MYANMAR

ECOOKBOOK

Save time and money by cooking with modern energy-efficient appliances

MECS
Modern Energy Cooking Services

This eCookbook is based on research carried out by Hivos Southeast Asia, YiMon Electronics, the Foundation for Renewable Energy and Ecology (FREE), Green Rights Organisation (GRO), and Save the Natural Resource (SaNaR)

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Many people across Myanmar rely on solid biomass such as wood and charcoal to prepare their food.

The eCookbook will show how transitioning from biomass to modern energy-efficient electric can save time and money and help the environment.

The findings reported in this eCookBook are shown in greater depth in the accompanying MECS Kitchen Laboratory - Myanmar report, which can be found at www.MECS.org.uk.

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01

MA JA NU'S STORY

MA JA NU'S STORY

Location
Myitkyina, Kachin State

Context
Peri-urban

Primary Fuel Mix
Electricity & Charcoal

Grid Connection
Regional Grid

Ma Ja Nu has been cooking in Myitkyina since the 1970s. She transitioned to using electricity in 2011 when it became more widely available.

Transitioning helped to **alleviate time spent cooking** and **reduce the amount of smoke** being released in the kitchen.

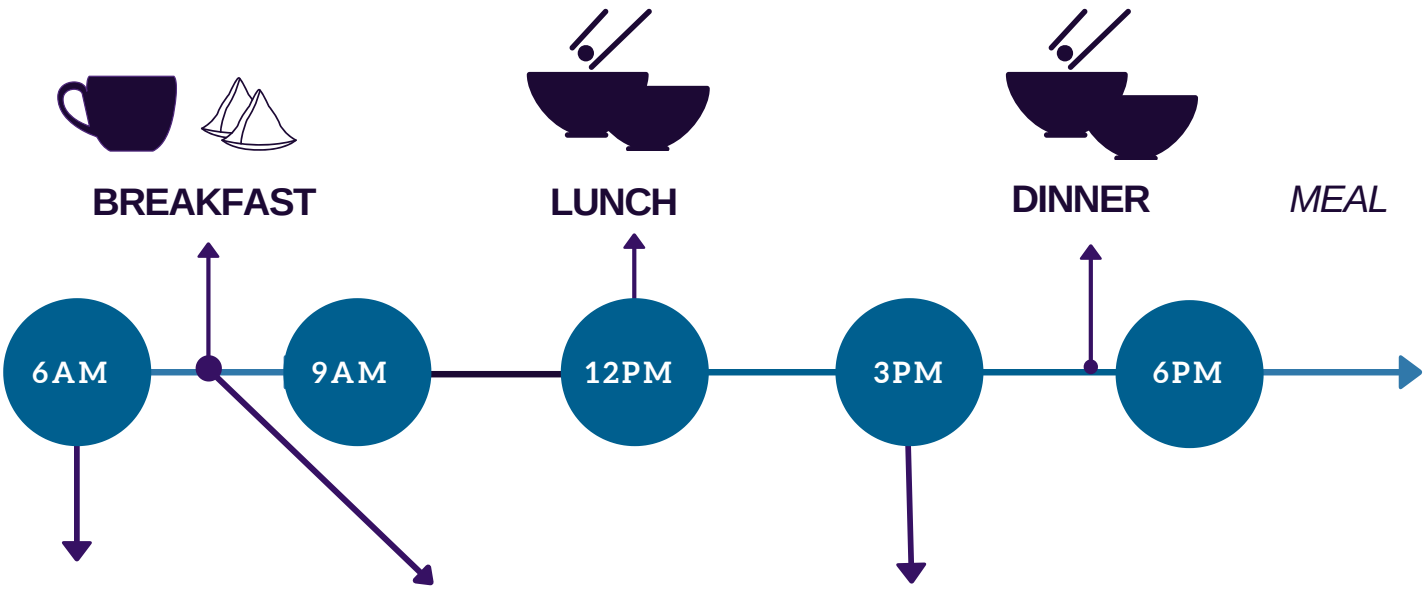
Cost

It is cheaper to use electricity, we save around 7000 kyats per month compared with using charcoal only.

Time

> When we cook with firewood and charcoal, and especially for rice, you have to be near the rice pot and watch. It makes the kitchen dirty, especially the ceiling and the walls... but with electricity there is no dirt and the kitchen stays clean.

TYPICAL DAILY COOKING TIMELINE



Start cooking lunch:
Rice Cooker:
Rice
Electric Frying Pan:
Pork Curry
Vegetable soup

Cook breakfast:
Electric Kettle:
Coffee
Green tea

Buy snacks from a shop

Start cooking dinner:
Rice Cooker:
Rice
Electric Frying Pan:
Chicken Curry
Vegetable soup

Convenience:

“There are issues with the electricity supply as there is sometimes a shortage, especially in summer, when the river dries up there isn’t enough water for the hydro power plant.”

In this book we will explore the fuels used and the foods cooked by Ma Ja Nu and other cooks across Myanmar in greater depth. We will also share some of the emerging solutions that can tackle the challenges faced by Ma Ja Nu and other cooks and enable the wider use of energy-efficient electric appliances for cooking.

Cooking timeline

FIREWOOD STOVE

1977

Primary Fuel Mix: Firewood

Cooking Experience:

Fuel purchasing; fuel preparation; slow cooking time; kitchen cleaning.

FIREWOOD & CHARCOAL STOVE

1980

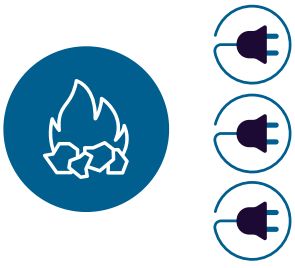
Primary Fuel Mix: Firewood + Charcoal

Cooking Experience:

Fuel purchasing; Fuel preparation; slow cooking time; kitchen cleaning.

2001

(Briefly tried cooking with sawdust, but stopped due to inconvenience)



CHARCOAL STOVE, RICE COOKER, ELECTRIC KETTLE & ELECTRIC FRYING PAN

2011-

Primary Fuel Mix: Electricity + Charcoal

Cooking Experience (electricity):

No fuel purchasing; No fuel preparation; faster cooking time; faster cleaning time.

2021

02

HOUSEHOLD ENERGY FOR COOKING

Household Energy For Cooking

The primary fuels for cooking in Myanmar are firewood, charcoal, LPG and electricity. Rural households typically use firewood for cooking, whilst electricity and charcoal are more popular in urban and peri-urban areas.

As Myanmar moves towards universal electricity access, electric cooking can become a reality for all.

