



# Uganda eCookbook

learn how to save time and money by electrifying your kitchen



**MECS**  
Modern Energy  
Cooking Services



# Uganda eCookbook



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The Uganda eCookbook was developed by the Centre for Research in Energy and Energy Conservation (CREEC), the country partner for the Modern Energy Cooking Services (MECS) Programme in Uganda, and funded by UK Aid.

This eCookbook is based on the findings of *Cooking with Electricity in Uganda: Barriers and Opportunities*. For the full methodology, findings and detailed references, please consult this report, available on the MECS website.

[www.MECS.org.uk](http://www.MECS.org.uk) | [www.MECSplus.org](http://www.MECSplus.org)

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# Foreword



Firewood and charcoal remain the main source of energy for cooking in Uganda accounting for over 90% in the energy balance. The over dependency on firewood and charcoal for cooking is not only unsustainable but has negative impacts on the environment and on public health. To address this challenge, in 2013 Government put in place the Biomass Energy Strategy (BEST) for Uganda. BEST provides rational and implementable approaches to manage the biomass energy sector. The strategy has interventions to reduce the biomass demand which among others includes the use of alternative sources of energy for cooking such as electricity.

Currently, a number of Government-led efforts are underway to support and create demand for the use of electricity. Among them is the Charcoal to Power program. This is one of the strategies by Government to absorb additional power to be generated once Karuma HPP is commissioned in Mid 2022. Government is committed to promoting eCooking as a way of reducing over dependency on firewood and charcoal as we switch to using clean energy.

We are glad to note that the Modern Energy Cooking Services (MECS) has supported piloting the Electric Pressure Cooker (EPC) in Uganda. Among the areas of support by MECS to the Centre for Research in Energy and Energy Conservation (CREEC), Makerere University, is preparing this eCookBook that shows how the EPC can be the most time, cost and energy efficient way of preparing most traditional dishes in Uganda.

I want to thank MECS for supporting this initiative and CREEC for preparing the eCookBook for Uganda. This will be a very important tool for Government and key stakeholders in raising awareness regarding the reduced energy cost arising out of switching from expensive energy sources to cooking with electricity using the Electric Pressure Cooker.

I therefore call upon all the Government Agencies and our key Partners to read the eCookBook and use the valuable information in it to promote eCooking.

Irene Bateebe

Permanent Secretary

Ministry of Energy and Mineral Development



# Summary of the Uganda eCookBook

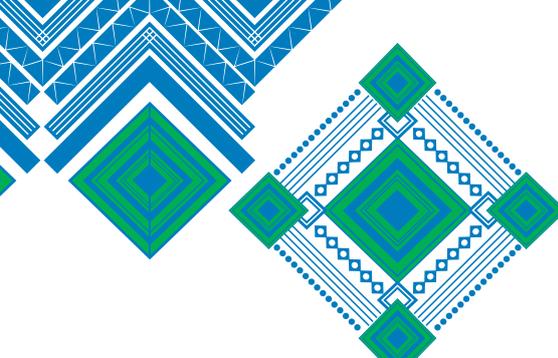


The Uganda eCookBook looks at the role **energy-efficient** cooking devices can play in Uganda's energy future. It is part of a series of MECS eCookBooks that seek to highlight the compatibility of energy-efficient electric appliances with local cuisine.

This eCookbook shows how **electric pressure cookers can be the most time, cost and energy-efficient way of preparing traditional Ugandan dishes**, such as matooke and beans. It aims to share information and knowledge about cooking with energy efficient electric appliances in Uganda, gathered during **kitchen laboratory studies** and other research conducted by CREEC in collaboration with the MECS programme in Uganda, and offer an alternative narrative about cooking with electricity.

In 2022 Ugandans still largely rely on charcoal, wood or other forms of biomass for their household cooking needs. Only 5% primarily use clean and modern energy, such as electricity. However, recent findings from controlled cooking tests (CCTs) carried out in Kampala, help to shed light on how **energy-efficient electric appliances can make a significant contribution to domestic cooking from a taste, cost, time and energy-efficiency perspective.**

This eCookbook shows you how!



over  
**80%**

of typical weekly Ugandan menu  
can be cooked with an EPC

This eCookBook highlights the wide compatibility of Ugandan dishes that can be cooked using an EPC, especially for heavy foods, retaining the fantastic flavours of Ugandan cuisine.



It explores the opportunities for using electricity for cooking in Uganda!

Urban households



Electricity Access= 7 in 10 people



Using electricity as primary cooking  
fuel= 0 in 10 people (4%)



**LUCY**



**ESTHER**



**JIMMY**

It talks to cooks that have integrated eCooking into their daily lives and shows how to cook traditional and authentic Ugandan dishes using Electric Pressure Cookers!

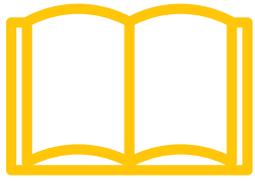
up to

**50%**

time & cost savings using an  
EPC instead of charcoal

It showcases the significant energy, time and cost savings that are possible using energy-efficient cooking devices for typical Ugandan dishes.

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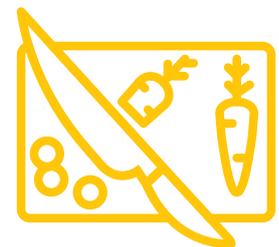
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## CLEAN COOKING & ELECTRICITY

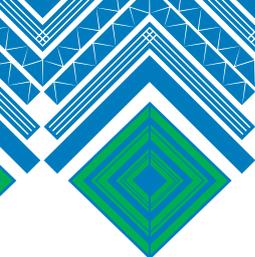
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# Cooking in Uganda





# Food, Culture and Diet

## Regional Cooking Culture

Cooking practices and types of foods regularly consumed vary from one region to another depending on factors like climate and land cover as well as by ecological zone and ethnic group.

### Northern region

In the Northern parts of the country, the primary food crops include groundnut, cassava millet, sorghum, and simsim (sesame).

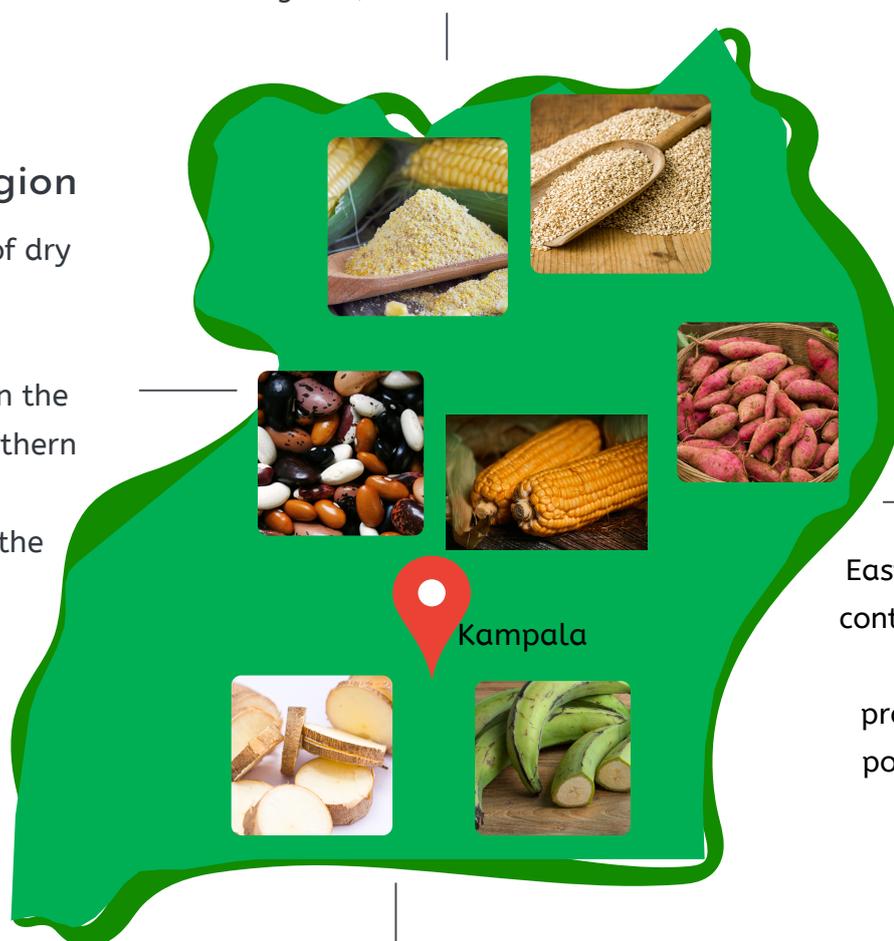
### Western region

A wide variety of dry beans are produced predominantly in the Western and Northern regions. Depending on the season

Maize is grown country-wide, but mostly in eastern and western Uganda

### Eastern region

Eastern and Northern Uganda contribute about two-thirds of total cassava production. Matooke is also popular in Eastern Uganda.



