Baseline Communication Strategy Study on Improved Cooking Stoves

Final Report

A lady cooking on rocket mud stove while standing

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EXECUTIVE SUMMARY

a) Introduction

Energising Development (EnDev) is a global programme whose main objective is to accelerate access to clean energy for the rural population, through promotion of fuel-saving cooking stoves and small solar systems. In 2006, the EnDev Kenya Country Programme (EnDev-K) was initiated and currently covers three geographical clusters namely: Central cluster (Murang'a, Thika, Kiambu, Maragua districts), Trans-mara cluster (Kisii, Trans-mara, Bomet districts), and Western cluster (Kakamega, Bungoma, Siaya, Mumias, Vihiga districts). GIZ EnDev also has some activities in Lower Eastern Kenya (Kitui, Machakos, Makueni counties).

Alarmed by the continued destruction of forest cover, GIZ established and implemented a project to promote improved cooking stoves (ICS) in partnership with the Kenyan Ministry of Agriculture. The project was conceived in November 2005 but actual implementation was started in January 2006. The main objective of the project was to provide 465,400 people with improved cooking stoves by December 2008.

By 2011, GIZ had successfully initiated private-sector driven stove dissemination, reaching out to over 6.5 million beneficiaries by disseminating approximately 1.3 million improved cooking stoves[1]. In a bid to enhance dissemination of the energy saving stoves, GIZ EnDev has so far used various methods and tools for awareness creation; that is to include posters, brochures, calendars, TV and radio programs, public events like chiefs' barazas and agricultural field days as well as churches and NGO meetings.

Being the leading facilitator in the promotion of the improved stoves, GIZ EnDev commissioned a baseline Communication Strategy Study in order to deepen its understanding of the needs of end users, manufacturers and promoters of the energy saving stoves. The overall objective of the survey was to identify ways of enhancing access and utilization of the improved cooking stoves.

[1] Progress Assessment Study of the ICS project by Anoucheh Khanbabai, November 2011

b) Methodology

In executing the survey, the consultant adopted a three pronged approach which included comprehensive literature review, quantitative as well as qualitative approach. Desk research entailed review of previous project evaluation reports and other relevant publications. The qualitative approach was comprised of in-depth interviews (IDIs) with key institutions and focus group discussions (FGDs) with members of the general public. The quantitative approach on its part entailed face to face interviews with members of the general public. A sample of **1249** respondent**s;** which translated into **a margin of error of +/- 2.0 at 95% degree of confidence,** was interviewed**.** Fieldwork was conducted between 22/08/2012 to 30/08/2012.

c) Key Findings

This survey established that there is a marked improvement in access and utilization of improved cooking stoves. The survey findings indicate that a significant number of households are currently utilizing improved cooking stoves as either their primary or secondary cooking and heating appliances. Twenty four per cent (24%) of the surveyed households indicated they use an improved cooking stove as their primary cooking appliance. A further 8% of the surveyed households indicated they rely on an improved cooking stove as their secondary cooking appliance. This is an indication that GIZ EnDev campaigns on utilization of improved cooking stoves are bearing fruits and will go a long way in conserving our forest cover. However, despite these marked improvements, there are still a good number of households (46%) relying on traditional three stone open fires as their primary cooking appliances. Another 41% of the surveyed households indicated that they rely on charcoal metal stoves as their secondary cooking appliance. Continued reliance on these wood consuming cooking appliances poses a big threat to Kenya's forest cover which is far below the recommended forest cover of 10%.

This survey established that a higher proportion (41%) of the surveyed households acquired their improved cooking stoves by themselves. However, GIZ's improved cooking stove (ICS) promoters and manufacturers have also played a significant role in the acquisition of these stoves. Twenty seven percent (27%) of households utilizing improved cooking stoves indicated they acquired them

through either a promoter or a manufacturer. The associated benefits of the improved cooking stove were mentioned as the major driving factor for acquisition of such stoves. However, there are still several factors like the cost element and inadequate accessibility which hinder acquisition of such stoves.

Radio at 42%, was cited by the surveyed respondents as their main source of information on improved cooking stoves. A further 31% of the surveyed respondents indicated that they heard about the improved cooking stoves through the word of mouth. On their part, a majority (74%) of the surveyed institutions indicated that they knew about the improved cooking stoves through the television. As such, it is imperative for future communications to focus more on these channels of communication.

d) Key Recommendations

In order to enhance acquisition and utilization of improved cooking stoves, the following recommendations are made:

a) GIZ EnDev should diversify the distribution channels of improved cooking stoves in order to reach out to more customers. A significant number (33%) of the surveyed households indicated they intend to acquire an improved cooking stove but they do not know where to acquire such stoves.

b) GIZ EnDev needs to create awareness on the existence of different sizes of ICS customized for both households and institutions. The size of the improved cooking stoves was cited by both the surveyed households and institutions as a hindrance to acquisition of such stoves.

c) GIZ EnDev should utilize the current users of ICS to endorse such stoves to potential users. An overwhelming majority (95%) of households and institutions utilizing improved cooking stoves expressed their willingness to recommend such stoves to a friend or a relative.

d) GIZ EnDev should continue creating awareness on the benefits of utilizing improved cooking stoves. A majority (67%) of the surveyed respondents mentioned radio as their preferred source of information on improved cooking stoves. Other effective sources of information on improved cooking stoves such as Word of Mouth and Television should also be utilized.

e) This survey established that promoters and manufacturers of improved cooking are mainly active in Trans-mara cluster with majority (64%) of the surveyed households indicating they had come across them. However, in all other project implementation clusters, majority of the surveyed households had not come across the promoters and manufacturers of improved cooking stoves. This is indicative that more efforts need to be directed towards Western and Central clusters.

f) GIZ EnDev should intensify its sensitization workshops on the improved cooking stoves across the project implementation clusters. GIZ EnDev should also make use of forums such as Chiefs' Barazas, Market days, community gatherings and agricultural shows to sensitize communities on the benefits of the improved cooking stoves.

g) Inadequate expertise was mentioned as one of the hindrance to acquisition of improved cooking stoves. GIZ EnDev should therefore consider building the capacity of more experts to install such stoves across the project implementation clusters.

h) In order to enjoy from economies of scale, GIZ EnDev should enhance its partnerships with other like-minded organizations like local community based organizations and youth groups in order to create awareness on the benefits of the improved cooking stoves. GIZ should also make use of the existing government structures like the Provincial Administration to market and promote the improved cooking stoves.

i) Regular evaluation of the project is imperative in order to document the impact of the project, successes, challenges and lessons learnt. This will ensure that the project remains relevant and sustainable.

j) GIZ EnDev should consider introducing an Improved Cooking Stoves Day to commemorate achievements made in promoting acquisition of such stoves. This forum may be used to mobilize and sensitize communities on conservation and rehabilitation of natural resources as well as creating awareness on the benefits of the improved cooking stoves.

k) GIZ EnDev should consider introducing organized groups such as women groups to financial institutions for provision of loan facilities to acquire the improved cooking stoves. A case in point is a women group in Murang'a which has assisted their members to access loan facilities for acquisition of improved cooking stoves.

l) GIZ EnDev should come up with ways of recognizing personalities/ organizations playing an exemplary role in the promotion of improved cooking stoves.

m) A significant number of the surveyed households which do not currently own a solar lighting device expressed their willingness to own one. However, only 34% of the surveyed respondents are willing to spend over 1000 Kenya shillings on solar lanterns. In its communication campaign, GIZ EnDev should explain to the potential users of such solar lanterns on the amount of money they are going to save in utilizing the solar devices; its cost notwithstanding.

LIST OF ABBREVIATIONS AND ACRONYMS

CBO	Community Based Organization
EnDev	Energizing Development
FGD	Focus Group Discussion
GIZ	Deutsche Gesellschaft für Internationale
ICS	Improved Cooking Stove
IDI	In-Depth Interview
KBC	Kenya Broadcasting Corporation
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
KTN	Kenya Television Network
NGO	Non-Governmental Organization
NTV	Nation Television
PSDA	Private Sector Development in Agriculture
TV	Television

ACKNOWLEDGEMENTS

It is with great pleasure that we publish this report, which presents the findings of a Baseline Communication Strategy study on improved cooking stoves. The study was commissioned and financed by GIZ EnDev.

We wish to acknowledge the contributions of a number of organizations without which the study could not have been accomplished. First, we would like to acknowledge the assistance and support accorded to the project team by GIZ EnDev program staff. Our utmost appreciation also goes to all institutions which sacrificed their time and gave us appointments for interview despite their busy schedules.

The research team which went out to the field is high appreciated for making this survey a success. We also wish to comment the household representatives who embraced this survey, allowed our personnel into their homes and generously answered our interviewers. For those who may have participated in this survey and are not mentioned, we say thank you.

Chapter 1. Introduction and Background Information

1.0. Introduction

In Kenya, the term *"Energy"* finds explicit and comprehensive definition in **Section 2** of the **Energy Act, 2006** which stipulates in part, *"energy means any source of electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, or thermal power for any use; and includes* ***electricity, petroleum and other fossil fuels, geothermal steam, biomass*** *(**emphasis is ours**) and all its derivatives, municipal waste, solar, wind and tidal wave power…"*

There is a close nexus between a properly managed Energy Sector and exponential economic growth in any country. Major industrial and domestic activities in all nations are dependent on the energy. The significance of this fundamental factor of production notwithstanding, energy more often than not is a limited resource. As such, there is great need of ensuring efficient, economic and cost effective production and use of energy. It must be noted from the onset that the effects of poor and wasteful use of energy have astronomically devastating ramifications. These are exhibited in environmental degradation, increased poverty, escalation of criminal activities just to mention but a few.

Cognizant of the foregoing issues, Kenya has put in place various measures to efficiently regulate the Energy Sector and mitigate problems attendant to poor management of the sector. Policy and legal instruments are already in place to promote proper energy use and environmental conservation. Notable are the **Energy Policy of 2004** and the **Energy Act of 2006.** These two policy and legislative instruments are very instructive in the management and regulation of the Energy Sector in Kenya. The Energy Sector which comprises of the Electricity, Petroleum, Biomass, Solar, and Steam Sub-sectors is yet to realize the intended objectives of the operative legislative and policy instruments hereinbefore mentioned. Majority of Kenyans still suffer from inadequate energy sources, there are numerous examples of wasteful use of energy, the environment is often polluted

by careless use of energy and our forest cover is far below international recommended standards of 10%.[2]

In 2006, the EnDev Kenya Country Programme (EnDev-K) was initiated to accelerate access to clean energy for the rural population, through promotion of fuel-saving cooking stoves and small solar systems[3].

1.1. Survey Background

The 2004/05 Kenya Integrated Household Budget Survey found out that about 78 % of households in the country's rural population, rely predominantly on traditional three-stone fire for cooking. These three-stone open fire hearths require huge loads of fire woods to function. The result of using these sources of energy has resulted into:

a) Wanton destruction of the forest cover estimated to be responsible for around a quarter of global emissions of black carbon, or soot, responsible for some 40% of climate change;
b) Release of pollutant/toxic fumes, harmful to the environment and people from open fires or inefficient cooking stoves inside homes, is responsible for illness and some 1.8 million premature deaths --mostly women and children --each year in developing countries;
c) Cost and time loss: Due to the scarcity of fuels, the cost of energy source is increasing drastically, exacerbating poverty.

Alarmed by the continued destruction of forest cover, GIZ established and implemented a project to promote improved cooking stoves (ICS) in partnership with the Kenyan Ministry of Agriculture. The project was conceived in November 2005 but actual implementation was started in January 2006. The main objective of the project was to provide 465,400 people with improved cooking stoves by December 2008. The project covers three geographical clusters namely: Central cluster (Murang'a, Thika, Kiambu, Maragua districts), Trans-mara cluster (Kisii, Trans-mara, Bomet districts), and Western cluster (Kakamega, Bungoma, Siaya, Mumias, Vihiga districts). GIZ EnDev also has some activities in Lower Eastern Kenya (Kitui, Machakos, Makueni counties).

[2] Kenya today has less than two percent of its landmass covered with forest.
[3] EnDev Diary

By 2011, GIZ had successfully initiated private-sector driven stove dissemination, reaching out to over 6.5 million beneficiaries by disseminating approximately 1.3 million improved cooking stoves. In a bid to enhance dissemination of energy saving stoves, GIZ Endev has so far used various methods and tools for awareness creation; that is to include posters, brochures, calendars, TV and radio programs, public events like chiefs' barazas and agricultural field days as well as churches and NGO meetings. Being the leading facilitator in the promotion of the improved stoves, GIZ Endev commissioned a baseline Communication Strategy Study in order to deepen its understanding of the needs of end users, manufacturers and promoters of the energy saving stoves.

1.2. The Survey Objectives

The overall objective of this survey was to identify ways of enhancing access and utilization of the improved cooking stoves. In particular, the survey sought to:

a) Establish client's (end user) perceptions of the sensitization tools and how the tool(s) influenced their decision to buy the improved cooking stoves;
b) Get better insights as to why people buy these improved cooking stoves;
c) Establish how households/ institutions utilizing the improved cooking stoves got to know about the stoves and the drivers to purchase such a stove;
d) To establish the main methods of acquiring the improved cooking stoves and why;
e) Make an inventory of potential sensitization tools for each cluster;
f) Make recommendations to GIZ EnDev project management on development of a sensitization strategy,
g) Provide suggestions on how to promote larger stoves to address institutions and enterprises' needs;
h) Provide suggestions on the appropriate sensitization materials and tools for decision makers in Government and donor agencies informing on the approach and the achievements.

Chapter 2. The Survey Approach and Methodology

2.0. The Adopted Approach

The study adopted a three pronged approach which entailed literature review, qualitative in-depth interviews and quantitative face to face interviews with members of the general public. On literature review, all relevant documents and publications were comprehensively reviewed. With regard to the qualitative phase, in-depth interviews were conducted with key informants drawn from institutions such as: Schools, army barracks, prisons, and children homes. In-depth interviews enabled the consultant to gather opinions, experiences, and recommendations of key informants on the improved cooking stoves. Further, focus group discussions were conducted with members of the general public. In order the quantify information obtained from the qualitative phase, quantitative face to face interviews were conducted with a representative sample of members of the general public. Each approach adopted in executing this survey is detailed herein under:

i. **Desk research:** Review of previous project evaluation reports and other relevant publications;

ii. **Qualitative Approach:** In-Depth Interviews (IDIs) with key informants and Focus Group Discussions (FGDs) with members of the general public. In particular, In-depth interviews were conducted with key decision makers in all sampled institutions including schools, army barracks, prisons, children homes. On the other hand, Focus Group Discussions (FGDs) were conducted with various categories of respondents. The categories of respondents included in the FGDs include: Those utilizing the improved cooking stoves, those who have heard about the improved cooking stoves and are not currently using the stoves and those who have never heard of the improved cooking stoves.

iii. **Quantitative Approach:** Face to Face (F2F) interviews with members of the general public. The respondents under this category included: Those using the improved cooking stoves; those who have heard about the improved cooking stoves and those who are not using the improved cooking stoves and those who have never heard about the improved cooking stove.

