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# USAID Alternatives to Charcoal

Longitudinal Study - Household ATF Adoption and Energy Consumption

Round 2 (R2)

## Results Summary

# Background

- **Goal:** to understand household ATF adoption and energy consumption in areas where A2C conducts SBCC activities through community influencers
- **Field work period**: 10th – 26th May 2023
- **Areas covered (townships): New (N) –** Ng'ombe & Kamwala South. **Repeated (R) –** Matero, George, Kalingalinga, and Mtendere
- **Team composition:** 11 enumerators

**Summary Sample Statistics R2**

| | Township Name | Listed | Interviewed | % of total Interviewed | % of hh replaced from R1 |
|---|---|---|---|---|---|
| *New Townships* | Ng'ombe | 236 | 120 | 20% | - |
| | Kamwala South | 160 | 80 | 13% | - |
| *Repeated Townships* | George | - | 123 | 21% | 14.6% |
| | Kalingalinga | - | 119 | 20% | 9.2% |
| | Matero | - | 79 | 13% | 5.1% |
| | Mtendere | - | 79 | 13% | 20.3% |
| ***Total*** | | ***396*** | ***600*** | ***100%*** | ***12.3%*** |

# Methodology

# Methodology

1. SAMPLING

a) ***Township selection criteria:*** Purposive. The 6 townships were selected on the premise that A2C had direct influence on households through SBCC activities, including door-to-door sensitization by community influencers. There were no known Zones in Kamwala South and Ng'ombe townships. Community influencers and respondents had no knowledge on the existence of Zones.

b) ***Household listing (New townships):*** Randomized. Townships had a lot of households, listing all of them would have taken too much time. Hence random households were listed in each zone ensuring that the households are spread out within the zone, with a pre-determined total number of households to be listed in each zone – to make up township total.

c) ***Household sampling (New townships):*** Randomized. Sampling was done using Microsoft Excel, with the randomization function. The proportions used to sample households per township were the same proportions from listing. Households were randomly selected from the listing, up to a specified number

# Methodology

1. SAMPLING

d) ***Household replacement:*** After 3 failed attempts to conduct interviews at a sampled household, it was replaced with another randomly selected household. **N** – Resampled, **R** – another household in same house, or neighbor

2. DATA COLLECTION AND TRANSMISSION

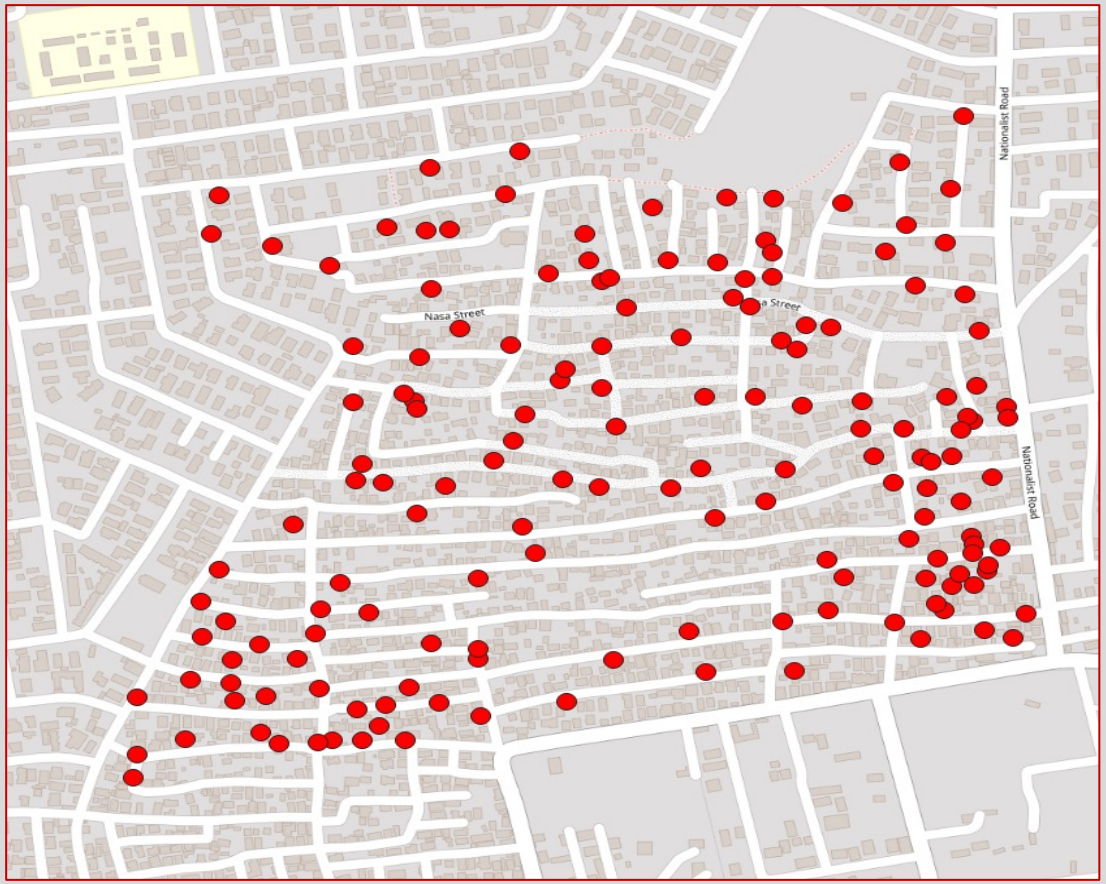
Data was collected using Kobocollect – both listing and actual household interviews. Kobocollect provides for remote transmission of data onto the server after completing interviews.

3. DATA PROCESSING AND ANALYSIS

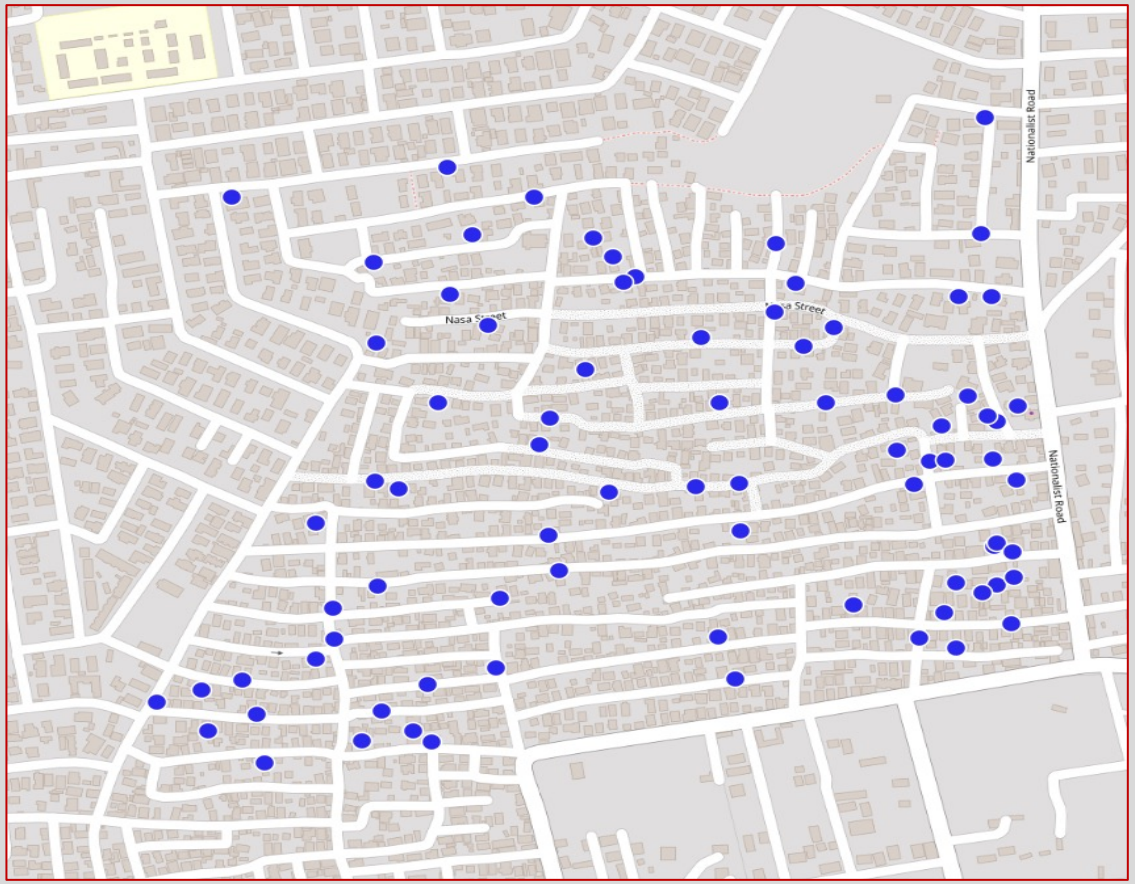
Data was downloaded from the server in Microsoft Excel format and cleaning was done through the use frequency distributions to identify any possible errors. Data analysis was done using pivot tables in Excel.