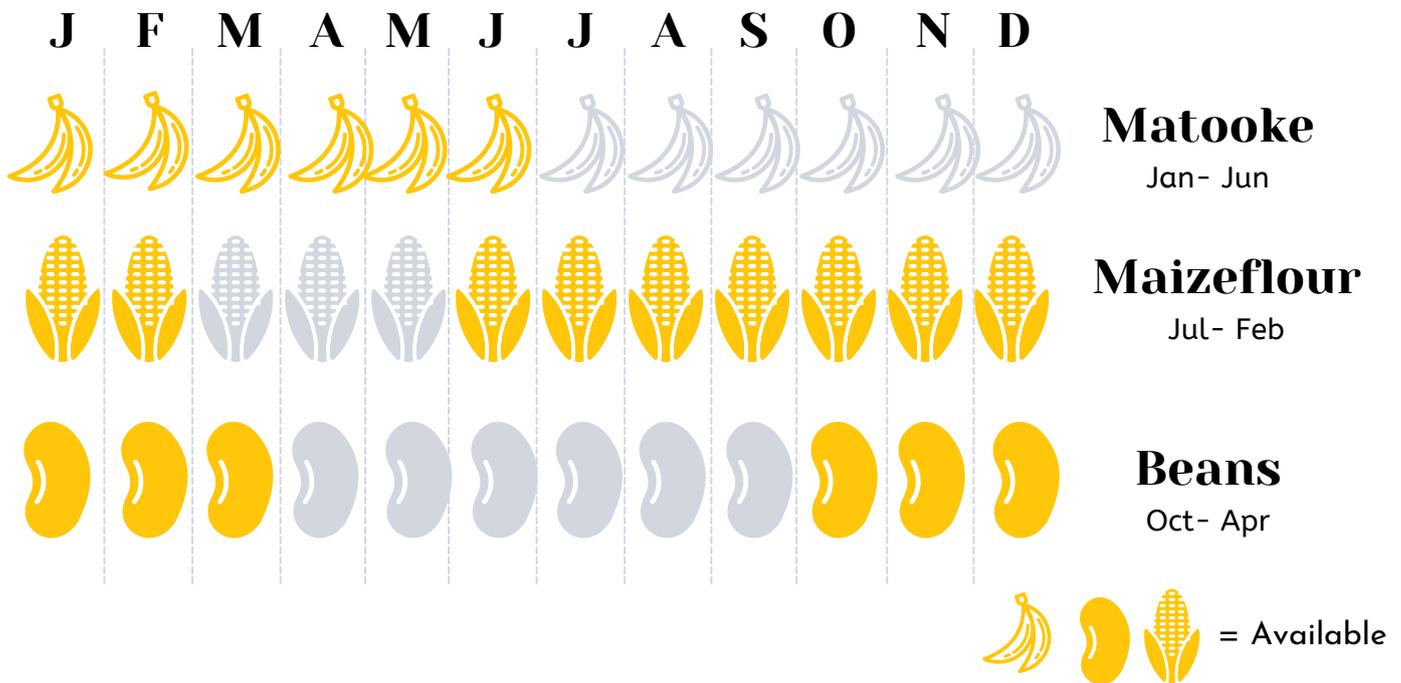
Kampala

### Central region

Households in Central and Western Uganda heavily rely on matooke and sweet potatoes as their staple food.

# Seasons

## Seasonality Of Popular Foods



## Dietary Patterns

The Ugandan diet features predominantly plant-based foods, and most energy in people’s daily meals comes from roots or tubers such as cassava, sweet potatoes, cereals such as maize and millet, and plantains. As much of the food production in Uganda takes place at the smallholder and subsistence level, under rain-fed conditions, food markets in urban areas are affected by food availability and fluctuating prices.

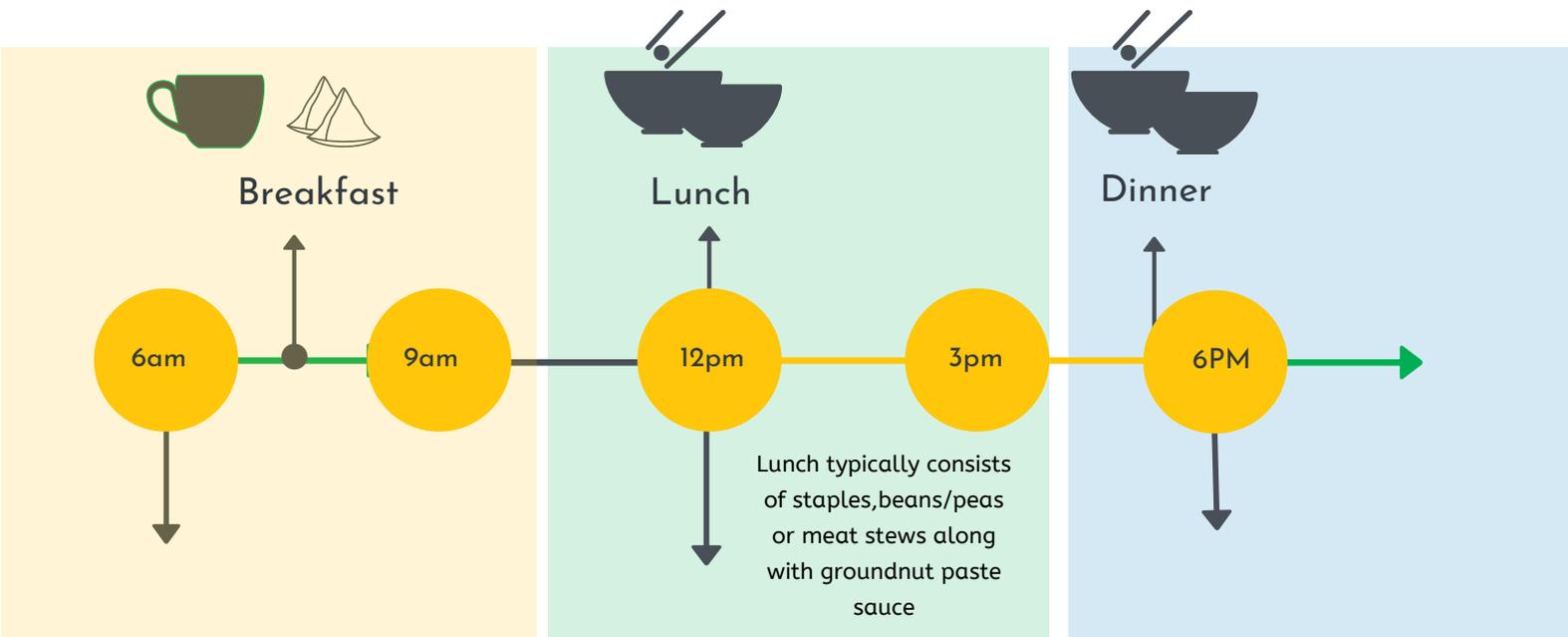
Matooke is central to the diet of many households especially in the Central and Western parts of Uganda. It is abundant from mid-January until the end of June, after which the availability goes down and the price increases. Seasonal dietary change revolves around the availability and cost of matooke especially in Kampala. Matooke, when expensive, is first replaced with rice, which is not a traditional staple food in Uganda although is increasingly popular in urban areas, and ultimately with posho (made from maize flour). Maize flour, which is sourced from all over Uganda, is available in abundance from July until February.

Fresh beans are available in abundance from October to April, while there is relatively regular supply of cassava and no known significant price hikes or scarcity.



# Typical Daily Cooking Timeline

CREEC conducted an online survey to understand what households in Kampala cook, when and for how long. On average, households in Kampala cook two meals per day and spend four hours preparing it. Some people, especially workers who may be out for most of the day, also eat elaborate and filling meals such as Katogo for breakfast.