Firewood

60% *of people rely on firewood as their primary cooking fuel*

Households that collect firewood spend on average ***233 hours per year*** *doing so*

Why consider other options?

1. Lighting firewood stoves is **time consuming**, especially when wet

2. It can be **difficult to regulate** the temperature and cook food evenly or without it burning

3. Sparks from the stove can cause injuries, and **carbon monoxide** can kill in poorly ventilated spaces

4. The cost of cooking with purchased firewood is higher than modern energy alternatives like electricity and gas

Charcoal

9% ***of households use charcoal as their primary cooking fuel.***

Charcoal cooking households consume **572,000** *metric tons of charcoal annually.*

Why consider other options?

1. In poorly ventilated areas smoke emitted from charcoal produces toxic levels of **carbon monoxide**

2. Charcoal is a **more expensive** cooking fuel than cleaner alternatives like electricity and gas

3. Cooking with charcoal can leave the kitchen walls and ceilings **dirty**

4. Slow to light and **difficult to adjust** heat level

LPG

1% *of people in Myanmar use Liquid Petroleum Gas (LPG) for cooking. Such a low rate has led to talks of a potential boom in the country's LPG market - particularly for those without a grid connection.*

LPG is a cleaner alternative to solid biomass that can be ***integrated into a clean fuel stack*** *(alongside electricity)*

Why consider other options?

1. Despite being a cleaner cooking fuel than traditional biomass, the naked flame of an LPG stove remains a fire hazard for cooks

2. Many electrical appliances can be switched on and left to cook automatically. This isn't possible with the open flame of an LPG stove

3. LPG is a fossil fuel, and may be a less viable option than renewables-based electric cooking in the future

03

WHY ECOOK?

Why eCook?

01

Cost

Despite tariff increases and the introduction of a progressive tiered tariff system in June 2019, **electricity prices remain the lowest in the Southeast Asia region.**

The cost of electricity for grid-connected households starts at MMK35 ($0.023) per kilowatt hour (kWh), and rises to MMK125 ($0.081) per kilowatt hour. As this eCookbook shows, **it is cheaper to cook Myanmar dishes on a wide range of electrical appliances than it is to use purchased wood and charcoal.**

Myanmar already has an established mini-grid sector providing electricity to communities beyond the grid network. Globally, the cost of renewables is falling and technologies are being developed for low capacity systems and for energy storage. **Meanwhile, the cost of wood, charcoal, and gas is likely to rise over time due to resource depletion.**

02

Health

In Myanmar 62% of child deaths from acute lower respiratory infections can be attributed to indoor air pollution.

Transitioning from solid biomass to cleaner energy sources such as electricity can reduce toxic levels of black carbon in households. As women and children are disproportionately affected by household air pollution, measures that reduce these emissions promote health equity.

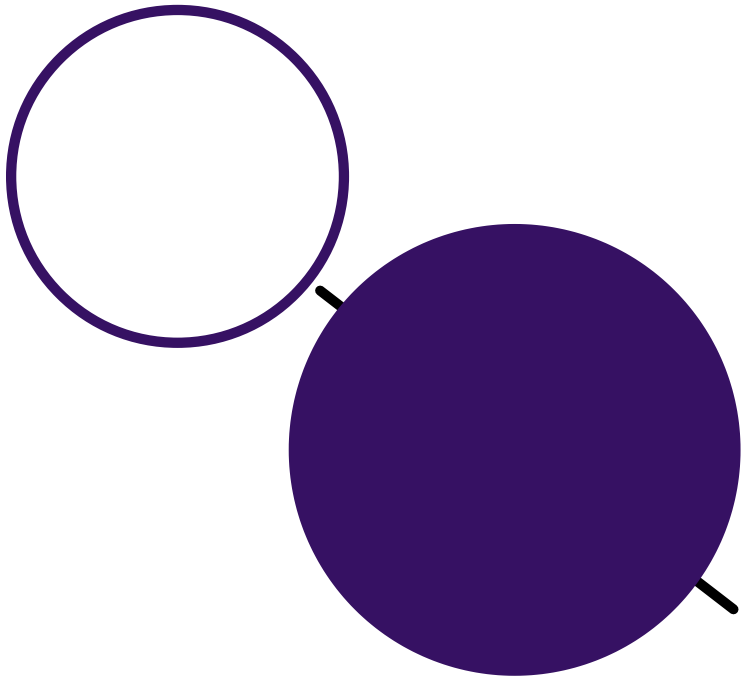
03

Convenience

Energy efficient cooking devices can **save families a significant amount of time each day** by reducing the cooking time (as well as the time spent collecting fuel or preparing and monitoring the stove).

The vast majority of cooks in Myanmar are women, and therefore a reduction in cooking time also has the potential to contribute to gender equity by freeing up women's time.

Data from the World Bank suggests that electric cooking can save approximately **100 minutes per day in fuel collection, 10 minutes in fuel preparation, and a further 30 minutes in cooking time**, compared to the use of firewood.



04

Environment

Myanmar is one of the most vulnerable countries in the world to the climate crisis.

1.3 million acres of forest was lost nationally between 2010 and 2015, 8.5% of the country's trees.

The charcoal industry in Tanintharyi is contributing to mangrove deforestation and coastal damage. Illegal activity within the industry also means that producers often evade important environmental regulations.

Cooks in Yangon adopting electricity and gas for cooking have already slowed the rate of deforestation of the mangroves in the Ayeyarwady delta.

05

Gender

Women are responsible for cooking in the vast majority of households across Myanmar. The health benefits and added convenience of clean cooking **helps to address an important aspect of gender inequality.**

Cooking and fuel collection can both be laborious, and these activities often amount to unpaid labour. Electric cooking may also **positively impact children and especially girls, who may be asked to carry out these activities**.

With a wide range of electric cooking appliances available in Myanmar, the burden of cooking can be made **simpler, quicker, healthier, easier, and perhaps even more enjoyable** than it would be cooking with firewood, charcoal, and traditional pots and pans.

06

Compatability

Because Myanmar has some of the lowest electricity prices in the world, a number of electric cooking appliances are already widely used in Myanmar.

The most popular appliances are rice cookers, electric frying pans and kettles. Households in Myanmar have proven that electric appliances are suitable for cooking the wide diversity of dishes that are cooked and eaten throughout the country.