# Methodology

## Kamwala South Listed Households

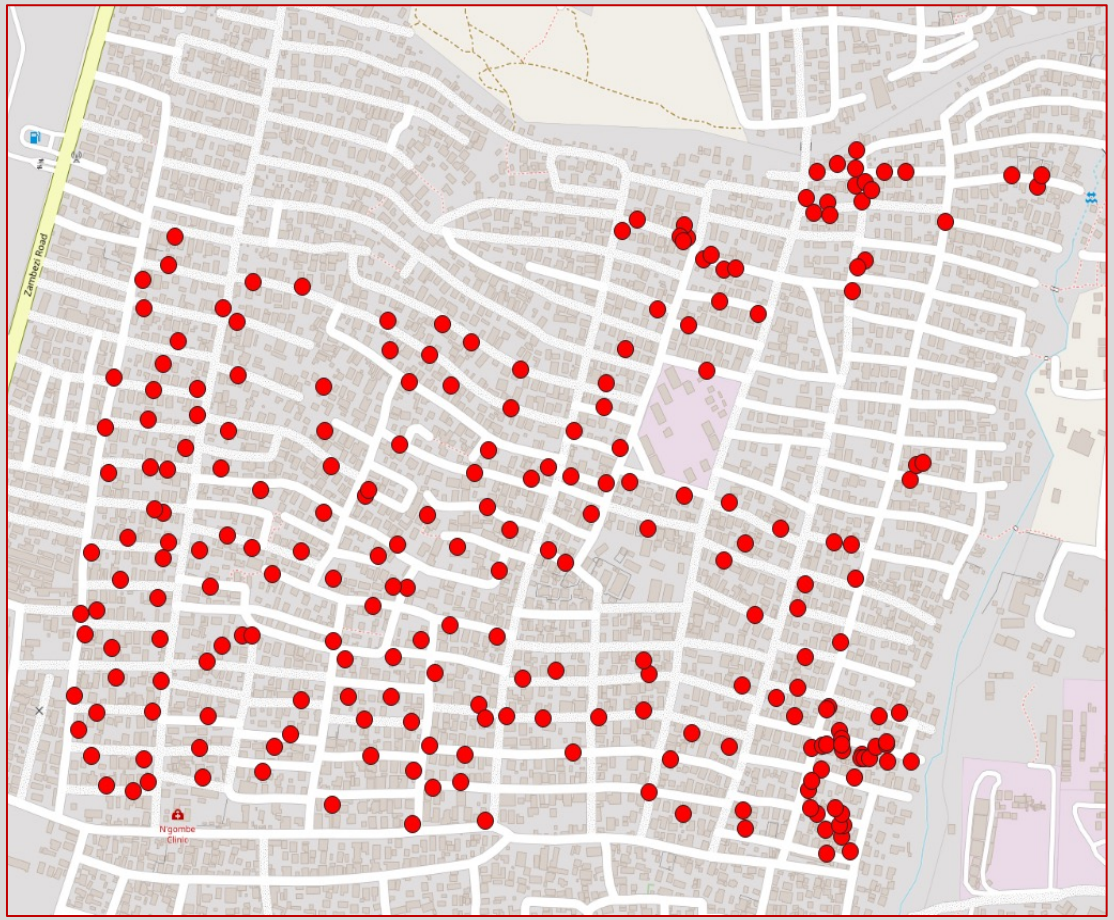



## Kamwala South Sampled Households

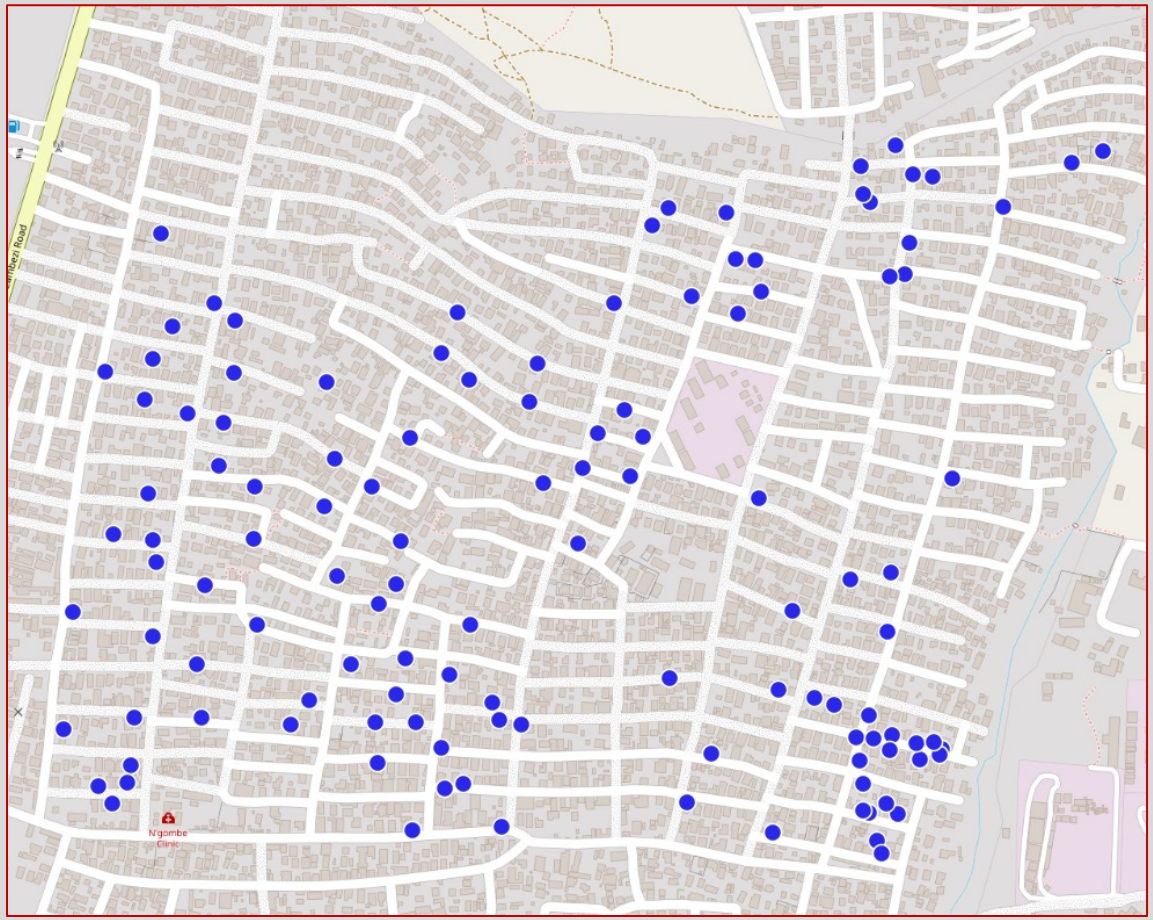


# Methodology

Ng'ombe Listed Households



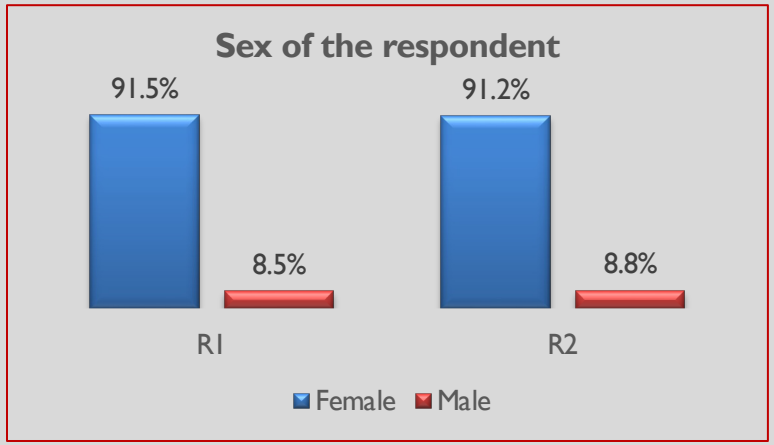

Ng'ombe Sampled Households

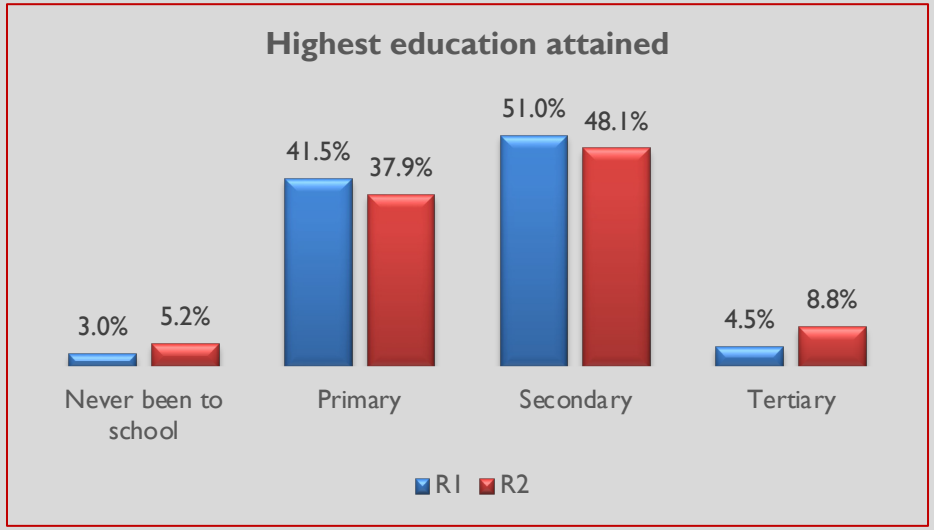


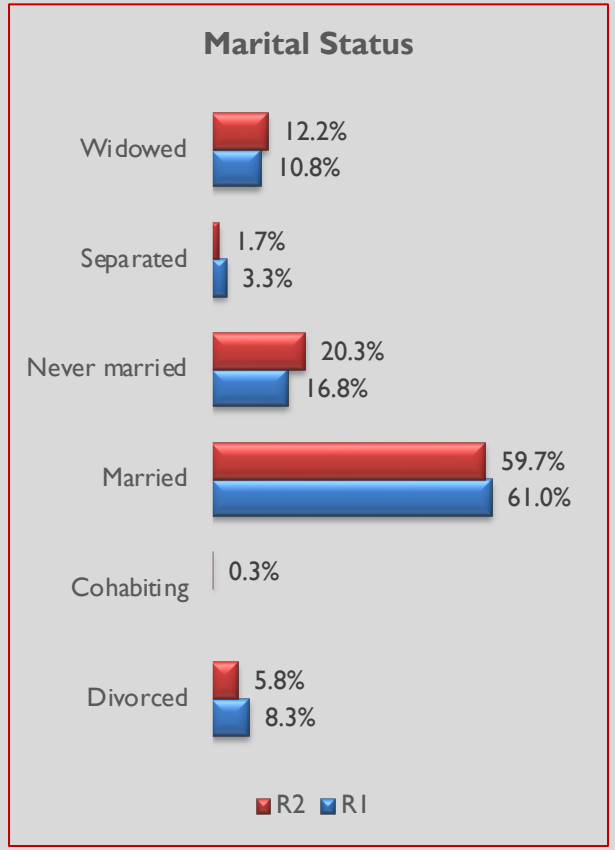
# Study Findings

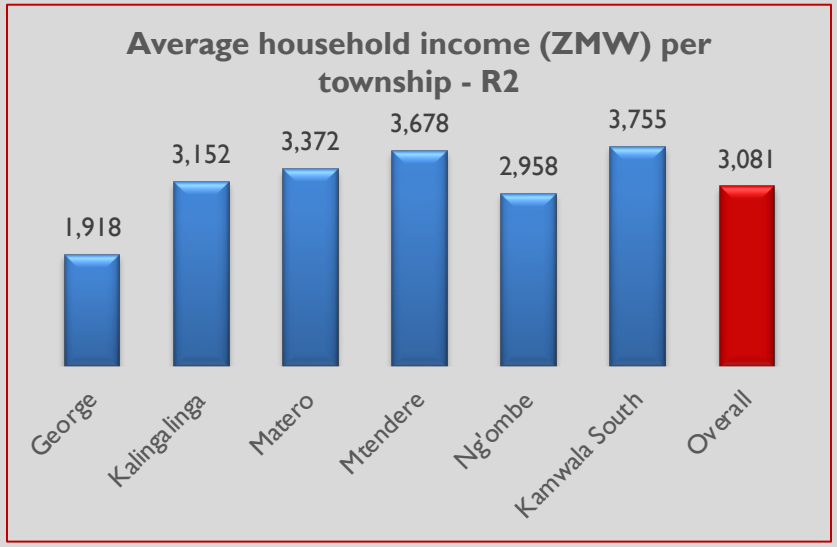
# Study Findings

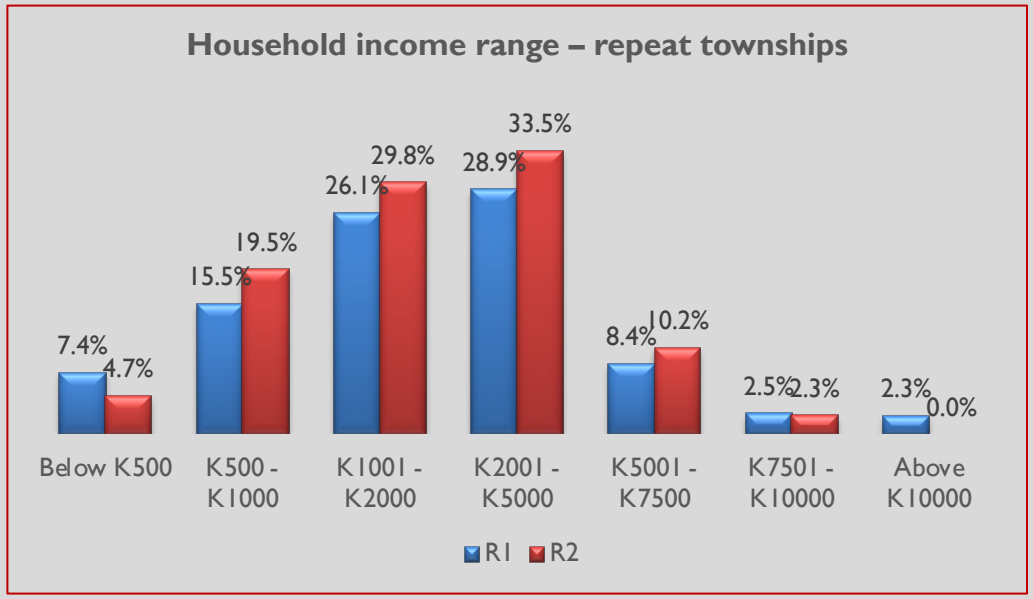
