



Observations and statistics regarding MECS target markets for Electric Cooking Devices

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Statistics regarding target markets

1 Executive Summary

The Modern Energy Cooking Services Programme aims to facilitate the transition of as many people as possible in low and middle income countries from cooking with biomass to cooking with “modern energy”. This includes cooking with electricity. This report is part of our work to facilitate **cooking device companies understanding of these markets**, with the aim of supporting them in bringing new or better products to these markets.

This document presents evidence to answer the following market research questions:

- What is the **potential market size** for electric cooking devices in each country?
- What is the nature and volume of **electric cooking devices currently entering the markets?**
- What is the range and price of **electric cooking devices currently available** in the markets?

The report also summarises and refers the reader to other published material regarding the markets for electric cooking devices, aiming to provide a one-stop-shop for companies looking to access the MECS findings portfolio.

There are multiple factors to consider in assessing the size of the market. We have generated a number of estimates, therefore. As a result, we believe there could be at least 36 million households (based on 2017 numbers) needing electric cooking devices (with many potentially needing more than one, for different purposes) across the 15 MECS priority countries, but given population and electricity access growth, the figure could be as high as **170million (and even potentially 230m by 2030)**.

We have procured import data for as many of our target countries as we could for the period July to December 2019. This has enabled us to build a (partial) picture of the electric cooking devices being imported into Kenya, Ghana, Uganda, Ethiopia and Bangladesh. We have information about:

- What types of devices are currently being imported. The profile varies by country but the most common devices are ovens, electric/gas cookers, rice cookers, hotplates and kettles. Electric pressure cookers are only imported in large numbers into Bangladesh
- We have identified the top importing organisations for each country, with the largest importers are Hotpoint for Kenya (total value of imports: 3.2m USD), Game Discount World for Ghana (total value of imports: 1.1m USD), Bangladesh China Friendship (total value of imports: 541k USD), Bamukungu Ent for Uganda (total value of imports: 175k USD), and Kiyar Shafi Bushira for Ethiopia (total value of imports: 239k USD)
- We have identified the brands (where they are identified) associated with the most imports for each country. While Von Hotpoint for Kenya is by far the largest, with imports worth over 2.25m USD in the period, there are a number of brands that are present in multiple markets – Beko, Bosch, Indesit, Russell Hobbs, Logik, Salton. For Kenya, we have been able to identify the types of cooking device associated with each brand.

- We have sought to quantify the imports of electric pressure cookers (EPCs) for each country for which we have data. It has been very challenging to extract useful data about the actual volume of EPCs coming into the countries. This is partly because there is reason to believe that some of data relates to stove-top rather than electric devices (essentially due to the low unit value). For Kenya, the total value of EPC imports is estimated as 60k USD, for Ghana it is 470k USD and for Uganda it is 48k USD.
- MECS is working in countries where there is a great opportunity for households to transition to clean cooking across Sub-Saharan African and SE Asia. However, to date, we have only conducted studies of the electric cooking devices that are available in a selection of countries in East Africa. Table 1 summarises the number of models of different types of electric cooking device, identified in the online survey, for the 3 countries we have studied to date.

COUNTRY (NO OF OUTLETS SURVEYED)	ZAMBIA (4)	UGANDA (9)	KENYA (6)
ELECTRIC OVENS	83	27	24
ELECTRIC PRESSURE COOKERS	5	22	15
SLOW COOKERS	4	2	1
ELECTRIC KETTLES	32	33	1668
HOTPLATES	15	9	164
INDUCTION STOVES	0	2	50
MICROWAVE OVENS	30	29	98
AIR FRYERS	2	11	63
ELECTRIC RICE COOKERS	83	27	222

Table 1: Numbers of models of different types of electric cooking device found in online retailers studied, by country (no of retailers for each country given in brackets).

- For Tanzania, our partners have identified 23 retailers offering EPCs – online or shops.

2 Introduction

The Modern Energy Cooking Services Programme aims to facilitate the transition of as many people as possible in low and middle income countries from cooking with biomass to cooking with “modern energy”. This includes cooking with electricity. This report is part of our work to facilitate **cooking device companies understanding of these markets**, with the aim of supporting them in bringing new or better products to these markets.

This document presents evidence to answer the following market research questions:

- What is the **potential market size** for electric cooking devices in each country?
- What is the nature and volume of **electric cooking devices currently entering the markets?**
- What is the range and price of **electric cooking devices currently available** in the markets?

The report presents findings from the following activities:

- Analysis of national level data
- Analysis of purchased import data
- Online survey of electric cooking appliances available in three countries.

The main report summarises findings from a range of data sets we have secured or developed. Details of these, the methodologies involved are available in the Appendices.

The MECS programme has also carried out a wide range of studies and investigations that shed light on the many different markets, cooking cultures, device needs and preferences, etc. We provide an introduction and signposting to these.

3 What is the potential size of the market for electric cooking devices?

Companies looking to build the business case for the investment of resources required to enter a market will need an assessment of the size of the Total Addressable Market (TAM) and, from that, estimate what percentage of that could realistically be achieved with their offering. There are different ways to calculate this and each company will have its own preferred methodology reflecting its business model and approach.

In order to provide some data points to inform that we have attempted to quantify the size of the markets for electric cooking devices in 15 MECS target countries. These estimates represent the number of households needed to transition to modern energy cooking (ie they do not include those that may wish to upgrade/replace existing MEC devices).

Three estimates are presented in Table 2. (Appendix 2 sets out the methodology for these.)

1. Based on population statistics from 2017 and figures regarding the numbers in each country with electricity, how many households would need cooking devices to meet our target of 40% of households cooking with electricity? **A total of nearly 37m households**
2. Based on the same statistics, what is the number of households that could need a device if there was 100% electricity access and everyone cooked with it? **A total of over 171m households.**

3. What would the figure be if we use predicted population figures expected for each country by 2030 and all have eCooking? **A total of over 230m households.** Many households will potentially needing more than one electric cooking device, for different purposes.

Country	1: No of additional devices to reach the 40% target	2: No of HH needing devices if all who have electricity cook with it.	3: No of HH needing devices if 100% access and 100% cook with it.
Bangladesh	11,780,000	34,773,000	39,776,000
Cameroon	1,152,000	4,874,000	6,767,000
Cambodia	1,202,000	3,438,000	4,074,000
Ethiopia	3,370,000	22,388,000	31,441,000
Gambia	58,000	266,000	385,000
Ghana	2,470,000	8,177,000	10,841,000
Kenya	3,256,000	13,521,000	18,255,000
Malawi	7,800	3,722,000	5,510,000
Myanmar	1,897,000	11,005,000	13,858,000
Nepal	2,111,000	6,125,000	7,875,000
Nigeria	7,635,000	38,175,000	53,669,000
Rwanda	354,000	2,784,000	3,811,000
Tanzania	1,150,000	10,933,000	16,322,000
Uganda	436,000	8,723,000	13,121,000
Zambia	None ¹	2,595,000	4,742,000
Total	36,879,000	171,500,000	230,446,000

Table 2: Estimates of the potential size of markets for electric cooking devices across 15 countries, based on a range of different assumptions.

The immediate implication of this set of figures is that there is considerable variation in the size of the different markets. Depending on which estimate you treat as the most relevant, the differences between countries also varies – see Figure 1.

Clearly, there will be many other factors that come into play in assessing what is realistic to achieve in the different markets, based on challenges and resource requirements to enter the markets and become established, the level of competition and the range of risk factors that need to be considered.

We have provided a series of country snapshots (Section 6) that shed further light on this – qualitative assessments of the markets, details of the strength of their economies and Ease of Doing Business and information about potential in-country partners.

¹ Zambia already has 40% of those with electricity cooking with it.

