



Ask the cooks! What recent national survey data tells us about charcoal in Africa today

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Consumption: the final node in the value chain

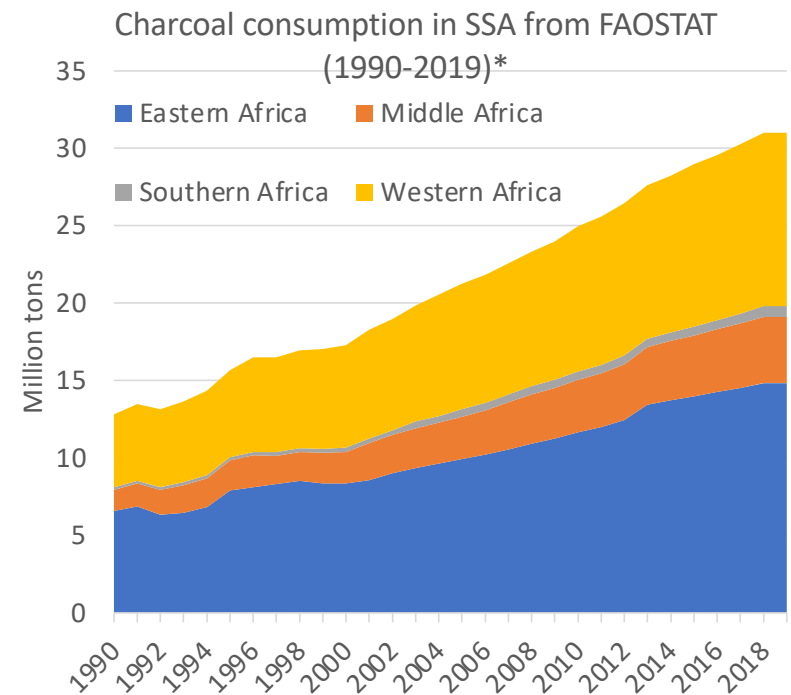
- How much do we know?
 - Not very much!
- How do we know what we know?
 - Estimates from global databases
 - Household surveys
- Regional status and trends
- Specific example from Kenya



What do we know about charcoal in SSA today?

Global databases

- FAO - 30 million tons (2019)
 - Growing about 5% annually
- IEA - 31 million tons (2017)
(close agreement w/FAO is purely coincidental)
- UN - 37 million tons (2017)



*18 of 49 countries provide “official” data for one or more year. The remaining data points are all “FAO estimates”

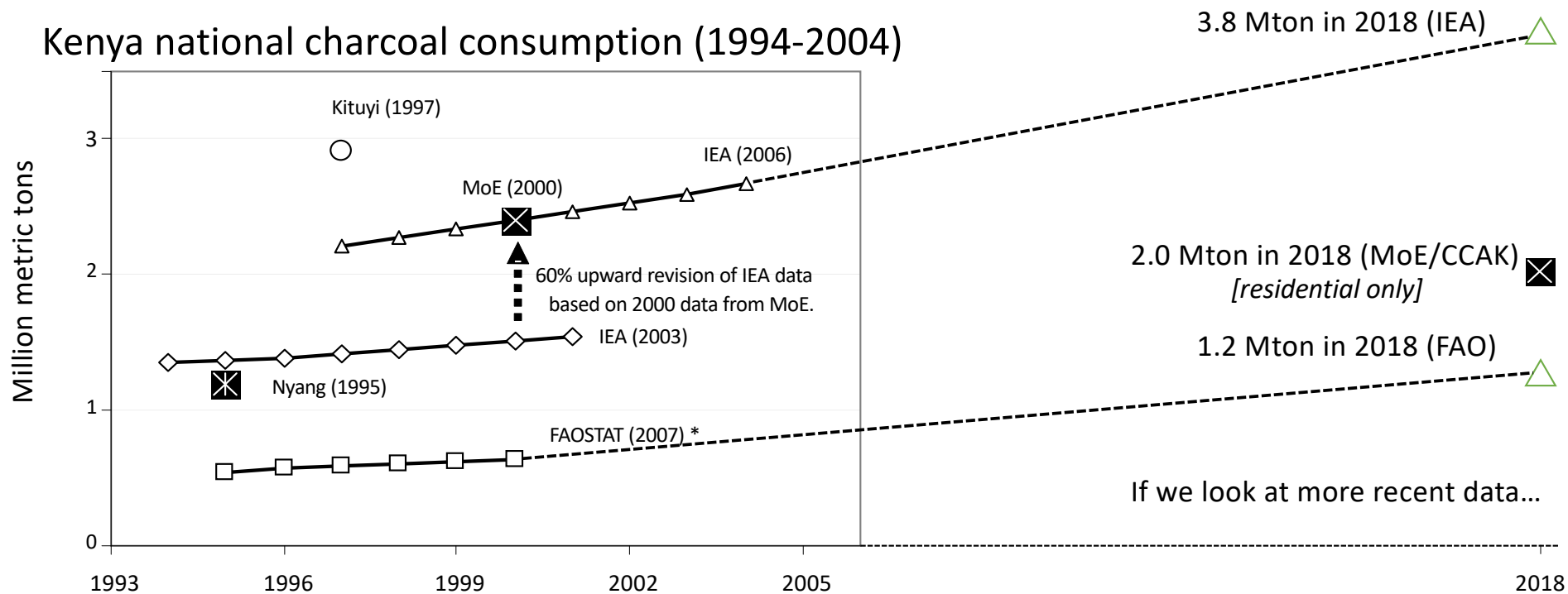
How do we know what we know?