## 1. Demographics



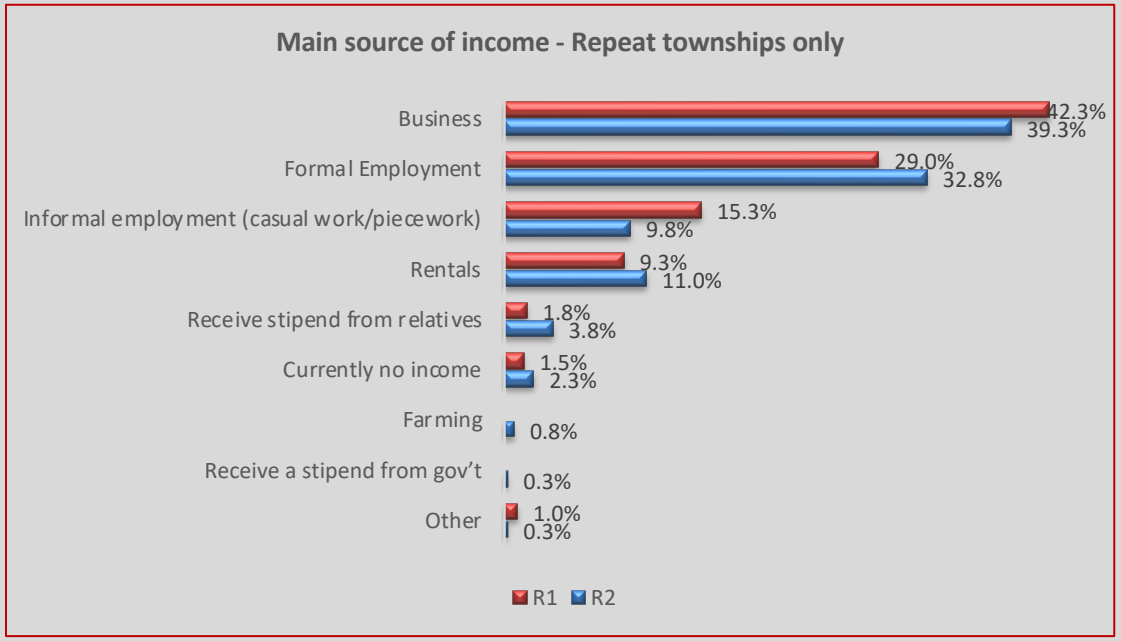



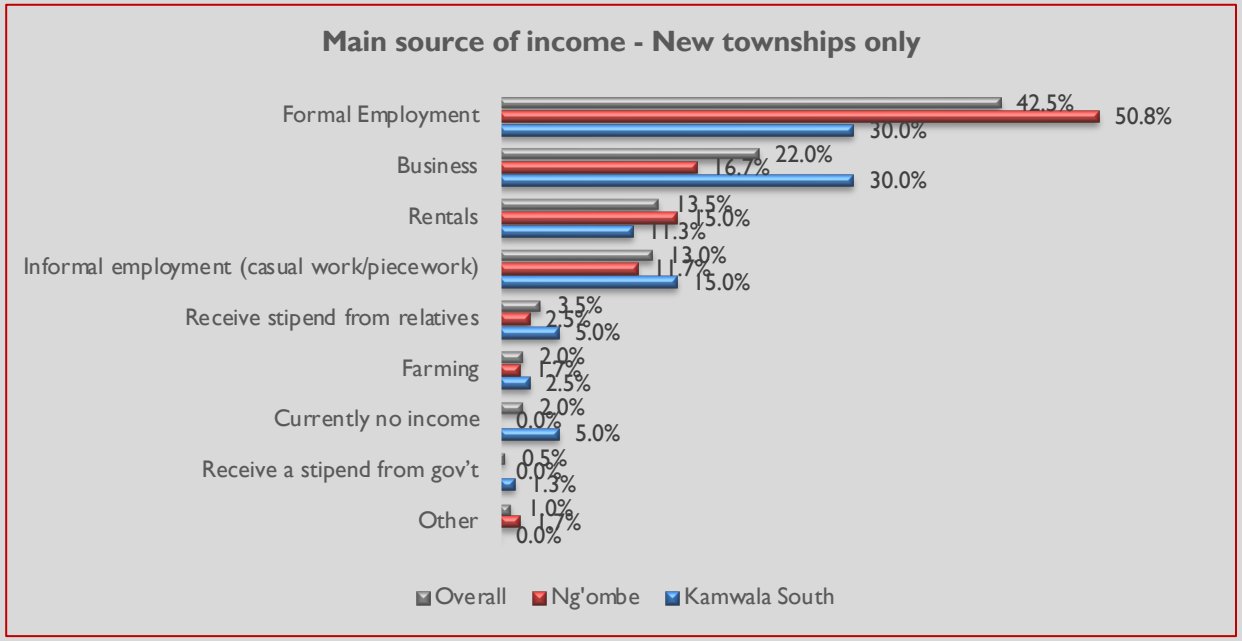



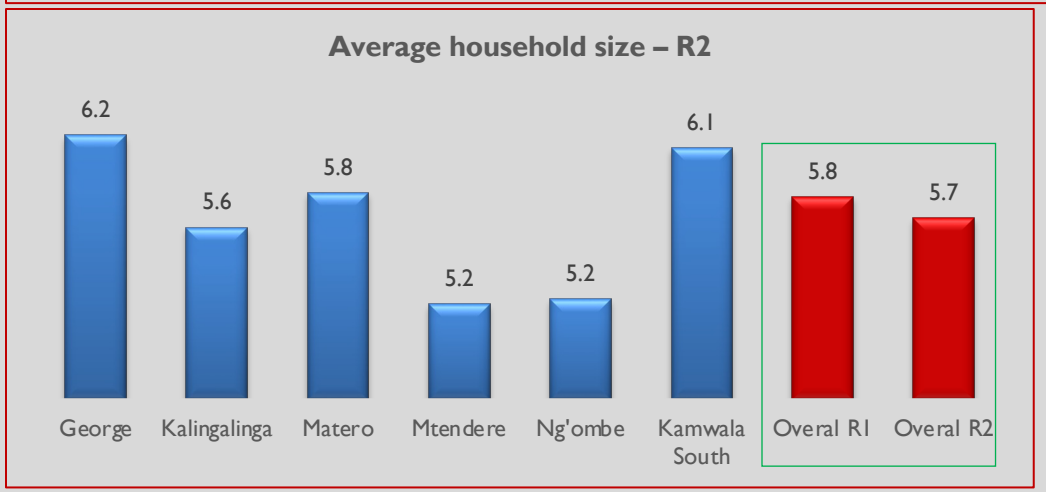



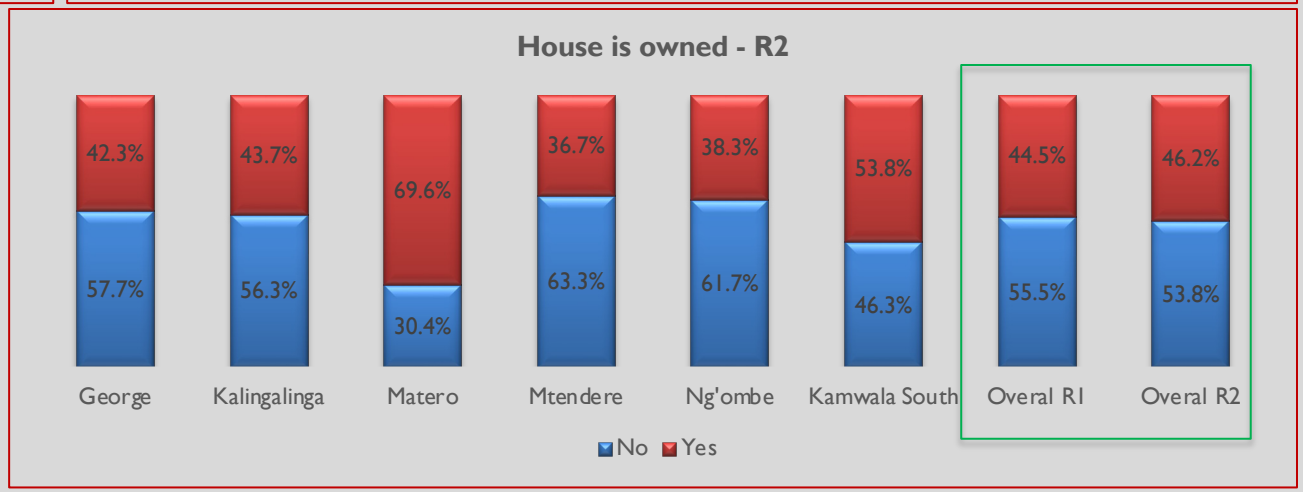
# Study Findings

## 2. Household Characteristics



# Study Findings

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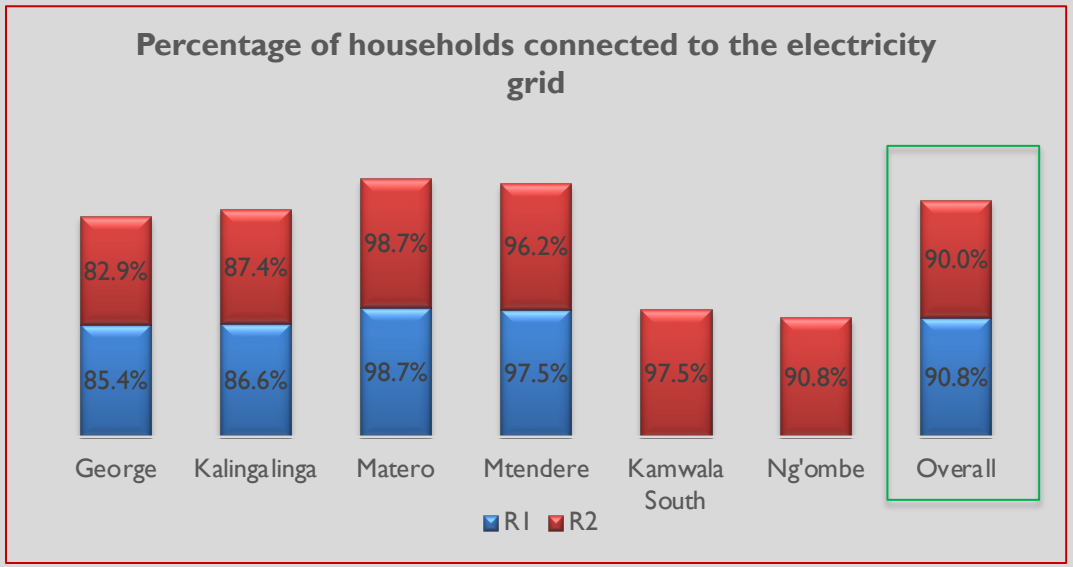
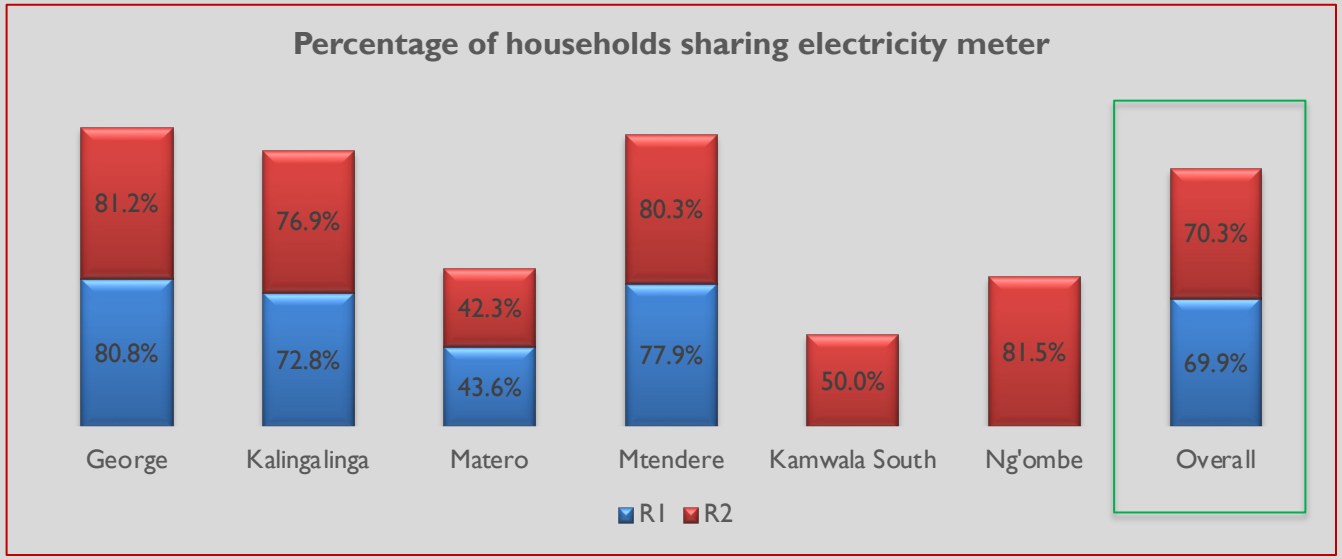
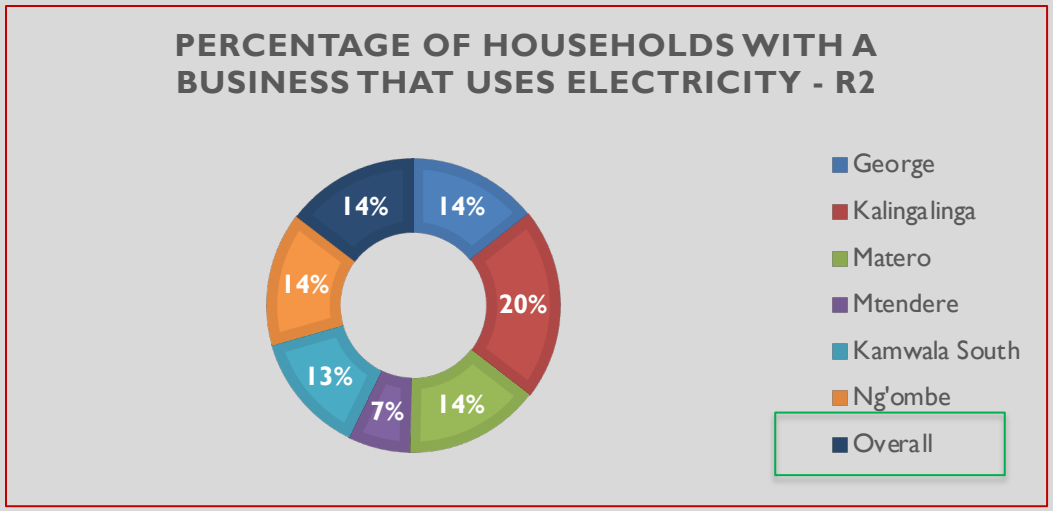
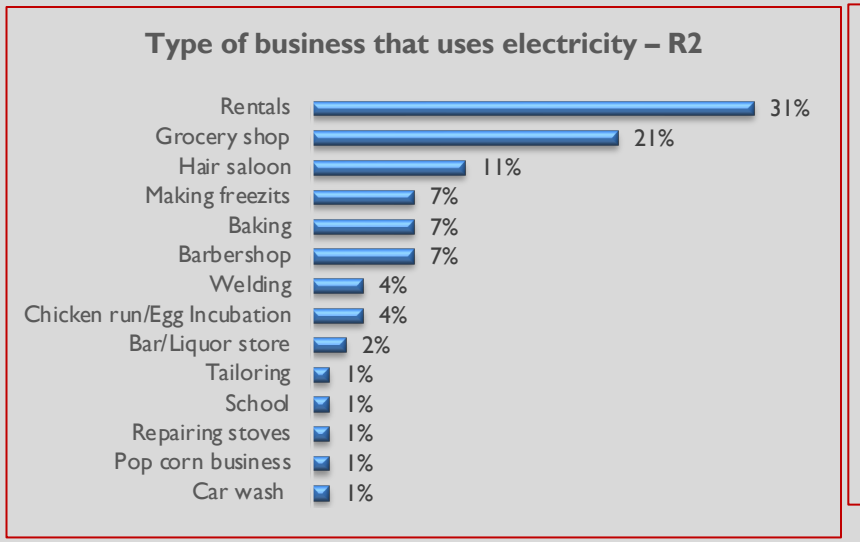
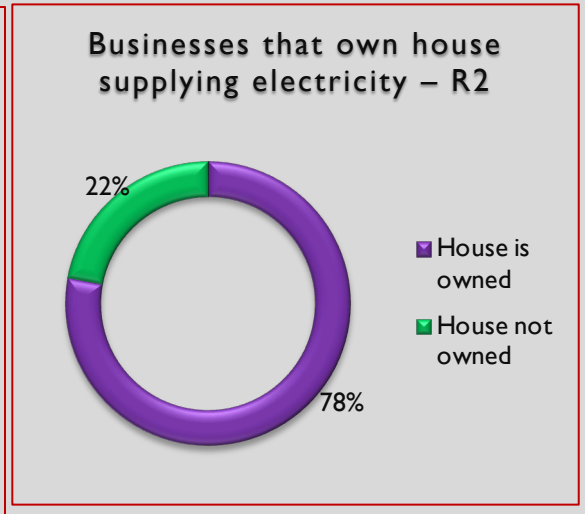