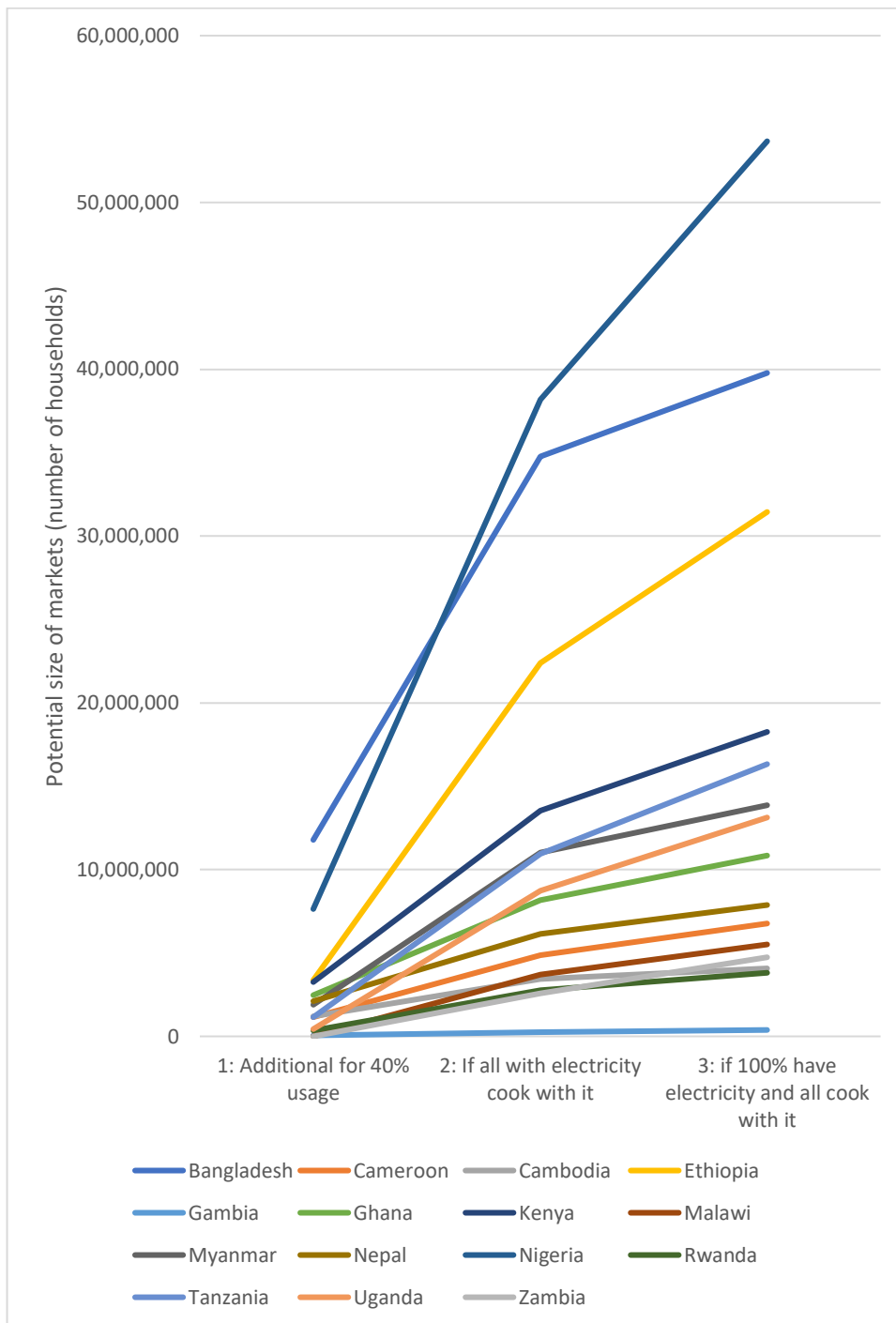


Figure 1: Estimates for each country, of the potential size of markets in terms of numbers of households under scenarios 1, 2, and 3.

4 The nature of electric cooking devices currently being imported

The next sections focus on where we have been able to shed light on the current market for electric cooking devices within the countries for which we have secured data.

Companies will have a portfolio of products that they can potentially import into any given market and this will be informed by a sense of a) what is already available within the market and b) which products are selling in greatest numbers. Ideally this would include measures of how the market is changing over time so that trends can be identified and exploited.

The MECS programme is actively seeking to drive change in the demand for electric cooking devices by working with partners in-country to understand and raise awareness of the benefits of electric cooking and stimulate the supply chain of products getting to consumers. Hence, there may well be discontinuities in these trends and past demand profiles may not accurately reflect future demand.

The nature, brand and volume of electric cooking devices being imported into a country gives some useful insights into what is available and also what is selling well. The data can also include information about the importing organisations, source of the devices and the unit price.

We have sought to procure data sets for all the 15 countries which we are targeting but in practice this is only available for a few, and even some of those do not keep good records making it hard to extract any information with confidence. Import and export data is prone to inconsistencies due, for example, to differences in the data recorded by different countries, e.g. values may include different combinations of cost, insurance, freight, and taxes.

Appendix 2 explains our methodology.

Our data enabled us to shed light on the following questions:

- What types of electric cooking devices are being imported;
- Who is importing these;
- What brands of products are imported;
- Given our particular focus on Electric Pressure Cookers as a key device category that our research suggests could have great potential in East Africa, we have focused on what the data can tell us about historical EPC markets.

4.1 What types of cooking devices are being imported?

We have procured import data for as many MECS target countries as we could for the period July to December 2019 – data is not available for most of them. Import data comes in the form of spreadsheets where each row (which we treat as an individual record) provides data for individual consignments or for each product within a consignment. Unhelpfully, therefore, single record can represent different things. We, therefore, been able to bring together data that appears meaningful for four countries of interest, highlighting the types of devices imported along with estimates of the value of devices imported within the six month period – Table 3. N.B. values include all duty and taxes declared in order yield figures that would be closest to the value of retail sales.

Our informal observations suggest that there are broadly three segments of the market that are relevant here (see our report on market segments²):

- Affluent households with sizeable/fitted kitchens that have space and finance to have stand-alone/fitted ovens/cookers and counter-top devices such as kettles, toasters, and other function-specific devices, which may include electric pressure cookers.

² <https://mecs.org.uk/wp-content/uploads/2020/12/MECS-report-market-segments.pdf>

- Poorer households with limited facilities that use electricity to cook with a counter-top device such as a rice cooker, kettle, hotplate or electric pressure cooker.
- Households with electricity that do not cook with it.

<i>PRODUCE CODE</i>	<i>Kenya</i>	<i>Ghana³</i>	<i>Bangladesh</i>	<i>Uganda</i>
<i>Oven/Cooker</i>	7,150	983	3,589	930
<i>Elec/Gas Cooker⁴</i>	1,241	197	0	0
<i>Rice Cooker</i>	148	3,966	6,586	140
<i>Hotplate</i>	111	595	218	167
<i>Kettle</i>	69	45	46	404
<i>Deep Fryer</i>	69	164	76	94
<i>(Electric) Pressure Cooker⁵</i>	64	469	1,652	53
<i>Microwave⁶</i>	36	42	946	2
<i>Sandwich Maker</i>	22	0	142	4
<i>Induction</i>	10	200	511	7
<i>Egg Boiler</i>	8	11	0	1
<i>Grill</i>	7	155	49	28
<i>Frying Pan</i>	7	88	0	2
<i>Slow Cooker</i>	5	145	0	1
<i>Waffle Maker</i>	2	0	0	1
<i>Popcorn Machine</i>	2	54	0	10
<i>Air fryer</i>	1	166	5	7
<i>Barbeque</i>	0	66	41	2
<i>Toaster</i>	0	23	0	8
<i>Tea/coffee maker</i>	0	19	0	6
<i>Bread maker</i>	0	11	62	0
Total	8,952	7,399	13,923	1,867

Table 3: Estimated value of electric cooking devices imported – for 6 month in 2019 in 1,000 USD.

The data we have suggests that some types of device are imported in much larger numbers than others, although it is hard to draw firm conclusions given that the figures are for total values of goods imported, not numbers. Kettles, for instance, will have a much lower unit value than ovens/cookers. Based on the total value of the electric cooking devices of different types being imported, rice cookers (especially in Bangladesh where rice is a staple) are imported in good numbers. However, it appears that the numbers of EPCs being imported is much lower than the market could accommodate if we are successful in

³ Consignments with a single product only (accounting for 64% of import records in the database).

⁴ Includes free standing ovens and work top appliances. It might be expected that combination cookers could equally well be coded as a gas cooker, so the figures in this data set may well be an underestimate.

⁵ All pressure cookers classified under this HS code should be electric, but an analysis of costs suggests that some of these pressure cookers are highly likely to be conventional stove top pressure cookers (see Appendix 2).

