



# 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

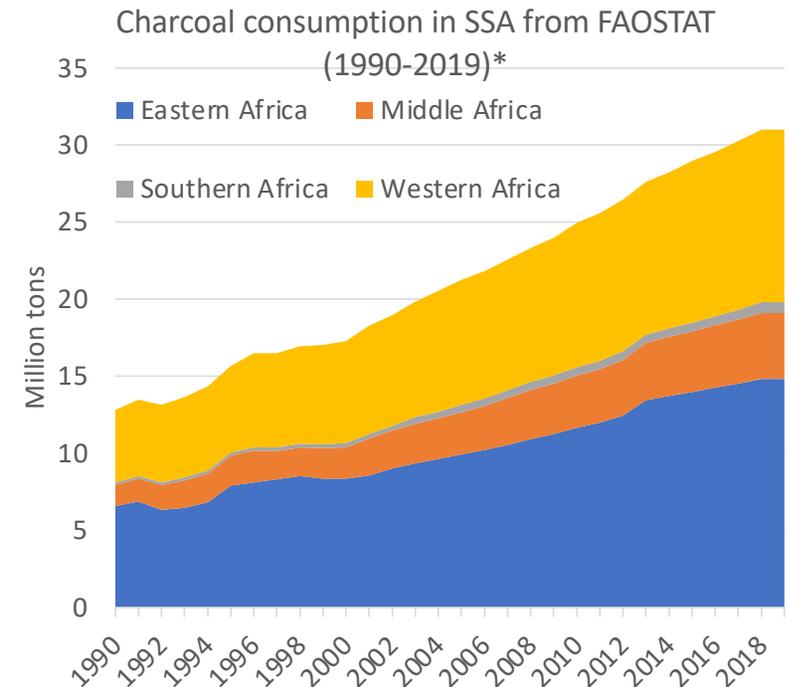
- How much do we know?
  - Not very much!
- How do we know what we know?
  - Estimates from global databases
  - Household surveys
- Regional status and trends
- Specific example from Kenya



# 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”

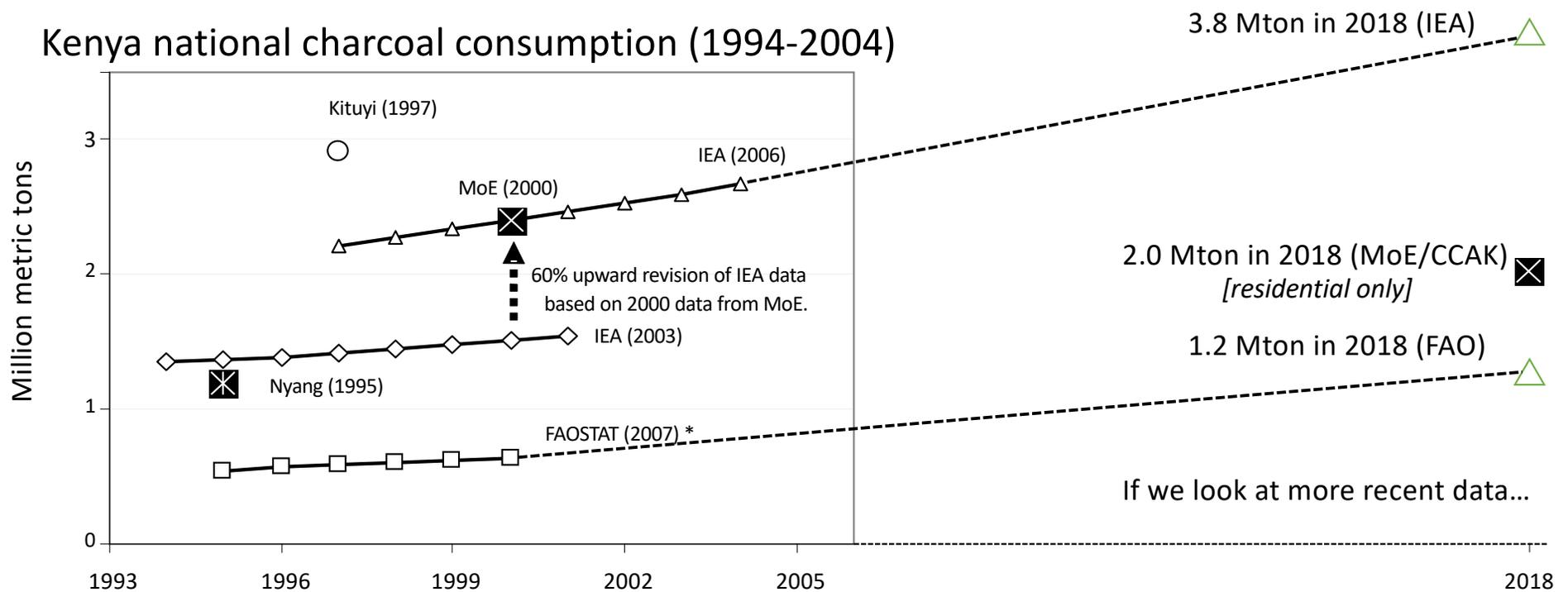
# How do we know what we know?