Appliance Stacking

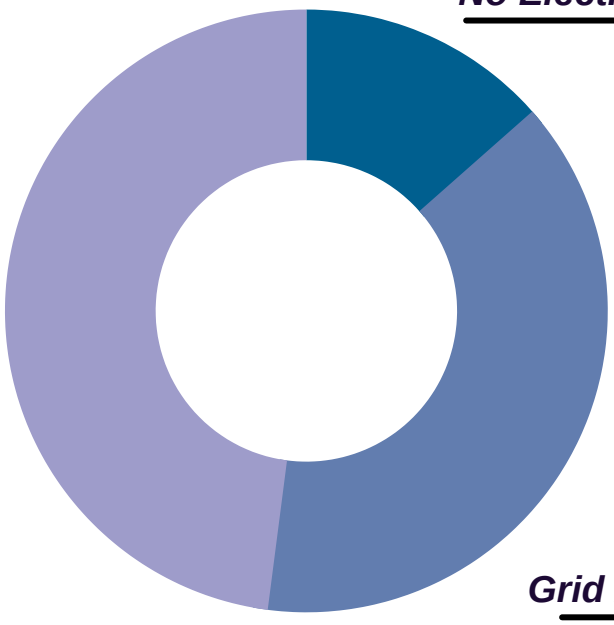
is a term that describes the process of using several cooking appliances in one kitchen in order to perform a range of cooking tasks

Electricity Access in Myanmar

Myanmar is electrifying at a rapid rate, **increasing by 16 % between 2016 and 2019.**

Beyond the national grid, parts of Myanmar have benefited from cross-border electricity provisions (with Thailand in the East and India in the West) as well as from a rapidly growing decentralised renewables sector.

There are different types of electricity connection that make eCooking possible in Myanmar.



No Electricity 13.5%

Off Grid Access 48%

Solar lantern or SLS ***(19.4%)***
Solar home system ***(11.4%)***
Rechargable batteries ***(9.2%)***
*Local Mini Grid Connection (****7.9%****)*
Electric Generator ***(0.1%)***

Grid Access 38.6%

Grid Connections

Despite electrification rates being relatively low in Myanmar electric cooking is a common practice. The grid tariff is among the lowest in South-East Asia

Mini Grid Connections

A special feature of Myanmar's energy space is the thousands of isolated mini grids that have been developed over the last few decades.

These systems have been developed by local communities in partnerships with local social entrepreneurs.

Solar Home Systems

It is feasible to utilise solar PV as a source for eCooking. Pioneers in Myanmar have succeeded in running electrical cooking devices on low power systems.

Pilots such as 'e-waste to e-cook' are seeking to use energy storage to make eCooking more reliable, in areas where energy supplies are more constrained.

04

MYANMAR COOKING

Myanmar Cooking

Kachin Minced Beef

Shan Noodles

Rakhine Fish Curry

Catfish Curry

Mon Curry

Myanmar Cooking

Myanmar's diverse cuisine is influenced by the country's geography and rich cultural diversity. The food is characterised by a wide range of curries, noodles, soups and salads.

Curries

Curries make up a significant portion of Myanmar cuisine. There are different styles of curries in Myanmar. Burmese curries tend to me made with a lot of oil whereas Kachin curries are often prepared without any oil.

Noodles

Noodles are used in a variety of dishes like soups and salads; they are usually boiled, but can also be fried.

Rice

The main staple of Myanmar cuisine is rice. Rice accounts for 43% of agricultural production, enabled by the country's climate. Though rice is commonly eaten plain, variations include fried rice, Myanmar-style biryani, and glutinous “sticky” rice.

Soups

A diverse range of soups are consumed across Myanmar, either as a main dish or side dish. One of the most popular is Mohinga, a fish based noodle soup.

Salads

Salads are often consumed as snacks or side dishes.

Laphet thoke is a salad typically made from fermented tea leaves, yellow split peas, toasted sesame seeds, peanuts, dried shrimp, chili.

Tea

Myanmar has a distinctive tea culture. It is often drunk socially in one of Myanmar's inimitable tea shops or at home. Two of the most popular types of tea in Myanmar are green tea, and a milky tea made with condensed milk.

The Kitchen Lab

Energy efficiency matters.
It helps to make cooking quicker and cheaper.

Our partners in Myanmar compared the efficiency and cooking time of **eight popular Myanmar dishes**, comparing the performance of a wood stove, charcoal stove, gas stove, and many different electric cooking appliances.

The kitchen lab experiments also assessed the cooking experience and the food quality for each round of testing. This helps us understand the suitability of different devices to the food and cooking cultural contexts in Myanmar.

Typology

This typology tree shows the dominant cooking processes in Myanmar cuisine. It allows us to match food categories (and specific dishes) with energy-efficient appliances. The 8 dishes tested in the Kitchen Lab are highlighted in green.

Cooking categories

Food Categories

Cooking Categories

Fry

Stir Fries

Fried Rice

Sauteed Vegetables

Short Fry

Deep Fry

Snacks

Tempura

Samosa

FRY + BOIL & SIMMER

Combination

Noodles Curries Soups

Fried Noodles

Mon Curry

Leafy Soup

Short

Chicken Batchelor Soup

Medium

Bean Soup

Long

Boil & Simmer

Rice Tea Soups

Green Tea

Short

Rice

Mohinga

Medium

Beef Stew

Long

Roasting

Dried Meats

Dried Fish

Dried Beef

CCT Dishes

Non CCT dishes


BẾP HỒNG NGOẠI ĐƠN
Kangaroo

These electrical appliances were selected to test for compatibility with eight Myanmar dishes that provided a variety of cooking demands:

Infrared Stove

Cooks with an even heat distribution, whilst retaining the food's moisture.

Induction Stove

Uses electromagnetic energy to cook food at a precise temperature

Electric pressure cooker

Heats food by trapping steam inside the chamber of the appliance, releasing more flavour than other options

Electric Frying Pan

Great for frying and simmering dishes with a quick and constant heat output

Rice Cooker

Cooks rice without requiring supervision. It is also surprisingly versatile for cooking other dishes

Kettle

Heats up water very quickly making it Ideal for boiling water for cooking and hot drinks

Thermopot

Heats up water like a kettle, but then maintains it at a constant temperature

A hotplate and slow cooker were also included in the kitchen lab tests but haven't been included in the analysis and comparisons due to performance concerns.

05

RECIPES & RESULTS

Chicken Batchelor Soup

Ingredients

Chicken: ***500g***
Gourd: ***1***
Onion: ***½ cup***
Garlic: ***1, tbsp***
Ginger: ***1 tbsp***
Chilli Powder ***½ tbsp***
Turmeric Powder: ***½ tsp***
Dried Chillies: ***3***
Lemon Grass: ***1***
Oil: ***2 tbsp***
Salt: ***1 tsp***
Seasoning powder: ***½ tsp***
Water: ***1 litre***

About the Dish

This is a delicious Burmese spicy chicken soup that is particularly popular in rural areas. This dish is typically served with a portion of rice.