Saucepan	
Tea/Spiced water	20mins
Milk	15mins
Katogo	40-45mins
Frying Pan	
Fried eggs	10mins
Chapati	10mins
Bread*	
Saucepan + frying pan	
Cassava	20-40mins

\*Usually purchased

Saucepan	
Pumpkin	30-45mins
Meat Stew	40mins-1hr
Karo	20mins
Vegetables	10-15mins
Beans	1-2hrs
Cow Peas	1hr
Rice	20mins
Fish	15-30mins
Matooke	1-2hrs
Saucepan + frying pan	
Cassava	20-40mins
Potatoes	40mins

Saucepan	
Tea/Spiced water	20mins
Meat Stew	40mins-1hr
Rice	20mins
Posho/Ugali	20mins
Vegetables	10-15mins
Katogo	40-45mins
Fish stew	15-30mins
Oven	
Roasted Meat	1-2hrs
Frying Pan	
Fried egg w/Soup	15-20mins
Chapati	10mins
Saucepan + frying pan	
Cassava	20-40mins
Potatoes	40mins



# Foods typically cooked at home in Uganda

## Boil & stir staples

Posho



## Boiled staples/veg

Matooke (Stewed)

Katogo

Rice

Karo

Pumpkin

Pilau

## Heavy foods

Matooke (Steamed)

Beans Stew

Meat Stew

Yams

Cow Peas

Groundnut Paste



## Hot drinks

Tea

Hot milk

## Shallow Fried Dishes

Fried eggs

Fried fish



## Lighter stews

Fish stew

## Flatbreads

Chapati

Pancakes



## Deep-fried dishes

Cassava

Mandazi

Samosa



## Roasted dishes

Muchomo

Roasted Meat



# The Kitchen Lab





# CREEC's Kitchen Laboratory



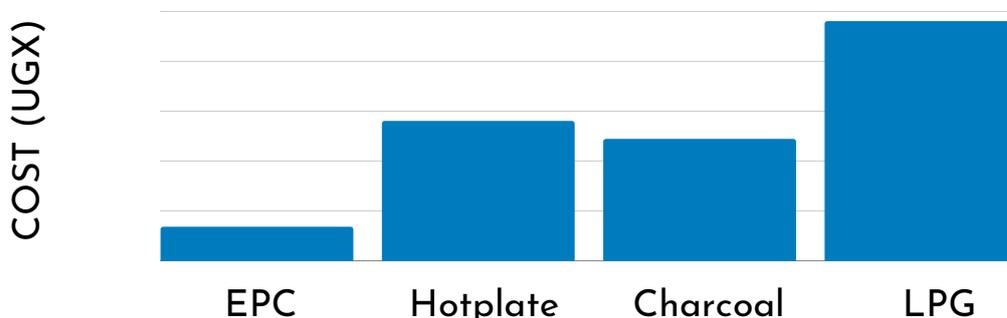
This eCookBook presents findings from a set of Controlled Cooking Tests (CCTs) carried out by CREEC in Kampala. CCTs involve selecting a dish that is representative of local cooking practices and using a standardised recipe to prepare the same dish in the same way using different cooking fuels and devices.

CCTs enable us to compare the performance of different cooking devices in terms of cooking time and fuel/energy consumption (and therefore cost). We also compared the experience of the cook and the quality of the finished dish by collecting feedback from the cooks, making observations on how they operated the stoves and tasting the food they cooked.

The CCTs were carried out by everyday cooks, who cooked each dish as they would normally do so at home. Data was captured by a research team with experience in stove testing. The full methodology and findings from the CCTs can be found at [www.MECS.org.uk](http://www.MECS.org.uk) in the *Cooking with Electricity in Uganda: Barriers and Opportunities* report.

## ●●●●●● Appliance/Fuel Comparisons ●●●●●●

For each dish we compared the energy, time and cost readings using four types of cooking devices: an electric pressure cooker, a hot plate, LPG and a charcoal stove.





# Dishes Tested



The testing focused on a range of staple Ugandan foods that are regularly prepared at home. Three of the most time- and energy-intensive dishes are presented in this eCookBook, as this is where the EPC can offer the biggest savings.

## Beef Stew ●●●●●●●●●●●●●●●●

Stewing is a popular cooking method in Uganda, where all ingredients are cooked together at the same time in one pot. The ingredients are placed in at different times as the sauce cooks and finally thickens. Beef is one of the tougher meats cooked by Ugandan households, so usually requires boiling for at least an hour to soften



## ●●●●●●●●●●●●●●●● Bean Stew

A wide variety of dry beans are produced predominantly in the Western and Northern regions. Depending on the season, beans flow between Uganda and neighbouring countries. Beans are cooked and served as a compliment ("sauce") to other staples

## Matooke ●●●●●●●●●●●●●●●●

With more than 30 ethnic groups, Uganda does not have a single national dish that is universally eaten by all. However, matooke, a green banana is popular among many households, especially in the central and southern part of the country. It is either boiled or steamed, then usually mashed and cooked in or served with a sauce of peanuts, beans, fresh fish or meat.



# Devices Compared

## Cooking device & utensil

### EPC



Tower  
T16004  
1000W EPC  
with 5L  
non-stick  
pot

energy  
measurement  
equipment



Plug-in Meter

energy  
unit  
cost\*

751\*\*  
UGX/kWh

## Hotplate



Logik LGK-002  
2600W  
hotplate with  
7L flat  
bottomed  
aluminium pot



Plug-in Meter

751\*\*  
UGX/kWh

## LPG



Single-burner  
stove with 6 kg  
cylinder, regulator  
& hose with a 7L  
flat bottomed  
aluminum pot



Weighing scale

9,500  
UGX/kg

## Charcoal



Locally  
manufactured  
ceramic stove  
cooking power with  
7L flat bottomed  
aluminum pot



Weighing scale

1,000  
UGX/kg

\*Prices were recorded during the kitchen laboratory experiments, which took place in June/July 2020

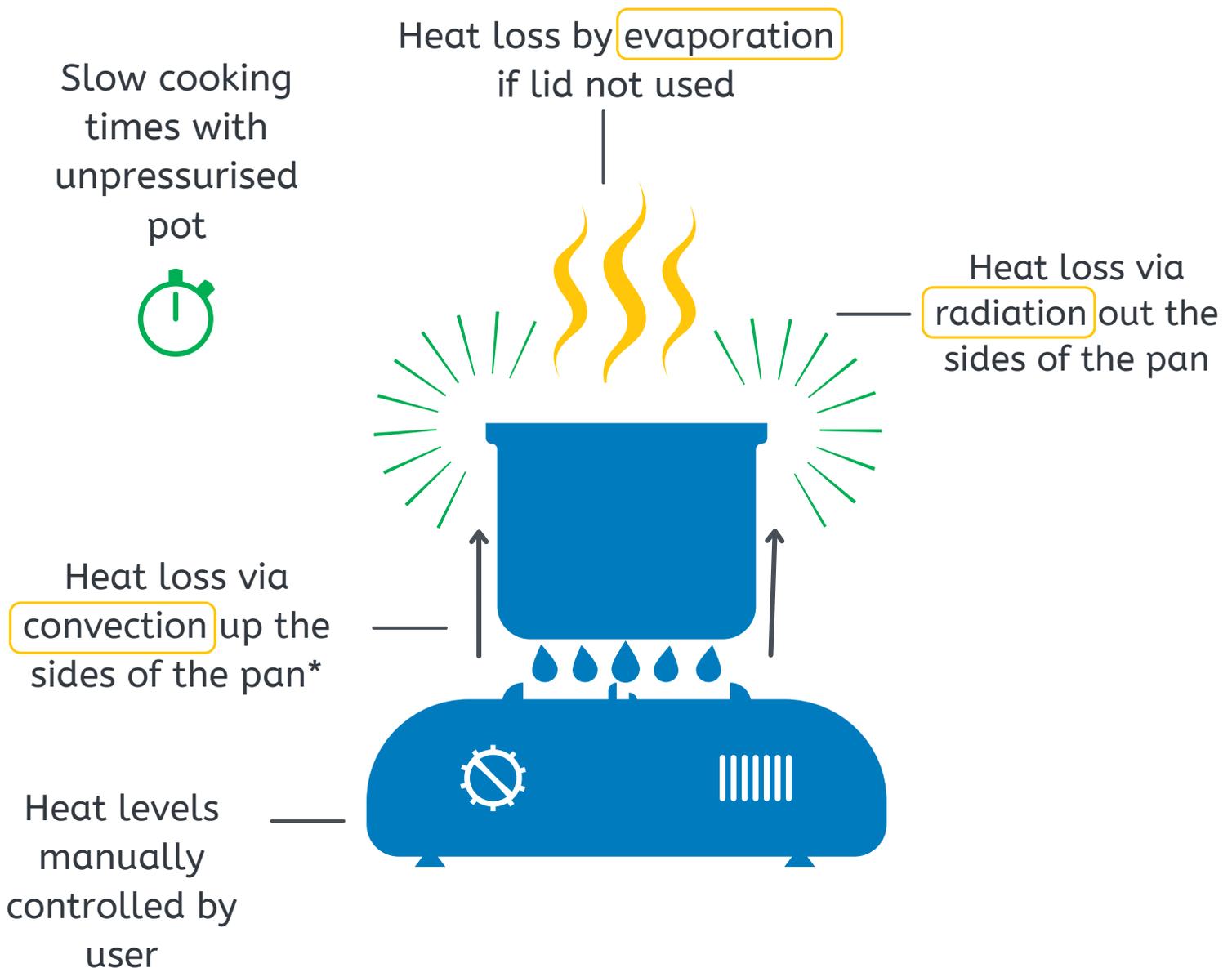
\*\*Electricity unit cost does not include 18% VAT, however with the introduction of the eCooking tariff (see p41) in Jan 2022, which offers a 44% discount for consumption between 80-100kWh/month, the cost to the consumer is likely to be similar.