- Most global data are estimated
 - Occasionally calibrated with *real data*
- Where does the data come from?
 - Small-N local studies
 - Large-N surveys
 - DHS, census, more specialized (e.g. MTF)*
 - Different geographic coverage, types of info
 - Costly, time consuming
 - Not perfect, but better than guesswork

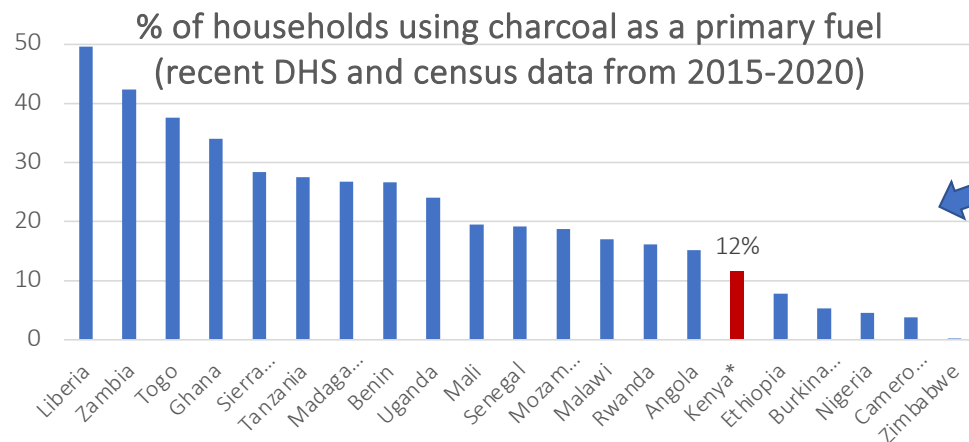
*Multi-Tier Framework



Comparing global datasets to national survey data

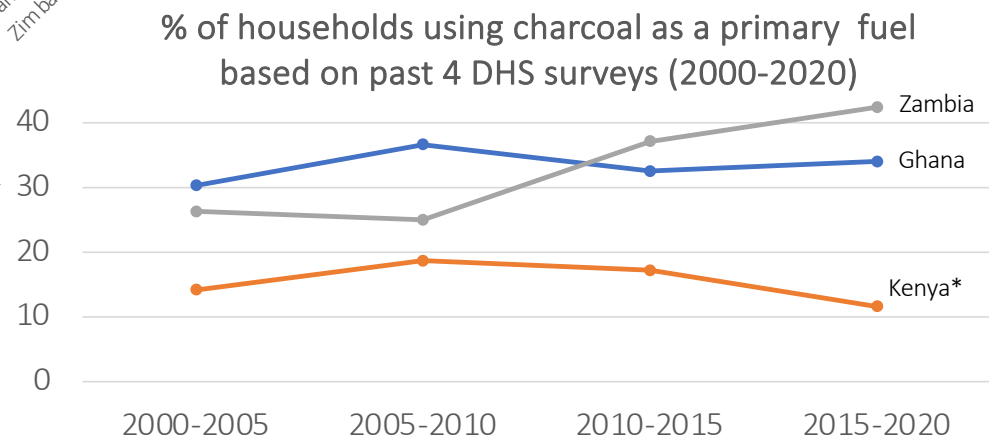


What do DHS/census data tell us?