⁶ Microwaves have a separate HS code and should not appear in this data set (some have been misclassified under this one). The number of microwave ovens coming in to the country will, therefore, be much higher.

stimulating demand for this category of cooking device.

In addition to highlighting those appliances for which demand in local markets is highest, the figures in Table 3 also give an indication of the current size of electrical cooking appliance markets (N.B. figures in the table cover a six month period only). Another source of data on import market size is the Atlas of Economic Complexity⁷; figures for same item category as that for which we purchased import data are presented in Table 4⁸. These figures are based on data from United Nations Statistical Division (COMTRADE)⁹, but have been cleaned to avoid inconsistencies by using only FOB ‘free on board’ values (i.e. excluding shipping and taxes).

	2019 (million USD)
Kenya	12.3
Ghana	9.9
Bangladesh	18.1
Uganda	1.3

Table 4 Total annual import values (Atlas of Economic Complexity) for electrical cooking devices

Bearing in mind that the figures in Table 3 are based on only six months and cover domestic appliances only, it can be seen that figures from the import datasets are considerably higher than the Atlas figures; this will be partly because they include shipping and taxes where declared, but may also reflect other errors and inconsistencies in the datasets.

4.2 Who are the main importers of electric cooking devices?

Being aware of the strength of the competition is critical in assessing any market and identifying the main players is a good starting point for that.

The data gives the importing organisation for each record – we have used this to identify the importing organisations with the highest value of imports during the period.

Table 5 shows the top ten importers for each of the countries for which we have this data. We have estimated the total value of imports accounted for by these organisations. We have expressed these figures as a percentage of the total import value, which shows how much of the market is concentrated in a few organisations.

The concentration within the main importers varies a lot. Most countries, aside from Uganda have one importer that is the strongest by a considerable margin. In Kenya this is the most pronounced with Hotpoint the largest importer and that, with three other major players, very much dominating the market. The other countries all have the top ten importers each taking a good share of the market.

	%AGE OF TOTAL	TOTAL VALUE IMPORTED BY THE TOP 10
KENYA	93%	8,339,000

⁷ <https://atlas.cid.harvard.edu/>

⁸ N.B. in addition to domestic electric cooking equipment (HS 85 covers electrical machinery), these figures include some gas appliances and equipment for institutional cooking.

⁹ <https://comtrade.un.org/>

HOT POINT APPLIANCES LTD	39	
HYPERMART LIMITED	18	
IDEAL APPLIANCES LIMITED	17	
ARMCO KENYA LTD	15	
SAMSUTECH CORPORATION LIMITED	5	
CROM IMPEX LTD	1	
AMEDO CENTRES KENYA LIMITED	1	
ZEDSONS LIMITED	1	
NEWMATIC AFRICA LIMITED	1	
NAIVAS LIMITED	1	
GHANA	31%	3,663,000
GAME DISCOUNT WORLD (GHANA) LIMITED	30	
SHOPRITE GHANA (PTY) LIMITED	17	
MELCOM LIMITED	12	
INTERWORLD PRODUCTS GHANA LIMITED	9	
NOVOTEC ENTERPRISES LIMITED	8	
MERIDIAN PORT SERVICES LIMITED	8	
EDERICK LIMITED	6	
SEYNOU ABDOUL HAMIDOU	5	
ELECTRO LAND GHANA LIMITED	4	
ALASSANE SANA	3	
UGANDA	48%	891,000
BAMUKUNGU ENTERPRISES LIMITED	20	
ANISUMA TRADERS LIMITED	18	
APPLIANCE WORLD LIMITED	17	
TRANSLINK (U) LTD	8	
MR. RONALD MUSEKURA	8	
WORLD TOPSTAR SERVICES LTD	7	
KAYSON (U) LTD	6	
MRS. EDITH MUTEESI	6	
B.M. TAMALE ESTABLISHMENT	5	
SECRETS INVESTMENTS LIMITED	5	
ETHIOPIA		1,119,000
KIYAR SHAFI BUSHIRA	27	
KEDIR SHAFI BUSHRA	17	
FEKRMARIAM BERHANU WORKEYE	15	
WASSIE MULUGETA	14	
MOHAMUD ABDELA HASSEN /M.A.H.A DIRE	11	
ETHIOPIAN TOURIST TRADING ENTERPRIS	11	
ABENEZER ZENEBE MEKURIA	9	
SAMUEL TEKELU BEDADA	9	
HOPETECH MANUFACTURING PLC	7	
NAZRET BERHANE TEKLE	7	

Table 1 Top Importers of Domestic cooking appliances by value of goods for each country

4.3 What brands are being imported?

Companies will be familiar with the brands with which they predominantly compete in other markets, given similar target segments and pricing models. Understanding how established these primary competitors are within a new target market will give a sense of how easy it will be to secure a significant share of the markets. The raw data, not included here, can also be used to identify those importers that are working with your competitors' products.

The brand name of the imported product is sometimes included within the product description field. Visual inspection of a sample of records has highlighted a number of recognized brands. The most commonly mentioned brands imported into each country are presented in **Error! Reference source not found.** Most brands are imported into only one country.

For Kenya, we have enough detail to be able to relate brands to specific cooking device types - see Table 7.

	Kenya	Ghana	Uganda
AKAI			
Ariston			
Armco			
Beko			
Bella			
Binatone			
Black & Decker			
Bosch			
Conic			
Crown			
Crownstar			
Cute			
Defy			
Elba			
Elbee			
Elekta			
Exzel			
Haier			
Indesit			
Italian home			
Kenwood			
Kueppersbusch			
LG			
Logik			
Midea			
Mika			
Nasco			
Nikura			
Paco			
Philips			
Pigeon			
Platinum			
Ramtons			
Royal			
Russell Hobbs			
Salton			
Simfer			
Sunbeam			
Super general			
Tankoo			
Venus			
Von Hotpoint			
Whirlpool			

Table 6 Brands of electric cooking devices imported into Kenya, Ghana and Uganda.

	Hotplate	Slow Cooker	Rice Cooker	Pressure Cooker	Air fryer	Deep Fryer	Microwave	Kettle	Sandwich Maker	Grill	Oven/Cooker	Elec/Gas Cooker
Ariston												
Armco												
Black & Decker												
Beko												
Binatone												
Bosch												
Conic												
Cute												
Elba												
Elekta												
Exzel												
Haier												
Von Hotpoint												
Indesit												
Kenwood												
Kueppersbusch												
LG												
Mega												
Mika												
Ohms												
Ramtons												
Simfer												
Super general												
Sunbeam												
Tefal												

Table 7 For Kenya, types of cooking device associated with different brands being imported.

4.4 How many Electric Pressure Cookers

Our research has highlighted the potential for Electric Pressure Cookers (EPCs) to cook the majority of East African dishes – and given their extremely high levels of energy efficiency can result in substantial savings for many households. Differences in cooking styles mean that the fit of EPCs with cooking cultures in SE Asia is not as great, but they still offer a range of consumer benefits that are opening up substantial markets (e.g. Bangladesh in Table 3.) Hence, we see particular opportunities for these products in some of our target SSA markets.

We have sought to quantify the imports of EPCs for each country for which we have data. It has been very challenging to extract useful data about the actual volume of EPCs coming into the countries. This is partly because Pressure Cookers is the term used and there is reason to believe that some of these entries were stove-top rather than electric (because of low unit value).

The following is what we feel we can say with any confidence:

- **Ghana:** Electric pressure cookers are one of the more commonly imported items, accounting for 6% of the number of import records. They also appear to account for approximately 6% of the value of imported domestic cooking appliances (**470k USD**). EPCs are imported mostly from South Africa, India, and China.
- **Kenya:** Based on the valid records (ie those we do not believe to be stove-top), the total number of EPCs imported is 5,600. The total value of these EPCs is approximately **60k USD**, giving a mean unit value of 11 USD. Of the 13 valid EPC records, only two contain a brand name. One was Von Hotpoint (680 units with a total value of 21,500 USD) and the other was Sunbeam (13 units with a total value of 600 USD).
- **Bangladesh:** The top 10 suppliers of EPCs account for 10% of the total value of EPCs imported; several are based in the Middle East.
- **Uganda:** The top 10 suppliers of EPCs account for 70% of the total value of EPCs imported; most are imported from the United Arab Emirates.