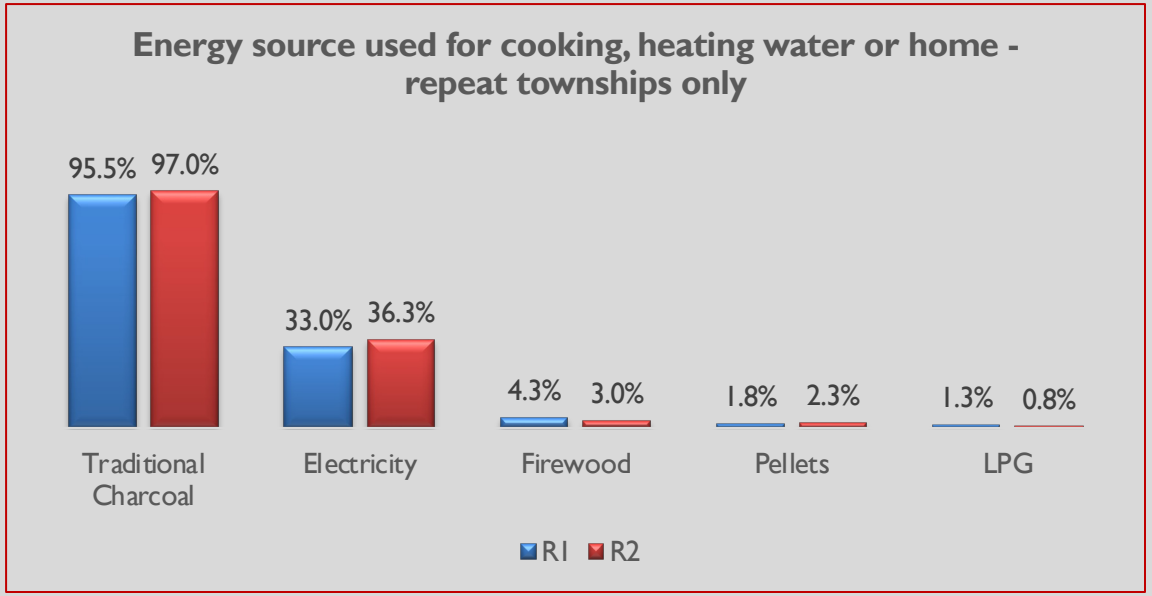



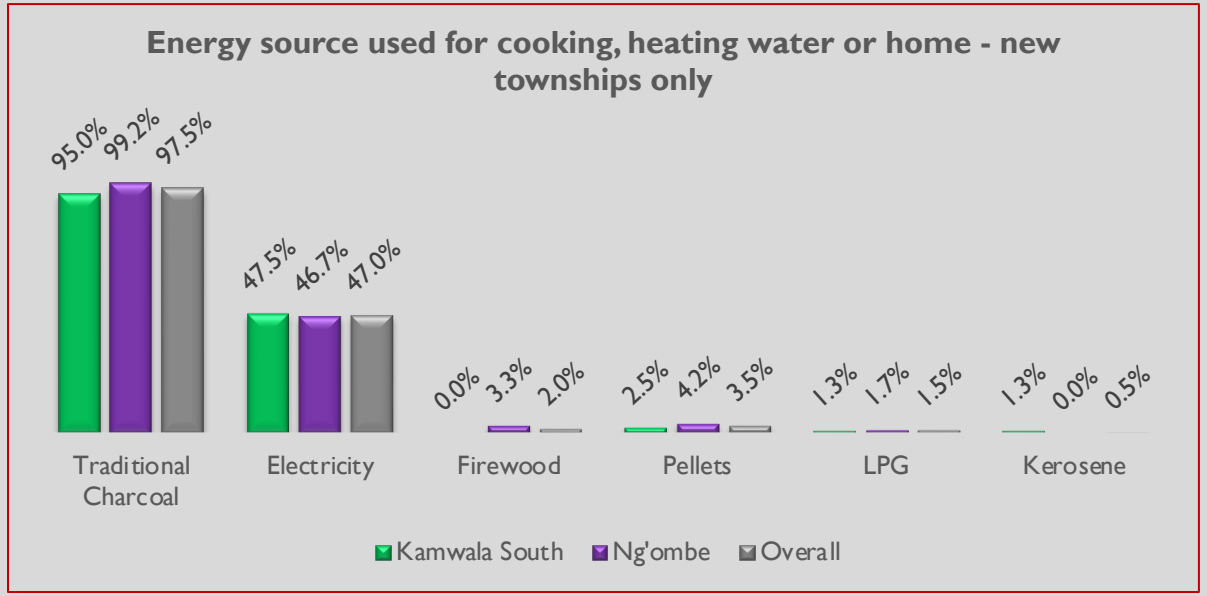



# Study Findings

## 3. Energy sources used to cook and heat the home



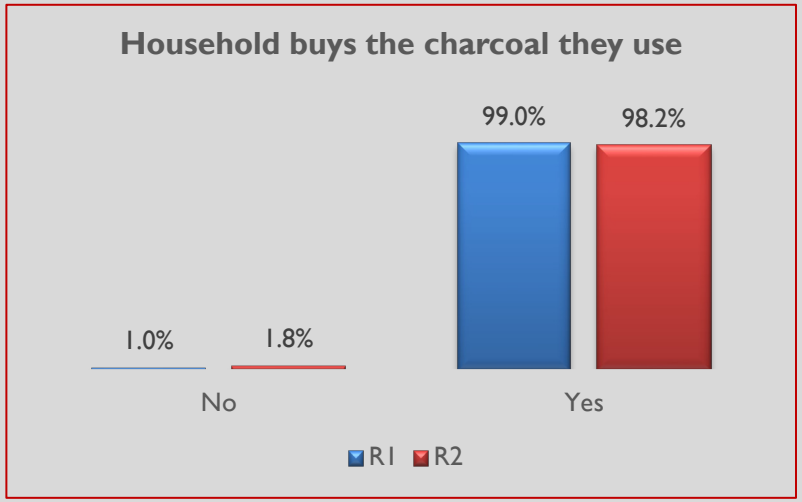



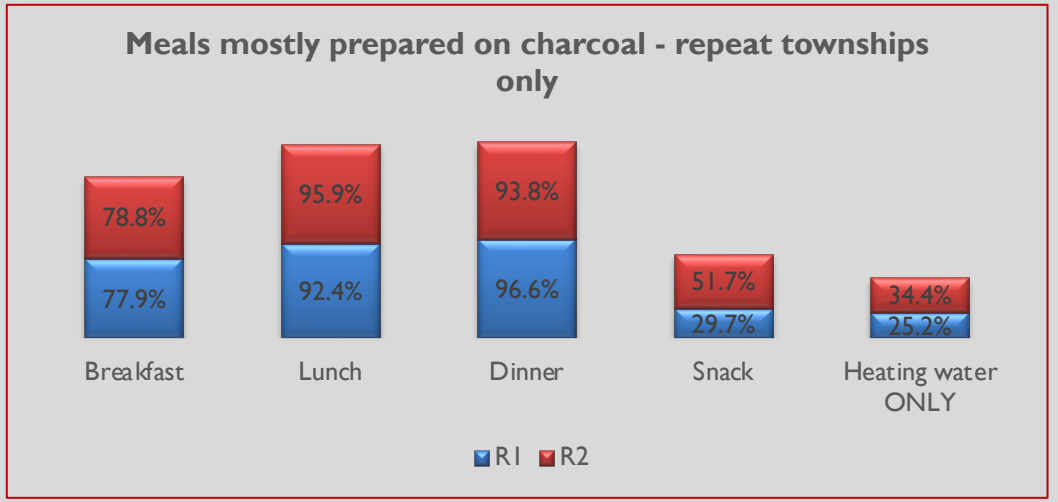

| | George | | Kalingalinga | | Matero | | Mtendere | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|
| | R1 | R2 | R1 | R2 | R1 | R2 | R1 | R2 | R1 | R2 |
| Traditional Charcoal | 91.9% | 96.7% | 97.5% | 97.5% | 93.7% | 96.2% | 100.0% | 97.5% | **95.5%** | **97.0%** ↑ |
| Electricity | 13.0% | 12.2% | 36.1% | 45.4% | 44.3% | 41.8% | 48.1% | 54.4% | **33.0%** | **36.3%** ↑ |
| Firewood | 4.1% | 2.4% | 5.0% | 2.5% | 3.8% | 6.3% | 3.8% | 1.3% | **4.3%** | **3.0%** ↓ |
| Pellets | 0.8% | 0.0% | 4.2% | 5.9% | 1.3% | 2.5% | 0.0% | 0.0% | **1.8%** | **2.3%** ↑ |
| LPG | 2.4% | 1.6% | 1.7% | 0.8% | 0.0% | 0.0% | 0.0% | 0.0% | **1.3%** | **0.8%** ↓ |

# Study Findings

## 3. Energy sources used to cook and heat the home

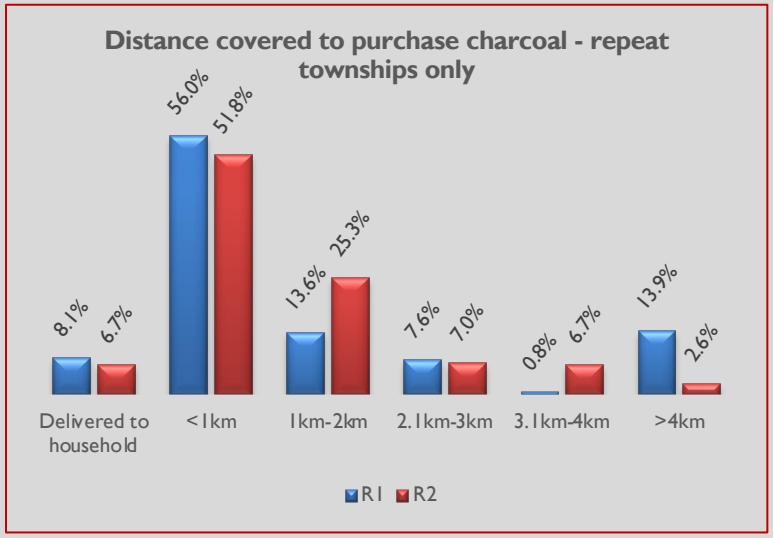
### 3.1 Charcoal Usage




Most of the respondents (90%) cooked all 3 standard meals using charcoal (breakfast, lunch, dinner), and about 80% cooked the 3 standard meals and snacks.