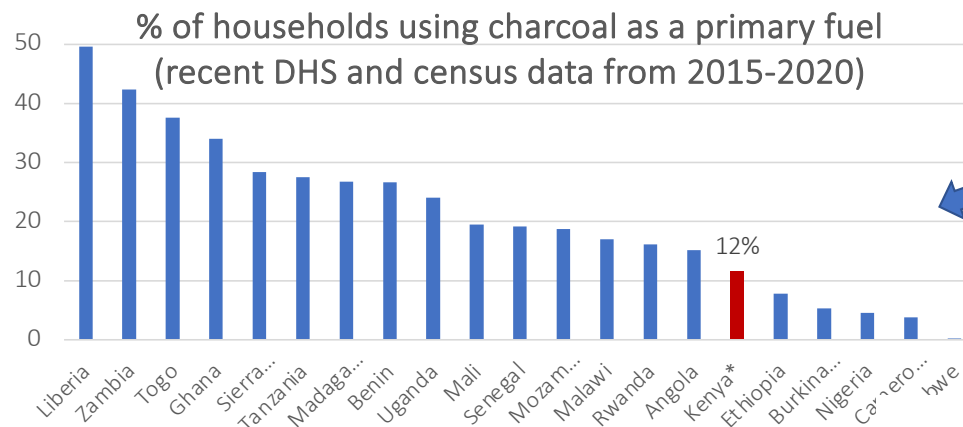


Current charcoal users
(as primary fuel)

Changes over time

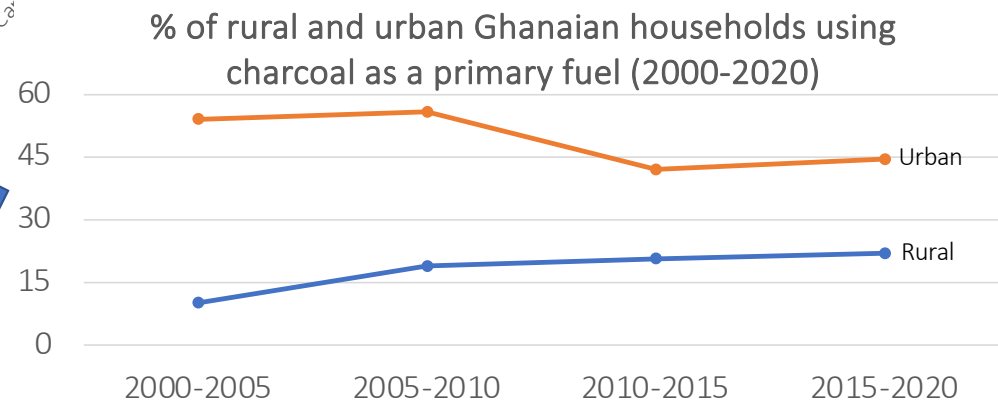


What do DHS/census data tell us?



Current charcoal users
(as primary fuel)