Recipe

1) Marinate chicken with the curry paste (onion, garlic, ginger) and spices

2) Put all the ingredients into a pot, place it on the stove and shallow fry until the water evaporates and the aroma is released

3) Add the gourd and shallow fry until the outer layer becomes soft

4) Add water and lemongrass then bring to the boil

5) Simmer until the meat is cooked

EPC Comparison

Our cooks trialled cooking chicken batchelor soup on electrical appliances, firewood, charcoal and LPG and they rated each appliance in terms of cooking time, cost and energy consumption. The appliances were also rated on how easy they were to use, and whether the results were as tasty as with traditional forms of cooking.

This section profiles how well the EPC performed.

Chicken Batchelor Soup

EPC Comparison

ENERGY

The EPC was more energy efficient than the electric frying pan, induction stove and infrared stove.

COST

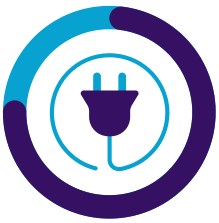
Cooking chicken batchelor soup on an EPC is far cheaper than on firewood, charcoal, or LPG stoves.

TASTE

Cooking chicken batchelor soup with the EPC was just as tasty as on a charcoal stove.

COST (KYATS)

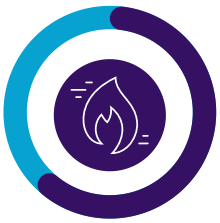
TIME



46mins

40mins

37mins



38mins

OVERALL

" Tasty and well cooked. Chicken cook[ed] with EPC is softer than all other devices, very delicious. The texture of gourd is also good, and tender" "

★★★★★★★★★☆

Bean Soup

Ingredients

Chickpea: ***160g***
Eggplant: ***1***
Radish: ***1***
Potato: ***2***
Ladies' finger: ***3***
Onion: ***2 tbsp***
Garlic: ***1 tbsp***
Ginger: ***2 slices***
Chilli Powder: ***1 tbsp***
Turmeric: ***½ tbsp***
Seasoning powder: ***1 tbsp***
Oil: ***2 tbsp***
Salt: ***1 tbsp***
Curry leaves: ***5***
Tamarind paste: ***2 tbsp***
Dried chilli: ***4***
Masala spice: ***1 tbsp***

About the Dish

This popular bean soup can be cooked with meat, bones, dried fish and boiled eggs. It is often served with naan, dosa or a portion of rice.

Recipe

1) Bring the pre-soaked chickpeas to the boil and simmer until they become soft

2) Separately, heat some oil and fry the dry chillies. Then fry the pounded onion, garlic, ginger paste, curry leaves, chilli powder and turmeric.

3) Add the chickpeas with boiling water and vegetables altogether into the pot, stir thoroughly and cover the lid.

4) Add tamarind paste, seasoning powder, salt and masala, stir thoroughly and cover the lid.
Remove from heat.

This section profiles how well the electric frying pan performed preparing bean soup, compared with wood, charcoal and LPG stoves.

Bean Soup

Electric Frying Pan Comparison

ENERGY

The electric frying pan was more energy efficient than the induction stove and infrared stove.

COST

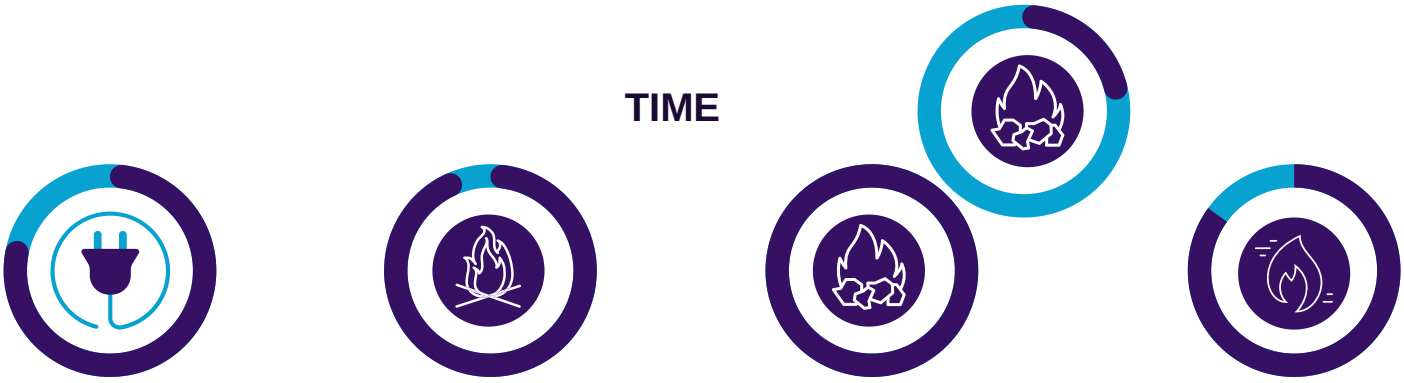
Cooking bean soup on the electric frying pan is cheaper than on firewood, charcoal, or LPG stoves

TASTE

"Taste strong, soup thick (preferable) . All vegetables were tender. Chickpea were in shape even[though] they were soft"

COST (KYATS)

TIME



OVERALL

"Easy, Fast, Can control heat, Can cook well. "

★★★★★★★★★☆

Green Tea

Ingredients

Boiling water: ***2 litre***
Loose green tea leaves: ***2 tbsp***

About the Dish

Tea is very popular across Myanmar. The tea leaves are prepared in different ways, they may be roasted or sun-dried