This does suggest that there is considerable difference in the prevalence of EPCs across our target countries, where we have data. Insofar as import volumes are an indication of expected sales/demand (even if not necessarily of actual demand), we can conclude from this that Ghana appears to have a strong market for EPCs with Kenya and Uganda having some but still developing.

5 What electric cooking devices are currently available in the markets?

We have conducted studies of the electric cooking devices that are available in a selection of our target markets in East Africa. This has given a detailed understanding of models, prices, features across a wide range of device categories.

Table 8 summarises the number of models of different types of electric cooking device, identified in the online survey, for the 3 countries we have studied to date. This is supplemented by data from Tanzania, gathered from our in-country partner’s own research – see Table 10.

COUNTRY (NO OF OUTLETS SURVEYED)	ZAMBIA (4)	UGANDA (9)	KENYA (6)
ELECTRIC OVENS	83	27	24
ELECTRIC PRESSURE COOKERS	5	22	15
SLOW COOKERS	4	2	1
ELECTRIC KETTLES	32	33	1668
HOTPLATES	15	9	164
INDUCTION STOVES	0	2	50
MICROWAVE OVENS	30	29	98
AIR FRYERS	2	11	63
ELECTRIC RICE COOKERS	83	-	222

Table 8 Numbers of models of different types of electric cooking device found in online retailers studied, by country (no of online retailers studied for each country given in brackets).

Tables A1a to A1i in Appendix 1 set out an overview of the data collected – for each of the three countries, and different cooking device types, what were the brands, features and price of the cheapest, mid-range and most expensive models.

6 Overview and summary

We have attempted to provide an overview and analysis of this data, combined with that of the import data to build a picture of the countries.

6.1 Uganda

The small-scale appliance availability survey, conducted across 9 different online retailers, and import data on electric cooking devices imported during a 6 month period in 2019, combined, shed some light on the electric cooking device market and we found a level of agreement regarding which device categories are represented in the greatest numbers. Key points are:

- The category imported in greatest number is the **oven/cooker** (nearly 1 million USD in 6 months) and we identified 27 different models available for sale. Even the cheapest models available were 100 USD plus and the most expensive cost between 300 USD and 600 USD.
- **Kettles** are also imported in large numbers (just over 400k USD) and we identified 33 different models available. These are selling at just 10 USD up to 40 USD.
- **Hotplates and Rice cookers** are the next largest category in terms of imports (167k USD and 140k USD, respectively) and number of models (just 9 and 27, respectively). Hotplates are selling at between 15 USD and 70 USD. We did not collect data on rice cookers in Uganda.
- **Induction stoves**, interestingly, have a very small footprint in Uganda with just over 7k USD imported and only two models available in our retailers – costing 49 USD.
- From the import data we have, we believe that only approximately 2,300 **Electric Pressure Cookers** were imported in that period (53k USD), showing that these represent a very small fraction of the market for electric cooking devices, despite there being over 20 different models available in the retailers we studied. These vary in price from the mid 20 USD to over 100 USD.
- The main features highlighted in the promotional text for the different device types were warranties, energy efficiency, durability, control and capacity.

6.2 Kenya

For Kenya, we were able to survey 6 online retailers and secure what appears to be high quality and detailed import data for the 6 months in the second half of 2019. This presents a good picture of the market, albeit far from complete. Kenya has the largest number of different electric cooking device models available in the online retailers suggesting a very developed market with considerable competition.

- **Kettles** are available in the greatest diversity of models (nearly 1,700) with the majority costing between 10 USD up to 50 USD. In terms of import volumes, at just under 70k USD, these are far from the largest category. While Elekta is the only brand of kettle

identified in the import data, the availability survey shows others with a strong presence in the market at multiple price points – Saachi, Philips, Newal, Sonifer, He House, Usha.

- **Ovens/cookers** are the devices imported in greatest volume at nearly 8.4m USD over the 6 month period, but we only identified 24 different models available online. These range in price from around 50 USD up to over 100 USD. Elekta, ARMCO, Black & Decker are the brands identified online but import data for Kenya showed a great many other brands being imported. This suggests that many of these are being sold in other retailers. As larger items that would be costly to deliver, it is possible that they sell primarily through shops rather than online.
- **Electric rice cookers** are the next most popular category with 384 models identified, and 148k USD imported during the 6 month period. These are the kitchen worktop devices imported in greatest volumes. The majority retail generally between just under 30 USD to nearly 100 USD. There are quite a range of brands associated with the imported devices and some of these were identified in our availability survey – Black and Decker, Von Hotpoint, ARMCO. These devices seem to be only promoted by reference to their power demand and capacity – varying in size from 2 to 6 litre.
- **Hotplates** are also available in large numbers – over 160 models were identified and 110k USD were imported over the 6 month period. Prices start at around 10 USD but few cost more than 40 USD. We have minimal information about how they are promoted – only referring to power ratings. In terms of brands, our availability identified a number of models that are unbranded, but with AEC having models at all price points, while the import data included ARMCO, Bosch, Elektra, Elba, Von Hotpoint, Simba.
- Regarding **Electric Pressure Cookers**, we identified just 15 models on the market with prices ranging from 60 USD to over 100 USD for most. Supor, Sunbeam, TCL, Soyona, TLAC and Von Hotpoint are the brands. As previously noted, we believe that only 5,600 units were imported during the 6 month period for which we have data. Only two brands were identified in the import data - Von Hotpoint and Sunbeam (Von Hotpoint was the larger, at 680 units).

6.3 Zambia

We were unable to procure any import data for Zambia so only have the results of the Availability survey to work with. Our summary of these is as follows:

- **Electric ovens** are the most highly represented category of cooking device, by number of models (at over 80) and our anecdotal knowledge of the situation in Zambia backs that up, as they have cooked with electricity for many years when the tariff was very low – and many households have inefficient ovens. Ovens are expensive with prices generally being over 100 USD and some in the thousands. Defy, from South Africa, is a brand with a strong presence but there are other “Western” brands in evidence – Bosch, Radian and Whirlpool. The expensive models combine multiple cooking modes and with gas and electricity, etc.
- We found as many models of electric **rice cookers** as ovens available online in Zambia but we don’t have any more data on these.
- Electric **kettles** (32) and microwave ovens (30) are the next most diverse category of product. Kettles cost between 10 USD and around 50 USD. ZEERA and Midea have products and the upper prices are Philips and Russell Hobbs. The models are higher wattage and offer cordless operation which was not seen in other countries.

- **Microwave ovens** cost upwards of 55 USD with a number well over 100 USD. Midea and Hisense are prominent brands at multiple price points. We do not have much information about features promoted.
- There are very few **electric pressure cookers** available in Zambia – costing between 40 and 100 USD with products by Midea and DEFY. They all seem to have the same 6l capacity.

7 Other published reports of the Markets – an overview

In addition to the data reported here, the MECS programme has carried out a wide portfolio of research and presented the findings in many different forms. We believe that many of these could be useful resources for companies in building their understanding of the markets we work with. This section offers an introduction and overview of the materials we have published with the aim of enabling the reader to select those of most relevance and use.

The [MECS website](#) has all our publications and they can be accessed and searched on in a variety of ways through the [publications](#) page. We have assembled a group of reports and [briefings](#) that are specifically designed for electric cooking solution companies:

- Country profiles relating to our target countries – including details of their respective suitability for eCooking, in-country partners and support organisations.
- Segments analysis report – setting out the main household segments we are seeing and their associated eCooking needs.
- White Paper setting out the different approaches that we see for addressing the “Affordability Gap” - how otherwise expensive cooking devices can be affordable to as many as possible.
- Certification, import regulations, etc for a number of countries.
- Directory of suppliers of devices

We would also recommend subscribing to the [MECS newsletter](#) and reviewing our [Blog](#) posts on a regular basis. We also have a [YouTube channel](#) that contains many useful videos including [one](#) that sets out the underlying rationale behind our approach, short MECS Challenge Fund Awardee Profile videos and recordings of our series of Business Opportunities Webinars.