2.1. The Adopted Methodology

2.1.1. THE QUALITATIVE PHASE

a) In –Depth Interviews (IDIs)

In-depth interviews were conducted with a representative sample of select institutions in the sampled districts. Under this approach, institutions were purposively sampled and key decision makers in those institutions interviewed. Whilst the in-depth interviews adopted the one on one approach, the interview guide was predominantly unstructured and open ended to allow for dynamic build-up of discussion with the respondents. The IDIs adopted the approach stipulated below:

Figure 1: Adopted in-depth interview procedure

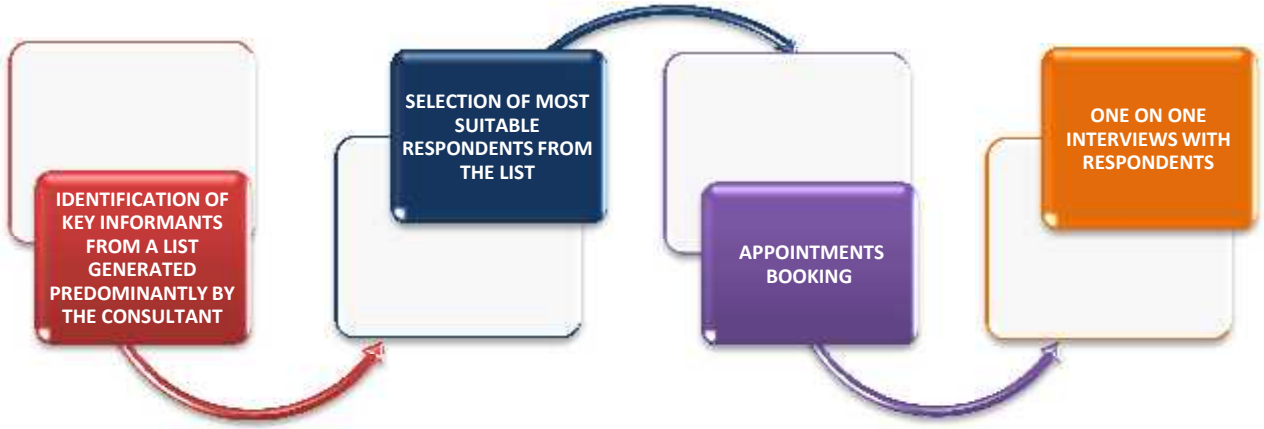

Table 1: The proposed in-depth interviews vis-à-vis achieved in-depth interviews

Category of Stakeholders		Target IDIs	Achieved IDIs
i. Learning Institutions	Universities, Tertiary institutions, Colleges	10	9
	High Schools	7	6
	Primary Schools	7	4
ii. Prisons		8	3
iii. Army Barracks		2	-
iv. Children's/Orphanage Homes		4	6
TOTAL		**38**	**28**

b) Focus Group Discussions (FGDs)

Focus Group Discussions (FGDs) were conducted with various categories of respondents. The categories of respondents included in the FGDs include: Those utilizing the improved cooking stoves, those who have heard about the improved cooking stoves and are not currently using the stoves and those who have never heard of the improved cooking stoves.

Table 2: The Focus Groups Make Up

Cluster		Households	
		Household Heads	Women
1.	Central	1 FGD (Mixed: Male and Female)	1 FGD (Female)
2.	Western	1 FGD (Mixed: Male and Female)	1 FGD (Female)
3.	Transmara	1 FGD (Mixed: Male and Female)	1 FGD (Female)
4.	Ukambani	1 FGD (Mixed: Male and Female)	1 FGD (Female)
Total		4 FGDS	4 FGDs

The Focus Groups Design and Preparations

The Consultant prepared a Group Discussion guide covering all the key exploratory areas as stipulated in the objectives of the study. The guide comprised of predominantly open ended, deep probing questions that allowed the respondent to do most of the talking. In recruiting respondents for the focus group discussions, the recruitment team was guided by a well-defined criterion. A screening questionnaire otherwise known as a recruitment questionnaire was used to ensure respondents fall in the right target groups. For each FGD, respondents participating did not exceed 12 in number nor were they fewer than 8. This ensured group dynamics were checked and put under control during the discussions, thus reducing any form of bias due to dominance. A well trained moderator moderated the groups using the pre-determined discussion guide. In order to explore in-depth responses, stimulate better responses and reveal certain aspects of the respondents' behavior and perceptions, several creative and projective techniques were used. Projective technique entailed an indirect form of questioning that encouraged discussions respondents to project their underlying motivations, beliefs, perceptions and attitudes on improved cooking stoves. The duration of each focus group is estimated at two hours. Each focus group discussion was video-recorded and transcribed for easier referencing during report writing and also for client referral.

2.1.2. THE QUANTITATIVE PHASE

The consultant undertook 1249 quantitative face to face interviews with a representative sample of members of the general public in order to quantify information obtained from the qualitative focus group discussions. The sample allocation was weighed using population proportionate to size with the 2009 Kenya Population and Housing census being used as the sampling frame. The location of residence was used as the basic stratum in the sampling design. Stratification method was employed to ensure proper representation of important sub-population groups without biasing the selection operation. Sampling was done systematically and randomly in the respective locations. Use of random and systematic sampling during selection of respondents to participate in the survey ensured a representative and an all-inclusive sample. Fieldwork was conducted between 22/08/2012-30/08/2012.

Table 3: Sample distribution per cluster

Cluster	District	Sample
Central	Muranga	93
	Thika	50
	Kiambu	168
	Maragua	50
Western	Kakamega	113
	Bungoma	117
	Siaya	70
	Mumias	50
	Vihiga	55
Trans-mara	Kisii	86
	Narok	68
	Bomet	70
Ukambani	Kitui	81
	Machakos	102
	Makueni	76
4	15	1,249
Margin of Error +/- 2		

2.1.3. DATA COLLECTION TOOLS

Primary data was collected through questionnaires and interview/ discussion guides. Different sets of data collection tools were designed for various categories of respondents. A semi-structured questionnaire with both closed and open-ended questions responding to the survey objectives was administered to members of the general public. On the other hand, interview/ discussion guides with predominantly open-ended questions were developed for in-depth interviews with key informant interviews and focus group discussions. The data collection tools were pre-tested with a set of respondents with the aim of establishing their appropriateness in responding to the objectives of the study. Slight changes were thereafter made on the tools so as to ensure saliency and smooth flow of questions.

2.1.4. DATA PROCESSING AND ANALYSIS

Both qualitative and quantitative data analysis were utilized in processing and analyzing the collected data. For quantitative data, the data was edited, coded, entered and back-checked for errors using logical sequence. It was then analyzed using the SPSS 17.0 software. Quantitative analysis largely provided frequencies and percentages on the key exploratory questions.

For qualitative data, IDIs/ FGDs were transcribed, entered into a grid and common themes drawn for each key exploratory question. These provided descriptive information the awareness levels, perceptions, opinions and recommendations of various respondents on the key exploratory questions. The elaborate information provided through description was then integrated with information obtained from the quantitative phase.

2.1.5. LIMITATIONS OF THE SURVEY

During fieldwork, few difficulties were encountered especially with regard to some of the target respondents being reluctant to participate in the survey. In addition, some of the target respondents (especially those representing sampled institutions) had very busy schedules/ and or were participating in industrial strikes hence delays in securing their interviews. To address this, the

research team explained to the respondents the objectives of the survey and emphasized on the importance and need of their participation.

2.1.6. STRUCTURE OF THE REPORT

This report is divided into seven chapters. Chapter one of the report entails an introduction and background information on the survey. It outlines the survey background and objectives. Chapter two of the report illustrates the approach and methodology adopted in executing the survey. Chapter three of the report presents key findings of the survey with respect to cooking and heating appliances. It presents findings on households' and institutions' primary and secondary cooking appliances. It also presents information on households'/ institutions' monthly expenditure on cooking and heating energy. Also discussed under this chapter include driving factors for acquisition of improved cooking stoves.

Chapter four of the report is about attitudes and perceptions on improved cooking stoves. Chapter five of the report presents findings on utilized lighting appliances while chapter six is about communication and access to information. Chapter seven of the report is on conclusion and recommendations.

Chapter 3. COOKING AND HEATING APPLIANCES

3.1. Primary Cooking and Heating Appliances

A higher percentage (46%) of the surveyed households indicated that the traditional three stone open fire is their primary cooking and heating appliance. Twenty four per cent (24%) of the surveyed households indicated that the improved cooking stoves (ICS) are their primary cooking and heating appliance. This is a marked improvement from the 2006 Households' Stove Baseline Survey which established that only 5% of the surveyed households relied on improved cooking stoves for their cooking. Trans-mara cluster recorded the highest incidence level of households utilizing improved cooking stoves at 40%, followed by central and Ukambani clusters cluster at 28% and 22% respectively. Western cluster recorded the lowest incidence level of households utilizing improved cooking stoves as their primary cooking and heating appliance at 11%. Other primary cooking and heating appliances utilized by the surveyed households include: Charcoal metal stoves (13%), Kenya Ceramic Jiko (7%), Liquid Purified Gas (LPG) - 4%, Electric Stove (4%) and Kerosene stoves (3%) among others. Table four below illustrates the primary cooking and heating appliances as cited by the surveyed respondents.

Table 4: Households' primary cooking and heating appliances

Cooking Methods (n=1249)	Central	Western	Trans-mara	Ukambani	Aggregate
Three stone open fire	34%	41%	49%	65%	46%
Charcoal metal stove	10%	25%	4%	7%	13%
Kenya Ceramic Jiko	10%	9%	0%	3%	7%
Kerosene stoves (wick or pressure)	5%	4%	2%	1%	3%
LPG (Gas)	5%	6%	4%	1%	4%
Electric Stove	8%	4%	1%	1%	4%
Improved Cooking Stove	28%	11%	40%	22%	24%
Others	1%	1%	0%	0%	1%

On their part, focus group respondents had the following to say:

"…I use the modern Jiko, I threw away the traditional three stone jiko." ***FGD respondent, Kisii***

"…In my house I mainly use the three stone to cook." ***FGD Respondent, Kitui***

"….In my house we use the usual charcoal Jiko to cook." ***FGD Respondent, Mumias***

"…I use the charcoal jiko to cook and after the food is ready, I use the remaining heat to warm my bathing water." ***FGD Respondent, Thika***

With respect to surveyed institutions, a significant number (36%) of them indicated improved cooking stoves are their primary cooking and heating appliances. Other primary cooking and heating appliances mentioned by the surveyed institutions include: Charcoal metal stove (29%), Kenya Ceramic Jiko (14%), Boiler (11%), three stone open fire (7%) and electric stove (4%). Improved cooking stoves and Kenya Ceramic Jiko combined amounts to 50% of the institutions' primary cooking and heating appliances. This is a marked improvement from the 2006 Institutions' Stove Baseline survey which established that 47% of the surveyed institutions relied on Improved Cooking Stoves and Kenya Ceramic Jiko for their cooking. Institutions utilize a lot of cooking and heating energy hence the need to intensify campaigns on the benefits of improved cooking stoves among these institutions. Figure 2 below illustrates primary cooking and heating appliances as cited by the surveyed institutions.

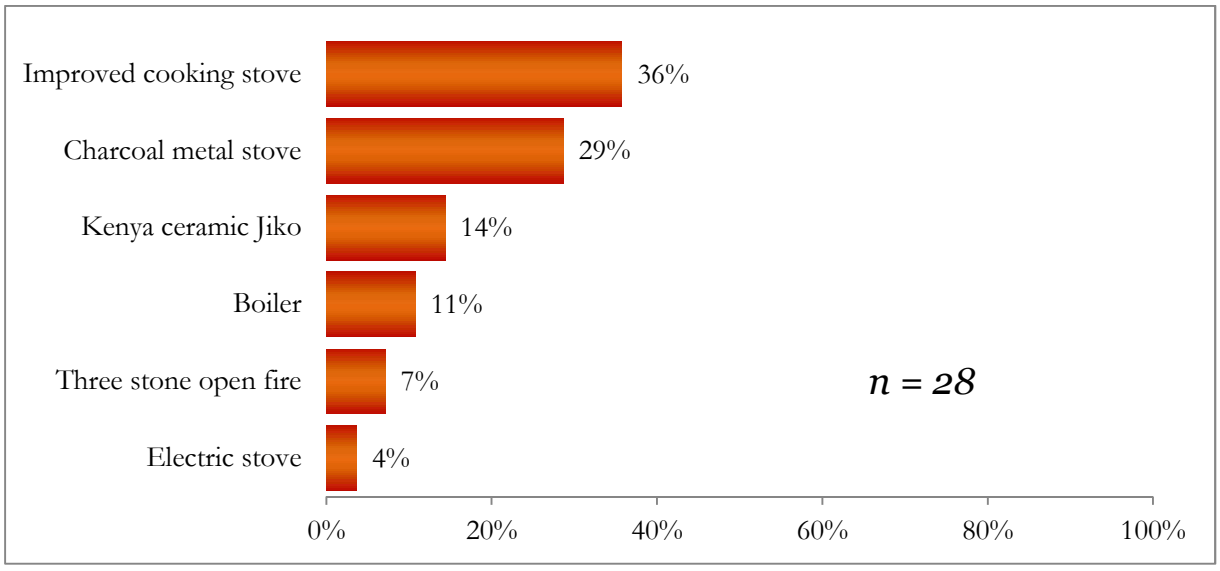

Figure 2: Institutions' primary cooking and heating appliances

3.2. Secondary Cooking and Heating Appliances

Charcoal metal stove came out as the major alternative cooking and heating appliance among the surveyed households. Asked about their secondary cooking and heating appliance, 41% of the surveyed households cited charcoal metal stove with a further 23% of the surveyed households citing three stone open fire as the secondary cooking and heating appliance. Only 8% of the surveyed households cited improved cooking stoves as their secondary cooking and heating appliance. This is indicative that most households are still dependent on wood energy hence the need to intensify campaigns on the benefits of improved cooking stoves. Figure 3 below illustrates the primary and secondary cooking and heating appliances among the surveyed households.

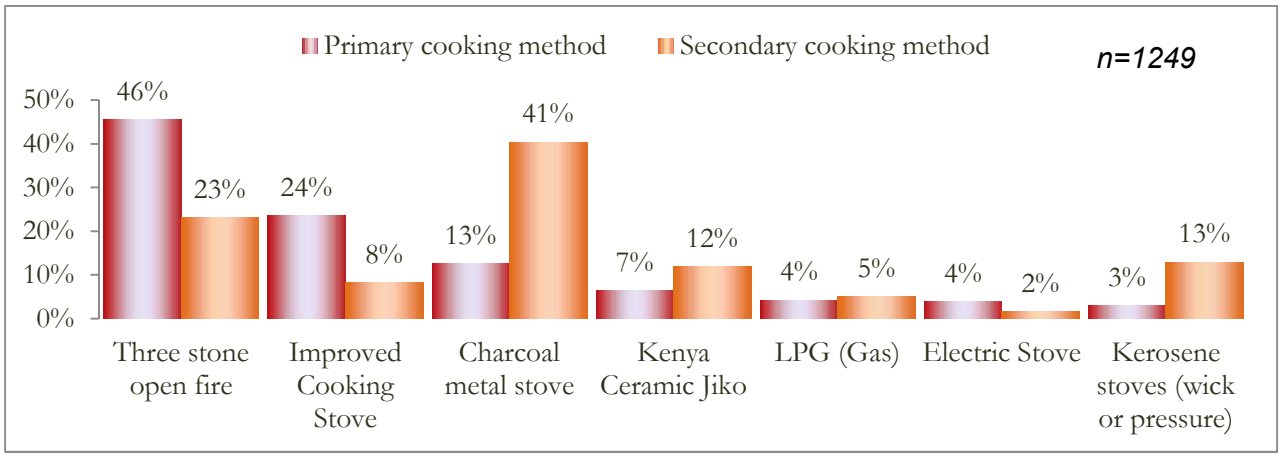

Figure 3: Households' primary and secondary cooking and heating appliances

Detailed analysis indicates that majority (60%) of surveyed respondents in Ukambani rely on Charcoal metal stove as their secondary cooking and heating appliance. On the other hand, three stone open fire is the most preferred secondary cooking and heating appliance in Central cluster at 32%. Most (23%) of the surveyed respondents in Western cluster indicated Kerosene stoves are their secondary cooking and heating appliance. Table 5 below illustrates households' secondary cooking and heating appliances per cluster.

Table 5: Households' secondary cooking and heating appliances per cluster

Cooking Method (n=1249)	Central	Western	Transmara	Ukambani
Charcoal metal stove	22%	35%	58%	60%
Three stone open fire	32%	13%	25%	22%
Kerosene stoves (wick or pressure)	13%	23%	11%	3%
Kenya Ceramic Jiko	17%	13%	7%	8%
Improved Cooking Stove	11%	8%	5%	7%
LPG (Gas)	9%	6%	2%	0%
Electric Stove	2%	2%	1%	2%

With respect to institutions, a majority 70% of the surveyed institutions indicated the charcoal metal stoves are their secondary cooking and heating appliances. Other secondary cooking and heating appliances mentioned by the surveyed institutions include: Kenya Ceramic Jiko (17%), three stone open fires (9%) and LPG 4%. Figure 4 below illustrates secondary cooking and heating appliance among the surveyed institutions.