Recipe

1) Bring water to a boil

2) Remove from the heat and pour the water into a flask

3) Add the dried tea leaves

Green Tea

Kettle & Thermo-pot Comparison

ENERGY

The thermo-pot was marginally more energy efficient than the electric kettle

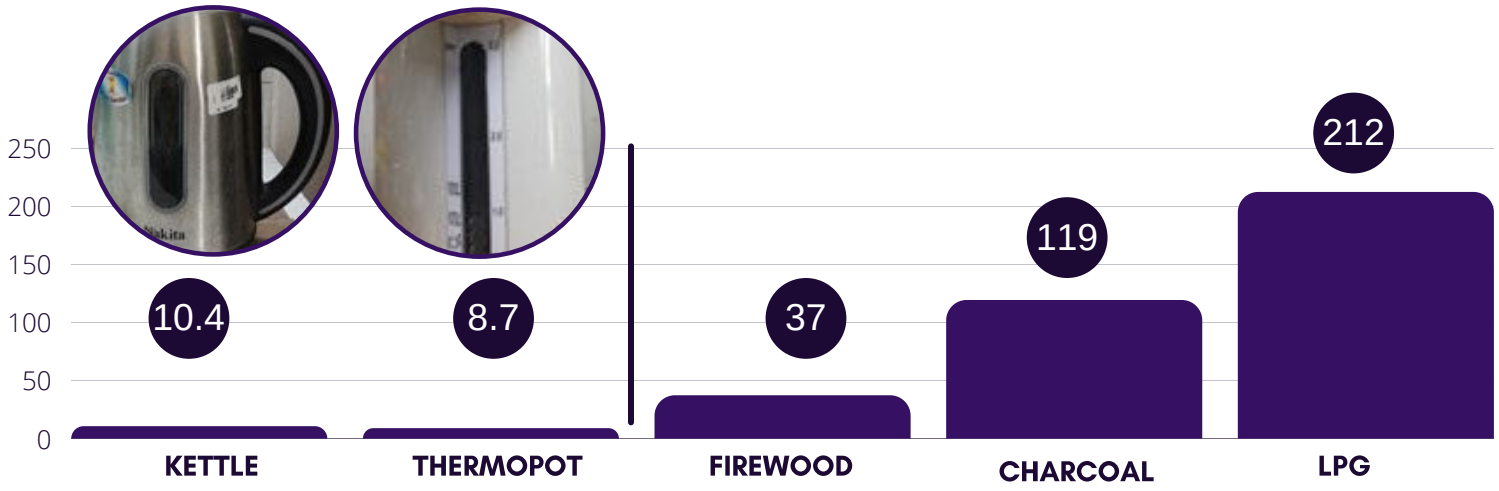
COST

It was far cheaper making green tea on the thermo-pot and kettle than on firewood, charcoal and LPG.

TASTE

Thermo-pot: "No metal pot smell."
Kettle: "Smell and taste is good, just like normal green tea. "

COST (KYATS)



TIME

3mins | 6mins | 20mins | 17mins | 8mins

THERMOPOT

"Easy to use. No special care. Fast. Chef can multitask. Able to keep water warm all the time with very little energy consumption."

★★★★★★★★★☆

KETTLE

" So easy to use. And just take 3 minutes for boiling water, can cook faster than Thermro Pot.... It can switch off automatically"

★★★★★★★★★☆

Mohinga

Ingredients

Water: ***1.5 litres***
Roasted rice powder: ***30g***
Mohinga paste: ***1/2 sachet***
Onion: ***240g***
Garlic: ***1 tbsp***
Seasoning Powder: ***1.5 tsp***
Salt: ***1 tsp***
Rice Noodle: ***640g***
Coriander: ***1/2 cup***

About the Dish

A traditional Burmese noodle soup that can be enjoyed by itself or with fried snacks

Recipe

1) Mix the ready made roasted rice powder with water.

2) Bring the water to a boil adding the fish and chickpea (mohinga) paste. After, add the onion and rice powder mixture, seasoning powder and salt. Stir the soup until the water boils.

3) Pound the garlic and mix with black pepper powder, add to the soup then cover the lid and wait until the soup boils over.

4) Serve with rice noodles, chilli powder, coriander, and fried garlic.

Mohinga

Induction Stove Comparison

ENERGY

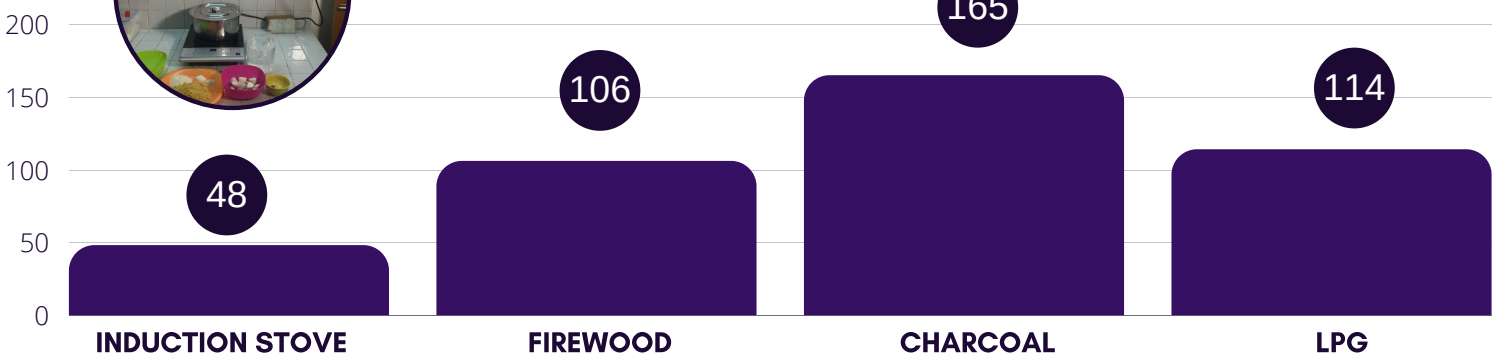
The induction stove was more energy efficient than the electric frying pan, EPC, and infrared stove.

COST

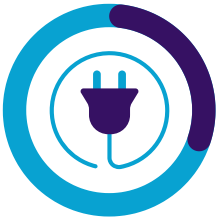
Cooking mohinga on the induction stove is far cheaper than on firewood, charcoal or LPG stoves.

TASTE

"All the ingredients are well cooked, onion, chick pea, rice powder. Tasty. Texture and smell also good."



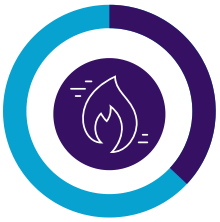
TIME



19mins

44mins

32mins



22mins

OVERALL

" Can cook quickly only 5 minute to wait for boiling 1.5 litres of water, faster water boiling time than LPG stove. Easy to use... it works all the time we raised and lower the temperature. "

★★★★★★★★★☆

Rice

Ingredients

Rice: ***2 cups***
Water: ***3.5 cups***

About the Dish

Rice is the main staple throughout the country with variations that differ in terms of texture and aroma.

Recipe

1) Rinse the rice and then combine with water for boiling or steaming. Add additional water if the cooked rice will be strained before serving

2) Cover the lid for the duration of cooking, until all of the water is absorbed or the rice is fully cooked

Rice

Rice Cooker Comparison

ENERGY

The rice cooker was more energy efficient than the electric frying pan, EPC, induction stove and infrared stove.