Changes over time
Rural/Urban dynamics



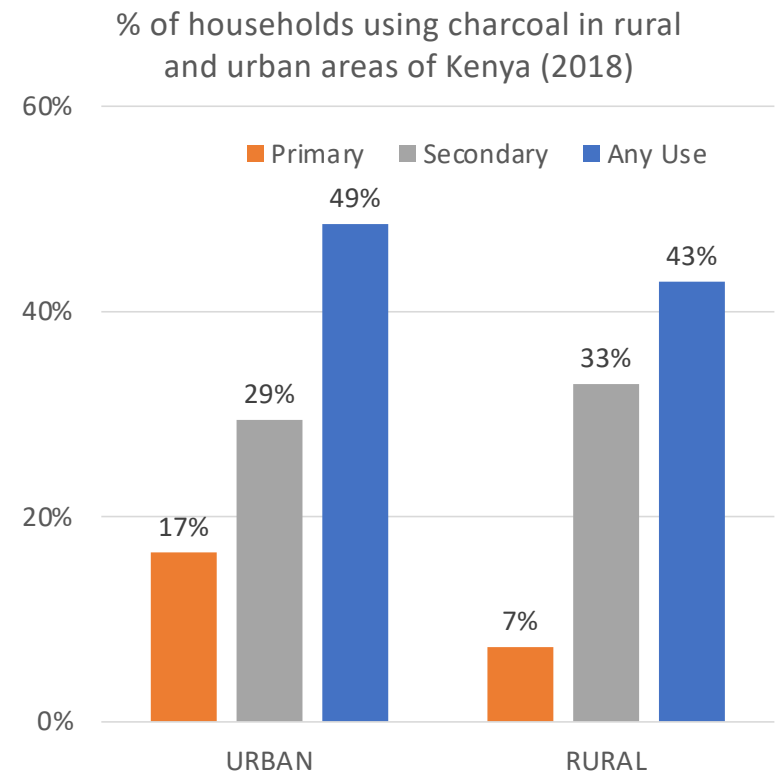
Insights from a recent sector study in Kenya

- 2019 census: only 12% of Kenyans use charcoal as a primary fuel*
- 32% use charcoal as a secondary fuel
- 45% use charcoal for some cooking

■ Similar %'s in urban and rural areas

Kenya is 62% rural (2019 census)

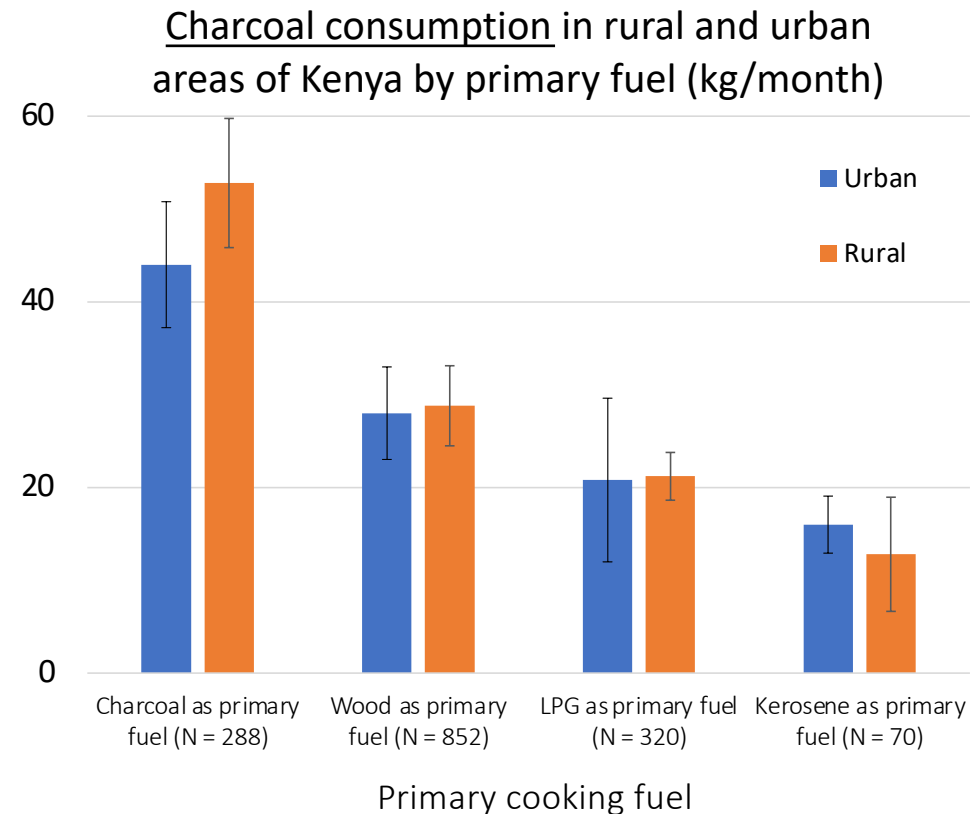
...more rural than urban Kenyan households use charcoal



How much do people use?