# The Inefficiencies of Conventional Cooking

Conventional cooking techniques (heating an uninsulated pan from below) waste energy through a variety of mechanisms, creating opportunities for modern appliances to reduce energy consumption.

Lower energy consumption = cheaper cooking.



\*For electric hotplates, the efficiency of heat transfer from the hotplate to the pot is highly dependent upon the profile of the bottom of the pot, i.e. perfectly flat pots are most efficient 16

# The Electric Pressure Cooker

## How does it save energy?

Electric Pressure Cookers combine insulation, pressurisation and automation to deliver an extremely energy-efficient cooking service.

### Insulation



reduces heat lost by convection up the sides of the pan & reduces radiation from the sides of the pan



### Pressurised lid



reduces cooking time & reduces evaporation

### Automation



turns off heating element as soon as operating pressure is reached



## Why use it?

**It is faster** - pressure cookers raise the temperature in the pot above boiling point, which can cut boiling times in half.

**It is cheaper** - saving energy means saving money.

**It is more convenient** - the automated cooking experience allows you to put your feet up whilst the EPC takes care of the cooking for you.



# EPC Safety Features

EPCs have multiple safety mechanisms, so even if one fails, there are several more there to protect you. This means that they are actually one of the safest cooking appliances on the market today. The most important safety mechanisms are:



## pressure release valve & locking pin



The pressure release valve avoids pressure building above safe levels. Pressure inside the pot pushes up the locking pin, which means the EPC cannot be opened when pressurised.

## temperature sensor



The temperature sensor at the bottom of the device avoids overheating. It automatically shuts off the power when the pot reaches its normal cooking temperature.



## insulation & sealing



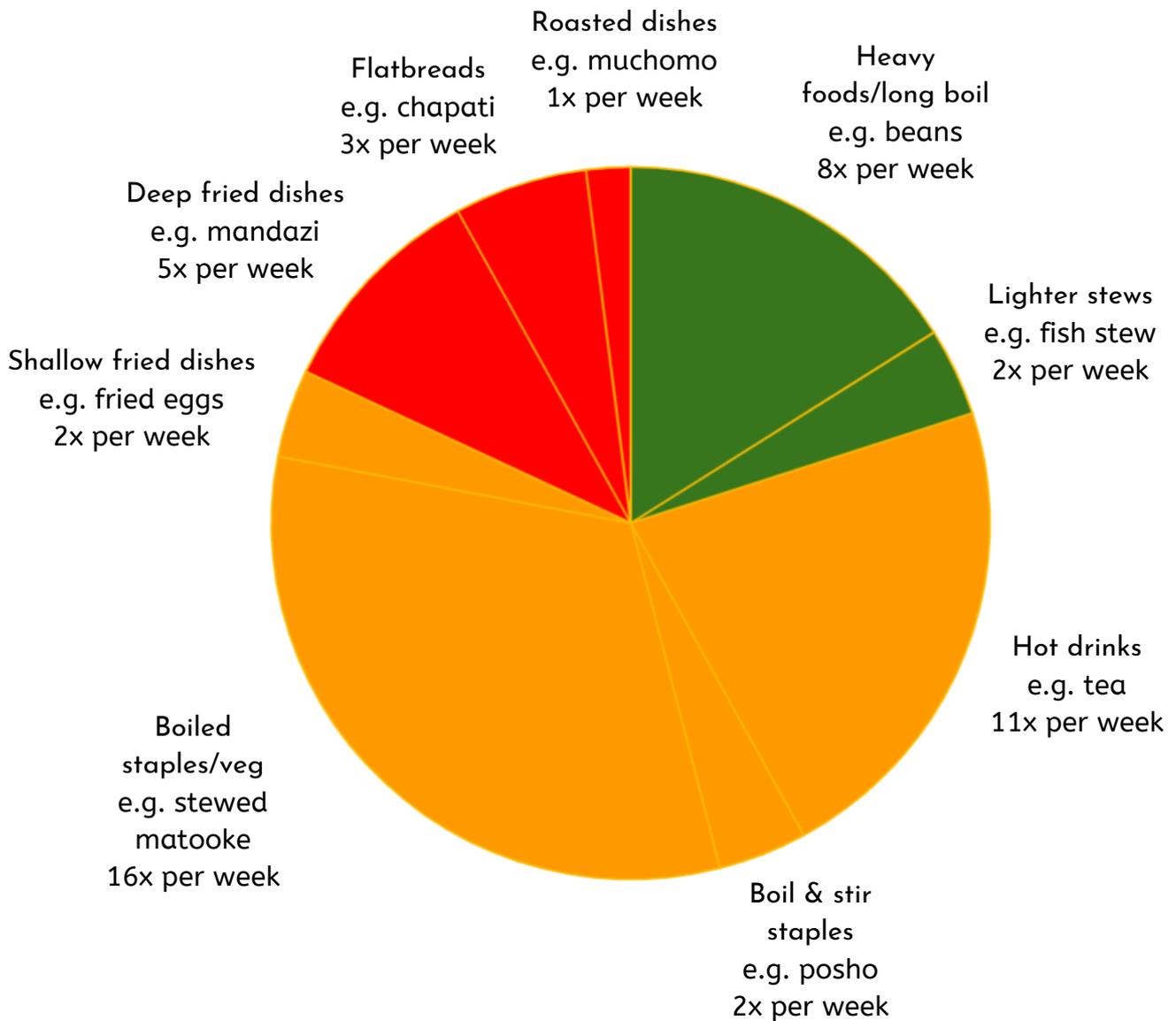
The lid and walls of EPC's are well insulated and the rubber sealing ring makes sure steam cannot escape. This prevents you from burning yourself if you touch the pot whilst its cooking.





# How much of the Ugandan menu can be cooked with an EPC?

We mapped out a typical weekly menu for a middle-class urban Ugandan household and categorised the foods to work out which were most important:



= EPC is best choice for these dishes

= EPC likely to be used sometimes for dishes in these categories

= not possible to cook with an EPC

The EPC is likely to be the first choice for

+ = **82%**  
 of dishes on this menu can be cooked using an EPC

= **20%**  
 of this menu



# EPC Top Tips



## boil, fry & pressure cook!!



The EPC can do a lot more than just pressure cooking. If you want to boil or fry, simply leave the lid off and it will be just like cooking with a normal sauce pan.

## reduce time & water

Reduce the cooking time when pressure cooking otherwise you'll end up with mush! Use less water or you'll end up with soup! When the EPC is pressurised, no water escapes, unlike a conventional pot, where steam is evaporating throughout the cooking process.



## use non-abrasive utensils



The cooking utensils must either be plastic or wooden to protect the non-stick coating; and cleaning should be done with non-abrasive materials only



# Stories from Kitchen



**JIMMY**



**ESTHER**



**LUCY**

Three cooks participated in CREEC's cooking diary study and appear as guest chefs in the Uganda eCookBook.

## Stories from the kitchen



# JIMMY

BACHELOR

I was born and raised in the Western part of the country not connected to the grid. Cooking is mainly done using firewood. I am so passionate about eCooking as cooking with traditional appliances have posed a health hazard to myself.

The convenience and flexibility of using the EPC made me abandon the daily routine of going to restaurants as I can prepare food myself in the shortest time possible. When I start my own family, we will surely continue to use these time and energy saving appliances.

### Monthly Cooking Fuel Expenditure

UGX 85,000



UGX 80,000

UGX 5,000



UGX 30,000



UGX 30,000

Pays using mobile money

### How did you learn to cook?

I learned cooking at an early age of my childhood. We were 3 boys and 1 girl. In a bid to not overload the girl child, we were trained to do most of the household chores, including cooking. I was always tasked to cook different dishes, with my mother's guidance.

### What value does eCooking add to your daily cooking routine?

Cooking is simplified as I just set the time then concentrate on other activities since there is no need for supervision and fear of the food getting burned. Since the introduction of eCooking, my charcoal stove was put aside and I also purchased a small gas cylinder for standby in the cases of blackouts.

## Stories from the kitchen



# ESTHER

Mother of two

I am the one who makes very delicious meals using the EPC. I stay in Seeta with my two children. My inspiration comes from the fact that I cook to have the ones I serve wanting more. I want to cook such that even my husband himself should easily leave restaurant food and come home for my food.

### How did you learn to cook?

Since I was young I have learnt and been taught cooking. Myself I have also picked a few tips from observing how different people cook, I find out from those I see cooking. Then I go and try out something different from what I have observed.

### How has your experience of cooking with the EPC been?

The EPC itself has also been instrumental in my cooking. For beans, the EPC saves me a lot of time. With the charcoal stove, I could use up to three hours, where I have to keep monitoring and adding water. With the EPC, I take less than half the time— cooking the beans (boiling) takes about 45 minutes, while frying it takes about 30 minutes. A big advantage of the EPC is, once set to its time limit, it stops automatically which allows you to attend to other responsibilities, and does not require checking for water. You always find when the food is ready. Comparing the EPC to the charcoal stove, I would suggest that we do away with the traditional charcoal stove.