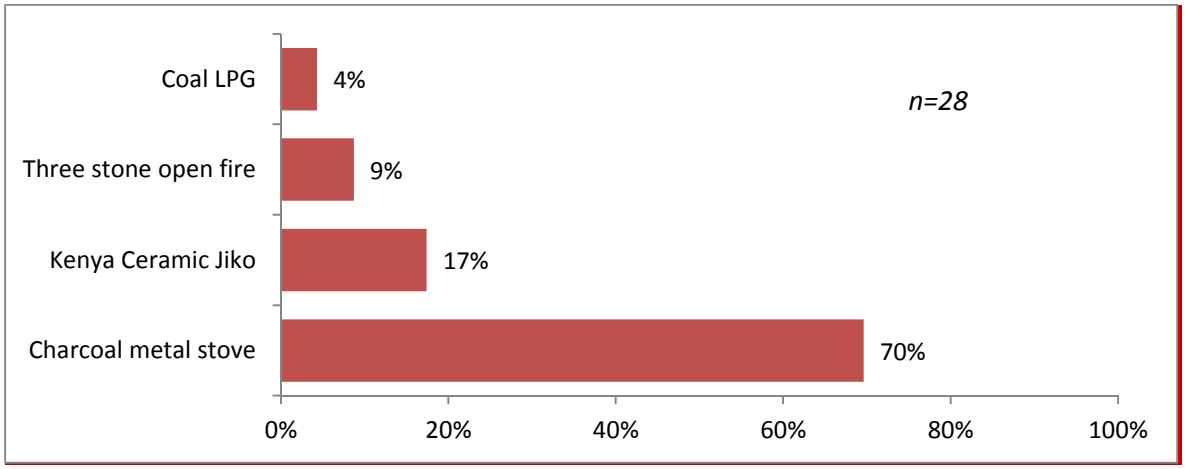

Figure 4: Institution's secondary cooking and heating appliances

3.3. Monthly Expenditure on Cooking and Heating Energy

On average, most (41%) of the surveyed households indicated they spend between 100 and 500 Kenya shillings on cooking and heating energy every month. A further 32% of the surveyed households indicated they spend between 501 and 1000 Kenya shillings on cooking and heating energy month. Only 2% of the surveyed households indicated they spend over 5000 Kenya shillings

on cooking and heating energy every month. Figure 5 below illustrates household's monthly expenditure on cooking and heating energy.

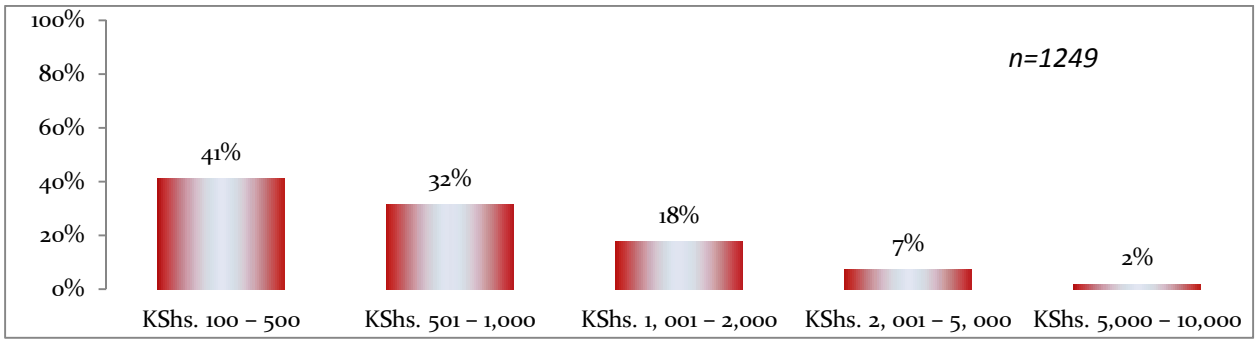

Figure 5: Households' monthly expenditure on cooking and heating energy

A majority (64%) of the surveyed households in Ukambani indicated they spend between 100 and 500 Kenyan shillings on cooking and heating energy every. The cost of cooking and heating energy seems to be high in Central cluster where 73% of the surveyed households indicated they spend over 500 Kenya shillings on cooking and heating energy every month. Table 6 below illustrates monthly expenditure on cooking and heating energy per cluster.

Table 6: Households' monthly expenditure on cooking and heating energy per cluster

Expenditure (KSH.) n=1249	Central	Western	Transmara	Ukambani	Aggregate
100 – 500	27%	34%	51%	64%	41%
501 – 1,000	35%	31%	33%	27%	32%
1, 001 – 2,000	24%	23%	13%	6%	18%
2, 001 – 5, 000	10%	11%	4%	2%	7%
5,000 – 10,000	4%	2%	0%	1%	2%

During the focus group discussions, some of the respondents had the following to say:

"…It depends; at times I spend between Ksh. 400 to 500 in a month…." ***FGD Respondent, Kisii***

"…At my place, I use three sacks of charcoal per month. A sack of charcoal costs Kshs. 600 here..." ***FGD Respondent, Kitui,***

"…I use about Ksh. 100 per week on firewood." ***FGD Respondent, Muranga***

"…I use Kshs.150 per week on firewood." ***FGD Respondent Mumias,***

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With respect to institutional expenditure on cooking and heating energy, all the surveyed institutions indicated they spend over 1500 Kenya shillings per month on cooking and heating energy. Table 7 below outlines institutional monthly expenditure on cooking and heating energy.

Table 7: Institutional monthly expenditure on cooking and heating energy per cluster

Amount (Ksh.)n=28	incidence
1500 - 3000	28%
3001- 10000	12%
10001- 20000	20%
20001- 50000	32%
Above 50000	8%

Improved cooking stoves appear to be more economical as compared to other cooking appliances. A majority of the surveyed households utilizing improved cooking stoves as their primary cooking and heating appliance indicated they spend between100 and 500 Kenya shillings on cooking and heating energy per month. Table 8 below outlines households' monthly expenditure on cooking and heating energy based on cooking appliance.

Table 8: Households' monthly expenditure on cooking and heating energy per appliance

Cooking Appliance (n= 1249)	Shs. 100 – 500	Shs. 501 – 1,000	Shs. 1, 001 – 2,000	Shs. 2, 001 – 5, 000	Shs. 5,000 – 10,000
Three stone open fire	47%	32%	14%	5%	2%
Charcoal metal stove	21%	33%	33%	11%	1%
Kenya Ceramic Jiko	24%	42%	26%	8%	
Kerosene stoves (wick or pressure)	14%	31%	29%	17%	9%
LPG (Gas)	38%	15%	17%	23%	8%
Electric Stove	31%	31%	23%	10%	4%
Improved Cooking Stove	52%	31%	12%	5%	0%
Others	33%	-	50%	17%	-

3.4. Means of acquisition of improved cooking stoves

Of the surveyed households utilizing improved cooking stoves, most (41%) of them indeed indicated they bought their stoves from their own initiative. A further 21% of the households utilizing improved cooking stoves indicated they acquired their stoves through a friend. Another 16% of households utilizing improved cooking stoves indicated they acquired their stoves through a promoter. It can thus be deducted that a significant number of households utilizing improved cooking stoves have acquired them out of their own initiative preferably due to the benefits associated with such stoves. Detailed analysis also indicates that a majority (96%) of households utilizing improved cooking stoves have indeed spend money to acquire such stoves. Figure 6 below illustrates various means of acquisition of improved cooking stoves among surveyed households utilizing them.

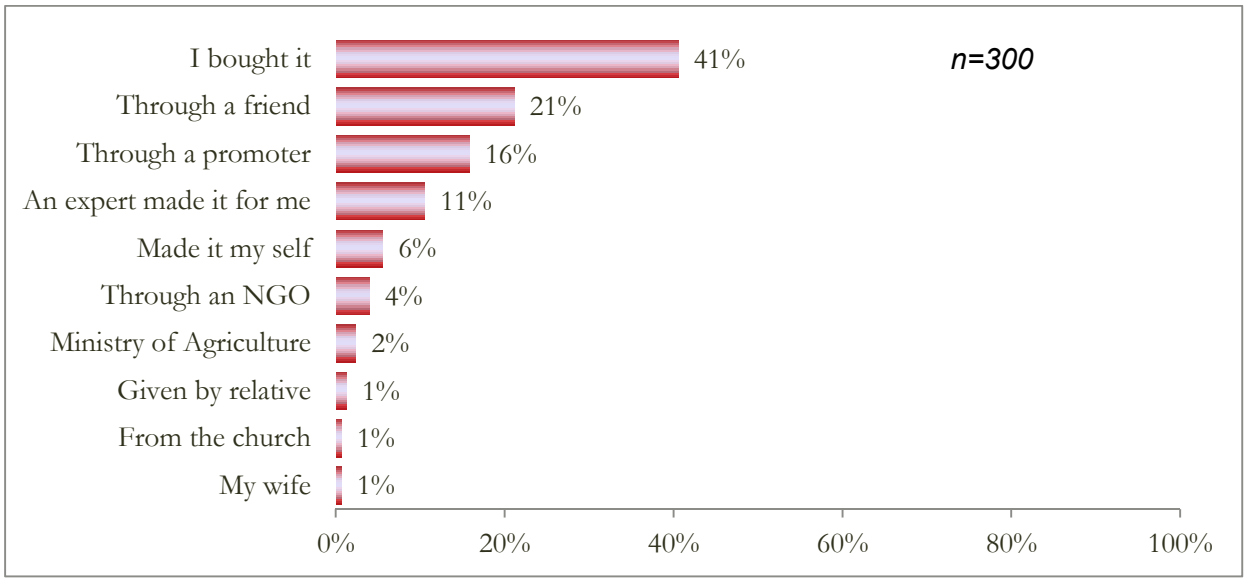


Figure 6: Means of acquisition of ICS among households utilizing them.

Among the surveyed institutions, 42% of the institutions utilizing improved cooking stoves indicated they acquired from a manufacturer, with a further 37% of the institutions indicating they themselves built them. Ten (10%) per cent of the institutions utilizing improved cooking stoves indicated they acquired them through and NGO with a further 5% of the institutions indicated they acquired them through a donation. Figure 7 below illustrates various means of acquisition of improved cooking stoves among the surveyed institutions.

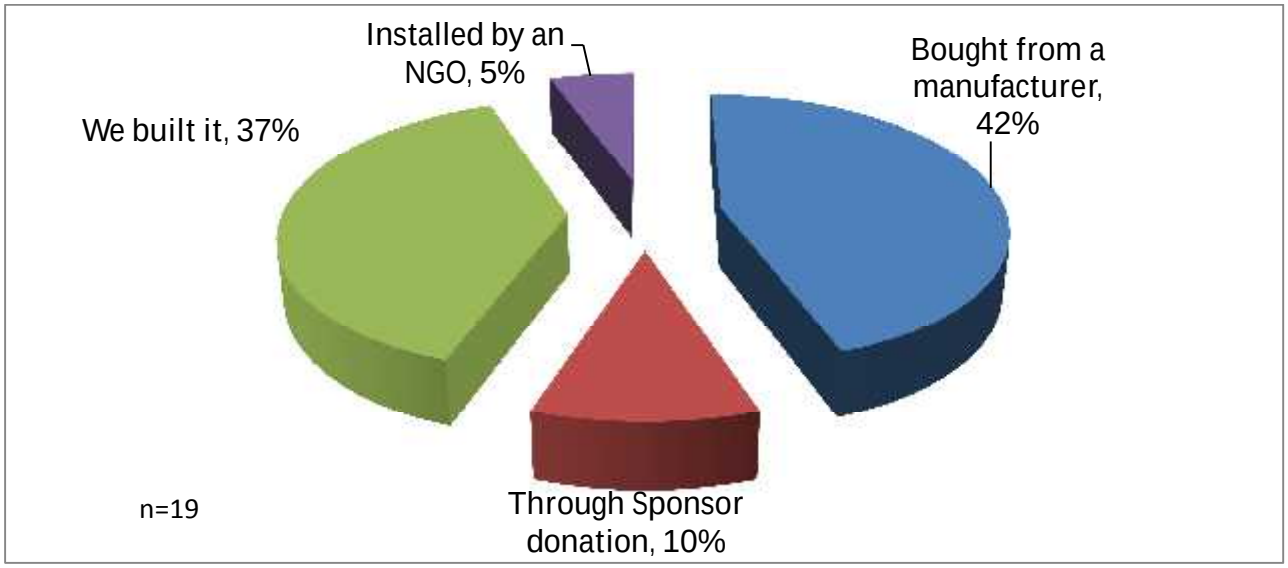


Figure 7: Means of acquisition of ICS among institutions utilizing them.

During focus group discussions, surveyed respondents had the following to say:

"…We were in a group of Agricultural Women and GTZ came to train. Thereafter each member bought the stove." ***FGD Respondent, Kisii***

"…I just heard about the stove from someone." ***FGD Respondent, Kitui***

"…It was announced at a Baraza that there were experts coming to make the stoves…" ***FGD Respondent Mumias,***

"…Me I saw it at my mother's place because she was a member of a Women Group that got the stoves for free..." ***FGD Respondent Mumias***

"…..Us we were invited by a group of experts from GIZ who came to teach the people how to make and use the stoves..." ***FGD Respondent, Mumias,***

"…I was given by the Agricultural Teachers. Even when you go to the market place you will find them." ***FGD Respondent Thika,***

"…*I made it by myself."* ***FGD Respondent, Makueni,***

"…There is a group of people who came to church and showed us how to make the stoves." ***FGD Respondent, Makueni.***

A close look at acquisition of improved cooking stoves per cluster indicates that a majority (59%) of households utilizing improved cooking stoves in Western cluster bought the stoves for themselves.

On the other hand, a majority (54%) of households utilizing improved cooking stoves in Trans-Mara cluster acquired their stoves through a promoter. This is an indication that the ICS promotion campaign in Trans-Mara cluster is doing quite good. Table nine below outlines acquisition of improved cooking stoves per cluster.

Table 9: Means of acquisition of improved cooking stoves per cluster

Means of Acquisition (n=300)	Central	Western	Transmara	Ukambani
I bought it	49%	59%	13%	26%
Through a friend	30%	10%	23%	18%
Through a promoter	4%	9%	54%	6%
An expert made it for me	10%	9%	1%	24%
Made it my self	5%	5%	4%	9%
Through an NGO	0%	1%	5%	16%
Ministry of Agriculture	0%	7%	2%	0%
Given by relative	2%	0%	0%	4%
My wife	1%	1%	1%	0%
From the church	2%	0%	0%	0%

3.5. Driving factors for acquisition of improved cooking stoves

Surveyed respondents cited several driving factor for acquisition of improved cooking stoves. Asked what drove them to acquire such stoves, a majority (65%) of the households utilizing improved cooking stoves indicated they acquires such stoves due to the associated benefits of saving firewood and fuel. Another 25% of the respondents indicated they acquired such stoves because it is affordable. All in all several benefits associated with the improved cooking stoves were cited as the driving factors for acquisition of improved cooking stoves. It is imperative for GIZ EnDev to take cognizance of these associated benefits of ICS in packaging and designing their communication strategy. Figure 8 below illustrates the various driving factors for acquisition of improved cooking stoves among the surveyed households.