- 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

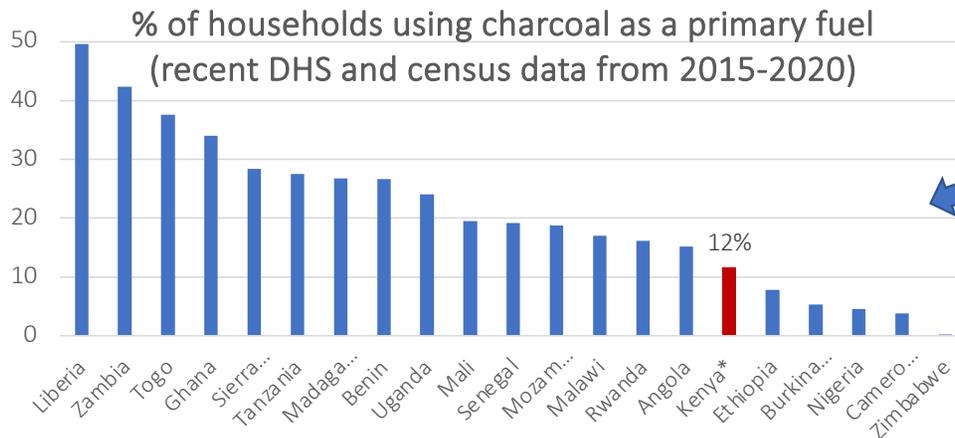
\*Multi-Tier Framework



# Comparing global datasets to national survey data

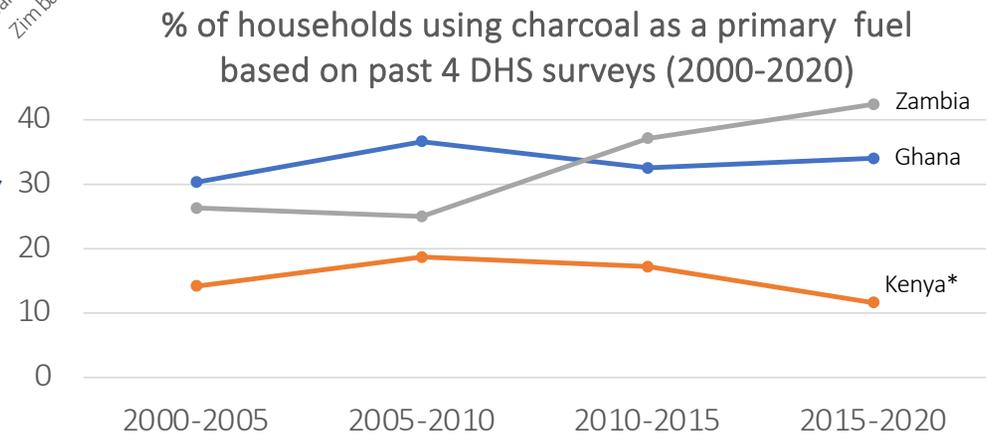


# What do DHS/census data tell us?

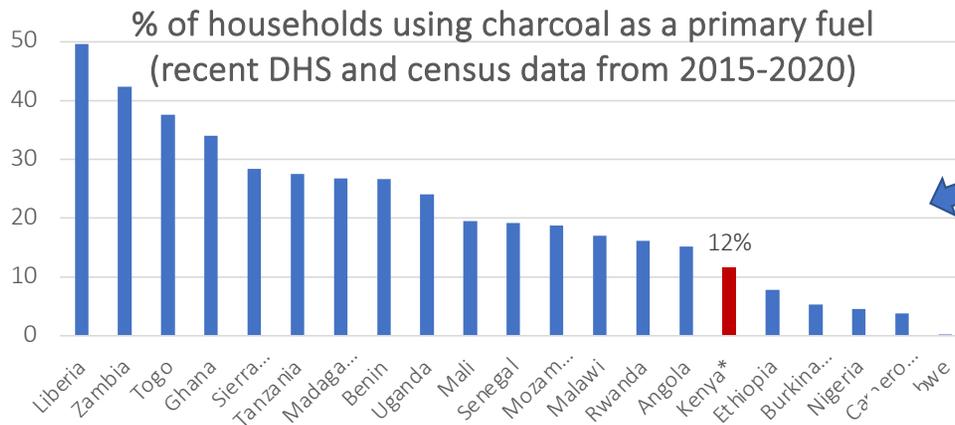


Current charcoal users  
(as primary fuel)