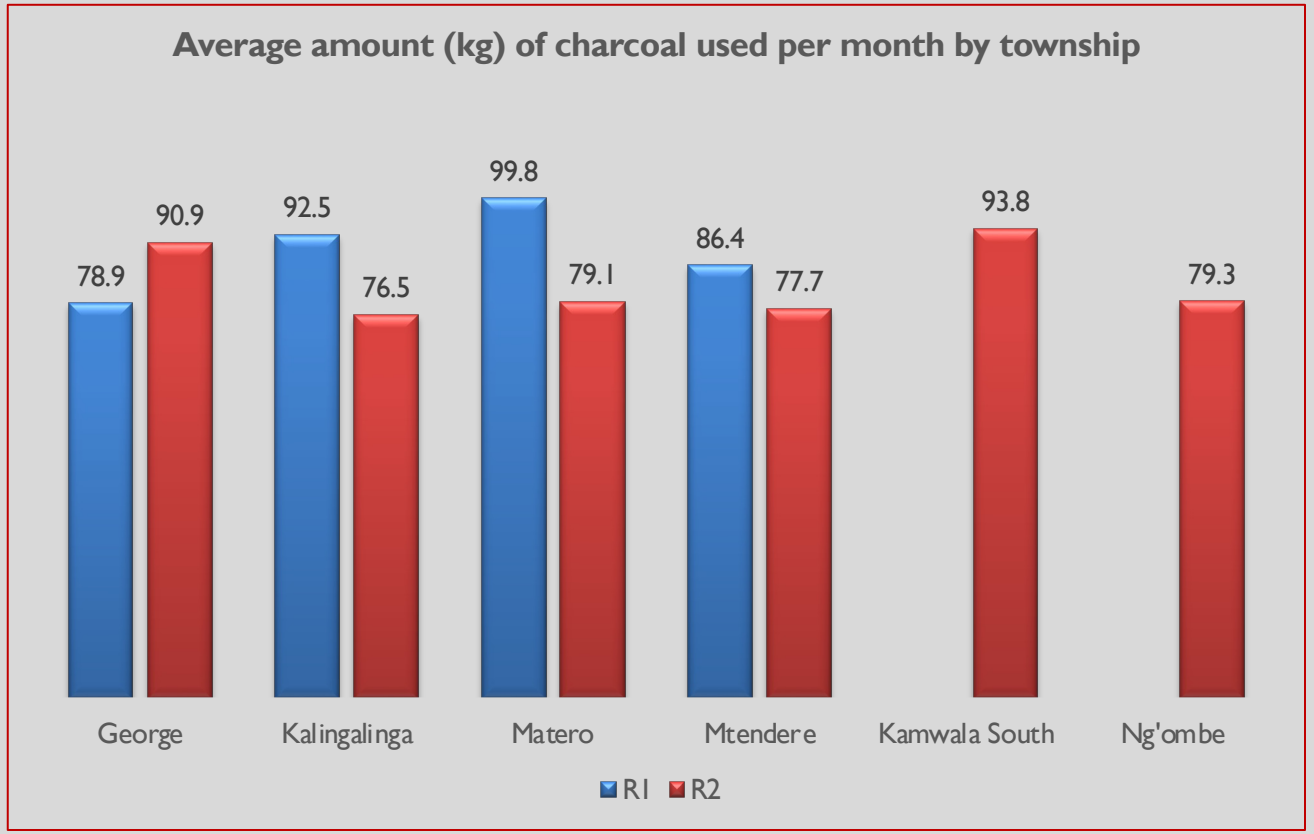
# Study Findings

## 3. Energy sources used to cook and heat the home

### 3.1 Charcoal Usage

| Charcoal usage and expenditure - repeat townships | | | |
|---|---|---|---|
| | R1 | R2 | % Change |
| Usage (kg) | 88.7 | 81.7 | 7.9% ↓ |
| Average expenditure (ZMW) | 264 | 286 | 8.4% ↑ |

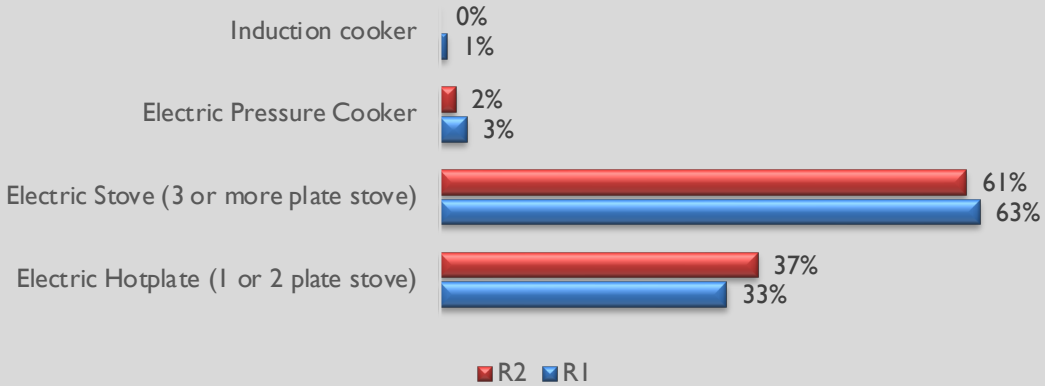
| Charcoal usage and expenditure - new townships | | | |
|---|---|---|---|
| | Kamwala South | Ng'ombe | **Overall** |
| Usage (kg) | 93.8 | 79.3 | **84.9** |
| Average expenditure (ZMW) | 319 | 281 | **296** |

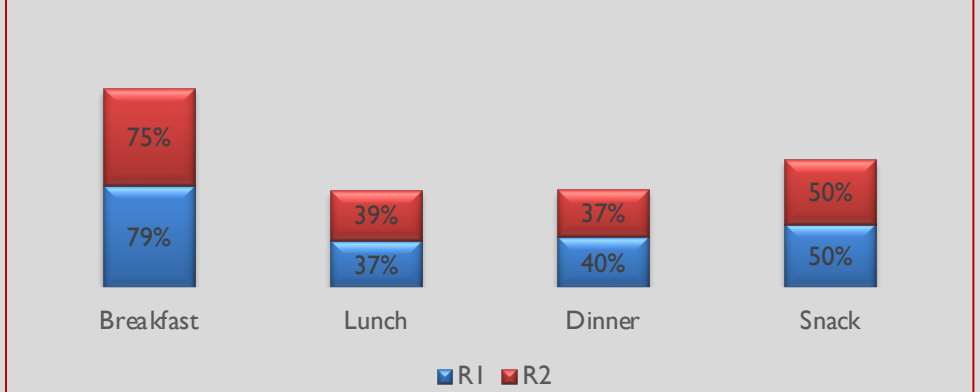


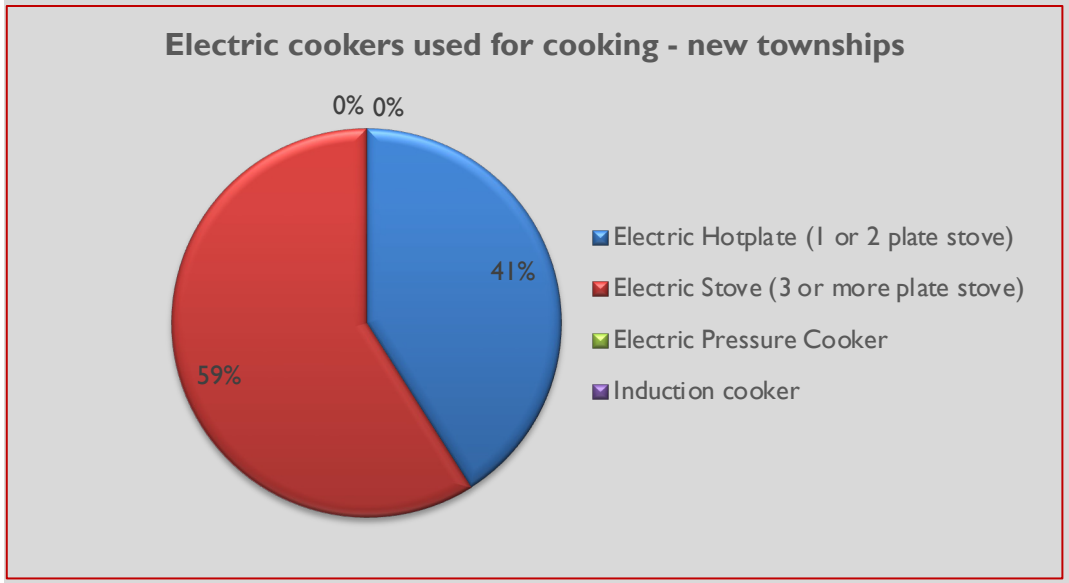
# Study Findings

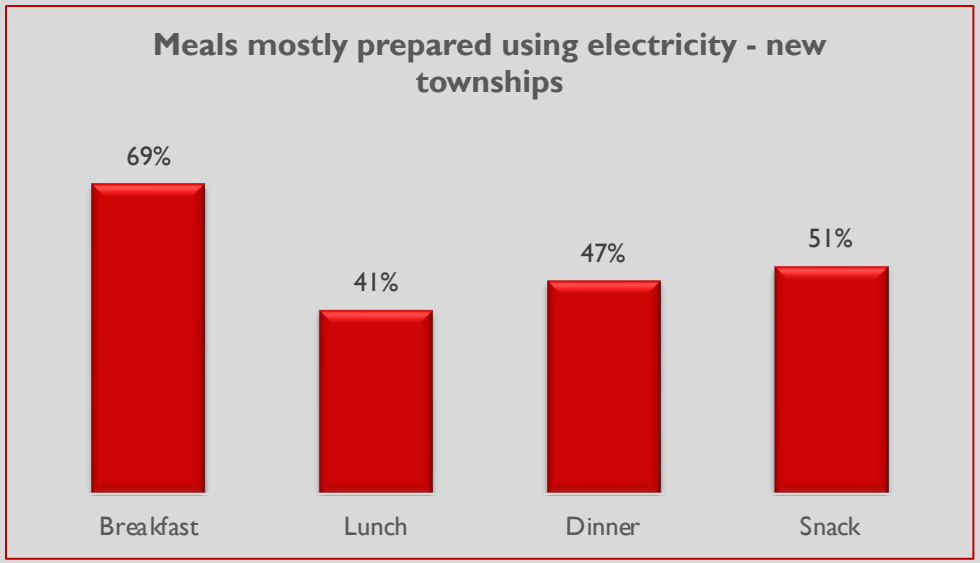
## 3. Energy sources used to cook and heat the home

### 3.2 Electricity Usage



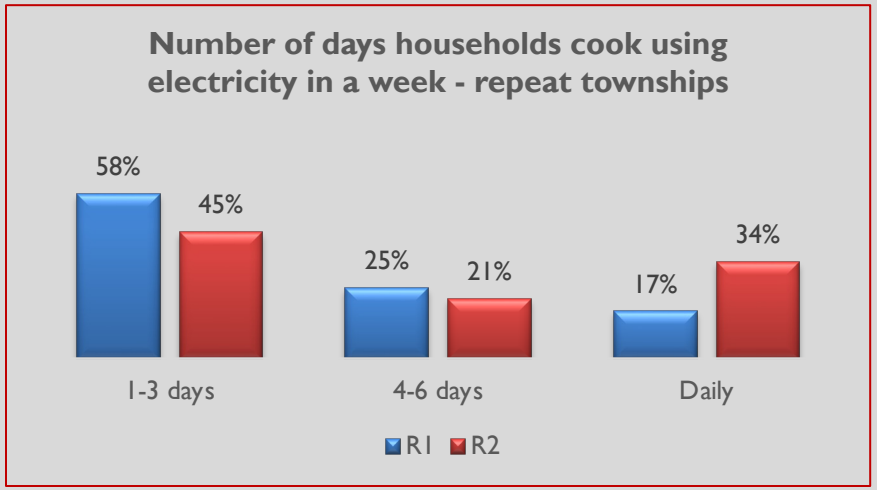



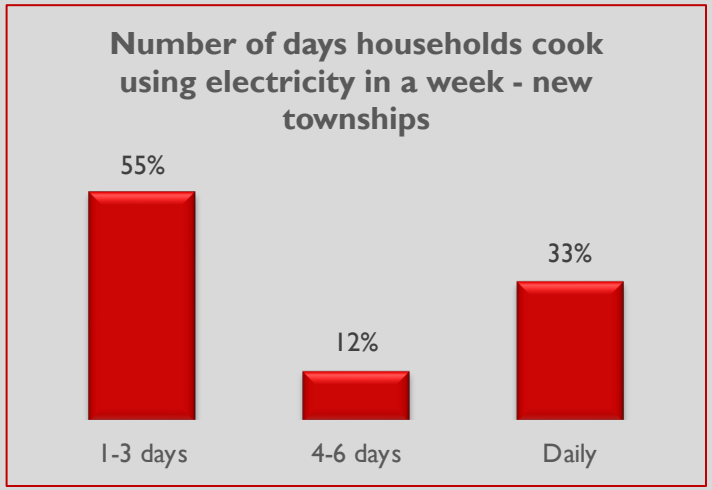

Half the respondents (50%) cooked all 3 standard meals using electricity (breakfast, lunch, dinner), and almost the same percent (50%) cooked the 3 standard meals and snacks.