Working with the Energy Sector Management Assistance Program (ESMAP), we produced:

- [“The State of Access to Modern Energy Cooking Services”](#) – a comprehensive and up to date review of the locations and groups that still do not have good access to services that will enable them to cook using modern energy.
- [“Cooking with Electricity: A Cost Perspective”](#) . Through five case studies, this report compares the current and projected costs to the consumer of a range of electric cooking solutions with the costs of cooking with currently widely-used fuels in each context. The analysis shows that eCooking can already be a cost-effective option in a variety of settings and is likely to become increasingly effective in the near future.

We have recently carried out a substantial and wide-ranging piece of work to create a [Global Market Assessment](#) (GMA) of developing countries. The GMA has drawn on the experience of a range of stakeholders to identify the key factors which influence the viability of a scale up of electric cooking and represents this as a weighted score constructed from 37 indicators covering 130 countries in the Global South.

Aside from that, the most useful way to search for publications is by country, that will bring up all reports relating to any one country. This will rapidly narrow down the field of products.

Some of the most useful terms to search on once you have a country targeted are:

- **Case studies** – descriptions of solutions and business models and lessons learnt from operating in contexts.
- **Evaluation** reports of solution developments and pilots we have funded into different clean cooking solutions.
- **Discrete Choice modelling** studies – surveys of consumers to understand their priorities and needs in relation to clean cooking.
- **Cooking diary** studies where we observe closely the cooking culture across a number of households with and without clean cooking solutions,
- **Laboratory kitchen** studies where we assess the suitability of different devices to cook the local dishes.
- Reports of **follow up** studies investigating whether they continue to use the new cooking solutions.
- Analysis and **Modelling** reports assessing different country and energy access contexts for eCooking, with the implications for energy requirements, household cost comparisons, grid load, and lifecycle environmental and health impacts.,
- **Business model** descriptions and assessments
- **Stakeholder** consultation reports
- **Multi-Tier Framework** country reports – describing the energy access situation by country in relation to a standard framework of different tiers of access.
- **Landscape analyses** relating to cross cutting areas such as institutional cooking, humanitarian needs, modern eating and food systems...
- **Policy** environment in relation to clean cooking by country
- **Working papers** – which include a number of assessments of different technical solutions and specific cooking devices.

Appendix 1: Raw data from Availability surveys

	ZAMBIA	KENYA	UGANDA
CHEAPEST			
BRANDS	RADIAN, Superior, Bosch	ELEKTA, ARMCO, Sterling	Sayona, Bruhm, Saachi, Ariston, Besto, Ocean, LG
PRICE (US\$)	45, 69, 184, 358	48, 56, 73, 83	83, 95, 126, 162, 176, 473, 513, 1026
FEATURES	20L Capacity. 20l, 30l, 60l, 66l. 3250W. 50 – 230-degrees temp range	9L, 18L, 35L, 38L 220-240V 800W, 2100W	Efficient, 1 year of warranty, 700w, 30l 45l capacity, Size of 60x60cm, 4 gas burner, 100-250 degrees temperature control, 60 minutes timer with bell ring.
MID-RANGE			
PRICES (US\$)	165-413, 220-385, 330-551	80	170-207, 84-180, 95-599, 54-106, 34-204, 518-736, 163-327, 177-289, 127-458
BRANDS	DEFY Whirlpool Gemini Petit Chef	ELEKTA	Sayona, Hi-9i-k, Blue flame, Elekta, Besto, Ariston, Klass, LG, Whirlpool
FEATURES	4 Vitroceramic Plates No Control Switches. 56l 93L capacity, 9600W. Eye Level, Electronic Auto Control	34L, 220V, 1500W	1 year of warrant, efficient and durable 1050w, 1500w, Size of 90x50, , Stainless steel, Self-ignition
MOST EXPENSIVE			
BRANDS	DEFY	ELEKTA, Black & Decker	Blue flame, Medea, Double decker, Ocean, Indesit, Klass, Blueflame
PRICE (US\$)	184, 789, 1100, 1214	110, 137, 216	327, 341, 347, 444, 458, 473, 542, 599, 1049
FEATURES	60l, 93L/70L, 102L capacity. 5 Gas & 1 Wok Burner 3.3KW. 50 – 230-degrees temp range Double Oven Multifunction/Static Electronic Auto Control	35L, 60L, 100L, 220-240V, 1500W, 2200W, 2800W	1 year of warrant efficient in power consumption 6 gears to control Solid and durable 2600w, size 60x60

Table A1a *Electric ovens* observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

	ZAMBIA	KENYA	UGANDA
CHEAPEST			
BRANDS	MIDEA	TCL, Sayona	Polartec, Yeodong, 2fumbe, Tefal
PRICE (US\$)	39, 72	63, 69, 73, 87	22, 23, 35, 41, 50, 85, 95
FEATURES	6L capacity. 1000W power. 6L capacity. 800Watts.	2L, 220V, 700W 6L, 220-240V, 1000W 6L, 220-240V, 1000W 5L, 900W	5 litres, 5.5, 7 900w
MID-RANGE			
PRICES (US\$)	39-94	78, 166	22-70, 23-54, 23-79, 35-79, 41-65, 50-75, 85-94, 95-143,
BRANDS	Midea	Supor	Pilot, Aux, 2fumbe, Tefal, HTH
FEATURES	6L 1000W	220V, 600W, 1000W	90% faster, 700w, 5 litres 7 litres, 7.5 litres, 9 litres
MOST EXPENSIVE			
BRANDS	DEFY	Supor, TLAC, Von HotPoint	Geepas, Tianxi, 2fumbe, Tefal, Pilot, Kenwood
PRICE (US\$)	97, 108	82, 101, 352	15, 54, 69, 75, 79, 79, 143, 223
FEATURES	6 Litre 1000 Watts.	5L, 6L, 220V, 600W, 1000W	90% faster, 4 litres, 6 litres, 4.5 litres, 7 litres 9 litres, 10 litres 1600w, 6 safety guard time and energy saver

Table A1b *Electric Pressure Cookers (EPCs) observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.*

	ZAMBIA	KENYA	UGANDA
CHEAPEST			
BRANDS	MIDEA Defy	Kenwood	Generic
PRICE (US\$)	27, 51	67	57
FEATURES	1.8 Litres 6L. 700 Watts.	6.5L, 350W	
MID-RANGE			
PRICES (US\$)	22-44		57
BRANDS	MIDEA		Generic
FEATURES	2.3L 750W		
MOST EXPENSIVE			
BRANDS	DEFY		Morphy
PRICE (US\$)	51, 57		82
FEATURES	6L 220Watts.		Durable

Table A1c **Slow cookers** observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

	ZAMBIA	KENYA	UGANDA
CHEAPEST BRANDS	ZEERA Real Sunbeam	Scarlett, UKA, ARMCO, Lyons	Scarlet, Saachi, Elekta, Marodo, Usha, Kenwood, Newal, He house
PRICE (US\$)	11, 12, 15	7, 9, 12	7, 9, 12, 18, 19,21, 23, 27
FEATURES	1.7LTR 1.8 50/60Hz, 1850-2200W. 2200 W 360-degree Cordless rotation,	1.7l 1.8L, 2L, 220-240V, 1800W	Efficient, 1500w, 18000w 1.7 litres 2l litres Hard plastic body Water temperature, regulator, Efficient and durable
MID-RANGE PRICES (US\$)	11-22, 17-26, 17-28,	9, 9, 23, 24, 14	2-38, 9-25, 12-27, 19-27, 21-27, 23-57, 23-57, 24-25, 33-38
BRANDS	ZEERA, Midea, Salton	Scarlett, MIKA, ARMCO	Generic, Chigo, Sonifer, Philips, Newal, Usha, Mylong, Newal, Saachi
FEATURES	1.7 Litre 2200 w 360° Cordless rotation,	2L, 1.7L, 1.8L, 220V, 1500W, 1800W, 1850-2200W	850w, 1500w, 2400w, 2200w 1.5 litres, 1.7 litres, Temperature regulator
MOST EXPENSIVE BRANDS	PHILIPS, Russell Hobbs	LaiGuo, Generic, Ramtons, ARMCO	Telionex, Warmtoo, Nikai, Philips, Sonifer, Ocean, Saachi, Newal, He house
PRICE (US\$)	48, 51, 55,	19, 32, 35, 60, 173,	25, 27, 35, 35, 38, 49, 57, 57, 251
FEATURES	1.7 L Capacity. Power: 2200 W. Not any form of promotion running., 1.7L Capacity. 2200 Watts. Store run price discount (5% off). Cordless kettle. There is no active promotion	1.8L, 220V, 2000W 2L, 220V, 1500W 2L, 1850-2250W 4.3L, 2200W 1.7L, 220-240V, 1800W	1500w, 2200w, 2.5 litres, 1.7 litres, 6 litres, Durable Automatically turns off