Changes over time

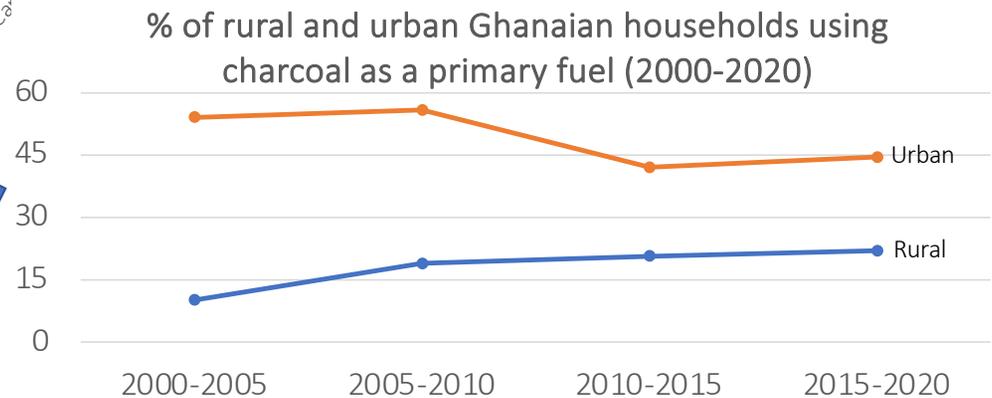


# What do DHS/census data tell us?



Current charcoal users  
(as primary fuel)

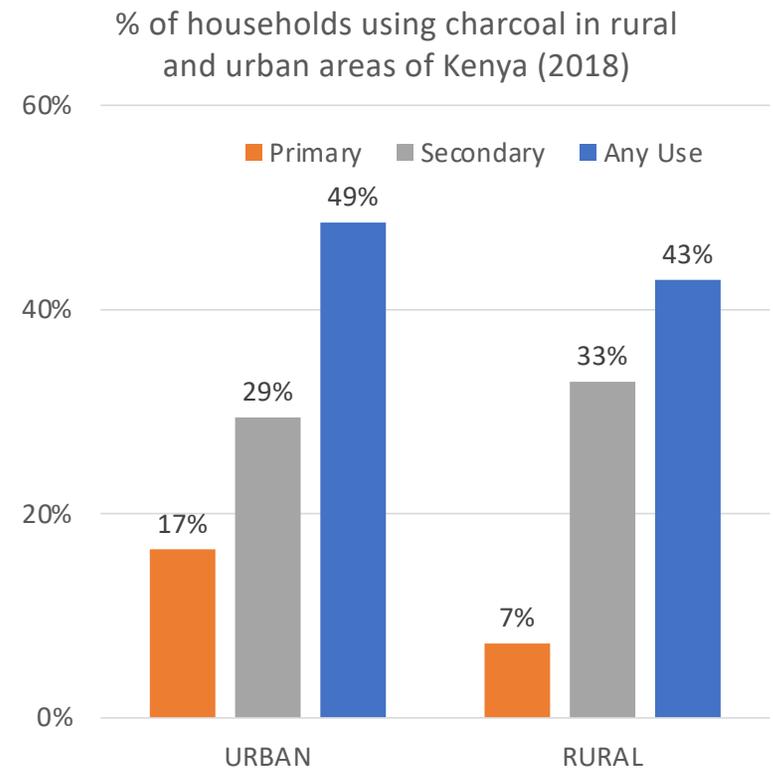
Changes over time  
Rural/Urban dynamics



