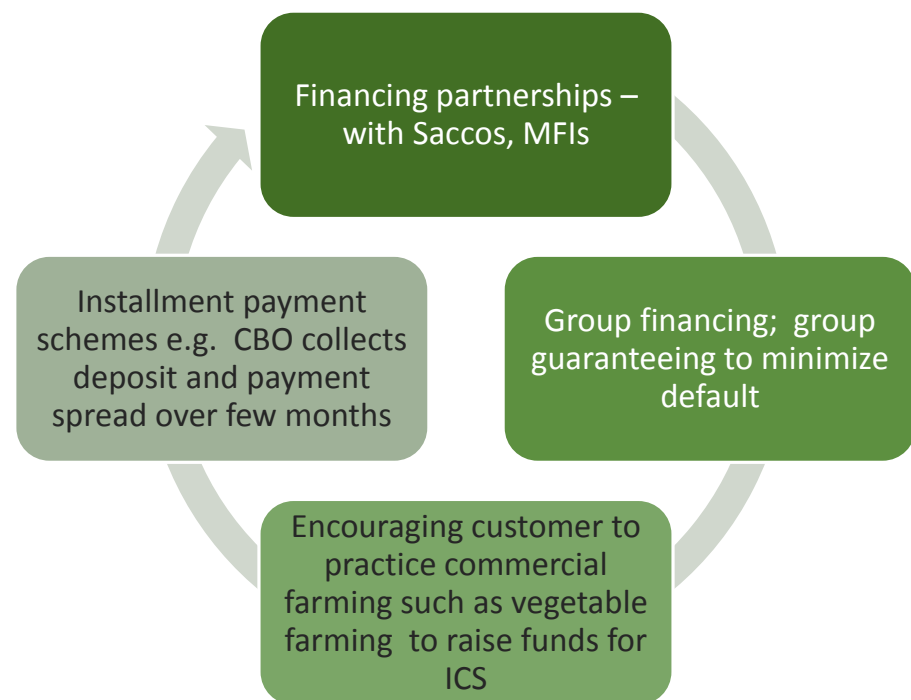
# Finance Challenges – Mitigation Efforts

Some of the approaches being employed to address financing challenges include the partnering with lending institutions such as Saccos, MFIs or banks. It is however important to note that the target requires more unconventional financing solutions due to their low incomes limiting their ability to qualify for a standards loan facility.

There was some mention of organizations such as CBOs that have carried out lending schemes involving the payment of a deposit upfront with the balance paid over a few months.

Progress is being made through group financing which reduces default risk while also ensuring larger numbers.

A creative approach being applied by agricultural officers is to educate farmers on growing of more commercial produce in a bid to raise funds for products such as ICS.



# Distribution Related Challenges

Amongst all producers, distributors and suppliers, distribution is perceived as very difficult to set up effectively due to the high cost of covering vast rural areas where the target customers are located.

Few appear to have attempted to set up a distribution network comprising outlets across locations.

In addition, the size and weight of stoves or clay liners together with the need to handle them with care to avoid breakage, makes any transportation relatively expensive.

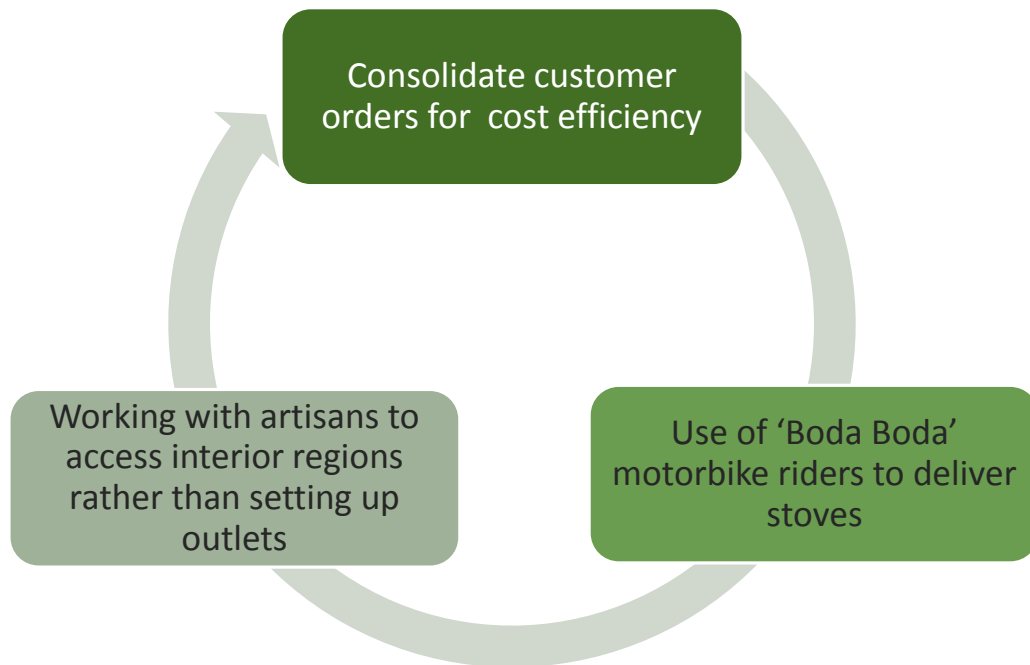
Stoves or liners also require storage space which is a challenge for suppliers or artisans, some of whom cannot afford to rent outlets and have been forced to stock products at home.

## Distribution Related

- High cost of building distribution networks
- Costly to cover remote or vast areas
- Expensive to transport stoves due to weight/ volume
- Storage space required

# Distribution Challenges - Mitigation Efforts

Efforts to control distribution costs include consolidating of customer orders such as those from groups or framers to ensure a lower cost per unit.



In addition, some stove builders are effectively expanding reach by working with artisans who install or distribute stoves within different areas without requiring a structured distribution network.

There were some mentions of the use of '*boda boda*' riders to transport stoves into deeper rural areas although this normally results in the payment of transport charge by the end users.

# Other Challenges

Overall, it is believed that the uptake of wood ICS will continue to be limited by the lack of the need to save fuel amongst communities where wood is easily available and collected at no cost.

## Others

- Wood collected at no cost by many and easily available and therefore fuel saving not relevant
- Limited after sales support (local ICS)
- Competition is high in some areas e.g. amongst artisans
- Difficult to build institutional partnerships

It became apparent that there was hardly any after sales service for ICS across all the target segments; this is a great concern considering the relatively high level of quality concerns within the sector.

At the level of local stove builders and artisans, competition is perceived as high in some areas.

With the exception of the large well established manufacturers, players consider it difficult to attract or build institutional partnerships which could play a key role in addressing the challenges that the sector continues to face.



# Future Outlook

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## ICS FUTURE OUTLOOK

The majority of stakeholders involved in the study are optimistic, believing that the sector will grow in the foreseeable future. Their conviction is based on factors such as;

- ❑ The high rate of population growth continues to drive increasing fuel scarcity. In many parts of Kenya, land sub division amongst family members through generations has resulted in low tree planting due to small individual plot size.
- ❑ Increased education on ICS is likely to promote adoption as consumers gain a better understanding of benefits
- ❑ Likely development of innovative affordable financing models and continued financing through group guaranteeing and Saccos
- ❑ The rising energy costs particularly for kerosene and to some extent, charcoal will result in greater appreciation of ICS fuel saving benefits.