Table A1d *Electric kettles* observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

	Zambia	Kenya	Uganda
Cheapest Brands	ZEERA HOT PLATE - F-008, Sunbeam SDS-200BB Double Spiral Hotplate - Blue	Cnzidel, Generic, MIKA, AEC	Jx, Mini compact, 2fumbe, Portable durable burner, Newal
Price (US\$)	7, 17	8.29, 8.76, 44.22, 24.86	14, 23, 26, 16, 16
Features	1000W 2000W	500W, 1500W, 750W	100w, portable electric stove, 100w 500w, 2500w Durable Over heat protection Auto-thermostat.
Mid-range Prices (US\$)	11-83	15, 18, 28	14-29, 16-26, 23-23, 26-63, 16-123,
Brands	KANGO	Generic, AEC	Jx, Cikuso, Blueflame, Saachi, Newal
Features	2 Solid Plates 2000W		100w, 500w, portable, 3x1 desktop cooker, Durable, efficient, Auto-thermostat
Most expensive Brands	DEFY	Generic, AEC	Jx, UE plug, Blue flame, Saachi, Newal
Price (US\$)	225	27, 41, 83	26, 29, 63, 71, 123
Features	2 Vitroceramic Plates Front Control Switches.	1500W	Easy to clean, 1050-1250w, 1000w, 2000w , Desktop size 50x50

Table A1e Electric hotplates observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

	<i>Zambia</i>	<i>Kenya</i>	<i>Uganda</i>
<i>Cheapest Brands</i>		Generic, Ramtons	Micromatic model, Raypor
<i>Price (US\$)</i>		29, 57, 32	49,49
<i>Features</i>		2000W 200/400/800/1000/1200W	2000w, Durable
<i>Mid-range Prices (US\$)</i>		58.06, 42.43	49,49
<i>Brands</i>		Ramtons	Micromatic, Raypor
<i>Features</i>			2000w, Durable
<i>Most expensive Brands</i>		Generic Xiaomi, Ramtons	Micromatic, Raypor
<i>Price (US\$)</i>		181, 58, 46	49, 49
<i>Features</i>		2100W 1900/1600/1300/900/600/120W	2000w, Durable

Table A1f **Induction stoves** observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

	Zambia	Kenya	Uganda
Cheapest Brands	MIDEA, Hisense Defy	Binatone, NeoChef, Bruhm, AM	Hisense, Bruhm, Ewal, LG, Duratek, Saachi
Price (US\$)	55, 65, 69, 113,	50, 51, 60, 69, 157,	74, 76,79, 82, 85, 93, 95, 184
Features	Capacity: 20 L Power (Watt): 1050 W. Capacity: 20 Litres Wattage: 1050W	20L, 1050W 1200W 20L, 700W 20L, 700W 20L, 700W	20 litres, 23 litres 6 power setting, 1 year of warranty, 700w, 1050w, 1280w Durable stainless, Easy cleaning,
Mid-range Prices (US\$)	55-138, 55-165, 107-127, 83-220	71, 77, 83, 138, 184,	74-123, 76-190, 82-105, 95-123, 95-126, 93-177, 80-133, 180-1045, 184-187,
Brands	MIDEA, Hisense, Samsung	Von HotPoint, NeoChef, MIKA, AM, LG	Hisense, LG, Grill, Blueflame, Saachi
Features	25L 28 Litre, 32L 900 W.	20L, 700W, 800W, 1000W, 1200W	700w, 100w, 2 year warrant, smart inverter, 20 litres, 28liters, 25 litres, 38 litres Easy to clean, Efficient, of capacity, 20 litres of capacity,
Most expensive Brands	MIDEA, Whirlpool, LG	HotPoint, NeoChef, Von AM, LG	Panasonic, LG, Sanvesino, Blueflame, Sharp, Newal, KIC
Price (US\$)	126,151, 264, 579	119, 138, 221, 231, 451	127, 133, 136, 172, 187, 190,218, 228,
Features	23 L 34L 31L, 42 L 1000 W. 1200 W, 2000w Quick Defrost.	20L, 30L, 39L 900W, 1000W, 1200W	1000w, 150w, 1500w, 900w, sufficient use, 20 litres, 23 litres, 40 litres, 42 litres, 30 litres

Table A1g **Microwave ovens** observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

	<i>Zambia</i>	<i>Kenya</i>	<i>Uganda</i>
<i>Cheapest Brands</i>	PHILIPS	Von, ARMCO	Saachi, Philips, Tower, Tefal
<i>Price (US\$)</i>	15, 165	64, 74, 1110	98, , 101, 123, 177, 177, 242
<i>Features</i>	0.8 kg Capacity. 1425W, 230V. No promotion, 2.2L capacity. 1425Wattage. Store runs price discount (4% off)	2.5L basket, 4.5L outer pan, 1300W 3.5L, 1300W 2.2L, 1400W	Over heat protection, 50% faster frying, Durable, efficient, 3.1 litres, 3.2 litres 50% faster heat up time, 2460w, 1450w, adjustable temperature 150- 200 degrees,
<i>Mid-range Prices (US\$)</i>	N/A, N/A	143.79, 96.84	123-212, 51-242, 98-232, 177-272, 177-245, 101-242
<i>Brands</i>	N/A, N/A	Super General, Ramtons	Saachi, Philips, Tower, Tefal, Ocean
<i>Features</i>	N/A, N/A		3.2l, 3.1 litres over heating protection, Durable, 1450w, 130w, adjustable temperature between 150 -200 degrees, 80-200c
<i>Most expensive Brands</i>	Philips	Haier, MIKA, DSP	Saachi, Philips
<i>Price (US\$)</i>	0, 154	274, 104, 144	51, 212, 232, 245, 242, 272,
<i>Features</i>	Philips	14.5L, 2.2L 1800W	400-165w, 12v efficient, 1425w, 2450w, 120w, 2 years of warranty, Durability

Table A1h Electric air fryers observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

Kenya

<i>Cheapest</i>	
<i>Brands</i>	Yezhicong, LYONS, Von HotPoint, ARMCO
<i>Price (US\$)</i>	27, 29, 33, 35
<i>Features</i>	2L, 2.2L 1.8L, 700W
<i>Mid range</i>	
<i>Prices(US\$)</i>	29, 37, 63, 51
<i>Brands</i>	HOTPOINT, Marado, Sayona, Black & Decker
<i>Features</i>	1.8L, 5L, 6L, 700W, 900W, 1000W, 100W
<i>Most expensive</i>	
<i>Brands</i>	SANSUI, Xiaomi IH, ARMCO, Black & Decker
<i>Prices (US\$)</i>	46, 84, 96, 184, 327,
<i>Features</i>	3L, 4L, 4.5L 1130W, 1600W

Table A1i **Electric rice cookers** observed in online retail outlets in Zambia, Kenya and Uganda from Cheapest to Most Expensive models.

Table A1j sets out data provided by TaTEDO in Tanzania of retailers of EPCs and their products, features, source, etc..