COST

Cooking rice in a rice cooker is cheaper than on firewood, charcoal and LPG

TASTE

"Delicious - very evenly cooked."

TIME

20mins

29mins

42mins

23mins

OVERALL

" Easy to operate. No need take care all the time."

★★★★★★★★★★

Tempura

Ingredients

Tempura Powder: ***2 sachets***
Egg: ***1***
Salt: ***1 tsp***
Seasoning Powder: ***1 tsp***
Oil: ***350ml***
Water: ***As needed***
Pennywort (Horseshoe Leaves): ***4 small bundles***
Gourd: ***1/8***
Potato: ***2***
Nos Tofu: ***80g***
Onion: ***1***
Corn: ***1/2 cup***

About the Dish

This deep fried tempura can be eaten for breakfast, as a side dish, an appetizer or as an evening snack.

Recipe

1) Make the tempura paste by mixing the tempura powder, water, salt, seasoning powder and egg.

2) Fill 2/3 of a pan with oil and start to fry the tofu. Take out the fried tofu with skimmer and put into the sieve

3) Dip the Gourd Sticks into tempura paste, then place them in the hot oil. Take out the fried gourd sticks with skimmer and put into the sieve.

4) Repeat this process with the potato chips, corn and onion slices

5) Serve with tamarind juice, fish sauce and chilli flakes

Tempura

Tempura

Infra-red Stove Comparison

ENERGY

The infrared stove was more energy efficient than firewood, charcoal and LPG. It was more energy intensive than in the electric frying pan, EPC, and rice cooker.

COST

Cooking tempura on the infrared stove is cheaper than on firewood, charcoal and LPG

TASTE

"Delicious taste"
"Good looking. Crispy"

COST (KYATS)

TIME

56mins | 57mins | 74mins | 35mins

OVERALL

Can use with any kind of pot. Can control heat. Can fry and cook. Take cooking time normal. No need to worry about over burnt."

★★★★★★★★★☆

Sautéed Vegetables

Ingredients

Carrot: ***1/2***
Baby corn: ***3***
Snow Pea: ***80g***
Unopened Straw Mushroom: ***80g***
Cauliflower: ***1/5***
Tomato: ***2***
Onion: ***1/2 cup***
Garlic: ***1 tbsp***
Soy Sauce: ***1 tbsp***
Oyster Sauce: ***1 tbsp***
Seasoning Powder: ***1 tsp***
Oil: ***2 tbsp***
Water: ***1/4 cup***

About the Dish

This common side dish makes the most of seasonal vegetables and can be paired with eggs, prawn, and meat.

Recipe

1) Heat the oil.

2) Add the onion and garlic. Stir.

3) Add carrot, cauliflower. Stir fry for 30 seconds and put the lid on.

4) Add baby corn, snow pea. Stir fry for 30 seconds.

5) Add a dash of water and put lid on.

6) Add tomato, unopened straw mushroom, seasoning powder and sauces. Stir fry for 30 seconds

Sautéed Vegetables

Electric Frying Pan Comparison

ENERGY

The electric frying pan was more energy efficient than the EPC and infrared stove.

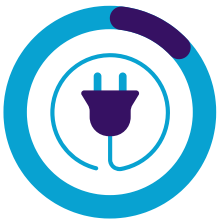
COST

The electric frying pan was far cheaper than firewood, charcoal and LPG.

TASTE

"All the veggies are well cooked and tasty"
"Texture of all veggies are good, color and smell also good"

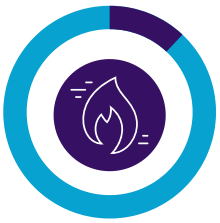
TIME



12mins

10mins

26mins



9mins

OVERALL

"Can cook fastly. Easy to use"
"Can control the temperature. "

★★★★★★★★★☆

Leafy Soup

Ingredients

Roselle Leaves: ***2***
Ladies' finger: ***3***
Dried Prawn Powder: ***1 tbsp***
Onion: ***2 tbsp***
Garlic: ***1 tbsp***
Fish Sauce: ***1 tsp***
Seasoning Powder: ***1/2 tsp***
Water: ***2/3 litre***

About the Dish

This Burmese soup is often served as a side dish to accompany an oily curry made with pork, fish or chicken.

Recipe

1) Put the roselle leaves and press and stir them with wooden spatula

2) Put all the ingredients, seasoning and water. Put the lid on.

3) Check ladies' fingers and onions are cooked. Taste the soup and add seasoning powder and fish sauce.

4) Put the lid on.

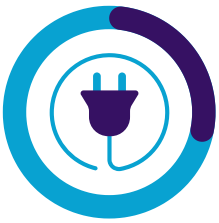

Midea

Leafy Soup

EPC Comparison

ENERGY	COST	TASTE
The EPC is more energy efficient than the electric frying pan, rice cooker and infrared stove	Cooking leafy soup in an EPC is cheaper than on firewood, charcoal or LPG stoves.	"Texture of onion. Garlic and roselle leaves are good. Smell good" "perfect taste, moderate sour, salty, and consistency"