## Stories from the kitchen



# LUCY

MOTHER

I am a wife and a mother to a little princess, an accountant by profession and marketer, employed but also a vigilant businesswoman and a go-getter.

### Monthly Fuel Expenditure

UGX 130,000



UGX 65,000



### How did you learn to cook?

I had to cook at home growing up as a little girl and we cooked both on the three stone fire and later started using the charcoal stove.

### What value does eCooking add to your daily cooking routine?

I participated in one of the community studies at CREEC and with the help of the team I learned and enjoyed cooking with the EPC. Even though the study ended, I continue to use it. I love adventuring different dishes and ways of using it. Its versatility and speed help me balance my work and family life.

# Myth Buster

Lucy

Lucy has many concerns about cooking with electricity and has a conversation with Jimmy to help her get an idea of the truth behind cooking with electricity.

VS.

Jimmy

So Jimmy will help to address some of her concerns



“

## Electricity is expensive

I believe cooking with electricity is expensive and is for high income earners who live uptown.

”



“

## Energy-efficient appliances

Even if electricity is expensive, cooking with it can still be cheap as you only use a very small amount. Modern energy-efficient appliances such as the EPC use a fraction of the electricity of a hotplate to cook the same meal.

”

“

## Electricity can shock someone while cooking

I'm worried that cooking with electricity isn't as safe or set up safely.

”

“

## Check your wiring

Lighting a fire is much more dangerous than plugging in an appliance. However, do make sure the wiring in your house is strong enough for cooking - if in doubt, get it checked by an electrician.

”



“

## Food cooked with electricity has no taste

Electricity is not compatible with Ugandan cuisine such as Matooke or the cooking processes we use regularly.

”

“

## Try out our delicious EPC recipes!

The recipes in this eCookBook show how you can make many of your favourite foods with an EPC. All our recipes have been taste tested and are just as delicious as you would expect.





# The Recipes



# Meat Stew

Jimmy's EPC Recipe



Energy Used 0.54 kWh    Cook Time : 45 mins    Servings : 8 portions

## Ingredients :

- 1 kg meat/beef
- 1 big onion
- 2 cloves garlic
- 2 teaspoon cooking oil
- 1l stock (or 2 stock cubes / 1 teaspoon Royco and 1l water)
- Bunch coat-meal/coriander
- 1 green pepper
- 1 carrot (small)
- 1 teaspoon salt

## Procedure :

### STEP 1- Boil the meat

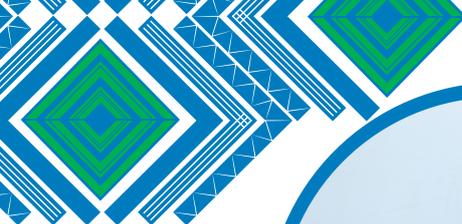
- Tenderize and cut meat into bitesize pieces.
- Place the meat in the EPC pot, cover and set to pressure cook for 30 minutes.
- Depressurise the EPC by opening the steam valve.

### STEP 2- Fry the sauce

- Add oil and fry the boiled meat until its brown using the sautee setting.
- Chop the remaining ingredients and add into the pot and continue frying until it gives off a good flavour.

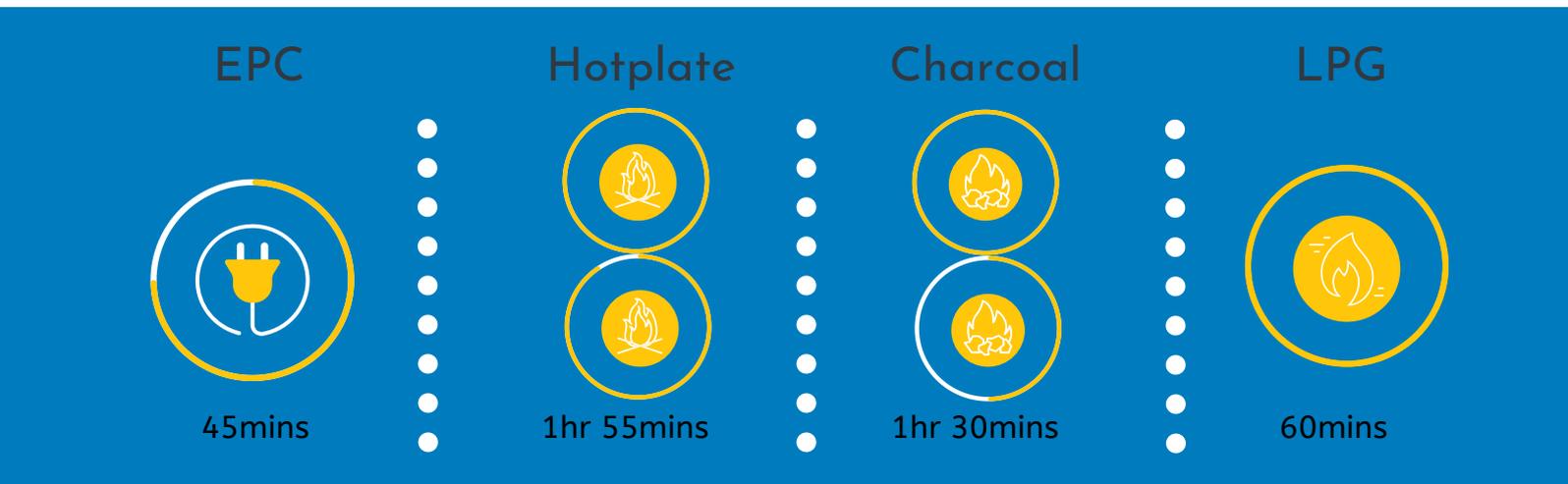
### STEP 3- Simmer all together

- Add the royco and simmer the mixture.
- Pour in the water bring it to a boil.



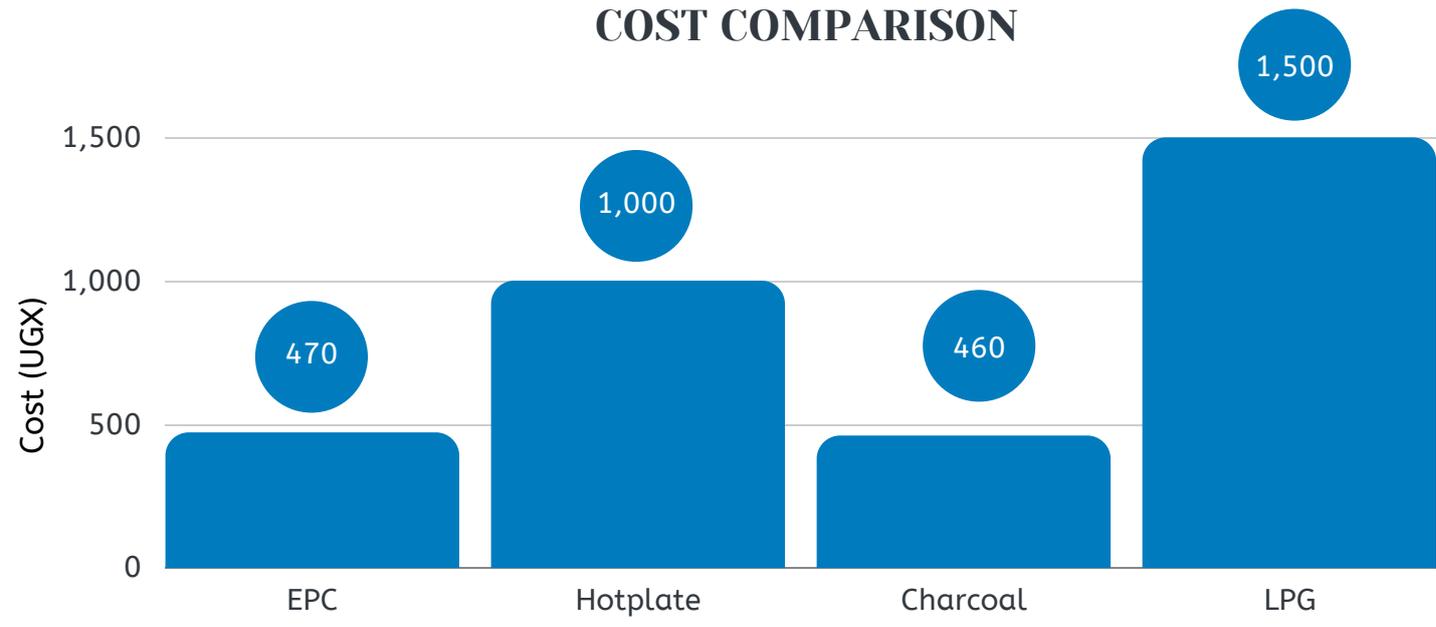
“ My inspiration comes from the ability to multi task while cooking since I get to have time to watch news to understand what is going on in the world. Also, the aspect of having to cook meat as in just boiling it at once with the ingredients and having to contain all the nutrients and the aroma. ”

### TIME COMPARISON



The EPC is the fastest way to cook meat stew. It needs just half the time that it normally takes to cook meat stew using charcoal

### COST COMPARISON



Cooking meat stew with the EPC costs roughly the same as charcoal. However, it is half the cost of the hotplate and one third the cost of LPG.