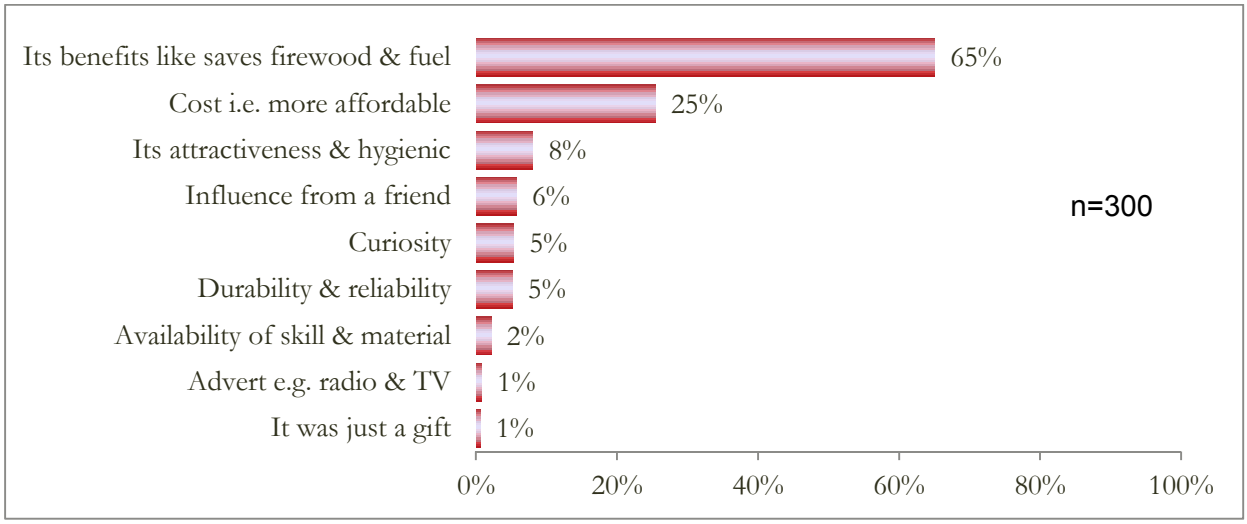


Figure 8: Driving factors for acquisition of improved cooking stoves among surveyed households.

Detailed analysis of the driving factors for acquisition of improved cooking indicates that majority of the households across all clusters are mainly acquiring the stoves due to their ability to save energy. Table 10 below outlines the various driving factors for acquisition of improved cooking stoves across the four project implementation clusters.

Table 10: Driving factors for acquisition of improved cooking stoves per cluster

Driving factors (n=300)	Central	Western	Transmara	Ukambani
Its benefits like saving firewood & fuel	66%	66%	71%	49%
Cost i.e. cheap ability	11%	21%	35%	53%
Its attractiveness & beautifies the kitchen	13%	7%	5%	3%
Influence from a friend	9%	3%	5%	3%
Curiosity	10%	4%	1%	3%
Durability & reliability	3%	9%	7%	1%
Availability of skill & material	3%	3%	1%	0%
Advert e.g. radio & TV	2%	1%	0%	0%
It was just a gift	2%	0%	0%	0%

Similarly, majority of the surveyed institutions cited various economic aspects as their main driving factors for acquisition of improved cooking stoves. Asked what drove them to acquire such stove, 75% of the institutions cited the economic value associated with such stoves with a further 25% of the institutions indicating they acquired such stoves in an effort to save energy. Figure 9 below

illustrates the driving factors for acquisition of improved cooking stoves among the surveyed institutions.

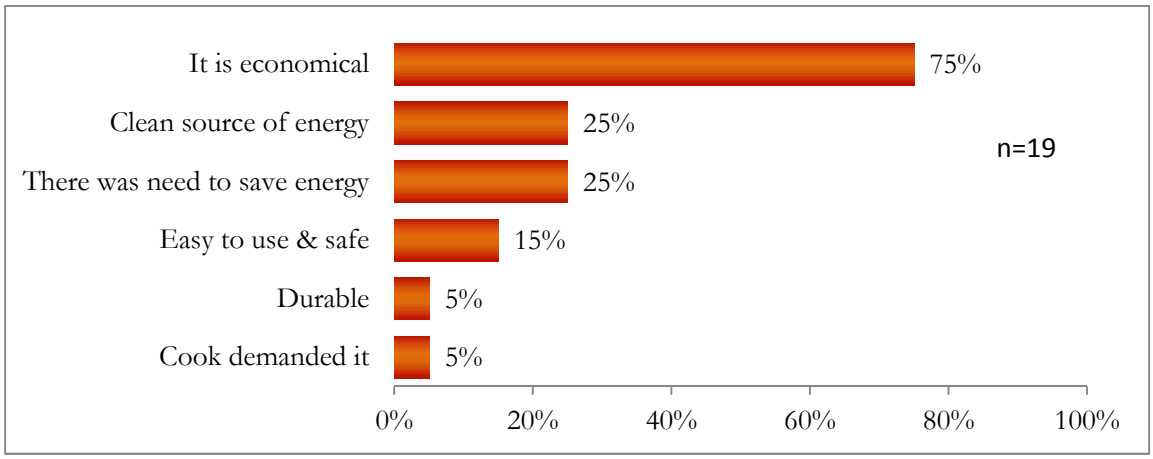


Figure 9: Driving factors for acquisition of improved cooking stoves among institutions.

For the anticipated campaign strategy to be effective, it is imperative for GIZ to take into consideration these drivers for acquisition of improved cooking stoves.

3.6. Hindrances to acquisition of improved cooking stoves

Whereas majority (90%) of the surveyed households indicated their desire to own an improved cooking stove, several hindrances were cited. Among the hindrances cited include lack information on where to acquire such stoves (33%), poverty (31%), limited kitchen space (9%) and lack of information on the existence of such stoves (8%) among others. GIZ EnDev should take advantage of this and diversify the distribution channels of the ICS in order to reach out to more potential customers. Figure 10 below illustrates various hindrances for acquisition of improved cooking stoves among households desiring to own one.

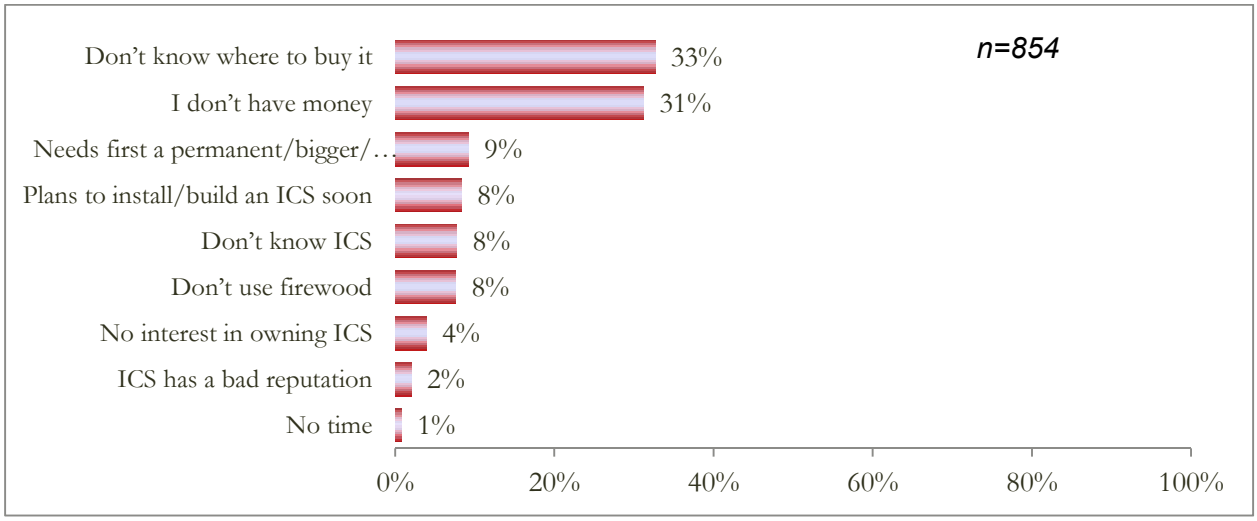


Figure 10: Hindrances to acquisition of improved cooking stoves among households desiring to own one

Ukambani recorded the highest incidence level where surveyed respondents indicated they didn't know where to buy the improved cooking stoves at 49%. This is understandable as Ukambani is not yet a full-fledged GIZ EnDev ICS cluster. On the other hand, 40% of households in central cluster desiring to own an improved cooking stove cited poverty as their main hindrance. Table 11 below outlines the main hindrances for acquisition of improved cooking stoves per cluster.

Table 11: Factors hindering acquisition of improved cooking stoves per cluster

Aspects (n=854)	Central	Western	Transmara	Ukambani
Don't know where to buy it	25%	27%	28%	49%
I don't have money	40%	26%	35%	27%
Needs first a permanent/bigger/ refurbished/relocated kitchen	7%	12%	16%	5%
Plans to install/build an ICS soon	7%	11%	14%	4%
Don't know ICS	8%	12%	0%	6%
Don't use firewood	7%	7%	10%	8%
No interest in owning ICS	9%	2%	4%	2%
ICS has a bad reputation	0%	5%	0%	1%
No time	1%	2%	0%	0%

Similarly majority of the surveyed institutions indicated they don't know where to get improved cooking stoves. A further 22% of the surveyed institutions which do not own an improved cooking stove indicated such stoves are not fit for them because they are small in size. Only 11% of the surveyed institutions which do not own an improved cooking stove indicated they prefer alternative methods of cooking. It is therefore imperative for GIZ EnDev to create awareness on the existence of different sizes of ICS suitable for both households and institutions. Figure 11 below illustrates hindrances to acquisition of improved cooking stoves among surveyed institutions.

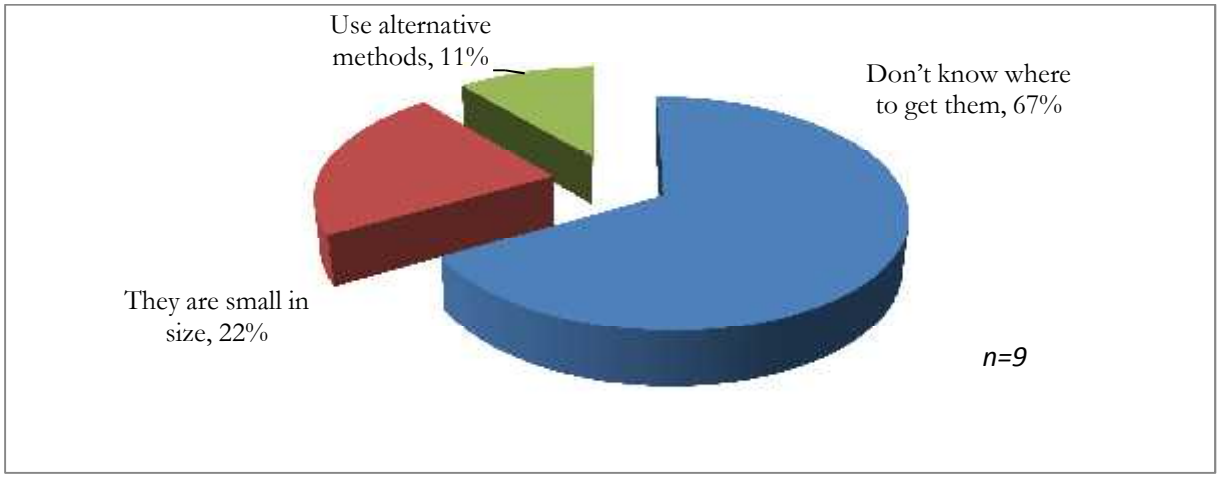


Figure 11: Hindrances to acquisition of improved cooking stoves among surveyed institutions

3.7. Promoters and manufacturers of improved cooking stoves

This survey established that promoters and manufacturers of improved cooking are mainly active in Trans-mara cluster with majority (64%) of the surveyed households indicating they had come across them. However, in all other project implementation clusters, majority of the surveyed households had not come across the promoters and manufacturers of improved cooking stoves. This is indicative that more efforts need to be directed towards these clusters. This also explains the enhanced utilization of improved cooking stoves in Trans-mara cluster. Figure 12 below illustrates accessibility of promoters and manufacturers of improved cooking stoves across the four project implementation clusters.

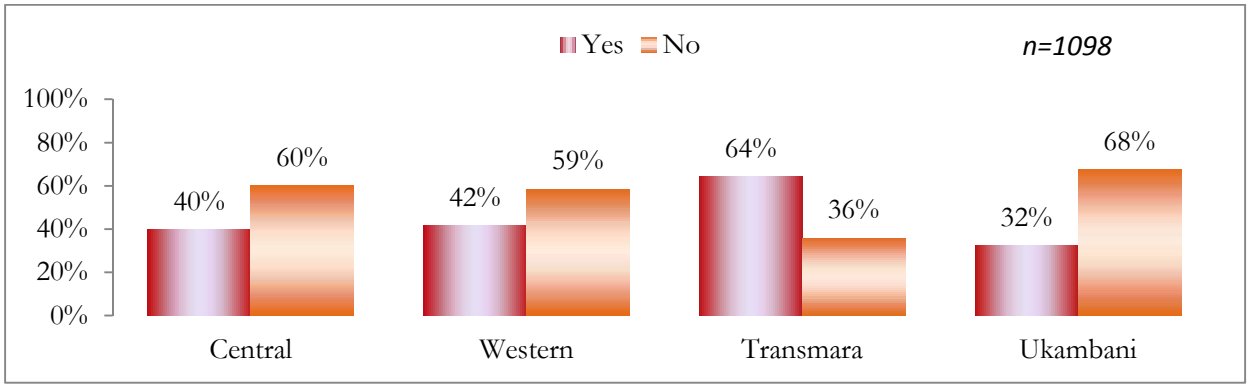


Figure 12: Accessibility of promoters and manufactures of improved cooking stoves

On being asked to rate[4] various attributes of promoters and manufacturers of improved cooking stoves, Ukambani cluster recorded the highest satisfaction levels with the promoters and manufacturers of improved cooking stoves. Table 12 below illustrates satisfaction levels with promoters and manufactures of the improved cooking stoves across the four project implementation clusters.

Table 12: Satisfaction levels with promoters and manufacturers of improved cooking stoves

Attribute (n=470)	Central	Western	Transmara	Ukambani	Aggregate
Reliability	62%	64%	63%	72%	64%
Variety of products & services	63%	59%	62%	72%	63%
Provision of information	61%	61%	62%	71%	63%
Pricing	58%	57%	68%	69%	62%
Advertisements for their products	62%	60%	58%	71%	62%
Customer care services	59%	57%	61%	71%	61%
Complaint handling	58%	57%	61%	69%	61%
Availability	58%	56%	58%	70%	59%
Accessibility	57%	55%	58%	70%	59%

For surveyed institutions, a majority (52%) indicated they had come across promoters and manufacturers of improved cooking stoves. Complaint handling (78%), reliability (76%), customer care services (76%) and variety of products and services (75%) are some of the promoters'/ manufactures' attributes rated highly by the surveyed institutions.

[4] On a scale of 1 to 10 where I very dissatisfied and 10 is very satisfied.

Chapter 4. ATTITUDES AND PERCEPTIONS ON IMPROVED COOKING STOVES

4.1. Attitudes on the Improved Cooking Stoves

A Majority (90%) of the surveyed households which do not currently own an improved cooking stove indicated their willingness to own one. GIZ should take advantage of this goodwill to enhance access and utilization of the improved cooking stoves.

Asked whether they would recommend the improved cooking stove to a friend or relative, a majority (95%) of those who are aware of the improved cooking stoves answered in the affirmative. Among the reasons cited for recommending the improved cooking stove to a friend include: Ability to save energy, efficiency, safety, reliability, cleanliness and durability among others. Figure 13 below illustrates the willingness of the surveyed respondents (who are aware of the improved cooking stove) to recommend it to a friend or relative.

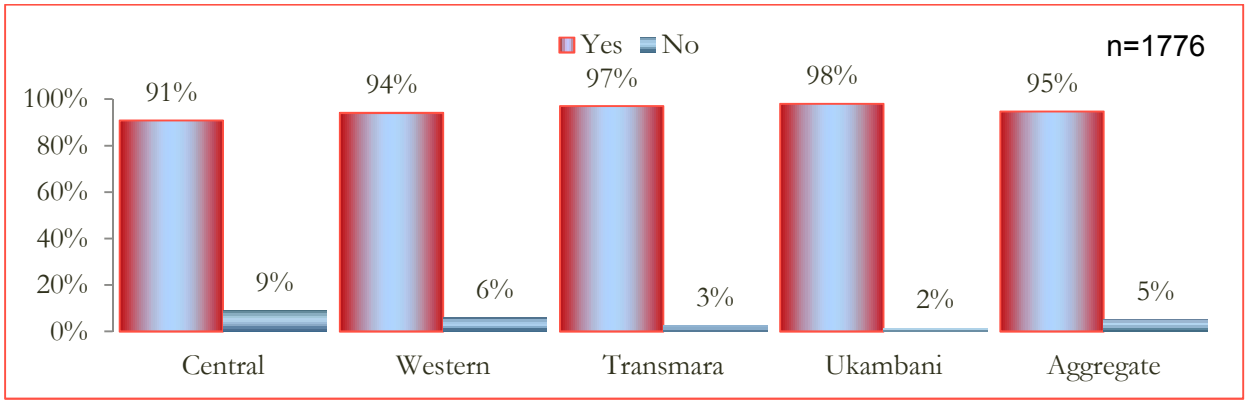


Figure 13: Willingness to recommend improved cooking stove to a friend/ relative

Willingness to recommend the improved cooking stove to a friend was witnessed across the four project implementation clusters. Ukambani and Trans-mara clusters recorded the highest incidence levels of those willing to recommend the improved cooking stove to a friend at 98% and 97% respectively.