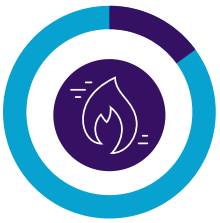
TIME



18mins

18mins

20mins



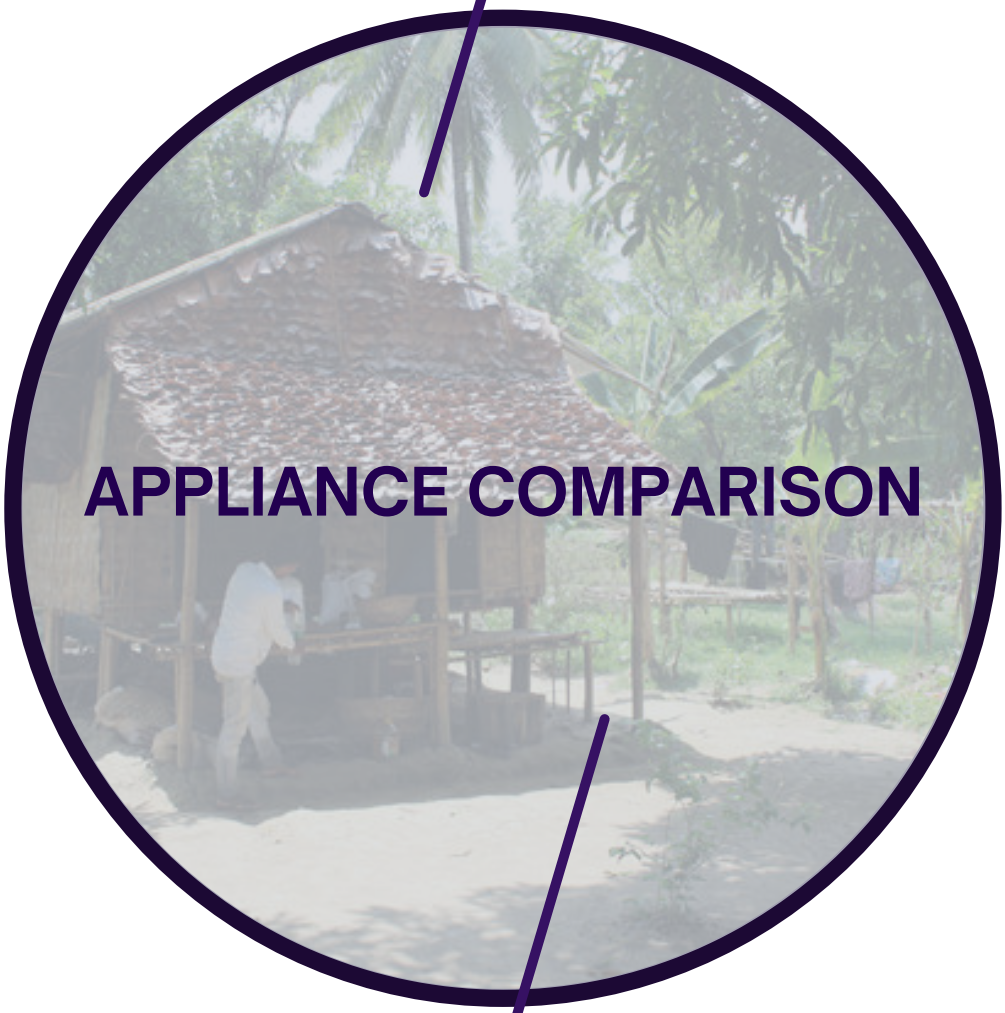
12mins

OVERALL

"Easy to use and clean. No need to worry about overburnt. No rush all the time"

★★★★★★★★★☆

06



APPLIANCE COMPARISON

Which appliances do I need?

A combination of electric cooking appliances will enable households to cook a wide variety of Myanmar dishes. Many families already use a rice cooker, an electric frying pan, and a kettle.

Cooking categories

Food Categories

Cooking Appliances

Fry
Stir Fries

Electric Frying Pan

Induction Stove

Boil & Simmer
Rice Tea Soups

Rice cooker

Thermopot

EPC

Kettle

Induction stove

FRY + BOIL & SIMMER

Combination
Curries Soups

EPC

Induction stove

Slow cooker

Deep Fry
Snacks

Electric Frying Pan

Induction Stove

Electric Frying Pan

Roasting
Dried Meats

Infrared stoves

However, induction and infrared stoves, as well as an electric pressure cooker, can also be used for a variety of cooking needs.

The pages that follow look at the appliances themselves in more detail.

Which appliances do I need?

All-rounders

Induction/Infra-red

Frying specialists

electric frying pan

Boiling specialists

electric pressure cooker

Boiling only

Kettle, thermo-pot, rice cooker, slow cooker

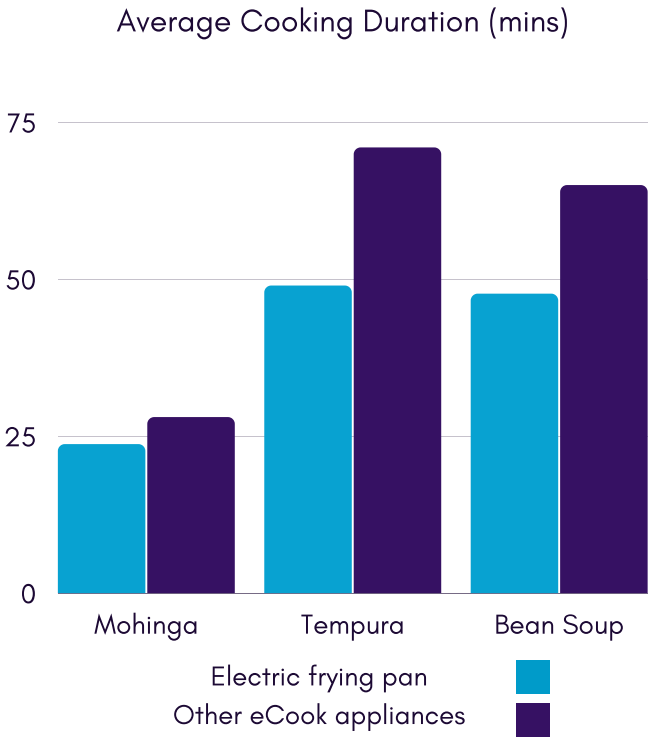
Electric Frying Pan

Appliance Comparison

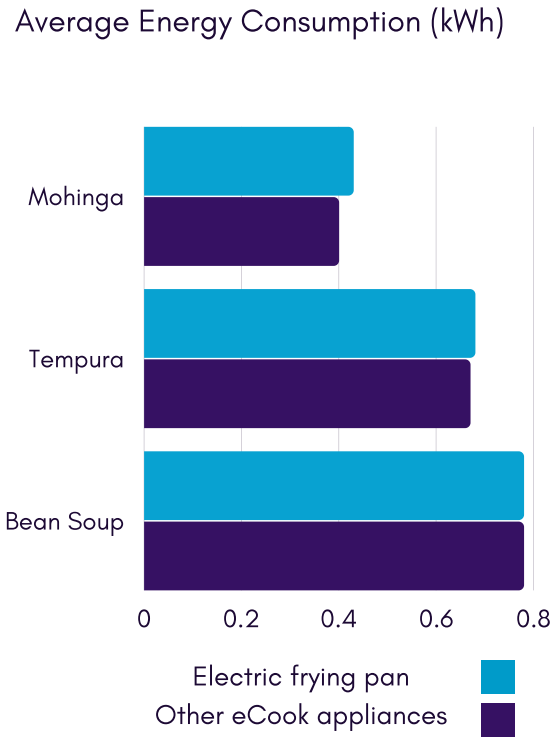
Appliance Attributes

Versatility (range of dishes)	High
Can deep fry?	Yes
Adjustable temperature	Yes
Easy to clean?	Yes

The electric frying pan is quicker on average than other eCook appliances



The electric frying pan performs averagely in terms of energy consumption



Electric Frying Pan

> It has a high power setting, very quickly. It's very easy to control the heat levels. It's easy to clean afterwards

Perfect!