- All users: ~30kg per month
(Rural HHs use ~12% more than urban)
 - Primary 40-50 kg/month
 - Secondary 20-30 kg/month

~40% of firewood users and 33% of LPG users also use charcoal



Some concluding thoughts

Proceed with caution!

- Consumption data from global sources are mostly “guesstimates”
- DHS surveys are helpful for tracking trends in primary stove choice & R/U trends
- To understand the final node in the Value Chain more detailed surveys are essential
- Charcoal in Kenya:
 - No longer an “urban fuel”
 - Over ¼ of residential energy
 - The “primary-secondary” fuel



A charcoal truck lost control attempting to avoid a checkpoint in Gulu, Uganda
(Source: <https://observer.ug/>)

Extra slides

Thank you!

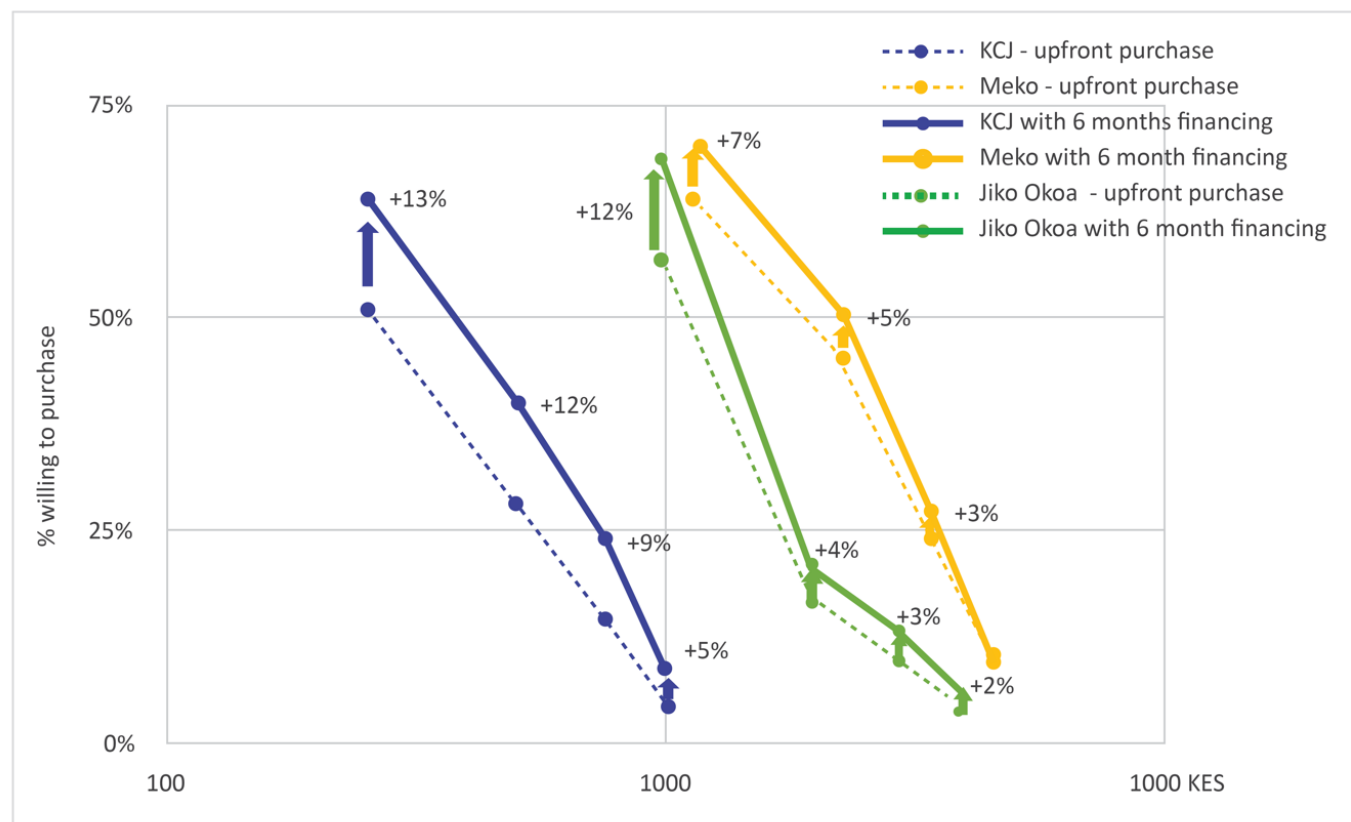
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Resources