Similarly, all the surveyed institutions indicated their willingness to recommend the improved cooking stove to other institutions because of its economic value, efficiency, user-friendly, and durability among others.

For those who are not willing to recommend the improved cooking stove to a friend, they cited various reasons including: Unaffordability, inconvenient for large families, non-portability, scarcity of raw materials and ability to crack easily. In packaging its communication strategy, GIZ should as well take into account these possible threats. For surveyed institutions, several demerits of the improved cooking stoves were mentioned as outlined in table 13 below.

Table 13: Perceived demerits of improved cooking stoves as cited by surveyed institutions

Demerits of Improved cooking stoves (n=28)	Incidence
Costly to acquire ,install and maintain	58%
They are only used when connected to elaborate chimney	26%
They are static , you cannot adjust sizes	16%
Spare parts not easily available	11%
Cannot cook a large quantity of meal	11%
Disadvantage for the firewood seller	5%
It is a bit slow in cooking compared to other sources	5%
It must have enough space	5%
Cannot be used without sawdust	5%
Requires some skills to operate	5%

4.2. Perceived benefits of Improved Cooking Stoves

Surveyed respondents were able to cite several perceived benefits of the improved cooking stoves. Among the cited benefits include: Ability to save energy, efficiency, hygiene, user-friendly, reliability and durability among others. Figure 14 below illustrates the perceived benefits of the improved cooking stoves as per the surveyed respondents.

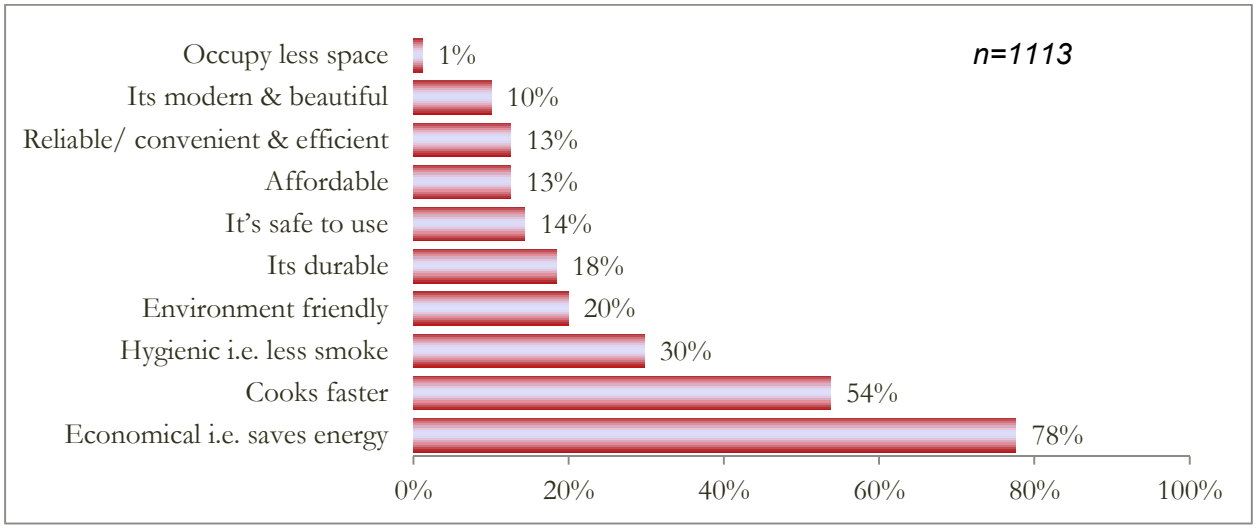


Figure 14: Perceived benefits of improved cooking stoves as per the surveyed households

The economic value of the improved cooking stoves was highly mentioned across the four project implementation clusters. Similarly, efficiency and hygiene of the improved cooking stoves was mentioned across the four clusters. Table 14 below outlines the perceived benefits of the improved cooking stoves across the four project implementation clusters.

Table 14: Perceived benefits of improved cooking stoves per cluster

Perceived Benefits (n=1133)	Central	Western	Transmara	Ukambani
Economical i.e. saves energy	83%	70%	80%	78%
Cooks faster	49%	55%	60%	52%
Hygienic i.e. less smoke	24%	37%	39%	21%
Environment friendly	30%	14%	17%	17%
Its durable	11%	26%	20%	15%
It's safe to use	17%	9%	12%	20%
Reliable/ convenient & efficient	13%	18%	8%	9%
Affordable	18%	22%	2%	2%
Its modern & makes kitchen beautiful	8%	5%	24%	8%
Occupy less space	3%	1%	0%	0%
Produce light	1%	0%	0%	0%
Portable	0%	1%	0%	0%
Creates jobs	0%	0%	1%	0%

During the focus group discussions, some of the surveyed respondents had the following to say:

"…it saves firewood because you only use three sticks." ***FGD Respondent, Thika***

"…the stove produces less smoke compared to three stone open fires..." ***FGD Respondent, Kitui***

"….this stove conserves much heat; you can use two pieces of firewood to cook a whole meal." ***FGD Respondent, Narok***

"…It is clean and environmental friendly." ***FGD Respondent, Kisii***

"….It does not inconvenience my neighbors with smoke." ***FGD Respondent, Kisii***

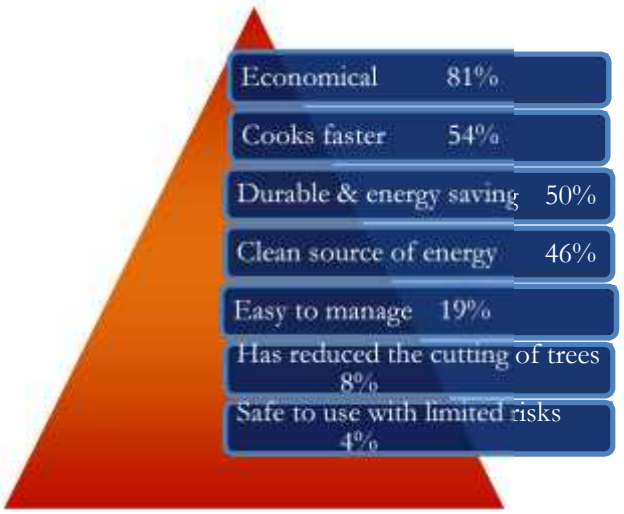
"…It uses very few pieces of firewood to cook food for the whole family." ***FGD Respondent, Siaya***

"…It conserves energy, even after cooking I can boil my bathing water." ***FGD Respondent, Makueni***

"….It cooks very fast and has so much heat." ***FGD Respondent, Murang'a***

"…it doesn't have smoke, you find even your husband siting with you there in the kitchen and you talk love…." ***FGD Respondent, Kisii***

Similarly, surveyed institutions were in a position to cite various benefits associated with improved cooking stoves. Among the benefits cited include: Economic value, efficiency and durability among others. Figure 15 below illustrates the perceived benefits of improved cooking stoves as per surveyed institutions.



n=28

Figure 15: Institutional Perceived benefits of improved cooking stoves

For effective communication campaign, GIZ EnDev should consider using some of these respondents to endorse the improved cooking stoves to would be users. The possibility of marketing the improved cooking stoves through user endorsements is likely to boost the access and utilization of such stoves among the target households and institutions.

Chapter 5. UTILIZED LIGHTING APPLIANCES

5.1. Primary Lighting Appliances

A majority (58%) of the surveyed households indicated they rely on kerosene lamps as their primary appliances of lighting. A further 29% of the surveyed households indicated that electricity is their primary source of lighting. This may be attributed to the intensified Rural Electrification Programme. Only 11% of the surveyed households mentioned solar lanterns as their primary sources of lighting. As such, it is indicative that most households are still reliant on kerosene as their main source of lighting. Consequently, this is the high time for GIZ EnDev to roll out its planned solar lanterns. Figure 16 below illustrates households' primary lighting methods.

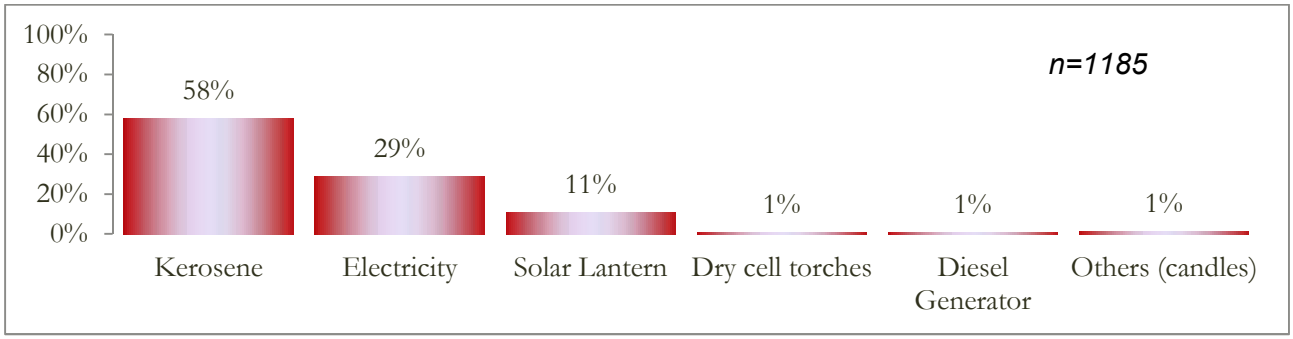


Figure 16: Households' primary lighting methods

Ukambani cluster recorded the highest incidence level of households utilizing kerosene lamps as their primary source of lighting at 70%. Electricity is the main source of lighting in Central cluster at 50% while solar lanterns are mainly utilized in Trans-mara cluster at 17%. Table 15 below illustrates households' primary methods of lighting across the four clusters.

Table 15: Households' primary lighting methods per cluster

Lighting Method (n=1185)	Central	Western	Transmara	Ukambani
Electricity	50%	31%	14%	10%
Solar Lantern	6%	10%	17%	12%
Kerosene	42%	57%	68%	72%
Diesel Generator	-	1%	1%	1%
Dry cell torches	1%	-	-	3%
Others (candles)	1%	1%	1%	2%

On their part, surveyed institutions mainly rely on electricity as their primary source of lighting.

5.2. Secondary Lighting Appliances

On being asked of their secondary lighting appliances, kerosene lamps still came up as the main sources of secondary lighting among the surveyed households at 42%. Dry cells (19%) also came up as a main source of secondary lighting, with 11% of the surveyed households indicating they rely on candles as the secondary source of lighting. Electricity and solar lanterns were each mentioned by 10% of the surveyed households as their secondary source of lighting. Figure 17 below illustrates households' secondary sources of lighting.

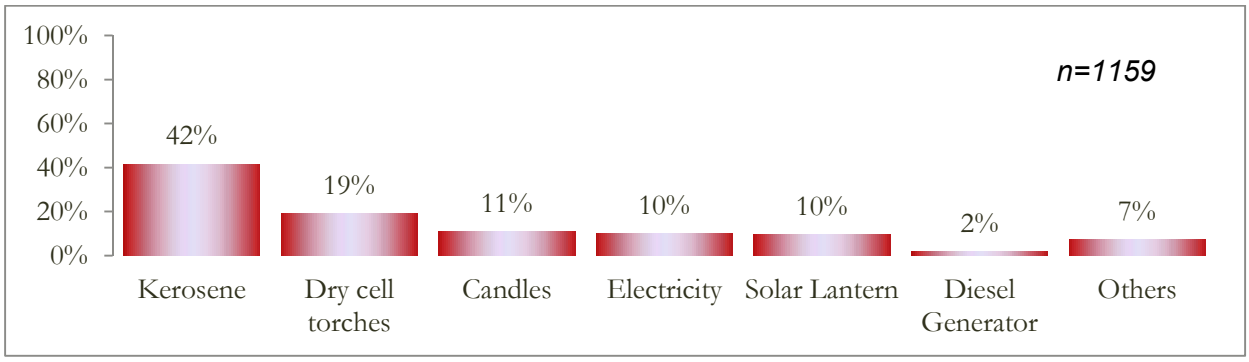


Figure 17: Households' secondary lighting methods

A detailed analysis by cluster indicates that solar lanterns are mainly used as the secondary sources of lighting in Ukambani and Central clusters at 13% and 10% respectively. Table 16 below outlines households' secondary sources of lighting per cluster.

Table 16: Households' secondary lighting methods per cluster

Lighting Method (n=1159)	Central	Western	Transmara	Ukambani
Electricity	17%	12%	2%	3%
Solar Lantern	10%	9%	6%	13%
Kerosene	40%	36%	24%	64%
Diesel Generator	1%	3%	2%	2%
Dry cell torches	7%	20%	45%	14%
Others (candles)	15%	8%	19%	2%

With regard to institutions, diesel generators (46%) and electricity at 33% are the main sources of secondary lighting. Only 21% of the surveyed institutions mentioned kerosene lamps as their primary sources of lighting. Utilization of solar lanterns is quite low among institutions with none of

the surveyed institutions indicating they either rely on solar lanterns as their primary or secondary source of lighting.

5.3. Monthly expenditure on lighting energy

On being asked of their approximate monthly expenditure on lighting energy, 48% of the surveyed households indicated they spend between 100 and 500 Kenya shillings on lighting energy every month. A further 38% of the surveyed households indicated they spend between 501 and 1000 Kenya shillings every month on lighting energy. Only 14% of the surveyed households indicated they spend over 1000 Kenya shillings per month on lighting energy. Figure 18 below illustrates households' monthly expenditure on lighting energy.

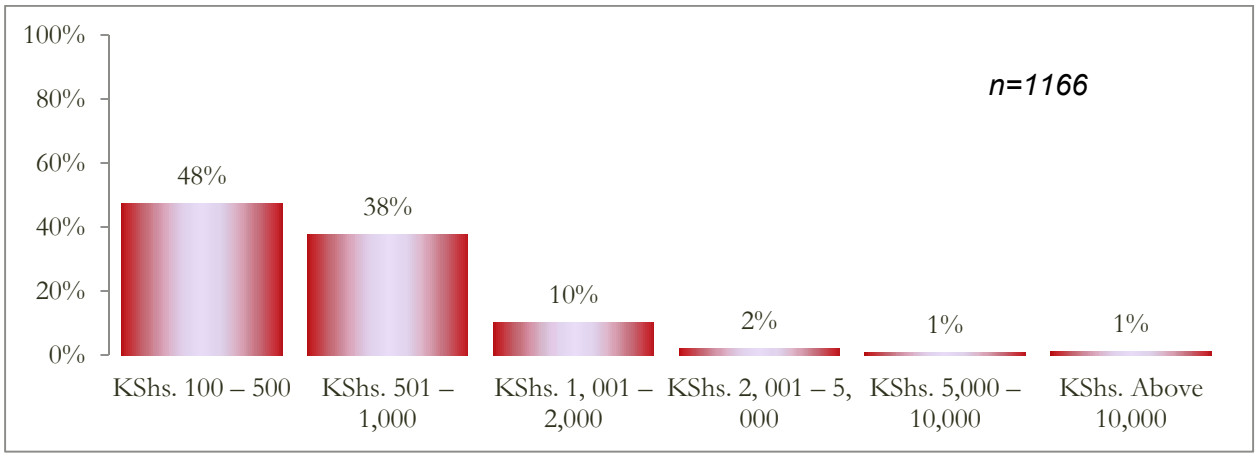


Figure 18: Households' monthly expenditure on lighting energy.