# 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)

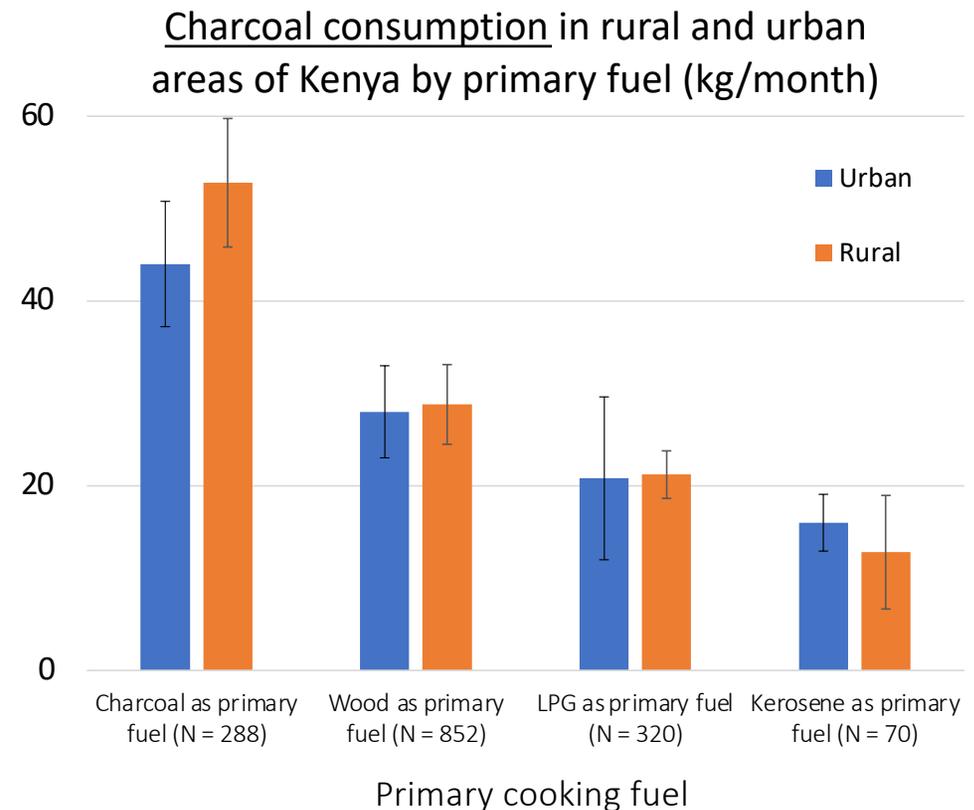
**...more rural than urban Kenyan households use charcoal**



# 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

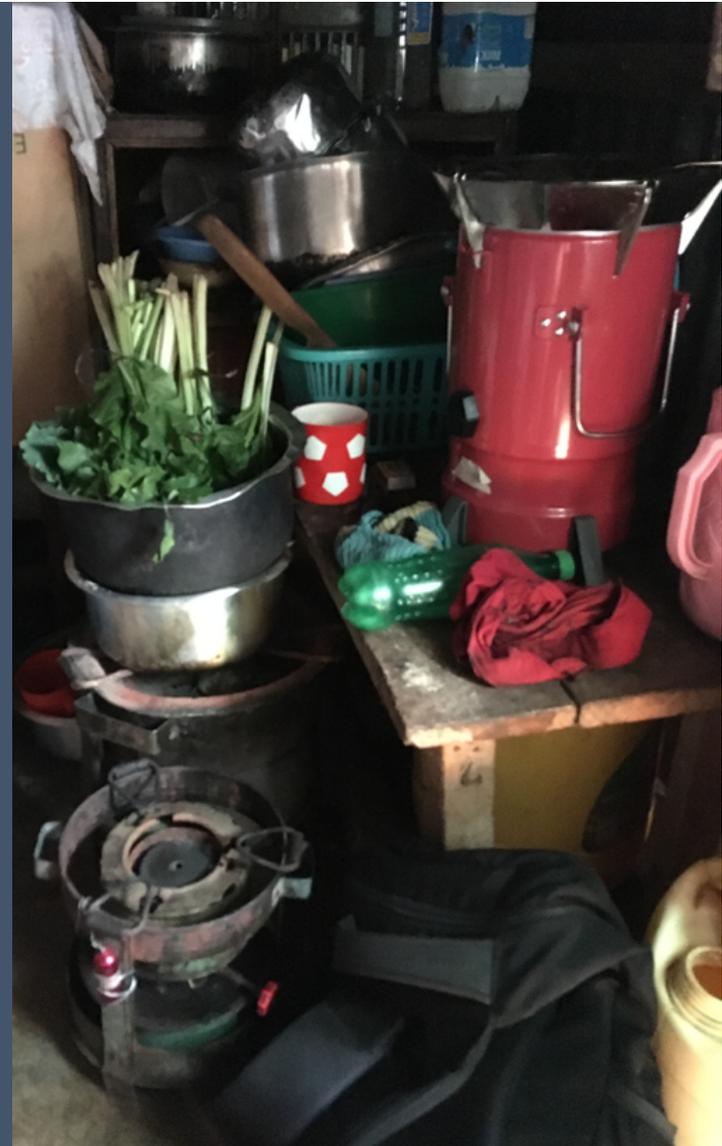


A charcoal truck lost control attempting to avoid a checkpoint in Gulu, Uganda  
(Source: <https://observer.ug/>)

# Extra slides

Thank you!