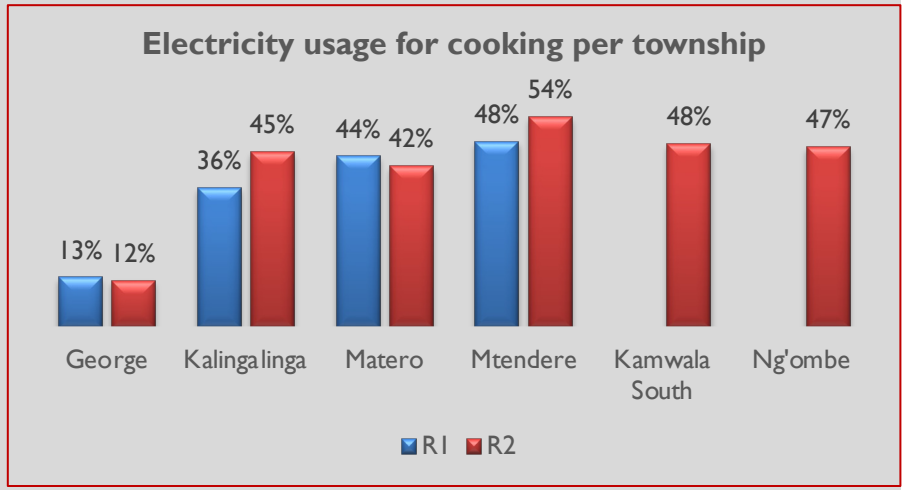
# Study Findings

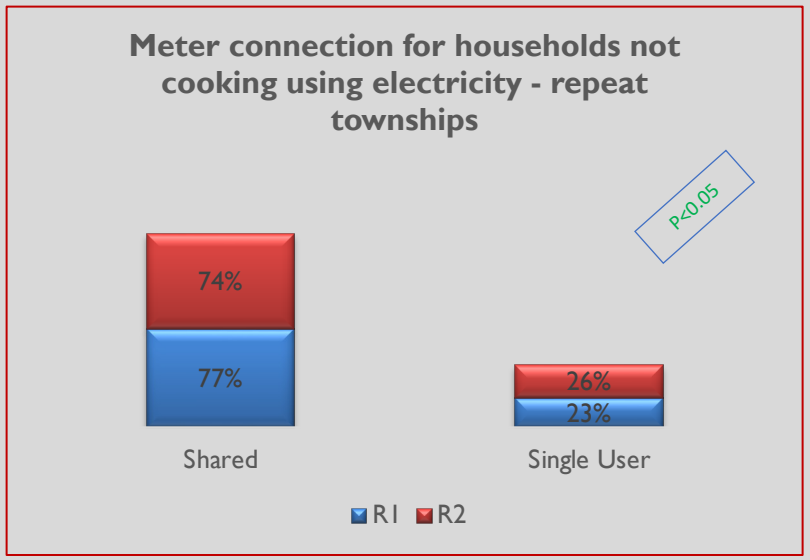
## 3. Energy sources used to cook and heat the home

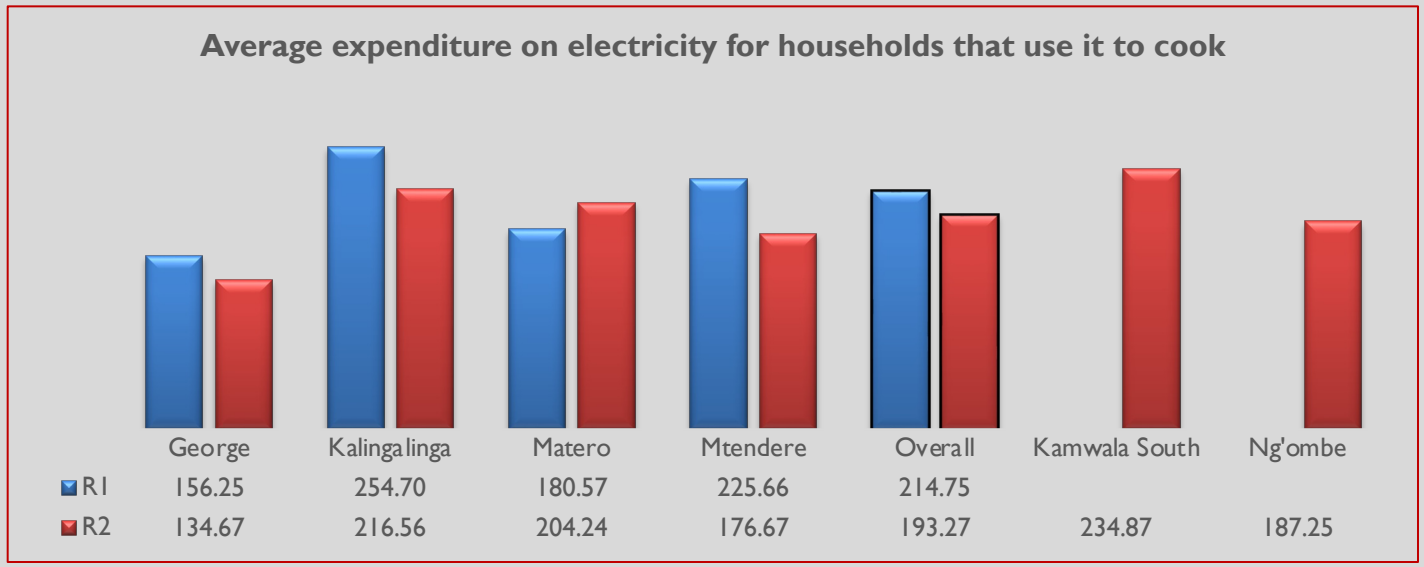
### 3.2 Electricity Usage



# Study Findings

## 3. Energy sources used to cook and heat the home

### 3.3 Pellets Usage

- There was an overall increase in pellets usage from 1.8% in R1 to 2.3% in R2
- The increase was mainly in Kalingalinga and Matero
- New townships had an overall higher usage (3.5%) than repeated townships (2.3%)
- Meals prepared – all proportions were lower than in R1, and in R2 households mostly cooked for 1-3 days in a week (in R1 daily was highest)
- 20kg pellets bag still the most purchased, but 50kg and 5kg were also reported in R2
- On average, households spent ZMW 69 and bought pellets 1.5 times in a month. In R1, the average expenditure was ZMW 100
- Distance covered to purchase pellets in R2 was either <1km or between 1km-2km

# Study Findings

## 3. Energy sources used to cook and heat the home

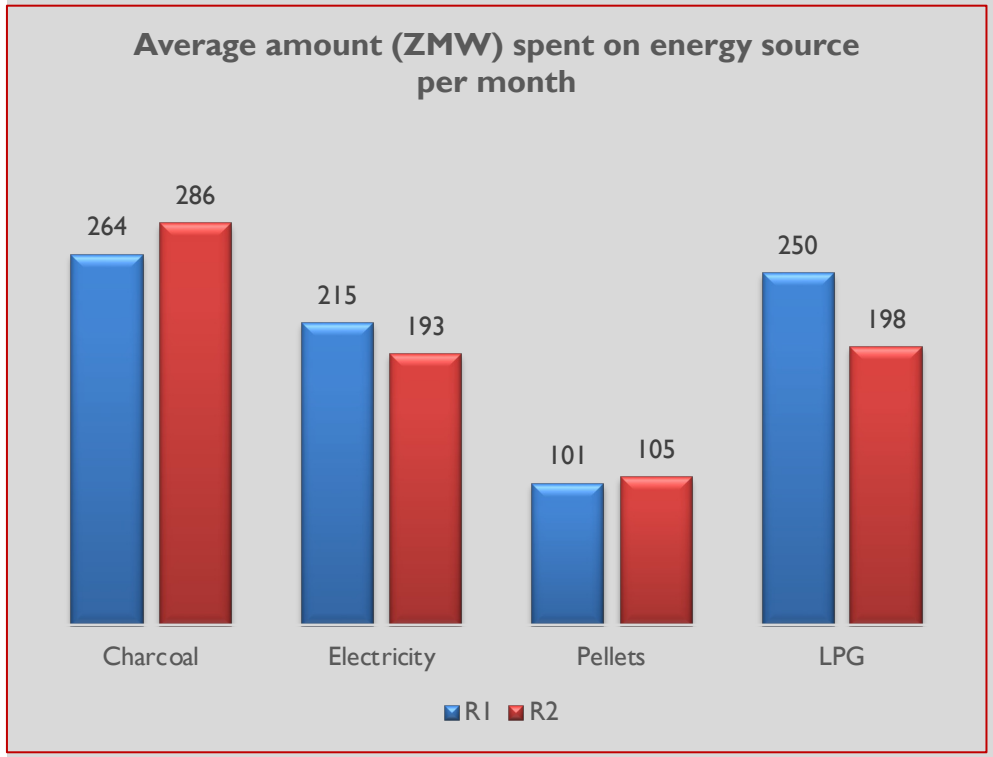
### 3.4 LPG Usage

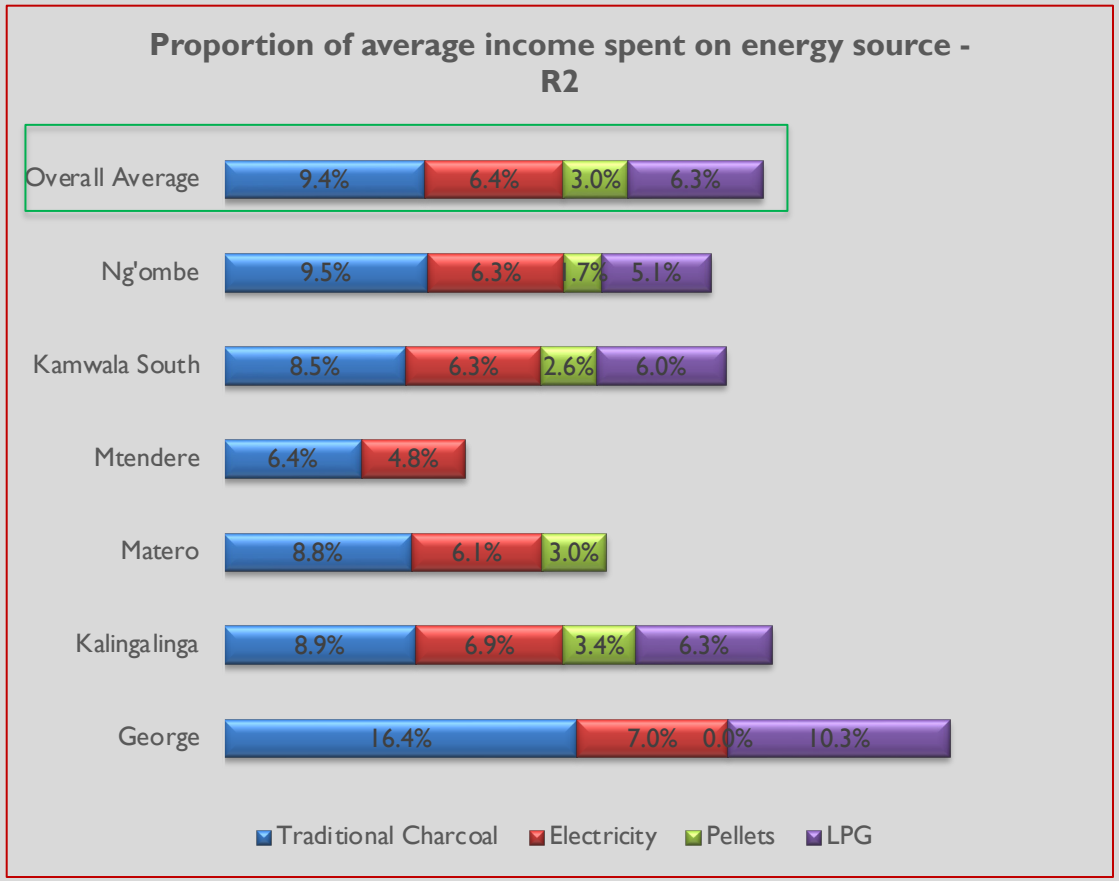
- There was an overall decrease in usage of LPG from 1.3% in R1 to 0.8% in R2. The decrease was mainly in George and Kalingalinga townships – there were no households that reported usage in the other 2 townships for both R1 and R2
- New townships had an overall higher LPG usage. Higher than that of R1 and R2
- Cookertop stove was still used more, just like in R1, with a 6kg cylinder, which was refilled once a month on average
- Average amount spent on gas refill in R2 was ZMW 198, which was less than the average amount of ZMW 295 in R1
- Distance covered to purchase LPG was anything from 1km to over 4km