Some of the sentiments as captured from the focus group discussions are highlighted herein below:

"...I use tin lamp and spend about Ksh.50 per week." ***FGD Respondent, Kitui***

"…I use about Ksh.80 worth of paraffin in a week." ***FGD Respondent, Mumias***

"….I spend Ksh.20 per day on paraffin." ***FGD Respondent, Murang'a***

"….in my house, I use on average one litre of kerosene per week which costs Ksh. 80." ***FGD Respondent, Narok***

"…Me I use Solar, and it costs nothing…" ***FGD Respondent, Thika***

"…I spend Ksh.50 per week on paraffin…" ***FGD Respondent, Kisii***

"...I spend Ksh.60 on paraffin per week…." ***FGD Respondent, Narok***

"…I buy paraffin worth Ksh.100 per day…" ***FGD Respondent, Makueni***

"…I spend Ksh.500 per month on lighting…" ***FGD Respondent, Kitui***

The cost of energy is highest in Central and Western clusters with 62% and 60% of the surveyed households mentioning that they spend over 500 Kenya shillings per month on lighting energy respectively. On the other hand, only 44% of the surveyed households in Ukambani cluster mentioned they spend over 500 Kenya shillings per month on lighting energy. Table17 below outlines households' monthly expenditure on lighting energy per cluster.

Table 17: Households' monthly expenditure on lighting energy per cluster

Expenditure (Ksh.) n=1166	Central	Western	Transmara	Ukambani
100 – 500	38%	40%	52%	66%
501 – 1,000	46%	41%	33%	27%
1, 001 – 2,000	10%	12%	13%	6%
2, 001 – 5, 000	3%	3%	2%	1%
5,000 – 10,000	1%	1%	1%	0%
Above 10,000	1%	3%	-	0%

A detailed analysis of monthly expenditure on various lighting methods indicate that a majority (61%) of households which rely on solar lantern spend between 100 and 500 Kenya shillings per month on lighting energy. Table 18 below outlines households' monthly expenditure on lighting energy per lighting device.

Table 18: Households' monthly expenditure on lighting energy per lighting device

Lighting Method (n=1166)	Shs. 100 – 500	Shs. 501 – 1,000	Shs. 1, 001 – 2,000	Shs. 2, 001 – 5, 000	Shs. 5,000 – 10,000	Shs. Above 10,000
Electricity	31%	43%	20%	5%	1%	1%
Solar Lantern	61%	30%	8%	1%	-	-
Kerosene	53%	37%	6%	1%	1%	2%
Diesel Generator	14%	29%	-	43%	-	14%
Dry cell torches	33%	33%	22%		-	11%
Candles	50%	25%	25%	-	-	-
Others	58%	33%	8%	-	-	-

With respect to institutions, a majority (86%) of the surveyed institutions indicated they spend over 3000 Kenya shillings per month on lighting energy.

5.4. Ownership of Solar Devices

A significant number (30%) of the surveyed households indicated that they own a solar lighting device. Western and Ukambani clusters recorded the highest incidence levels of households which own a solar lighting device at 38% and 32% respectively. Figure 19 below illustrates ownership of solar lighting devices across the four project implementation clusters.

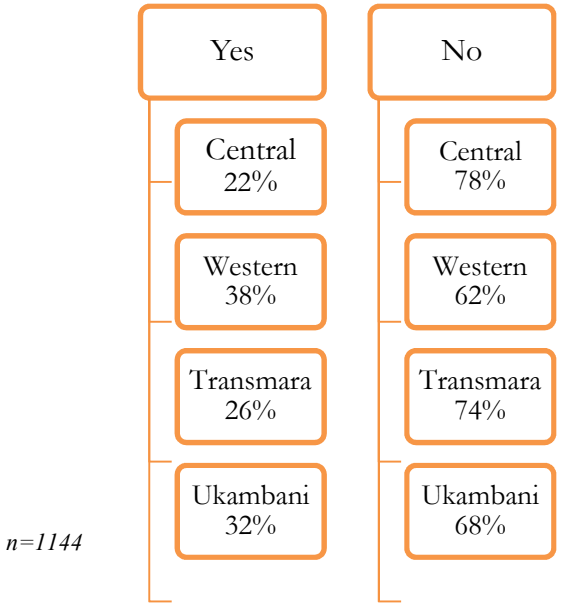


Figure 19: Ownership of solar lighting devices per cluster

Thirty nine per cent (39%) of households which own a solar lighting device indicated that their device is a solar panel, with another 34% of the households indicating their device is solar torch. Solar lanterns constitute 27% of solar devices owned by the surveyed households.

Eight in every ten surveyed households owning a solar lighting device indicated their solar devices were indeed functional. Of the solar devices which were not functional, several reasons were cited including: Malfunctioned battery, break down of the solar devices, misplacement of components of the devices and insufficient sunlight.

A significant number of the surveyed households which do not currently own a solar lighting device expressed their willingness to own one. Asked about the amount of money they are willing to spend on acquiring a solar lantern, 40 % of the households quoted 100 to 500 Kenya shillings. Only 34% of the surveyed households are willing to spend over 1000 Kenya shillings on solar lanterns. In its communication campaign, GIZ EnDev should explain to the potential users of such solar lanterns on the amount of money they are going to save in utilizing the solar devices; its cost notwithstanding.

Figure 20 below illustrates the amount of money surveyed households are willing to spend on solar lanterns.

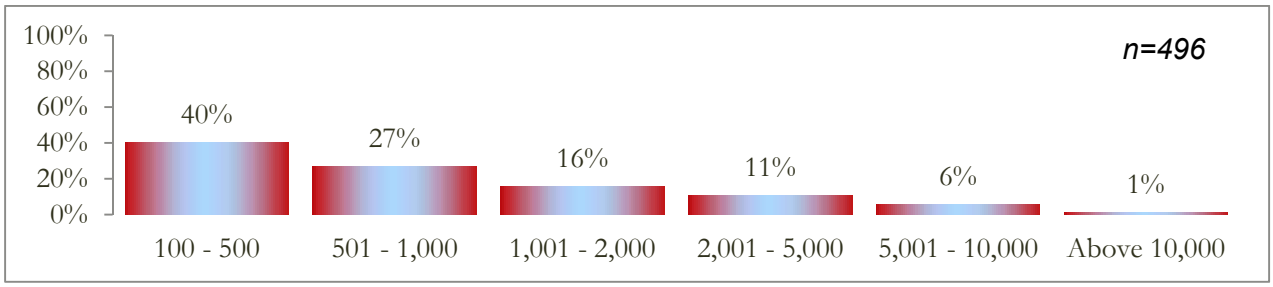


Figure 20: Amount of money surveyed the households are willing to spend on solar lanterns

A majority (71%) of the surveyed household in Ukambani cluster expressed their willingness to spend between 100- 500 Kenya shillings on solar lighting devices. Table 19 below outlines the amount of money the surveyed households are willing to spend on solar lighting devices per cluster.

Table 19: Amount of money households are willing to spend on solar lanterns per cluster

Expenditure (Kshs.) n= 496	Central	Western	Transmara	Ukambani
100 - 500	41%	29%	27%	71%
501 - 1,000	4%	23%	45%	17%
1,001 - 2,000	27%	17%	17%	8%
2,001 - 5,000	16%	18%	10%	1%
5,001 - 10,000	12%	11%	2%	2%
Above 10,000	0%	2%	0%	2%

With regard to surveyed institutions, a majority (85%) of them expressed their willingness to spend over 1000 Kenyan shillings on solar lighting devices. Table 20 below illustrates the amount of money surveyed institutions are willing to spend on solar lanterns.

Table 20: Amount of money institutions are willing to spend on solar lanterns

Preferred Expenditure (Kshs) n= 28	Incidence (%)
Less than 1000	15%
1001 – 5000	20%
5,001 – 10000	5%
10001 - 50000	10%
Above 50000	50%

Chapter 6. COMMUNICATION AND ACCESS TO INFORMATION

6.1. Source of Information on Improved Cooking Stoves

Radio (42%) was cited by the surveyed respondents as their main source of information on improved cooking stoves. A further 31% of the surveyed respondents indicated that they heard about the improved cooking stoves through the word of mouth. As such, it is imperative for future communications to focus more on these channels of communication. Table 21 below outlines the various sources of information through which surveyed respondents heard about the improved cooking stoves.

Table 21: Sources of Information on improved Cooking Stoves

Source of Information n=1077	Percentage (%)	Source of Information n=1077	Percentage (%)
Radio	42%	Billboards	2%
Common Talk /Word of Mouth	31%	Leaflets	2%
Market Centre	14%	Flyers	2%
Television	12%	Magazines/	2%
Church	9%	Paintings/ Sculpture/handicrafts	1%
Chief's Baraza	7%	Political rallies	1%
NGOs	6%	Internet	1%
Newspapers	4%	Drama, Skits, puppet shows /Poetry	1%

Detailed analysis of sources of information on improved cooking stoves per cluster indicates that a majority (65%) of the surveyed respondents in Ukambani have heard about the improved cooking stove through radio. In Trans-mara cluster, a significant (48%) number of the surveyed respondents indicated that they heard about the improved cooking stoves through the common talk. Table 22 below presents detailed analysis of various sources of information on improved cooking stoves per cluster.

Table 22: Sources of Information on improved Cooking Stoves per cluster

Source of Information (n=1077)	Central	Western	Transmara	Ukambani
Radio	35%	30%	42%	65%
Common Talk /Word of Mouth	31%	35%	48%	11%
Market Centre	19%	11%	27%	3%
TV	25%	12%	3%	6%
Church	6%	13%	13%	5%
Chief's baraza	1%	13%	9%	5%
NGOs	0%	2%	8%	15%
Newspapers	9%	3%	1%	2%
Billboards	0%	7%	1%	0%
Leaflets	3%	2%	3%	1%
Flyers	6%	1%	0%	0%
Magazines/	0%	4%	0%	1%
Paintings/ Sculpture/handicrafts	0%	2%	4%	0%
Political rallies	2%	2%	2%	0%
Internet	1%	1%	0%	1%
Drama, Skits, puppet shows /Poetry	0%	0%	2%	0%
Booklets	1%	0%	0%	0%
Music & song	0%	0%	2%	0%
Garments/ head gear/costumes	1%	0%	0%	0%
Others (i.e. Women Groups/Churches)	4%	15%	5%	4%

During the focus group discussions, some of the surveyed respondents had the following to say:

"…there is a group of people who came to church and showed us how to make them." ***FGD Respondent Makueni***

"….us we were invited by a group of experts from GIZ who came to teach the people on how to make and use the stoves…." ***FGD Respondent, Mumias***

"…I heard of it at our self-help group." ***FGD Respondent, Murang'a***

"…I saw it during the Kisii Agricultural Show. They were actually cooking food using the same stove……and that is how I got to know about it..." ***FGD Respondent, Kisii***

On their part, a majority (74%) of the surveyed institutions indicated that they knew about the improved cooking stoves through the television. Radio was mentioned by 44% of the surveyed

institutions as their source of information on improved cooking stoves. Figure 21 below illustrates various sources of information on improved cooking stoves as cited by the surve n=28 ns.

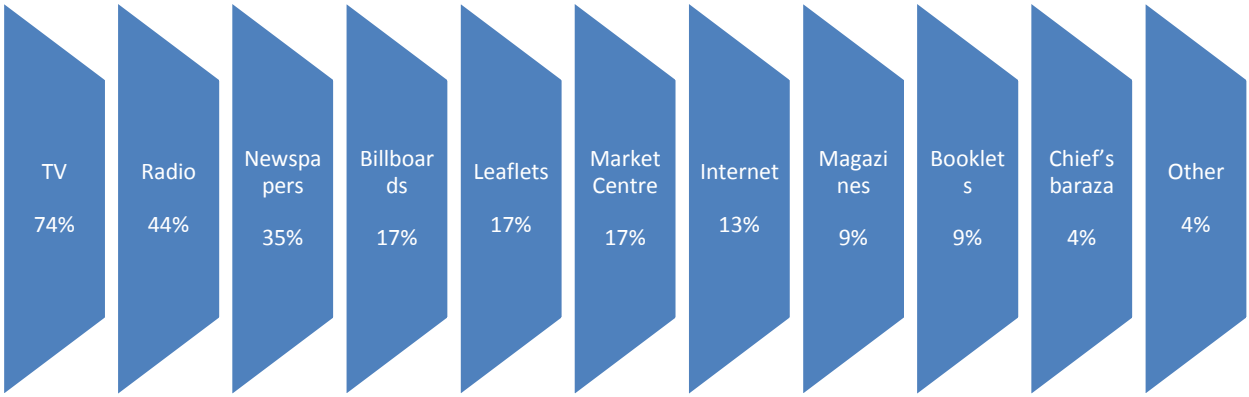


Figure 21: Sources of information on improved Cooking Stoves as per surveyed institutions

6.2. Preferred sources of Information on Improved Cooking Stoves

A majority (67%) of the surveyed respondents mentioned radio as their preferred source of information on improved cooking stoves. A further 25% of the surveyed respondents mentioned television as their most preferred source of information on improved cooking stoves. This is indicative that mass media is still the most preferred source of information on social issues. Table 23 below outlines the preferred sources of information on improved cooking stoves

Table 23: Preferred Sources of Information on improved Cooking Stoves

Preferred source of information n=1077	Percentage (%)	Preferred source of information	Percentage (%)
Radio	67%	Leaflets	4%
TV	25%	Political rallies	4%
Market Centre	15%	Billboards	3%
Chief's Baraza	13%	Magazines/	2%
Church	11%	Internet	2%
Newspapers	11%	Flyers	2%
Common Talk / Gossip/Word of Mouth	9%	Booklets	1%
NGOs	5%	Music & song	1%

Radio came up as the most preferred source of information on improved cooking stoves across the four project implementation clusters. Ukambani cluster recorded the highest incidence level of households which prefer radio to get information on improved cooking stoves at 87%. On the other

hand, television was mainly mentioned in the Central cluster as a preferred source of information on improved cooking stoves at 38%. Table 24 below outlines the preferred sources of information on improved cooking stoves across the four project implementation clusters.

Table 24: Preferred Sources of Information on improved Cooking Stoves per cluster

Preferred source of information n=1077	Central	Western	Transmara	Ukambani
Radio	59%	53%	76%	87%
TV	38%	26%	7%	20%
Market Centre	10%	11%	41%	5%
Chief's baraza	3%	20%	22%	8%
Church	6%	15%	13%	13%
Newspapers	20%	10%	4%	5%
Common Talk / Gossip/Word of Mouth	14%	10%	7%	6%
NGOs	7%	5%	8%	2%
Leaflets	1%	6%	8%	3%
Political rallies	1%	5%	9%	1%
Billboards	0%	9%	1%	0%
Magazines/	1%	4%	2%	1%
Internet	2%	2%	3%	1%
Flyers	3%	1%	0%	1%
Booklets	3%	1%	1%	0%
Music & song	1%	1%	1%	1%
Drama, Skits, puppet shows /Poetry	0%	0%	0%	1%
Paintings/ Sculpture/handicrafts	0%	1%	1%	0%
Garments/ head gear/costumes	1%	0%	0%	0%

During the focus group discussions, surveyed respondents had the following to say:

"….they should put announcement at Musyi FM." ***FGD Respondent, Makueni***

"….they should come here and demonstrate practically…." ***FGD Respondent, Murang'a***

"…they can use the churches to market the stoves because many people here go to church on Sundays..." ***FGD Respondent, Mumias***

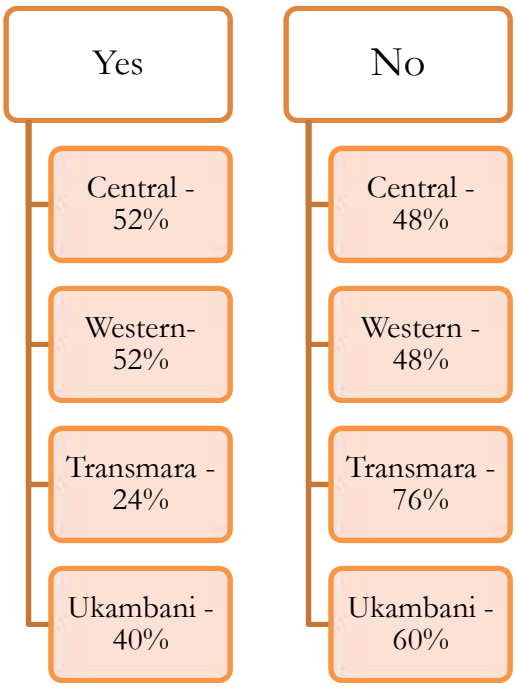
"…I think Women Groups can do a great job in advertising these stoves. Like the group I mentioned earlier, they are 25 in number and all of them have these stoves." ***FGD Respondent, Kisii***

6.3. Mass Media Usage

6.3.1 Television

A majority (58%) of the surveyed respondents indicated that they have not watched television in the recent past. As such, television may not be the best channel of communicating information on improved cooking stoves to members of the general public. However, it may be effective for passing information to institutions as cited earlier in this report.