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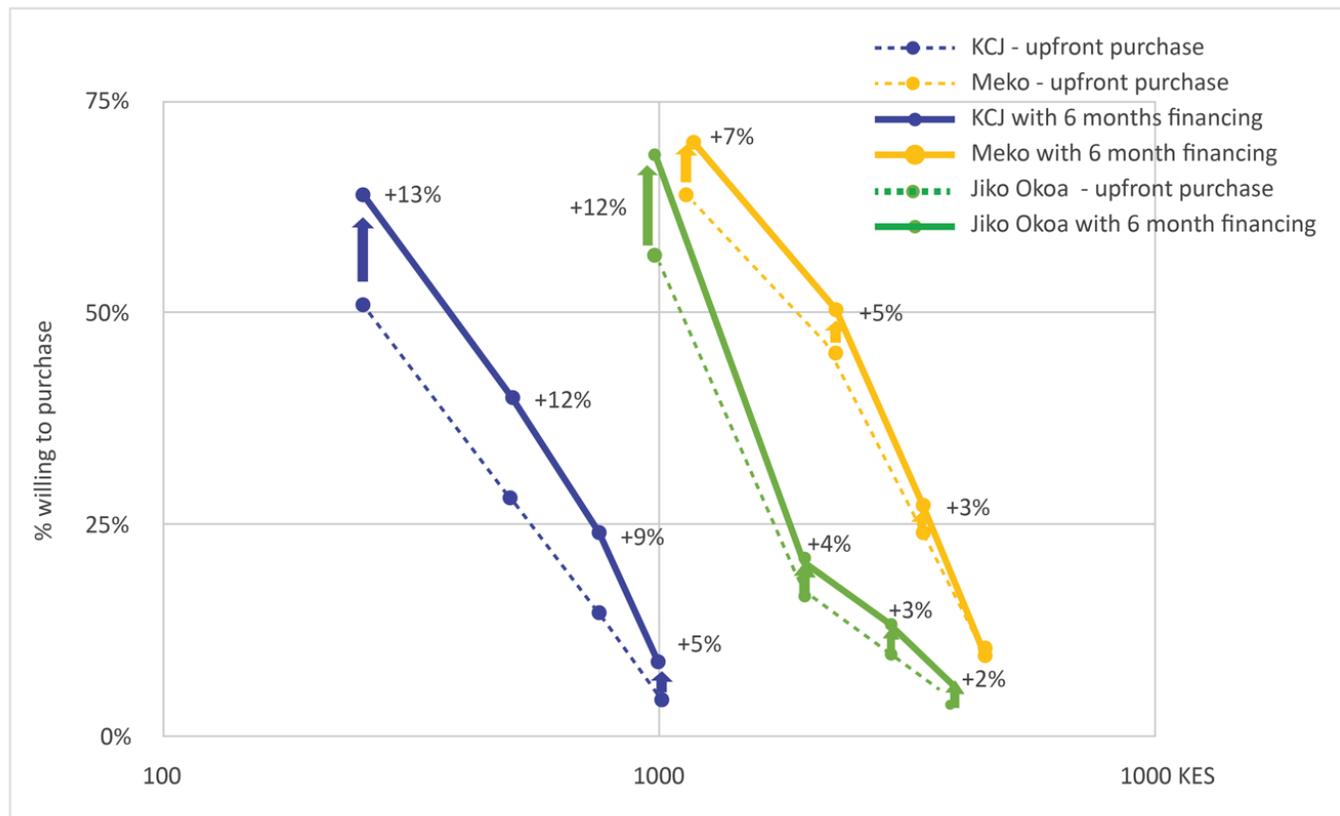


# Resources

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- 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)

The image shows a survey form titled 'HOUSEHOLD CHARACTERISTICS'. A red circle highlights the section for question 113, 'What type of fuel does your household mainly use for cooking?'. The form includes a table with 'QUESTIONS AND FILTERS' and 'CODING CATEGORIES'. The highlighted section lists various fuel types and their corresponding codes: 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), and OTHER (96). The form also includes questions about cooking location (114), separate kitchen (115), sleeping rooms (116), livestock ownership (117), and animal ownership (118).

# Stove/fuel stacking in Kenya

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

Only clean	8%
Clean + polluting stack	19%
Only polluting fuels	73%

		Secondary cooking option						
		No 2 <sup>nd</sup> stove	LPG	Electric	Kerosene	Charcoal	Wood	Other
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/>