# Study Findings

## 3. Energy sources used to cook and heat the home

### 3.5 Comparison of average monthly expenditure on energy source

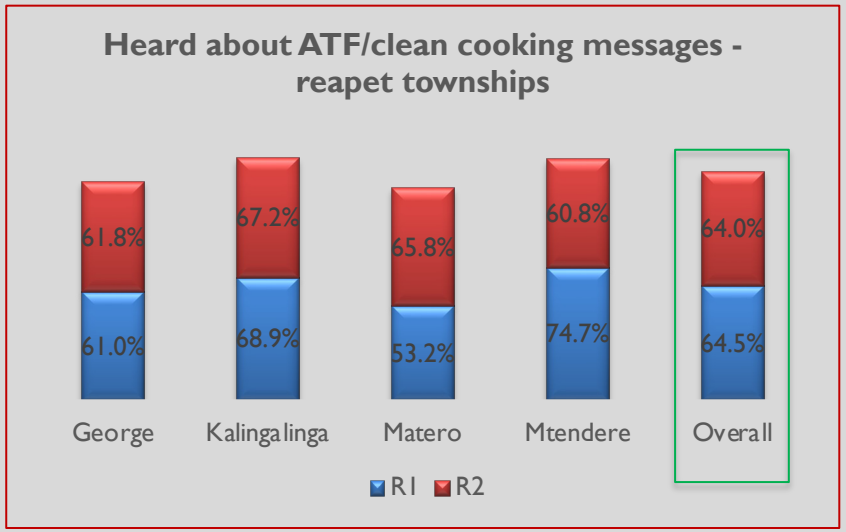


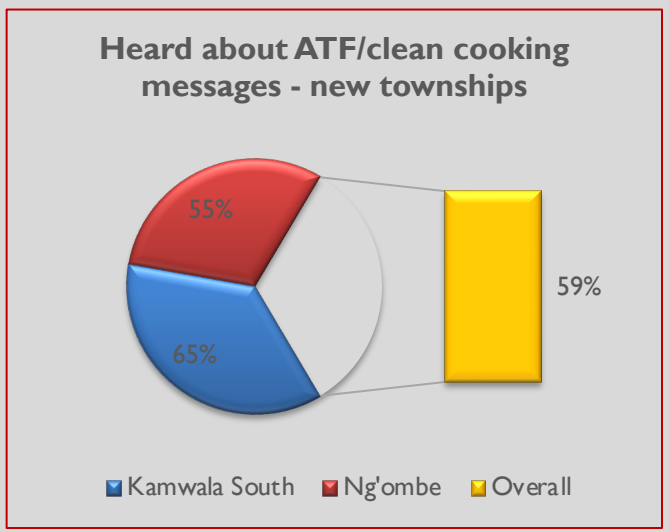



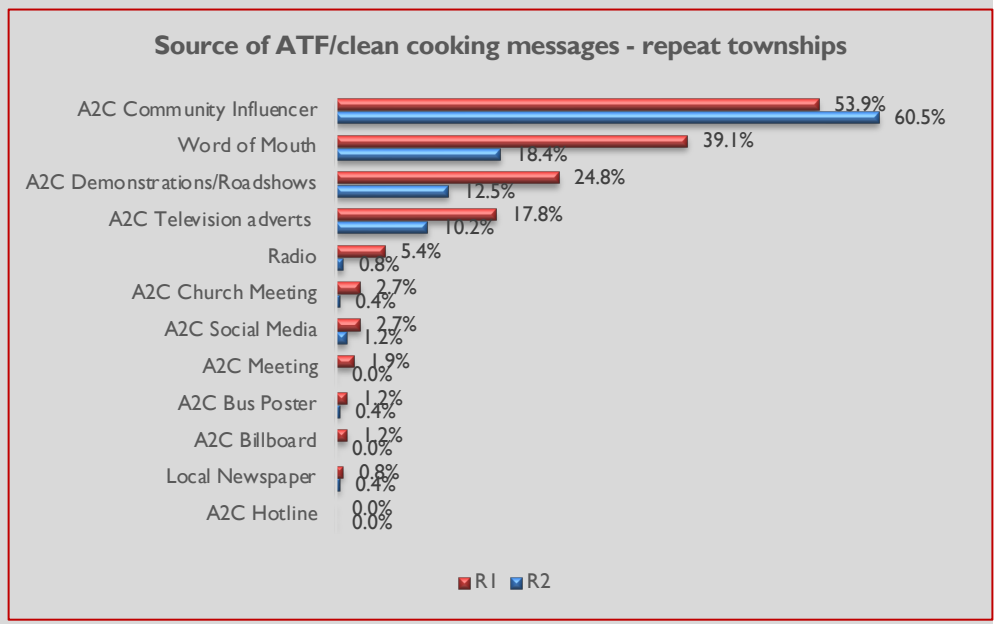

| Avrg Income |
|---|
| 3081 |
| 2958 |
| 3755 |
| 3678 |
| 3372 |
| 3152 |
| 1918 |

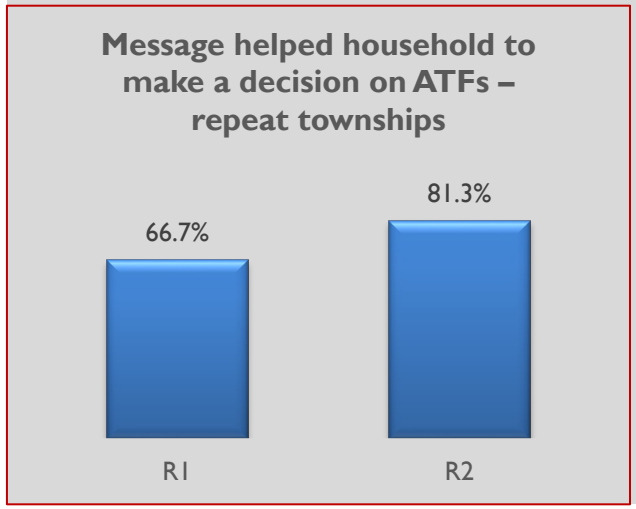
# Study Findings

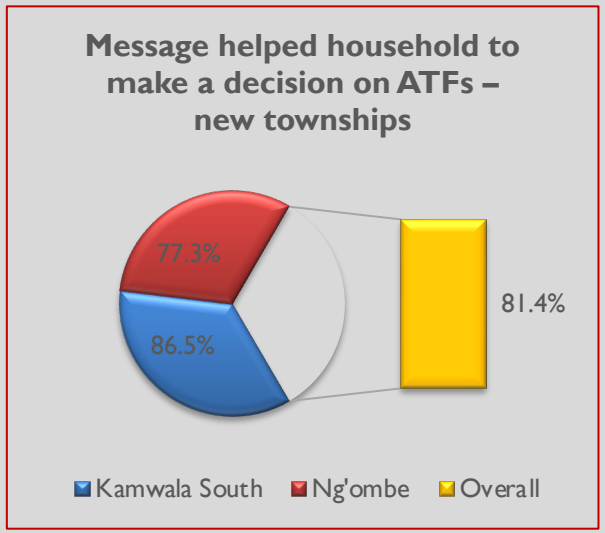
## 4. Social Behavior Change and Communication (SBCC), & ATF Adoption