<i>Name</i>	<i>Location</i>	<i>Online shop</i>	<i>Other outlets</i>	<i>Website/Link</i>	<i>Products sourcing</i>	<i>Type of EPCs currently selling</i>	<i>Size</i>
<i>AMPERSAND LIMITED</i>	Mlimani City Mall	NO			Dubai	Electro-Master	6 & 7 Lts
<i>BOFA LIFESTYLE CHOICE (NAFRI INTERNATIONAL)</i>	Mlimani City Mall		YES		Local suppliers	KODTEC	6 Lts
<i>Ley Home & Hotel Appliance</i>	Dar city Mall	NO	YES		Local suppliers	WESTPOINT,NIKAI	6 Lts
<i>THE GAME</i>	Mlimani City Mall		YES	game.co.tz		Russel hobbs	6 Lts
<i>Maisha Supermarket</i>	Dar city Mall			maishasupermarket.co.tz	Local suppliers	GEEPAS,PANASONIC	6 Lts
<i>Shoppers Plaza</i>	HQ-Mikocheni		YES	shoppers.co.tz	Local suppliers	NIKAI (Out of stock)	6 Lts
<i>Julius J. Swai</i>	Mwenge	NO	1 outlet	N/A	China, India and Kariakoo	DESSEN, NIKAI,GEEPAS	6 Lts
<i>Leyla Hussein</i>	Mwenge	NO	N/A	N/A	China, Turkey	DELSA,KENWOOD	
<i>Said Ahmed</i>	Kariakoo	NO	N/A	N/A	Kariakoo	KENWOOD,AMIGO-MAXIMA,ELECTRO MASTER	
	Kariakoo	NO	N/A	N/A	China,Dubai,	WESTPOINT,VON,MEBASH,NIKAI	6 Lts
<i>Jane Kowelo</i>		NO	N/A	N/A	Japan, UK	KENWOOD	6 Lts
<i>Esther Swai</i>	Bamaga	NO	N/A	N/A	China,UK		
<i>Imelda</i>	Kinondoni	NO	N/A	N/A	Kariakoo	SINGSUNG	4 & 6 Lts
<i>Beatrice Minde</i>	Kinondoni	NO	N/A	N/A	Kariakoo		
<i>Vyomboclassique2.0</i>	Kariakoo	YES			China,Kariakoo	DELSA	6 Lts
<i>Life.homeappliance</i>	Kariakoo	YES				WESTPOINT	6 Lts

<i>Gracious_home_appliances</i>	Mbeya				WESTPOINT	6 Lts
<i>NICKY-KITCHENPOINT</i>	Kariakoo				SINGSUNG	6 lts
<i>BEI CHEE</i>	Kariakoo	YES	www.beichee.tz		KENWOOD	6 Lts
<i>SokoBora</i>	Dar,Kilwa street	YES	Sokobora.co.tz			
<i>Nidadanish</i>	Kariakoo	YES	www.nidadanish.com		NIKAI,WESTPOINT	6 lts
<i>Aborderonline</i>	Ilala	YES	www.aborderonline.com			
<i>Sustainable Energy Services Company Ltd</i>	Goba-Mbezi Juu	YES	www.sescom.co.tz	China, Dubai	SESCOM,NIKAI	6Lts

Table A1j Tanzanian retailers selling **Electric Pressure Cookers** with details of the location, source, brands, size and website.

Appendix 2: Methodologies

A2-1 Calculating the numbers of households needing electric cooking devices

It is not possible to predict with confidence the volume of cooking devices that will be required to meet our ambitions. However, we can make a number of estimates based on the available data.

One approach is as follows:

- The number of households across our 15 target countries with access to electricity can be estimated based on each country's percentage electricity access and population numbers (2017 data) divided by average household size.
- We also have figures for the percentage of households who have electricity and cook with it.
- This suggests how many additional households could need an electric cooking device.

No of HH needing devices = $\frac{(\text{Population}) * (\% \text{age with electricity} - \% \text{ cook with electricity})}{\text{Average HH size}}$

This approach gives an estimate of 101 million households. However, SDG7 aims for access to affordable, reliable, sustainable and modern energy for all by 2030. If all countries were to achieve 100% electricity access (based on 2017 population figures), that would bring the number of additional households using electric cooking devices to over 171m.¹⁰

We can also consider the [recently announced](#) ambition “**40,60 by 2030**”, which calls for 40% for all households connected to grid or off-grid electricity to be using it for cooking, and 60% of those using modern energy for cooking to be generated from low-carbon sources by 2030.

This leads to a number of estimates:

- We could aim for 40% of those who currently have electricity cook with it at current population levels – most conservative market estimate (“40% current access (2017)”)
- We could aim for 100% of those currently with electricity cook with it
- We could aim for a scenario where 100% have electricity and 100% of those are cooking with it (“100% 100% access (2017)”)
- We could aim for a scenario where 100% have electricity and 100% of those are cooking with it and we incorporate projected population numbers for 2030 (“100% 100% access (2030)”)

This suggests a number of figures that could be used to assess potential market size – Table A2a.

¹⁰ No of HH*%age cooking with electricity

Demographic and electricity access data (2017/2019)								Demand estimates - 2017 data			Demand estimates - 2030 projections	
Country	Population (2017) ¹¹	Mean HH size (2019) ¹²	No of HHs ¹³	%age with electricity (2017) ¹⁴	No of HH with electricity ¹⁵	%age of all HH who are cooking with electricity ¹⁶	No of HH cooking with electricity ¹⁷	40% current access (2017) ¹⁸	100% current access ¹⁹	100% 100% access (2017) ²⁰	Population (projected for 2030) ²¹	100% 100% access (2030) ²²
Bangladesh	159,670,593	4.5	35,482,354	88	31,224,472	2	709,647	11,780,142	30,514,824	34,772,707	178,994,000	39,776,444
Cameroon	24,566,045	4.99	4,923,055	61	3,003,064	1	49,231	1,151,995	2,953,833	4,873,825	33,766,000	6,766,733
Cambodia	16,009,414	4.61	3,472,758	89	3,090,755	1	34,728	1,201,574	3,056,027	3,438,030	18,781,000	4,073,970

¹¹ Source = <https://datacatalog.worldbank.org/dataset/world-development-indicators>

¹² This is not calculated annually so this is the most relevant figure. Source = <https://www.un.org/development/desa/pd/>

¹³ Population/mean HH size

¹⁴ Source = <https://datacatalog.worldbank.org/dataset/world-development-indicators>

¹⁵ No of HH with electricity = No of HH*%age with electricity

¹⁶ Source = WHO - eg <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/gho-phe-population-with-primary-reliance-on-polluting-fuels-and-technologies-for-cooking-proportion>

¹⁷ No of HH*%age cooking with electricity. N.B. only current estimates (2017 data) have been adjusted for the number of households currently cooking with electric devices.

¹⁸ Additional devices to reach target of 40% of those with access cook with electricity

¹⁹ Additional devices to reach target of 100% of those with access cook with electricity

²⁰ Additional devices if 100% access and 100% cook with it

²¹ Source = <https://databank.worldbank.org/source/population-estimates-and-projections#>

²² Devices if 100% access and 100% cook with it

Ethiopia	106,400,024	4.61	23,080,266	44	10,155,317	3	692,408	3,369,719	9,462,909	22,387,858	144,944,000	31,441,215
Gambia	2,213,894	8.23	269,003	56	150,642	1	2,690	57,567	147,952	266,313	3,171,000	385,298
Ghana	29,121,471	3.49	8,344,261	79	6,591,966	2	166,885	2,469,901	6,425,081	8,177,376	37,834,000	10,840,688
Kenya	50,221,473	3.64	13,797,108	64	8,830,149	2	275,942	3,256,117	8,554,207	13,521,166	66,450,000	18,255,495
Malawi	17,670,260	4.51	3,918,018	13	509,342	5	195,901	7,836	313,441	3,722,117	24,849,000	5,509,756
Myanmar	53,382,581	4.22	12,649,901	70	8,854,930	13	1,644,487	1,897,485	7,210,443	11,005,414	58,479,000	13,857,583
Nepal	27,627,124	4.24	6,515,831	96	6,255,198	6	390,950	2,111,129	5,864,248	6,124,881	33,389,000	7,874,764
Nigeria	190,873,311	4.9	38,953,737	54	21,035,018	2	779,075	7,634,932	20,255,943	38,174,662	262,978,000	53,668,980
Rwanda	11,980,937	4.26	2,812,427	34	956,225	1	28,124	354,366	928,101	2,784,302	16,234,000	3,810,798
Tanzania	54,663,906	4.85	11,270,908	33	3,719,400	3	338,127	1,149,633	3,381,273	10,932,781	79,163,000	16,322,268
Uganda	41,162,465	4.53	9,086,637	22	1,999,060	4	363,465	436,159	1,635,595	8,723,171	59,437,000	13,120,751
Zambia	16,853,688	5.13	3,285,319	40	1,314,128	21	689,917	N/A	624,211	2,595,402	24,325,000	4,741,715
total					107,689,665			36,878,555	101,328,088	171,500,005	1,042,794,000	230,446,457

Table A2a: The basis for generating estimates of the numbers of households needing electric cooking devices, based on a number of assumptions.