- FAO Forestry data – <http://www.fao.org/faostat/en/#data/FO>
- IEA data – <http://wds.iea.org/WDS/> (paid service)
- UN Energy data – <https://unstats.un.org/unsd/energystats/data/>
- DHS data – <https://www.statcompiler.com/en/>
- MTF data – <https://mtfenergyaccess.esmap.org>
- Kenya Sector Study – <https://eedadvisory.com/publications>

Willingness to pay for different stove types



From Kenya Sector Study

Change in willingness to purchase KCJ and 6kg complete LPG cylinder stoves at different price points between one-time cash payment and 6-months staged payment

Insights from recent surveys

- Demographic and Health Surveys (DHS)

- Large-N, nationally representative
- ~30 countries in SSA
- Uniform questions*
- Freely available (already cleaned!)
- Repeated every 4-5 years since 1990s*
- Limited questions about HH energy
 - Primary cooking fuel
 - Cooking location

(Census data provides similar info, but only every 10 yrs)

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
113	What type of fuel does your household mainly use for cooking?	ELECTRICITY 01 SOLAR POWER 02 LIQUID PROPANE GAS (LPG) 03 NATURAL GAS 04 BIOGAS 05 KEROSENE 06 COAL, LIGNITE 07 CHARCOAL 08 WOOD 09 STRAW/SHRUBS/GRASS 10 AGRICULTURAL CROP 11 ANIMAL DUNG 12 NO FOOD COOKED IN HOUSEHOLD 95 OTHER (SPECIFY) 96	→ 116
114	Is the cooking usually done in the house, in a separate building, or outdoors?	IN THE HOUSE 1 IN A SEPARATE BUILDING 2 OUTDOORS 3 OTHER (SPECIFY) 6	→ 116
115	Do you have a separate room which is used as a kitchen?	YES 1 NO 2	
116	How many rooms in this household are used for sleeping?	ROOMS	
117	Does this household own any livestock, herds, other farm animals, or poultry?	YES 1 NO 2	→ 119
118	How many of the following animals does this household own? IF NONE, RECORD '00'. IF 95 OR MORE, RECORD '95'. IF UNKNOWN, RECORD '96'.	a) TRADITIONAL CATTLE b) DAIRY CATTLE c) BEEF CATTLE d) HORSES/DONKEYS/MULES e) GOATS f) SHEEP g) CHICKENS h) PIGS i) RABBITS/OTHER POULTRY	
119	Does any member of this household own any agricultural land?	YES 1 NO 2	→ 121

Stove/fuel stacking in Kenya

- Focusing on LPG (or electric cookers) ignores the majority who stack stoves and fuels

		Secondary cooking option								
		No 2 nd stove	LPG	Electric	Kerosene	Charcoal	Wood	Other	Only clean	8%
									Clean + polluting stack	19%
									Only polluting fuels	73%
Primary cooking option	Sample %									
	LPG	7%	1%	0.3%	2%	7%	2%	0.1%		
	Electric	0.1%	0.1%	0%	0%	0%	0%	0%		
	Kerosene	3%	0.2%	0%	0%	2%	0.2%	0%		
	Charcoal	5%	2%	0%	1%	0.3%	2%	0%		
	Wood	35%	5%	0%	1%	23%	1%	0%		
	Other	0%	0%	0%	0%	0%	0.1%	0%		

From a nationally representative survey of over 3,500 Kenyan HHs

<https://eedadvisory.com/publications/moe-kenya-hh-cooking-sector-study/>