Figure 22: Television viewership across the four project implementation cluster



n=1249

Central and Western clusters recorded the highest incidence levels of television viewership each at 52%. On the other hand, Trans-mara cluster recorded the lowest incidence level of television viewership at 24%. Majority of those who watch television indicated they watch it between 7 PM to 8 PM

Detailed analysis of television viewership per cluster is available at the annexures.

Citizen TV, KBC, KTN and NTV came out as the most watched television stations. In case of communicating anything about the improved cooking stoves through the TV, it is therefore imperative to utilize such TV stations. Figure 23 below illustrates the most watched television stations.

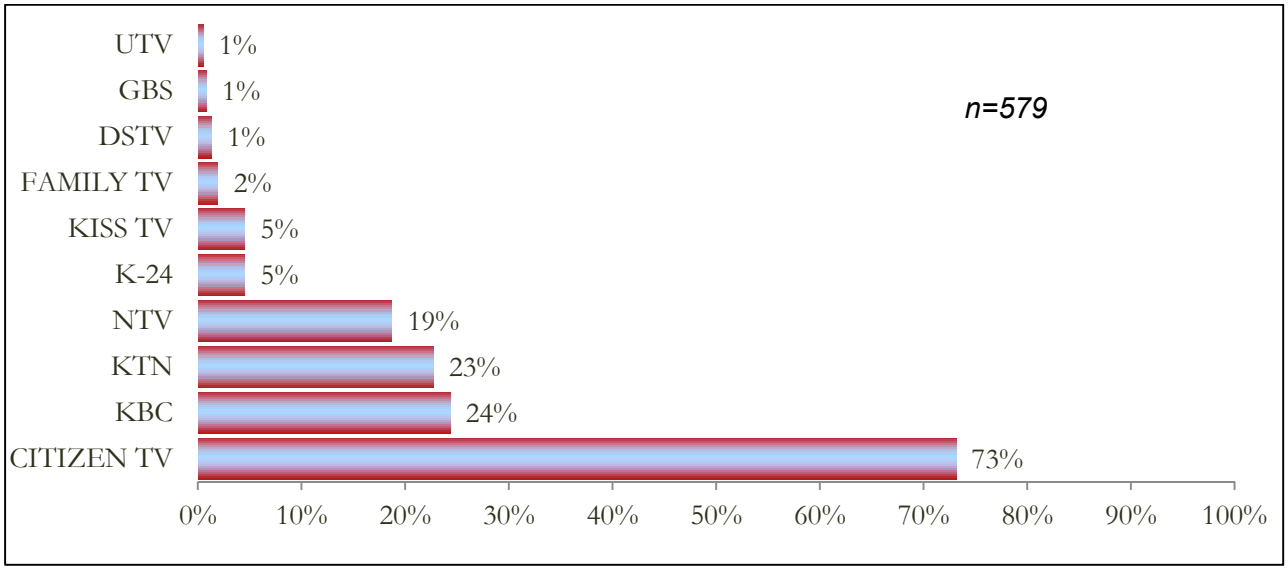


Figure 23: Most watched television stations

Citizen TV is the most popular across the four project implementation clusters. Table 25 below outlines popularity of various television stations across the project implementation clusters

Table 25: Popularity various TV stations across the project implementation clusters

Television Station n=579	Central	Western	Transmara	Ukambani
CITIZEN TV	77%	81%	79%	48%
KBC	8%	30%	39%	41%
KTN	7%	47%	29%	13%
NTV	18%	19%	25%	15%
K-24	7%	1%	6%	4%
KISS TV	6%	8%	0%	0%
FAMILY TV	3%	0%	2%	3%
DSTV	1%	0%	0%	4%
GBS	0%	1%	0%	3%
UTV	0%	0%	0%	3%
ETV	1%	0%	0%	0%
SAYARE	0%	0%	0%	1%

Further, Citizen TV is the most favorite television station among the surveyed respondents at 70%. KBC, NTV and KTN television stations were mentioned as the favorite television stations by 11%, 7%, and 7% of the surveyed respondents respectively. Others mentioned include: DSTV (2%) and K24 (1%). Comprehensive list of preferred television programs is available at the annexures.

6.3.2 Newspapers

With regard to print media, the Daily Nation (69%), the Standard (32%) and Citizen (14%) came out as the popular newspapers. In case of communicating anything through the print media, it is therefore imperative for GIZ to consider utilizing these newspapers. Figure 24 below illustrates the most popular newspapers as cited by the surveyed respondents.

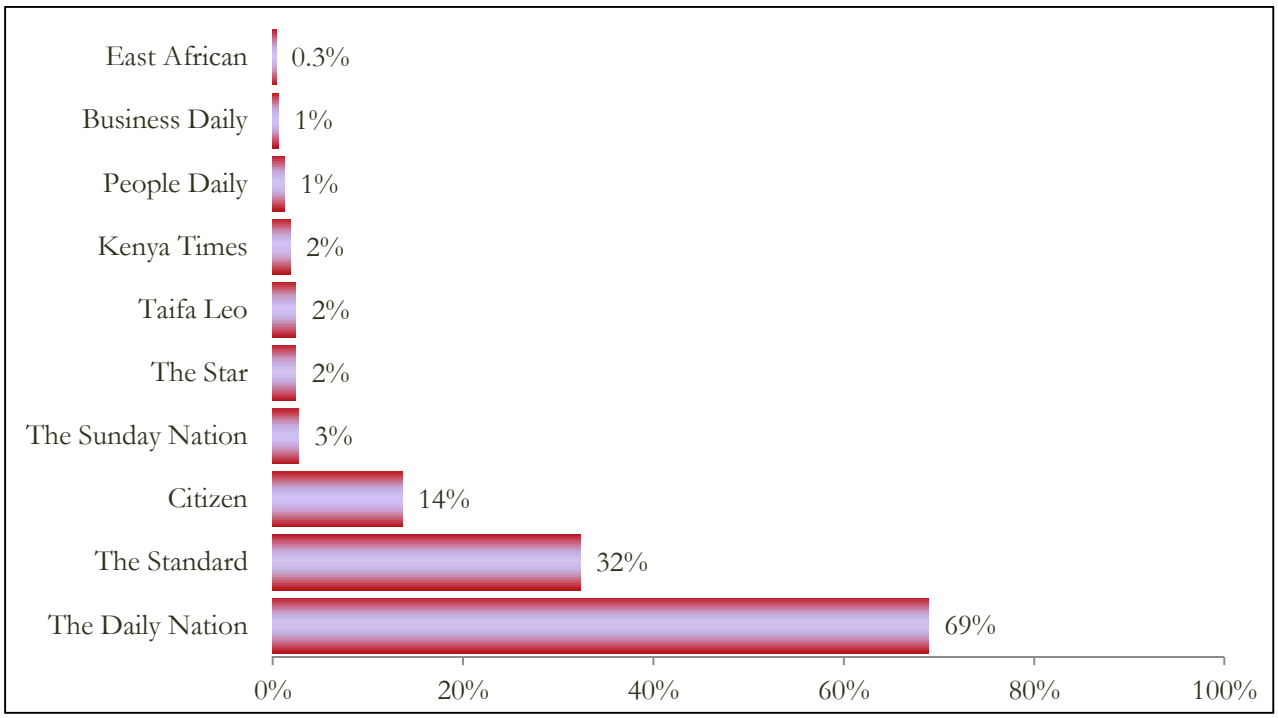


Figure 24: Most read newspapers

The Daily Nation is the most popular newspaper in Central (75%), Transmara (65%) and Ukambani (82%) clusters. On the other hand, the Standard is the most popular newspaper in Western cluster at 69%. Similarly, the Daily Nation is the most favorite newspaper in Central, Transmara and Ukambani clusters at 72%, 46% and 69% respectively. The Standard is the most favorite newspaper in Western cluster at 59%. Table 26 below outlines the popularity of various newspapers across the four project implementation clusters.

Table 26: Popularity of various newspapers across the project implementation clusters

Newspaper/ Publication n=418	Central	Western	Transmara	Ukambani
The Daily Nation	75%	52%	65%	82%
The Standard	8%	69%	54%	20%
Citizen	19%	11%	2%	15%
The Sunday Nation	7%	0%	0%	0%
The Star	1%	1%	10%	2%
Taifa Leo	0%	0%	15%	0%
Kenya Times	0%	1%	0%	8%
People Daily	1%	4%	0%	0%
Business Daily	2%	0%	0%	0%
East African	1%	0%	0%	0%

This survey established that newspapers are mainly read on weekends. Figure 25 below illustrates the preferred days of reading a newspaper as per the surveyed respondents.

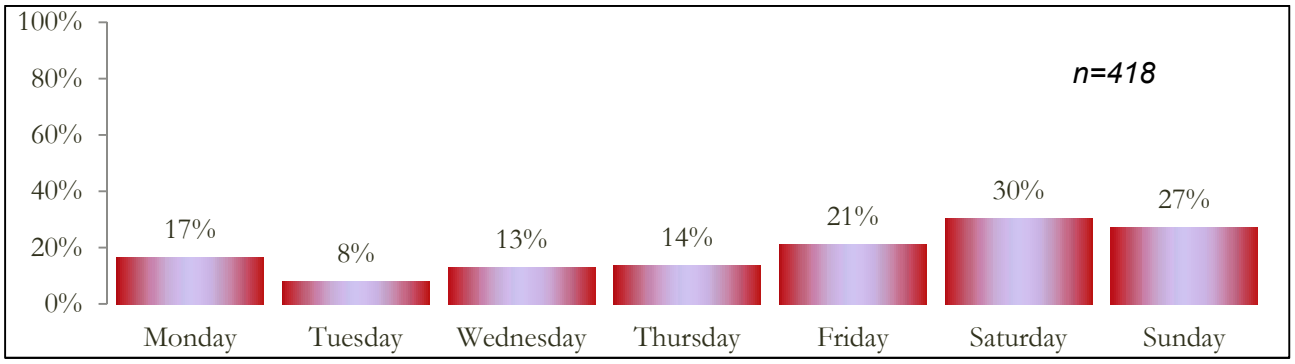


Figure 25: Preferred days of reading a newspaper

Table 27 below outlines the preferred days of reading a newspaper across the four project implementation clusters.

Table 27: Preferred days of reading a newspaper across the project implementation clusters

Newspaper/ Publication n=418	Central	Western	Transmara	Ukambani
Monday	18%	5%	35%	13%
Tuesday	15%	1%	4%	6%
Wednesday	16%	18%	10%	2%
Thursday	24%	6%	6%	7%
Friday	18%	32%	29%	6%
Saturday	17%	37%	21%	64%
Sunday	43%	27%	8%	6%

The most preferred sections of newspapers are outlined in the annexures.

6.3.3 Radio

A majority (85%) of the surveyed respondents indicated they do listen to radio often. Radio is mainly listened to in the morning (6 AM to 9 AM) and in the evening (6 PM to 9 PM). Detailed analysis of preferred timings for listening to a radio is outlined at the annexures. During the fouc group discussions some of the surveyed respondents had the following to say.

"…almost everyone has a Radio." ***FGD Respondent, Murang'a***

"…*You know right now the Newspapers are costing Ksh.50 and you cannot afford Ksh.50 daily. Instead you buy batteries for 50/= and it will take you for two weeks."* ***FGD Respondent, Kisii***

"….*Even on the phone you get the Radio****." FGD Respondent, Makueni***

Various vernacular FM radio stations appear to be the most popular across the four project implementation clusters. Overall, Citizen Radio is the most popular radio station at 23%. This may be attributed to its ability to present its programs in local Kiswahili language. Table 28 below outlines popularity of various Radio stations as cited by surveyed respondents.

Table 28: Popularity of various Radio station

Radio Station n=837	Percentage (%)	Radio Station	Percentage (%)
Citizen FM	23%	Milele FM	5%
Musyi FM	17%	Ramogi FM	4%
Inooro FM	12%	Q FM	4%
Chamge FM	10%	Easy FM	3%
Kameme FM	10%	Capital FM	2%
Mayienga FM	9%	Mulembe FM	2%
Kass FM	8%	Classic FM	1%
Radio Jambo FM	7%	Venus FM	1%
Coro FM	7%	Hot 96 FM	1%
Mbaitu FM	6%	Kitwek FM	1%
Egesa FM	6%	Radio Lake Victoria	1%
Kiss FM	5%	Bibilia Husema FM	1%
KBC Swahili	5%	Sayare FM	1%
West FM	5%	KBC English Service	1%

Detailed analysis indicates that vernacular radio stations are the most popular at the respective regions. Musyi FM commands the lead in Ukambani cluster while Inooro and Kameme FM command the lead in Central cluster. Chamge FM is the most popular Radio Station in Transmara cluster with Citizen FM commanding the lead in Western cluster. Table 29 below outlines the popularity of various Radio stations across the project implementation clusters.

Table 29: Popularity of various Radio stations per cluster

Radio Station n=837	Central	Western	Transmara	Ukambani
Citizen FM	10%	33%	36%	14%
Musyi FM	0%	1%	0%	69%
Inooro FM	43%	0%	0%	1%
Chamge FM	1%	0%	42%	0%
Kameme FM	37%	0%	0%	0%
Mayienga FM	0%	21%	0%	0%
Kass FM	0%	1%	30%	0%
Radio Jambo FM	2%	21%	3%	1%
Coro FM	25%	0%	0%	0%
Mbaitu FM	0%	0%	0%	23%
Egesa FM	0%	1%	23%	0%
Kiss FM	5%	14%	2%	1%
KBC Swahili	1%	5%	7%	7%
West FM	0%	19%	0%	0%
Milele FM	1%	14%	5%	1%
Ramogi FM	1%	17%	0%	0%
Q FM	4%	1%	11%	0%
Easy FM	3%	6%	2%	3%
Capital FM	2%	2%	2%	1%

Detailed analysis of preferred radio programs is available at the annexures.

Chapter 7. CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion

Since 2006, GIZ EnDev has distributed improved cooking stoves to over 1,300,000 households. This survey established that there is marked improvement in access and utilization of improved cooking stoves. The survey findings indicate that a significant number of households are currently utilizing improved cooking stoves as either their primary or secondary cooking and heating appliances. Twenty four per cent (24%) of the surveyed households indicated they use an improved cooking stove as their primary cooking appliance. A further 8% of the surveyed households indicated they rely on an improved cooking stove as their secondary cooking appliance. This is an indication that GIZ EnDev campaigns on utilization of improved cooking stoves are bearing fruits and will go a long way in conserving our forest cover. However, despite these marked improvements, there are still a good number of households (46%) relying on traditional three stone open fires as their primary cooking appliances. Another 41% of the surveyed households indicated that they rely on charcoal metal stoves as their secondary cooking appliance. Continued reliance on these wood consuming cooking appliances poses a big threat to Kenya's forest cover which is far below the recommended forest cover of 10%.

A majority (59%) of the surveyed households are spending over 500 Kenya shillings per month on cooking and heating energy. According to World Bank report, a bigger proportion of households in Kenya are living below one dollar a day. As such, expenditure on cooking and heating energy is posing a serious burden to the already overburdened households. Further, the cost of energy has significantly gone up. For example, the cost of a bag of charcoal in Kenya has increased with over 500% in the last three years. This situation is not through choice but from poverty and the lack of alternatives, and is often termed 'energy poverty' and its effects have exacerbated the exclusion of the poor from economic, political and business life.

This survey established that a higher proportion (41%) of the surveyed households acquired their improved cooking stoves by themselves. However, GIZ's ICS promoters and manufacturers have

also played a significant role in the acquisition of these stoves. Twenty seven percent (27%) of households utilizing improved cooking stoves indicated they acquired them through either through a promoter or manufacturer.