Esther's EPC Recipe

# Bean Stew



Energy Used: 0.50 kWh    Cook Time: 70 mins    Servings: 8 portions

## Ingredients :

- 1kg dry beans soaked overnight
- 2 onions
- 6 tomatoes
- 4 cloves garlic
- 1 green pepper
- 1 bunch coat meal/coriander
- 2 cubes Royco
- Paprika - 1/4tsp
- Salt - 1tsp
- Curry powder ("Tropical Heat") - 1tsp
- Curry powder ("Simba mbili") - 1tsp
- Cooking oil - 1 tbsp
- Water - 4 cups

## Procedure :

### STEP 1 - Boil the beans

- Pour the beans into the EPC pot and add 2½ cups of water.
- Cover the EPC, set pressure valve in place and set the cooking time to 45 minutes.
- Release the pressure and uncover the EPC.
- Empty the beans and rinse the pot in preparation for frying.

### STEP 2 - Fry the sauce

- Prepare ingredients for the gravy
  - Peel & chop tomatoes, onions, garlic & peppers. Chop coat meal/coriander into small pieces
- Pour the cooking oil into the pot & set the EPC to sautee mode.
- After the oil heats up, pour in the onions & fry until they start to brown.
- Add the spices & other ingredients then mix to make gravy.
- Mix Royco with 1½ cups of water & pour into the pot with the cooked beans.
- Mix everything together & leave to simmer for 10 minutes.

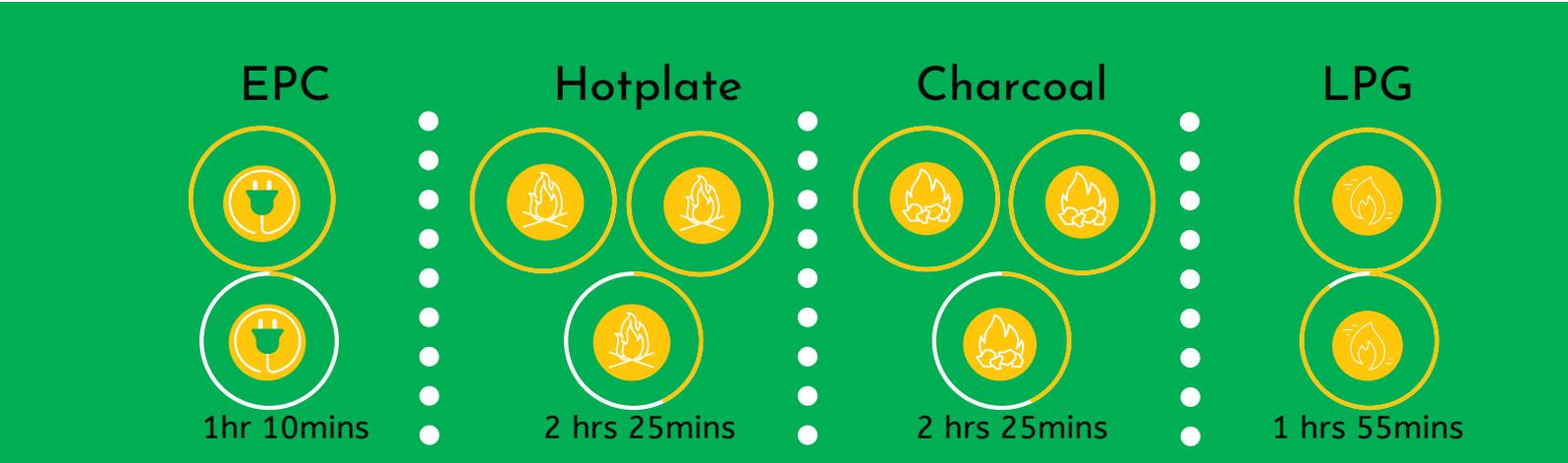




“ A big advantage is, once set to its time limit, it stops automatically, [which] allows you to attend to other responsibilities, and does not require checking for water. You always find the food ready. ”

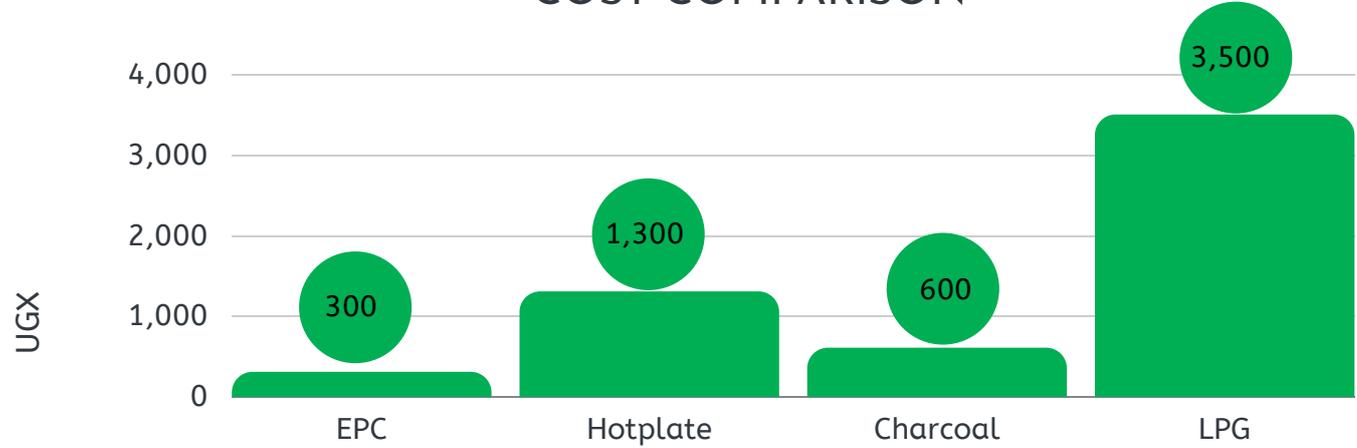
“ The EPC has been very instrumental in my cooking... [it] saves me a lot of time. With the charcoal stove, I could use up to three hours, where I have to keep monitoring and keep adding water. With the EPC, I take less than an hour. ”

### TIME COMPARISON



The EPC is the quickest way to cook beans. It is twice as fast as charcoal or the electric hotplate and one third quicker than LPG.

### COST COMPARISON



The EPC is also the cheapest way to cook beans. It is half the cost of charcoal, one quarter that of the hotplate and less than one tenth that of LPG!



Lucy's EPC Recipe

# Matooke (steamed)



Energy Used: 0.34 kWh Cook Time: 54 mins Servings: 5 portions

## Ingredients :

- Matooke (banana plantain); 1.5 Kg (14 fingers)
- Banana leaves (for wrapping)
- Water for steaming (approx 2 cups)

## Procedure :

### STEP 1- Prepare the matooke

- Pour approx 1 cup water in the pan, making sure it doesn't come above the bottom of the steaming rack).
- Peel the matooke
- Wash the matooke after peeling
- Wash the banana leaves
- Wrap the matooke in banana leaves

### STEP 2 - Steam

- Place the steamer stand in the EPC and pour water.
- Place the wrapped matooke in the EPC, cover the EPC and set timer to pressure cook for 30 minutes
- After the 30 minutes, release the pressure and uncover.