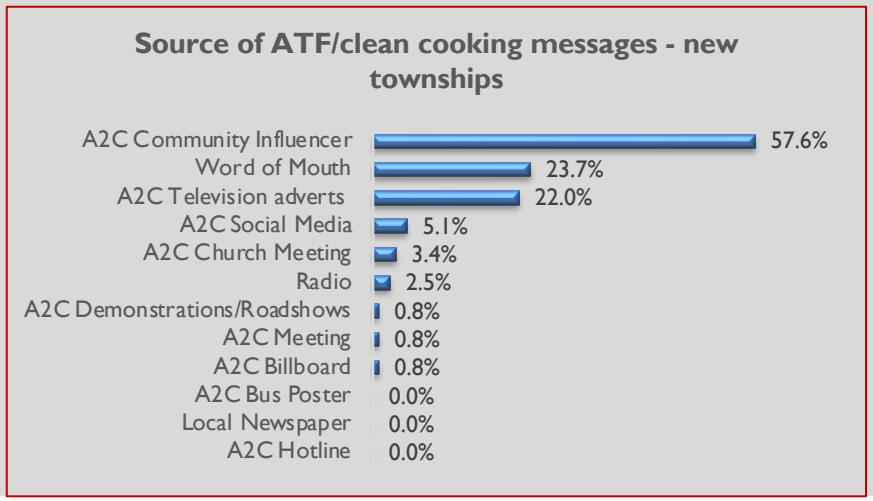


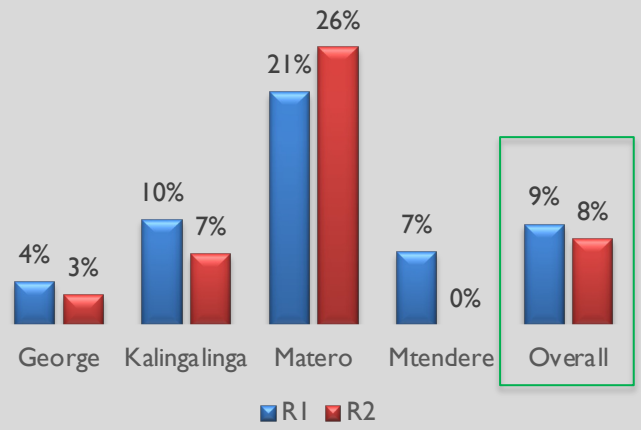



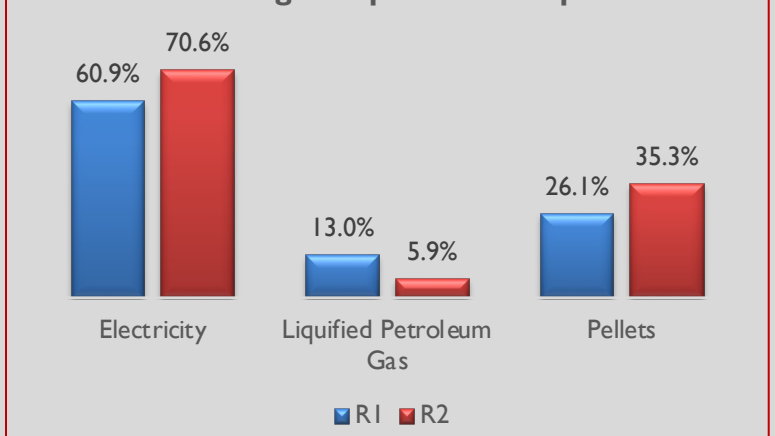



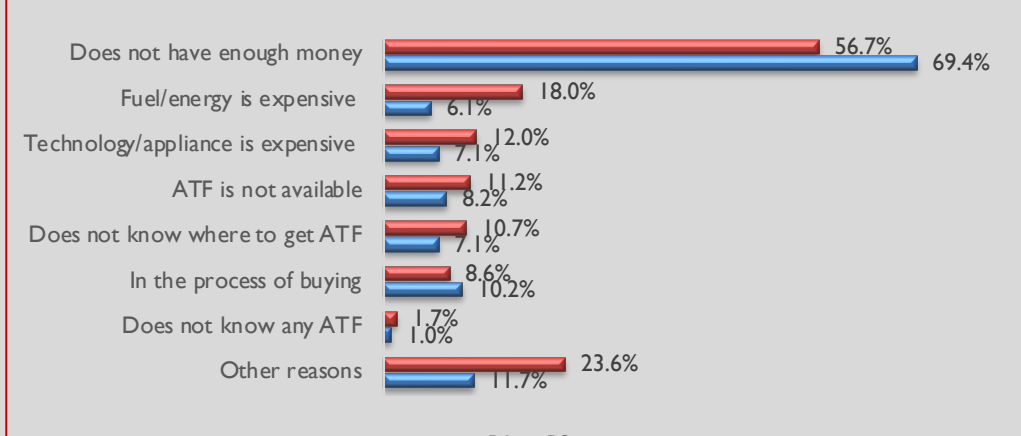



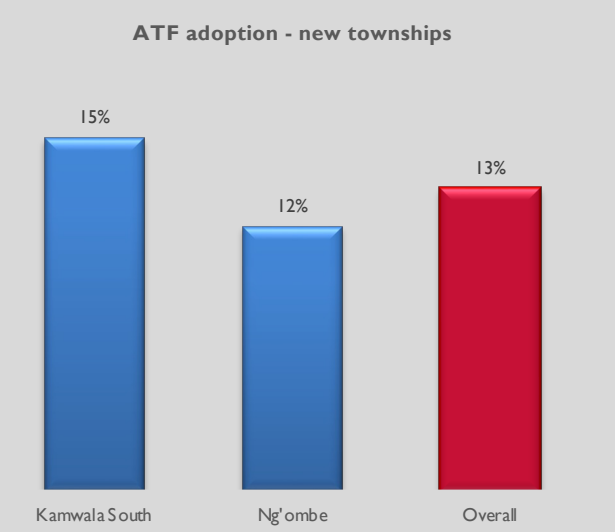
# Study Findings

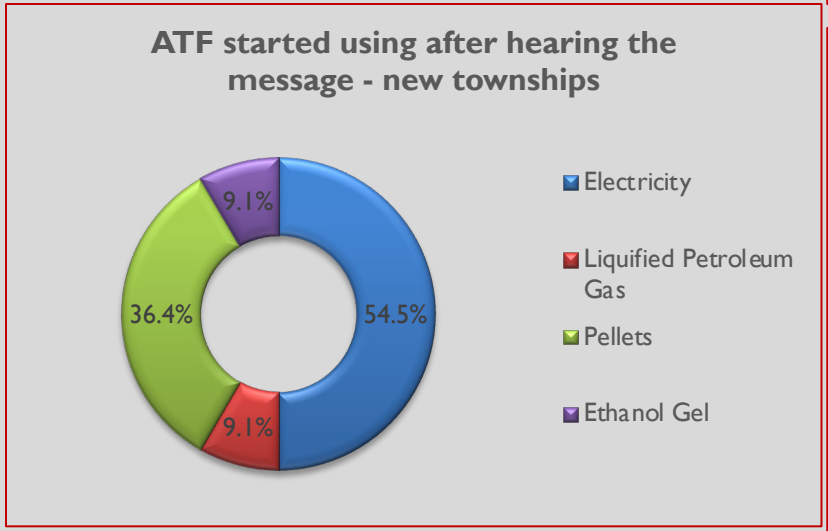
## 4. Social Behavior Change and Communication (SBCC), & ATF Adoption

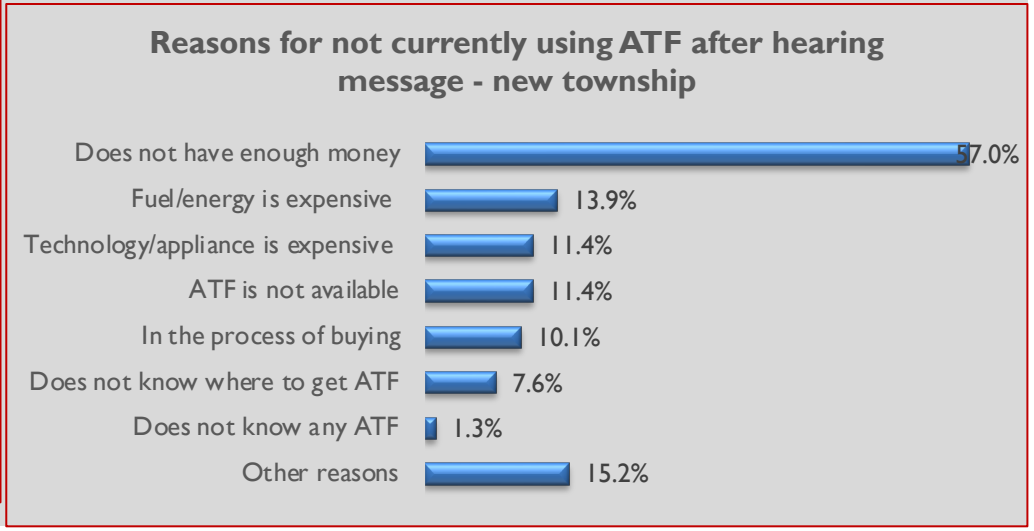


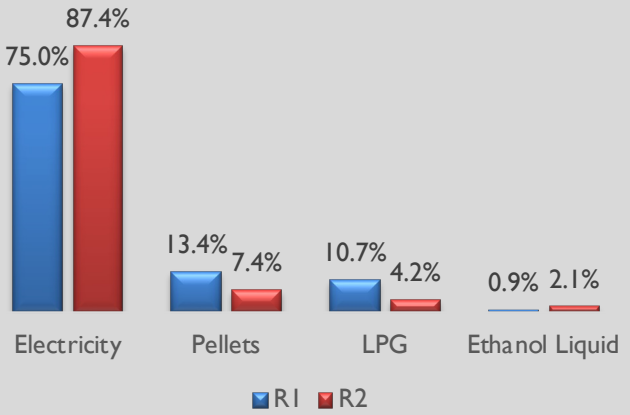



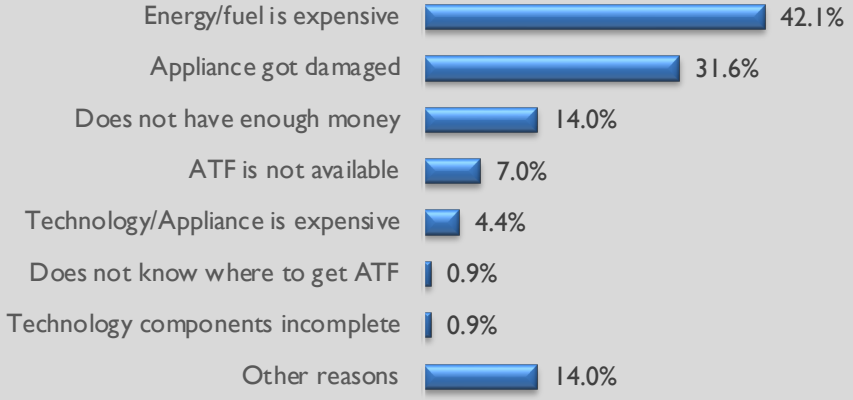
# Study Findings

## 4. Social Behavior Change and Communication (SBCC), & ATF Adoption

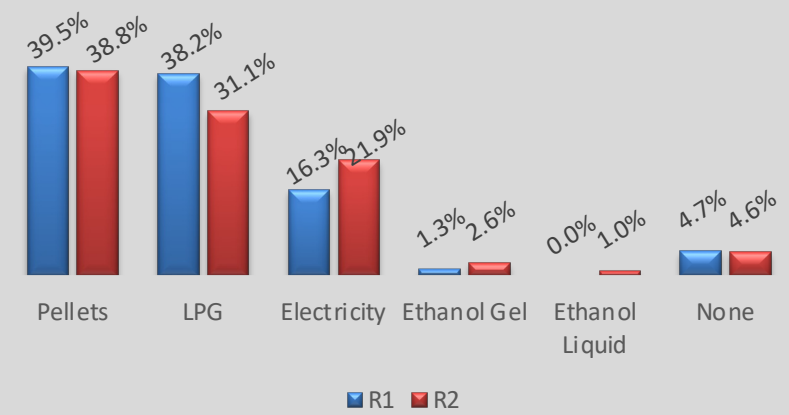
### ATF used in previous year but no longer in use - repeat townships



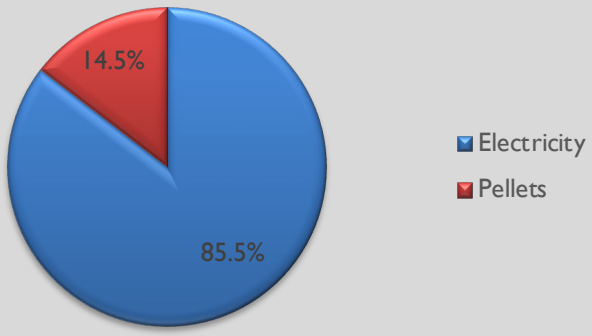

### Reasons for no longer using ATFs - repeat townships



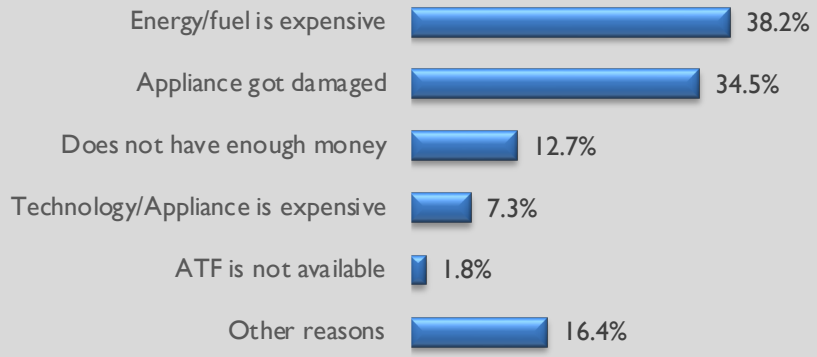

### Aspired fuel if cost and availability were not issues - repeated townships



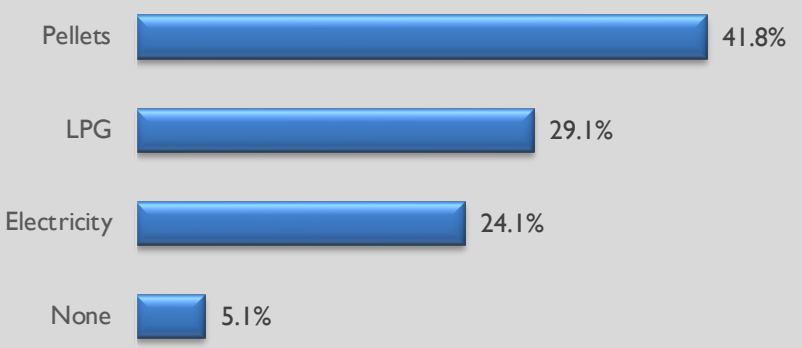

### ATF used in previous year but no longer in use - new townships




### Reasons for no longer using ATFs - new townships




### Aspired fuel if cost and availability were not issues - new townships



## 5. Key Points – Summary

- Charcoal usage remains high, R2 was slightly higher than R1, for new townships almost all interviewed households in Ng'ombe were using charcoal. However, the average amount of charcoal (in kilograms) used reduced by about 8% in R2
- New townships used a slightly higher average amount of charcoal (in kilograms) than the repeated townships
- Households that own the house they live in are more likely to run a business that uses electricity than tenants
- Electricity connectivity remains high and unchanged between R1 and R2, and most households in high density areas still share electricity meters just as much as in R1 – this continues to restricts electric cooking, even though electric cooking slightly increased between R1 and R2
- Households whose electric cooking appliances got damaged rarely had them fixed, citing lack of money as the reason for not fixing the appliance. This may indicate that households would be less likely to fix damaged cook stoves (gasifier, LPG stoves, and electric stoves) and resort to using charcoal
- Usage of LPG slightly reduced while the use of pellets slightly increased between R1 and R2. Reduction in usage of LPG could be as a result of factors such cost and availability – for instance, most of the households who had been using LPG and then stopped, cited the fuel being expensive as the main reason
- SBCC messages have been effective in influencing households' decisions on ATF acceptability. Those reached with clean cooking messages were willing to use ATFs
- The major reason for not adopting aspired ATFs were cost/not having enough funds – affordability. Payment plans from ATF sellers may be helpful