A2-2 Import data

The MECS team has purchased import data from a commercial data provider covering the period 1st July – 31st December 2019.

Data has been purchased for a single HS Code, 851660. The harmonised system (HS) codes are a classification system for the import/export of traded products.²³ Electric cooking appliances fall under this HS code as follows²⁴:

85 - Electrical machinery and equipment and parts thereof

16 - Electric instantaneous or storage water heaters and immersion heaters; electric space-heating apparatus and soil-heating apparatus; electrothermic hairdressing apparatus (for example, hairdryers, hair curlers, curling tong heaters) and hand dryers; electric smoothing irons; other electrothermic appliances of a kind used for domestic purposes; electric heating resistors.

60 - Other ovens; cookers, cooking plates, boiling rings; grillers and roasters.

Note that microwave cookers fall under a different classification (85 16 50), so they are not included in the data.

When importers and exporters are trading, they may well do their best to find the correct HS code for the goods in question, but it is quite possible to incorrectly classify goods on export paperwork. One might expect this to be more likely among small scale importers. This explains why, for example, a small number of transactions described as ‘microwaves’ appear in the data.

Detail of the type of cooking appliance has been gleaned from the description field within the data.

MECS has developed its own taxonomy of cooking devices to create some standardisation of terminology – see Appendix A2-4.

The countries we obtained data for (only ones available from the MECS priority list) varied considerably in the data they collected, which, in a number of cases, seriously limited what we could do – see Table A2b.

Country	No of valid records	Total value of good in this category (CIF plus tax) in USD	Quality issues
Bangladesh	2,750	8.6m ²⁵	There appears to be some mix up with ‘scrap vessels’ (separate HS code), which relates to a small number of high value records. These have been omitted. A given Bill of Lading can have multiple records (different appliances); the financial fields (invoice value etc.) are duplicated on each record so it is not possible to

²³ <https://www.trade.gov/harmonized-system-hs-codes>

²⁴ <https://www.trade-tariff.service.gov.uk/headings/8516>

²⁵ This figure reflects records pertaining to a single appliances. 37% of records relate to multiple appliances, so this figure will be unreliable. Total values in Table 3 have been estimated by dividing single product figures by 0.63 (100 – 37%).

			separate out the values for each type of appliance
Ethiopia	108	1.9m	The data set contains no detailed product description, so there is no way of knowing what types of products are contained in each consignment.
Ghana	1,897	14.2m	<ul style="list-style-type: none"> • A number of records that were identical except for the value in the exchange rate field have been removed. • Data in the exchange rate field appears to be unreliable. Although most of the entries appear sensible, there are a large proportion that do not. It has been assumed that values in local currency fields are correct. Given that the exchange rates in the data set are unreliable, external estimates have been made when converting these values to local currency. • Within each unique consignment (demarcated by a unique Declaration number), multiple records describing different products contained within the shipment all share identical financial information. Therefore, in order to estimate the value of imports, a separate data set has been created, containing only a single financial record from each unique consignment (n=1074). This also means that in consignments comprising multiple products, there is no way of allocating the total value between the various items included.
Kenya	1,094	9.1m	Note that gas cooking appliances in this data set have been incorrectly classified – cookers and gas rings should be classified under 73 21 ²⁶ .
Malawi			Only 36 records so not worth looking into

²⁶ <https://www.trade-tariff.service.gov.uk/chapters/73?currency=EUR>

Tanzania			No detail in the HS_Description field, so nothing to work with
Uganda	1,047	2.3m	-
Zambia			Has only HS-Code field, so no product description to work with

Table A2b: The basis for generating estimates of the numbers of households needing electric cooking devices, based on a number of assumptions.

Many records concern the import of only a small number of items, mostly reflecting personal transactions rather than commercial operations. Therefore, records relating to less than 10 units have been omitted. Further records pertaining to used goods have also been omitted subsequently. All products with ‘parts’ in the description have been omitted from the coding e.g. spare parts.

Some products have been grouped together under a single product code:

Hotplate:

- COOKER COIL
- ELECTRIC STOVE
- HOTPLATE
- COOKING PLATE
- HOT PLATE
- HOB

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Water heater:

- WATER HEATER
- IMMERSION HEATER
- BOILER

Space heater:

- HEATER
- ROOM HEATER
- TUBULAR HEATER
- ELECTRIC HEAT PIPE
- HEATING ELEMENT
- QUARTZ HEATER
- RADIATOR

Coding has avoided double counting, for example, ‘ovens’ excludes ‘gas oven’ and ‘microwave oven’. This is a manual process and may not be comprehensive. Coded products have been categorised – see TableA2c. The analysis has been conducted using only products in the Domestic cooking category.

	Domestic cooking	Institutional cooking	Heating inc iron	Gas appliances
Hotplate				
Induction				
Slow Cooker				

Frying Pan				
Rice Cooker				
Pressure Cooker				
Aerofry				
Deep Fryer				
Microwave				
Kettle				
Sandwich Maker				
Waffle Maker				
Grill				
Egg Boiler				
Bread Maker				
Popcorn Machine				
Oven/Cooker				
Elec/Gas Cooker				
Food Warmer				
Steam Cooker				
Iron				
Heater				
Gas Cooker				
Gas Burner				
Gas Hob				

Table A2c: Categories of products

A2-3 Availability Studies

We were interested in:

- What types of cooking-related device are available in different markets in your country? This will enable us to track an increase in the range of devices and what is missing.
- What companies/brands are selling there? This will help us identify which companies are entering the market and which are not, so we can target interventions/encouragement.
- What is the range of prices for each type? This will be relevant to assessing affordability of devices.
- What is the relative availability of each type of device? Important to know which are most prevalent.
- Building a picture of a sample of MECS devices to know what variants on the devices are most common.
- How this changes over the length of the MECS programme – perhaps based on annual repeated surveys. This will help us to demonstrate the impact the programme is having.

Types of cooking-related device: one that cooks food (not just mixes or chops) and that directly uses electricity to heat as part of a cooking process – see Appendix A2-4 below which we provided to help with device identification.

Retail outlets to include initially

- Online retail outlets – national or sub-national (i.e. not Alibaba, Amazon, etc.) - specialist (e.g. only sells kitchen devices, solar home systems, etc.) and generalist (e.g. sells a large variety of consumer products).

We set up Kobotoolbox survey tools for all our Southern Partners to use to maximise consistency of data collection: [Survey of online retail outlets](#) – This could take up to one hour per retailer, depending on how many cooking device types they have.

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A2-4 Device types and definitions

Ovens	
all-Electric ovens	Electric powered Ovens – counter-top, free-standing or fitted for roasting/baking and with or without an electric hotplate on top.
gas+electric ovens with hobs	A free-standing oven with a hob on top – where it is jointly powered by electricity and gas (eg. Electric hob and gas oven, or gas hob with electric oven)
microwave ovens	An oven that uses microwaves to cook or heat food.
Counter-top powered cooking pots	
Electric pressure cookers	An electric airtight appliance for quick cooking of foods that uses high-temperature steam under pressure. Include in this category air fryers that works a a lid of an Electric Pressure Cooker.
Rice cookers	A countertop electric cooking appliance that can boil rice and other similar dishes.
Slow cookers	A countertop electrical cooking appliance used to simmer at a lower temperature.
Electric frying pans	A countertop frying pan that has its own electric cable and heats itself.
Air fryers	A countertop kitchen appliance that cooks by circulating hot air around the food using the convection mechanism.
Water heaters	
Electric kettles or thermopots	A countertop electric appliance with a top used to boil water and possibly insulated to keep water hot.
Basic water heaters or pail heaters	Either a heating element with a cable and plug, or a bucket with a heating element built in that can hold water for heating..
Geysers	Wall mounted electric powered water heater.
Stoves	
Gas+electric stoves	A stove that has a combination of gas and electric powered burners/plates.
Infrared stoves	Electric stove that uses infrared to heat - look for the word "infrared" and a picture of the stove showing it glowing red.
Hotplates	A portable appliance for cooking, simply one or more metal rings that are heated by electricity.
Induction stoves?	A stove that uses induction to heat the pots - look for the word "induction" on the box.