### STEP 3 - Mash & steam again

- Remove the matooke and press / mash
- After pressing, add a little water (approx 1 cup again) into the EPC pot/pan.
- Steam for 10 minutes with the lid closed
- Serve and enjoy your meal



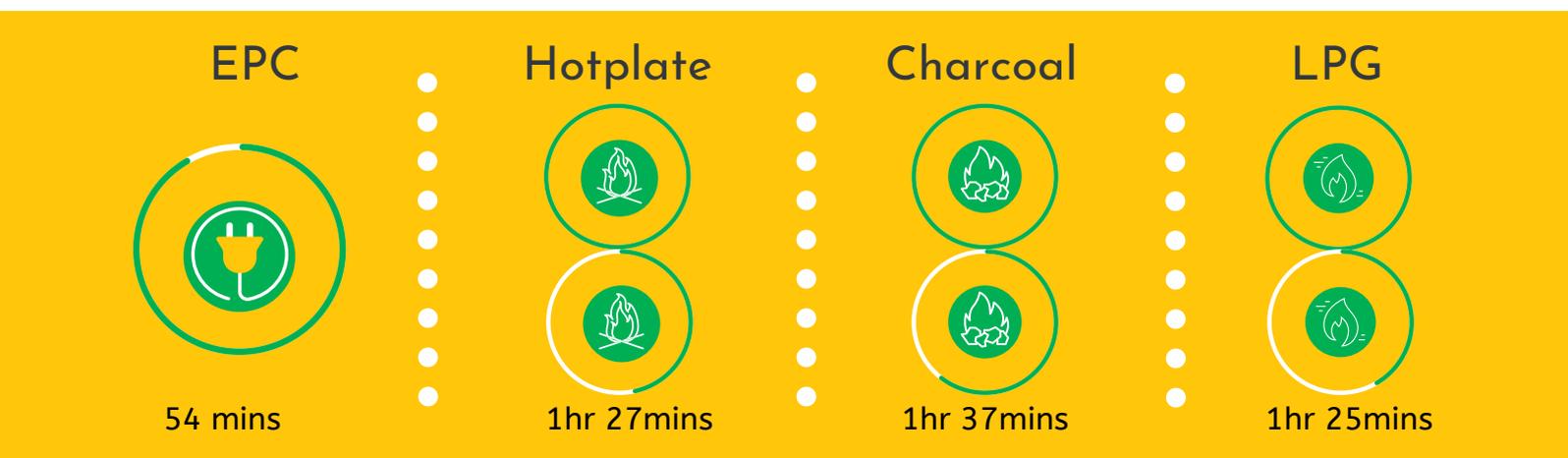


## Lucy's top tips for matooke in the EPC



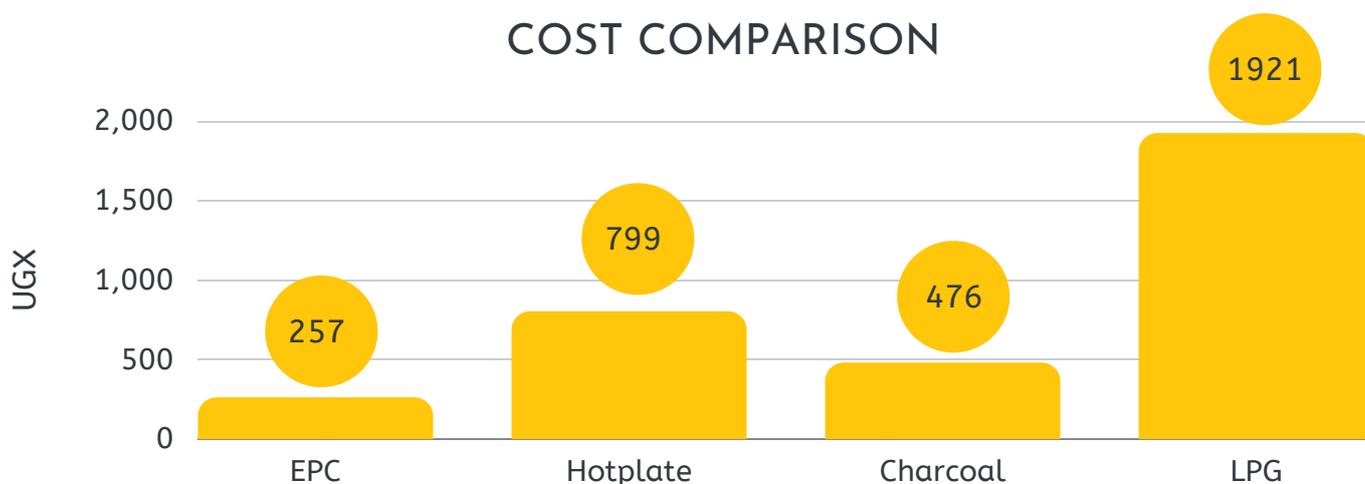
- Ensure the wrapped matooke fits nicely in the EPC pot & allow a little space to close the cover.
- Amount of water used should be below the steaming stand.
- For a better output, put the matooke back into the EPC after pressing to allow sufficient simmering time.
- You can also just boil the matooke in the EPC and mash thereafter, or cook Katogo.

### TIME COMPARISON



The EPC is the fastest way to cook matooke. It is roughly 50% faster than LPG, charcoal or the hotplate.

### COST COMPARISON



The EPC is the also the cheapest way to cook matooke. The cost of cooking with the EPC is roughly half that of charcoal, cooking with the hotplate is one third more expensive than the EPC and LPG is seven times more expensive.



# What else can you cook in an EPC?

It's also possible to prepare many other types of popular Ugandan dishes in an EPC, although the energy and time savings are more limited:

- Boiled staples/veg - e.g. rice, katogo, matooke (stewed)
- Boil & stir staples - e.g. posho
- Shallow fried dishes - e.g. fried fish, gonja, fried egg, sukuma wiki
- Hot drinks - e.g. tea, hot milk

The following section shows how you can cook sukuma wiki and posho in an EPC, as well as another less frequently cooked, but perhaps even more exciting dish: sponge cake.





# Posho



Cook Time: 25 mins

Servings: 4 portions

## Ingredients :

- 5 cups of water
- 3 cups of maize meal

## Procedure :

### STEP 1- Preheat water

- Add 3-4 cups of water in the EPC and bring to a boil
  - TIP: if you want to multitask, close the valve and set the timer to at least 2 minutes - when the timer goes off, open the steam valve and release the pressure.

### STEP 2- Make a paste & pressure cook

- Make a paste of 2 cups of maize meal with 1 cup of water and add the paste to the boiling water in the EPC.
- Stir continuously and then close the lid and set the EPC to cook for 5 minutes at pressure.
- Open the steam valve to depressurise.

### STEP 3-Simmer

- Take off the lid and put the EPC on sautee mode so that it keeps heating.
- Add more maize meal slowly and stir vigorously until thick enough.
- Cover and simmer for around 10 minutes and then stir again.
- Power off the EPC and serve.

Typical costs:  
0.2kWh  
150 UGX





# Sponge Cake



Cook Time: 90 mins

Servings: 8 portions

## Ingredients :

- Milk (1/2 ltr)
- Sugar (250g)
- Baking flour (500g)
- Icing sugar (250g)
- Butter (250g)
- Flavoring, e.g. vanilla essence (1 tea spoon)
- Eggs (6)

## Procedure :

### STEP 1 - Mix the batter

- Blend sugar and butter until mixture turns cream.
- Add eggs and continue mixing.
- Mix sieved baking flour with baking powder and add to the butter mixture.
- Add flavoring and stir further to form a droopy soft texture.

### STEP 2 - Bake

- Grease a well dried EPC pot with cooking oil.
- Place the pot into the EPC, turn it on to pre-heat the pot and pour the mixture into the hot pot.
- Close the EPC well and bake by closing the pressure valve and setting the timer for 90 minutes.

### STEP 3 - Let the cake cool

- Let the pressure release naturally after the timer goes off, then open the EPC and remove the pot with the cake inside from the EPC.
- Wait for the pot to cool before you can remove cake from it.
- Enjoy the cake if you do not want it iced, or wait for the cake to cool very well before you can ice it.

Typical costs:  
0.56kWh  
420 UGX





# Sukuma wiki



Cook Time: 10 mins

Servings: 4 portions

## Ingredients :

- 1 bunch kale or collard greens
- 2 tomatoes
- 2 small onions
- Spices (1/2 tsp cayenne pepper, 1 tbsp bouillon, 1/2 tsp black pepper)
- 2 tbsp oil (to fry)

## Procedure :

### STEP 1- Wash and cut

- Wash and cut the vegetables and pour some hot water on it to make it soft

### STEP 2 - Fry

- Set the EPC on the preset sautee function and add cooking oil in the pot.
- When its heated, add the tomatoes, onions, spices and some salt. Fry whilst stirring for a few minutes to make gravy.
- Add the chopped greens and stir for about 7-10 minutes.