The associated benefits of the improved cooking stove were mentioned as the major driving factor for acquisition of such stoves. However, there are still several factors like the cost element and inadequate accessibility which hinder acquisition of such stoves. GIZ EnDev needs to come up with modalities of addressing these hindrances.

With regard to lighting devices, only 11% of the surveyed households mentioned solar lanterns as their primary sources of lighting. It is thus indicative that most households are still reliant on kerosene as their main source of lighting. Consequently, this is the high time for GIZ EnDev to roll out its planned solar lanterns.

7.2. Recommendations

In order to enhance acquisition and utilization of improved cooking stoves, the following recommendations are made:

a) A majority (90%) of the surveyed households which do not currently own an improved cooking stove indicated their willingness to own one. GIZ EnDev should thus take advantage of this goodwill to enhance access and utilization of the improved cooking stoves.

b) A significant number (33%) of the surveyed households indicated they intend to acquire an improved cooking stove but they do not know where to acquire such stoves. It is therefore imperative for GIZ EnDev to diversify their distribution channels of improved cooking stoves in order to reach out to more customers.

c) The size of the improved cooking stoves was cited by some of the surveyed households as a hindrance to acquisition of such stoves owing to their limited kitchen space. Similarly, some institutions cited the size of the stoves as a hindrance to acquisition of such stoves. It is

therefore imperative for GIZ EnDev to create awareness on the existence of different sizes of ICS customized for both households and institutions.

d) An overwhelming majority (95%) of households and institutions utilizing improved cooking stoves expressed their willingness to recommend such stoves to a friend or a relative due to their associated benefits. GIZ EnDev should thus take advantage of this goodwill and utilize the current users of ICS to endorse such stoves to potential users. Alternatively, GIZ EnDev can make use of popular personalities in those clusters to endorse the stoves.

e) Radio (42%) was cited by the surveyed respondents as their main source of information on improved cooking stoves. A further 31% of the surveyed respondents indicated that they heard about the improved cooking stoves through the word of mouth. On their part, a majority (74%) of the surveyed institutions indicated that they knew about the improved cooking stoves through the television. As such, it is imperative for future communications to focus more on these channels of communication.

f) GIZ EnDev should continue creating awareness on the benefits of utilizing improved cooking stoves. A majority (67%) of the surveyed respondents mentioned radio as their preferred source of information on improved cooking stoves. GIZ should thus utilize the various popular radio stations across the project implementation clusters to create awareness on the existence and benefits of improved cooking stoves. Other effective sources of information on improved cooking stoves like Word of Mouth and Television should also be utilized.

g) This survey established that promoters and manufacturers of improved cooking are mainly active in Trans-mara cluster with majority (64%) of the surveyed households indicating they had come across them. However, in all other project implementation clusters, majority of the surveyed households had not come across the promoters and manufacturers of improved cooking stoves. This is indicative that more efforts need to be directed towards Western and Central clusters.

h) GIZ EnDev should intensify its sensitization workshops on the improved cooking stoves across the project implementation clusters. This has been quite effective in the Transmara cluster as indicated earlier in this report. In order to ensure maximum stakeholder participation, such workshops should target all segments of the population including women, men, opinion leaders, administrative leaders, community based organizations, local institutions and organizations. GIZ EnDev should also make use of forums such as Chiefs' Barazas, Market days, community gatherings and agricultural shows to sensitize communities on the benefits of the improved cooking stoves.

i) Inadequate expertise was mentioned as one of the hindrance to acquisition of improved cooking stoves. GIZ EnDev should therefore consider building the capacity of more experts to install such stoves across the project implementation clusters.

j) In order to enjoy from economies of scale, GIZ EnDev should enhance its partnerships with other like-minded organizations like local community based organizations in order to create awareness on the benefits of the improved cooking stoves. GIZ should also make use of the existing government structures like the Provincial Administration to market and promote the improved cooking stoves.

k) Regular evaluation of the project is imperative in order to document the impact of the project, successes, challenges and lessons learnt. This will ensure that the project remains relevant and sustainable.

l) GIZ EnDev should consider introducing an Improved Cooking Stoves Day to commemorate achievements made in promoting acquisition of such stoves. This forum may be used to mobilize and sensitize communities on conservation and rehabilitation of natural resources as well as creating awareness on the benefits of the improved cooking stoves.

m) GIZ EnDev should consider engaging youth organizations in the project implementation clusters to create awareness on the existence and benefits of improved cooking stoves. Awareness creation by the youths in a community has an important multiplier effect as they can pass on information to their own parents, neighbors and the society at large.

n) GIZ EnDev should as well continue to use any other available means of marketing their stoves including participating in exhibitions and media talks to explain on the need to utilize the improved cooking stoves.

o) GIZ EnDev should consider introducing organized groups such as women groups to financial institutions for provision of loan facilities to acquire the improved cooking stoves. A case in point is a women group in Murang'a which has assisted their members to access loan facilities for acquisition of improved cooking stoves.

p) GIZ EnDev should come up with ways of recognizing personalities/ organizations playing an exemplary role in the promotion of improved cooking stoves. This can be by way of an award, incentive of through provision of a certificate of recognition.

q) All in all the improved cooking stoves project is a good initiative and GIZ should consider rolling it out throughout the country.

r) A significant number of the surveyed households which do not currently own a solar lighting device expressed their willingness to own one. However, only 34% of the surveyed respondents are willing to spend over 1000 Kenya shillings on solar lanterns. In its communication campaign, GIZ EnDev should explain to the potential users of such solar lanterns on the amount of money they are going to save in utilizing the solar devices; its cost notwithstanding.

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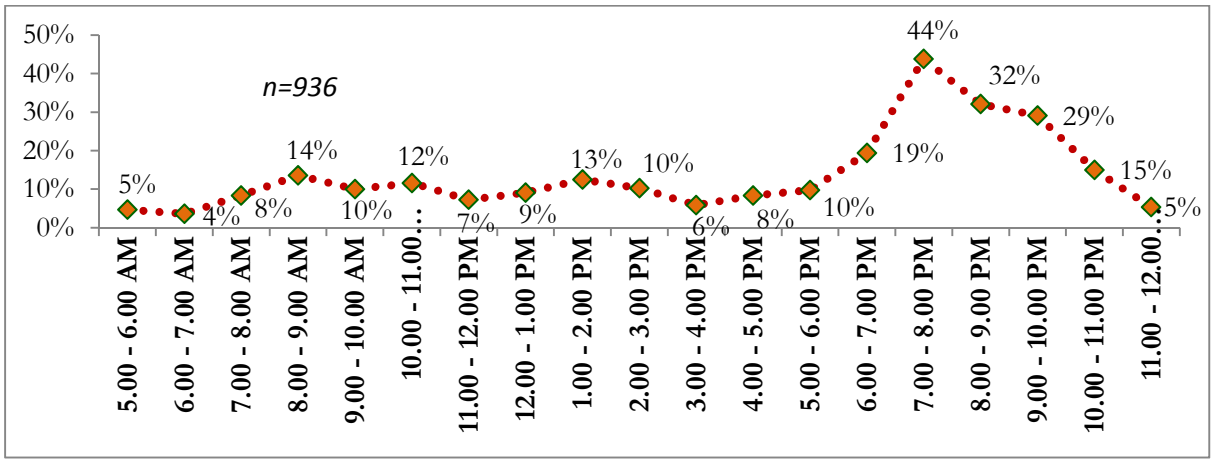
f) Improved Cooking Stoves Results Assessment Survey- January 2008;

g) PSDA Households' Stoves Baseline Survey- 2006;

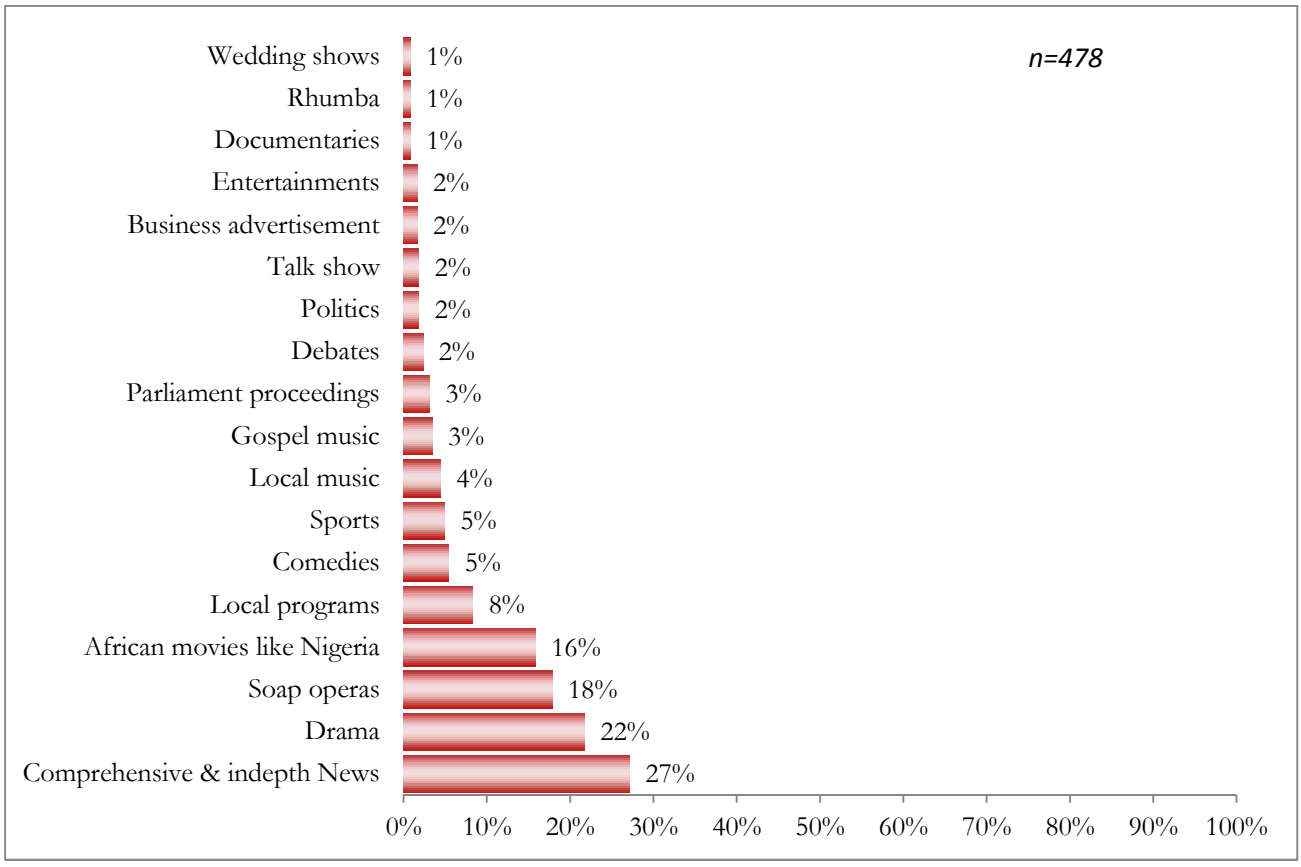
h) ICS Impacts, Outcomes and Outputs Survey- March 2011

ANNEXURES

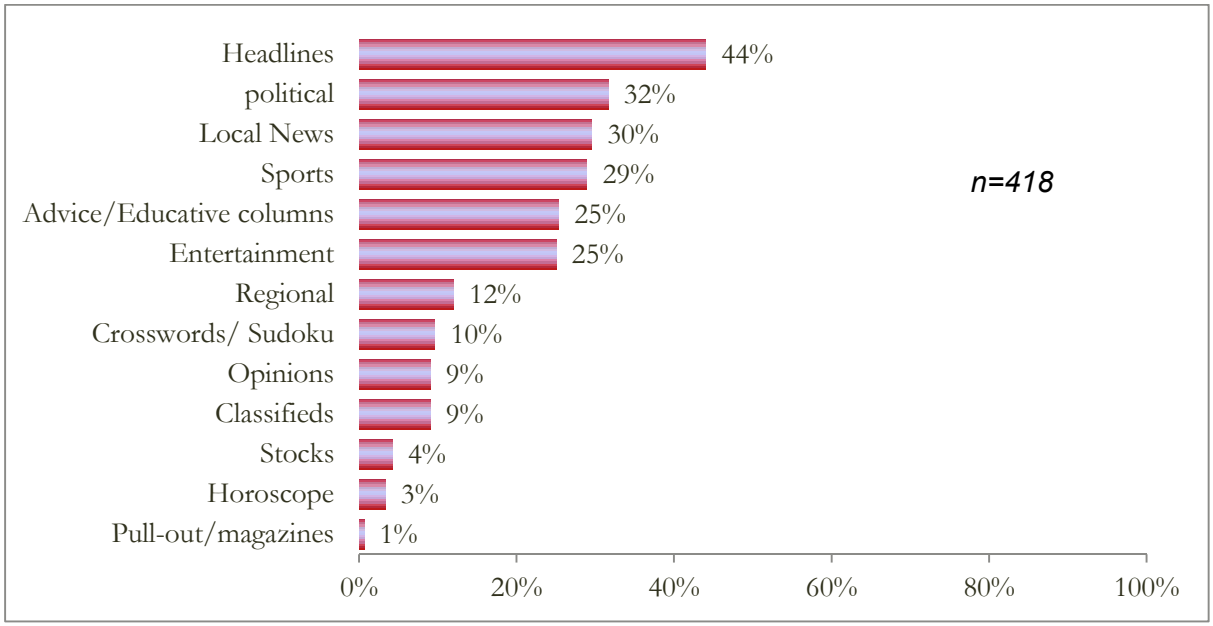
Annexure 1: Preferred timings to watch television



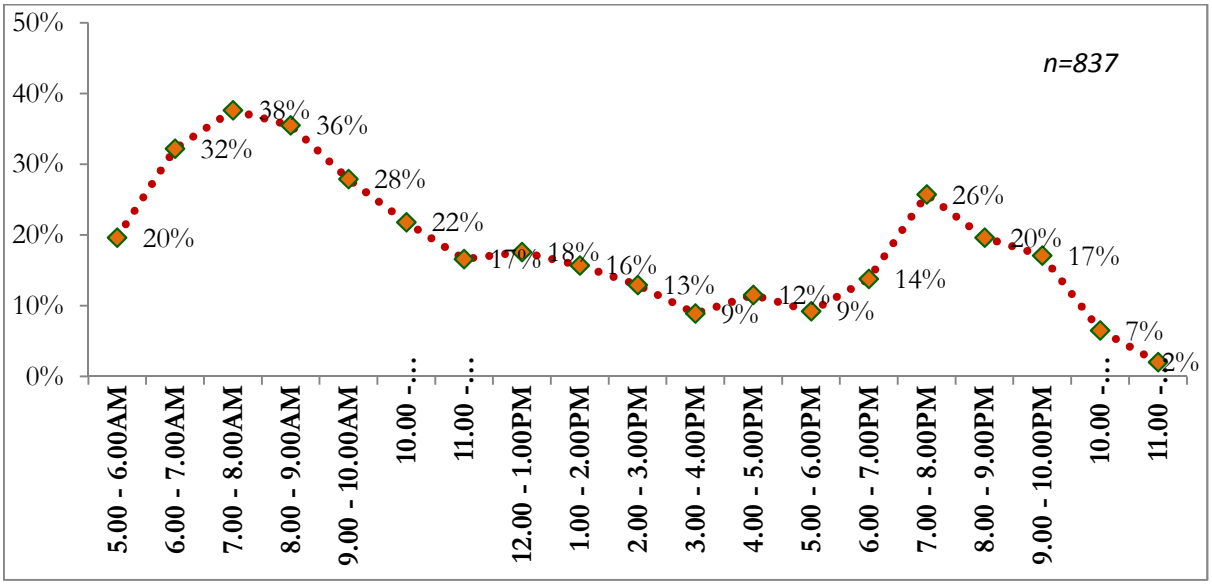
Annexure 2: Preferred television programs



Annexure 3: Preferred sections of newspapers



Annexure 4: Preferred timings of listening to a radio



Annexure 5: Preferred Radio programs