Typical cost:  
0.29 kWh  
215 UGX





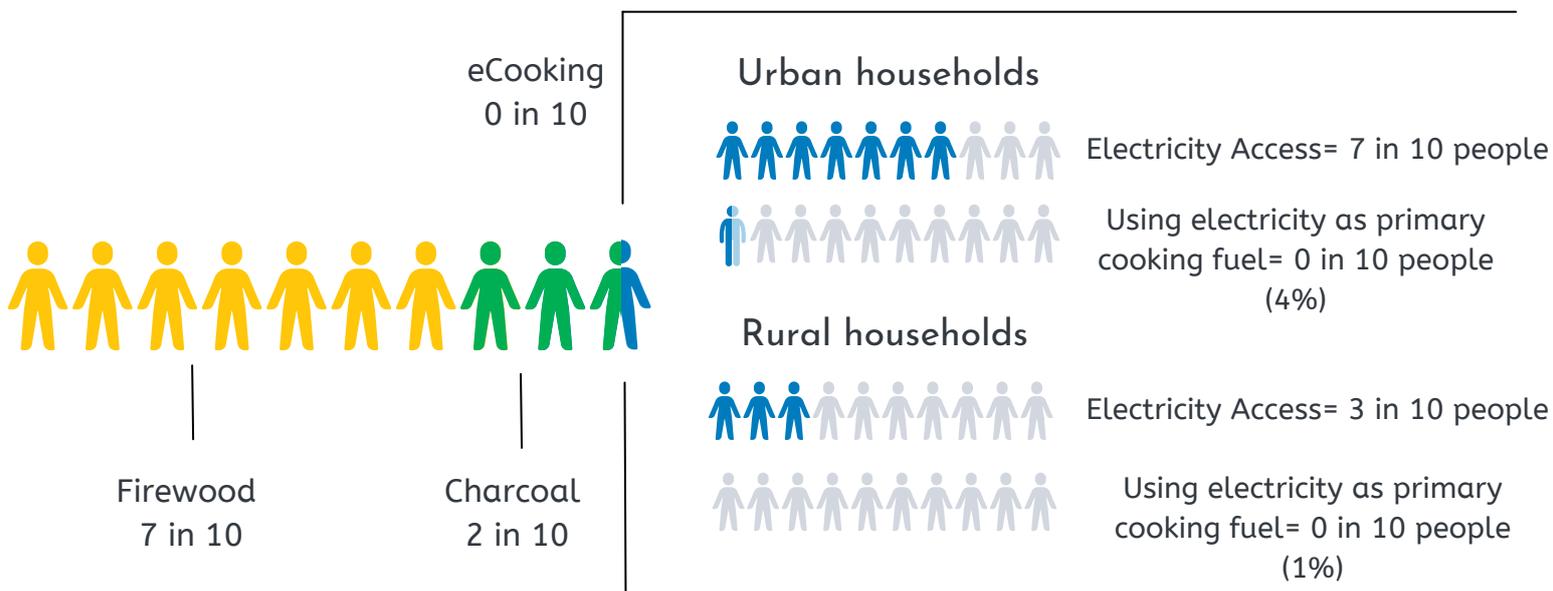
# Clean Cooking & Electricity Access in Uganda



# Electricity Access & Clean Cooking in Uganda

Despite historically low electrification rates, cooking with electricity is now becoming a viable and scalable option for Uganda. 24% of households now have access to grid electricity and 27% have access to off-grid systems. What is more, the Government of Uganda have recently set a target of connecting 300,000 new customers to the grid each year over the next 5 years.

The total installed generation capacity doubled from 600 MW to 1,238 MW between 2010 and 2020. This investment has helped to mitigate against the country's dependency on hydropower, which in 2005 led to significant, drought-induced load shedding and power outages. Uganda today produces an electricity surplus of almost double current demand and is proactively stimulating demand for its predominantly renewable (92%) electricity.



Urban Uganda presents a particularly attractive market for eCooking, as electricity connectivity rates are higher, supply chains are shorter and consumers are more familiar with modern appliances. Importantly, urban people are more likely to be paying for their fuel than their rural counterparts, which creates a more attractive business proposition, as this existing expenditure can be more easily converted into electricity units and repayments on a financed appliance.

# Cooking with polluting fuels in urban Uganda



**29%** of urban Ugandans primarily use **FIREWOOD** for cooking.

Uganda currently loses about 2% of its forest annually, and firewood use is the second driver of this, after land-clearing and agricultural expansion

- Safety ✗ Difficult to put out after usage
- Cost ✗ Can be collected, but expensive in urban areas
- Health ✗ Risk of respiratory disease due to household air pollution
- Convenience ✗ Requires long time to light and collect from forests

**57%** of urban Ugandans primarily use **CHARCOAL** for cooking.

Intensive charcoal production is depleting forests and the population is set to double by 2050.

- Safety ✗ Difficult to put out after usage
- Cost ✗ Becoming more expensive
- Health ✗ Risk of Carbon Monoxide poisoning due to improper usage
- Convenience ✗ Requires long lighting time



Urban charcoal users are a particularly attractive market segment to target as they have a guaranteed existing expenditure on a polluting fuel that could be repurposed to electricity units.

**2%** of urban Ugandans primarily use **kerosene** for cooking.

# Cooking with modern energy in urban Uganda



**8%** of urban Ugandans primarily use **OTHER COOKING FUELS** such as **LPG & BIOGAS**

Safety  Risk of fire if user is not well trained on how to operate equipment

Time  Cooks fast and saves time

Health  No harmful smoke, however still needs good ventilation

Convenience  Refilling not convenient unless living near retail outlets or filling stations

**4%** of urban Ugandans primarily use **ELECTRICITY** for cooking

Safety  No flames and EPC has insulated pot

Cost  This eCookBook shows that you can make big cost savings with an EPC

Health  No harmful smoke

Convenience  Modern efficient appliances enable multi-tasking & EPCs reduce cooking times.





# Accelerating the uptake of eCooking in Uganda

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## Enabling policy framework

Current usage of electricity for cooking is low in Uganda, however the government has recently put in place an array of policies and targets to facilitate the transition to cooking with clean, modern fuels.

The Draft Energy Policy (2019) made specific mention of energy-efficient eCooking appliances, such as EPCs.

In December 2021 the Electricity Regulation Authority announced a new Cooking Tariff which will be served by Umeme Ltd in an effort to encourage cooking with electricity for domestic households and stimulate demand for their predominantly renewable electricity.

Units	Lifeline tariff* <15 Units	Regular tariff 16-80 Units	Cooking Tariff 80-150 Units	Regular tariff >150 Units
Price	Ush. 250.0 per Unit	Ush. 747.5 per Unit	Ush. 412.0 per Unit	Ush. 747.5 per Unit

## Consumer awareness

The evidence in this eCookBook can act as a valuable tool for raising awareness of the benefits of adopting eCooking by tackling the widespread perception that electricity is too expensive for cooking and that popular Ugandan dishes don't taste as good when cooked with electricity.

## Strengthening the supply chain

Tax exemptions (similar to the LPG VAT exemption in 2020) and Results Based Financing (RBF) can incentivise appliance manufacturers and distributors to increase the availability and affordability of energy-efficient appliances in the Ugandan market. Consumer financing can break down the high upfront cost and enable consumers to utilise the savings they will make each time they cook to pay back the cost of the appliance in manageable repayments.

*\*Lifeline tariff is only accessible to customers whose total monthly consumption is below 100 units*

# Energy Efficient Appliances

The EPC isn't the only energy-efficient appliance available on the market today. There is now an array of eCooking appliances to choose from, each optimised for a particular cooking process or processes.



**All-rounders**  
Induction stove



**Frying specialists**  
Electric frying pan, air fryer



**Boiling and shallow frying**  
Electric pressure cooker

**Boiling only**  
Kettle, rice cooker, slow cooker

**Reheating**  
Microwave



**Roasting**  
Halogen oven





# eCooking Appliance checklist

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Whichever electric cooking appliance you're planning to purchase, its important to think about the following considerations:

- ✓ Will it mainly be used for frying or boiling (or both)?
- ✓ Is it an insulated appliance, making it more efficient and therefore cheaper to cook?
- ✓ Does the appliance appear to be sturdy and durable? Is it made of materials that are long-lasting?
- ✓ Does the appliance come with a warranty, or has it passed internationally-recognised safety standards?
- ✓ Is the power rating of the appliance suitable for the quality of the electricity supply?

**Contact for EPC sales/purchases:**

**Tel:** +256 757 102972 / +256 786 046418

**Email:** [resilientenergyafrica@gmail.com](mailto:resilientenergyafrica@gmail.com)



# Conclusion



The Kitchen Laboratory experiments in this eCookBook have shown that:

## Cost-savings

Ugandan households could make substantial cost savings (up to 50%) on dishes that require boiling or steaming for long periods by switching from charcoal to an EPC. LPG is currently very expensive in Uganda and as a result, the EPC is up to 10x cheaper.

## Modern alternative

An EPC offers a modern alternative to the charcoal stove and is much more affordable than LPG. It is capable of cooking most (~82%) of a typical Ugandan weekly menu and is likely to be the first choice for around 20% of the menu.

## Convenience

Using an EPC is more convenient as it is fully automated so can be left unattended, allowing the cook to multi-task. An EPC can cut cooking times in half for dishes with a long boiling/steaming stage.

The evidence in this eCookBook shows that an EPC can offer a viable alternative to charcoal, enabling households to make substantial cost and time savings, whilst also switching to a clean fuel that minimises the impact of cooking on health and the environment.

There is increasing interest in EPCs in Uganda amongst policy makers, the private sector and consumers. With a supporting enabling environment, a strong supply chain and greater consumer awareness in place, EPCs could enable Uganda to transition away from charcoal and towards renewably-generated electricity for cooking.