Tempura

Bean Soup

Leafy Soup

Chicken Batchelor Soup

Mohinga

Sauteed Vegetables

Possible

Rice

Green Tea

Wouldn't recommend

None!

Best for:

Time saving ✓

Deep frying ✓

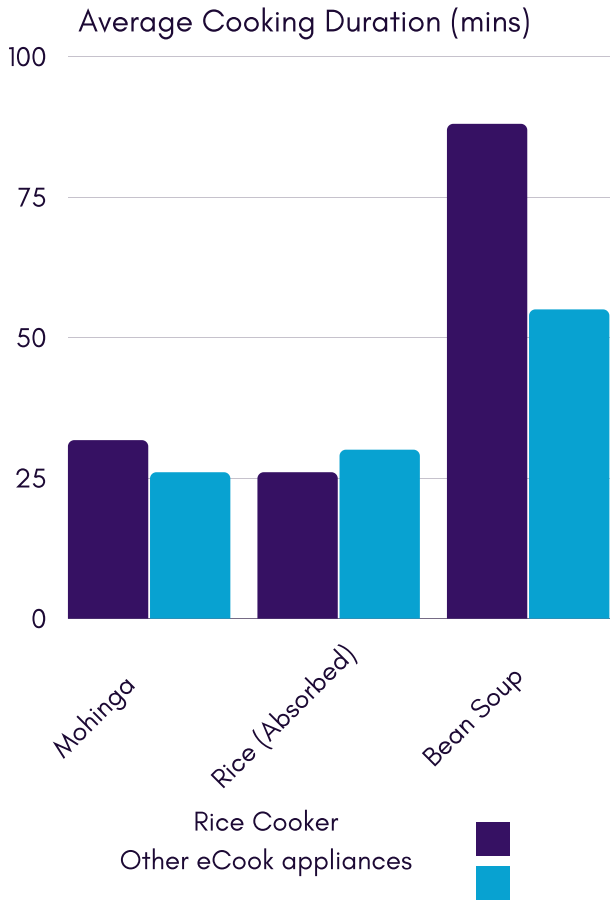
Electric Pressure Cooker

Appliance Comparison

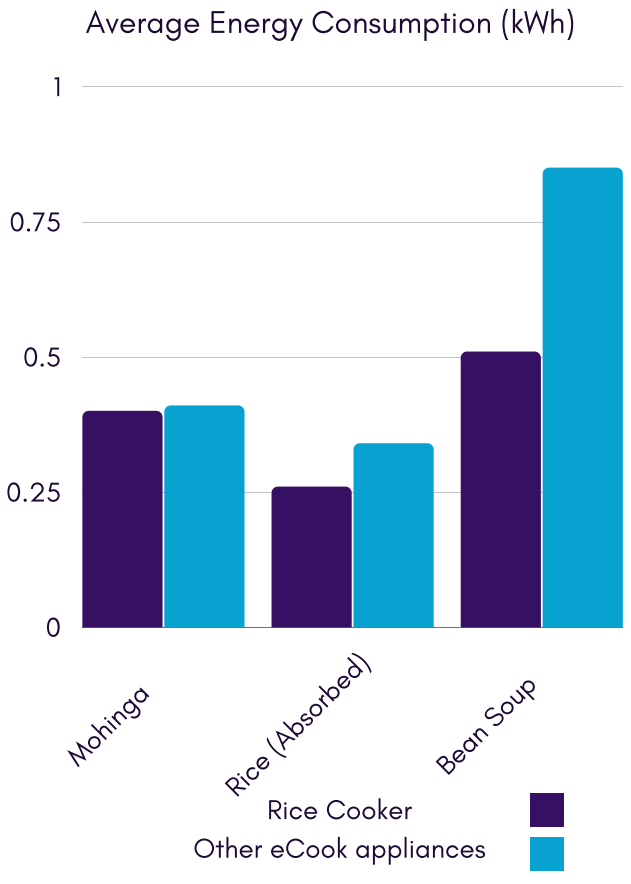
Appliance Attributes

Versatility (range of dishes)	High
Can deep fry?	No
Adjustable temperature	Yes
Easy to clean?	Yes

The EPC tends to be a bit slower than other appliances



The EPC is efficient, particularly for longer cooking and combination dishes



Electric Pressure Cooker

Easy to use and clean. No need to take care all the time and no worry about over burnt

Perfect!

Rice

Bean Soup

Leafy Soup

Chicken Batchelor Soup

Mohinga

Sauteed Vegetables

Possible

Green Tea

Wouldn't recommend

Tempura

Best for:

Energy saving

Long boils

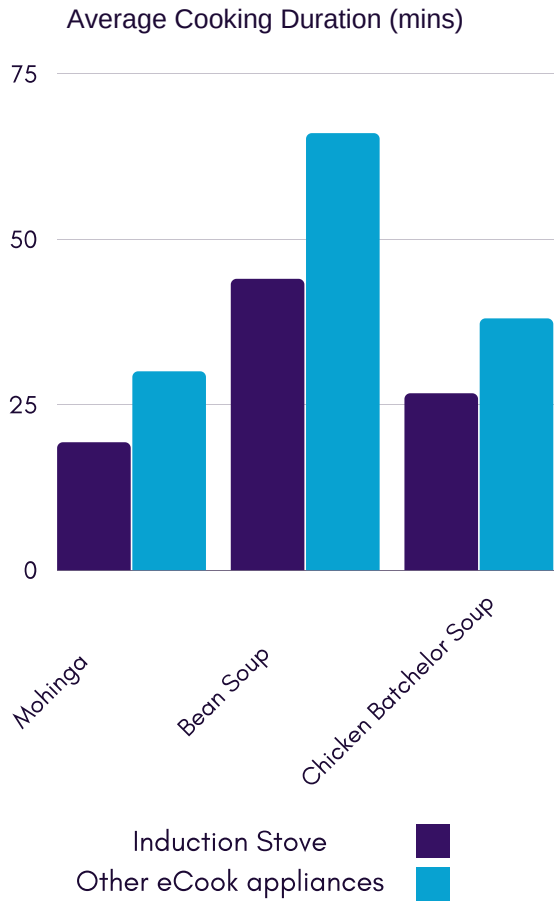
Induction Stove

Appliance Comparison

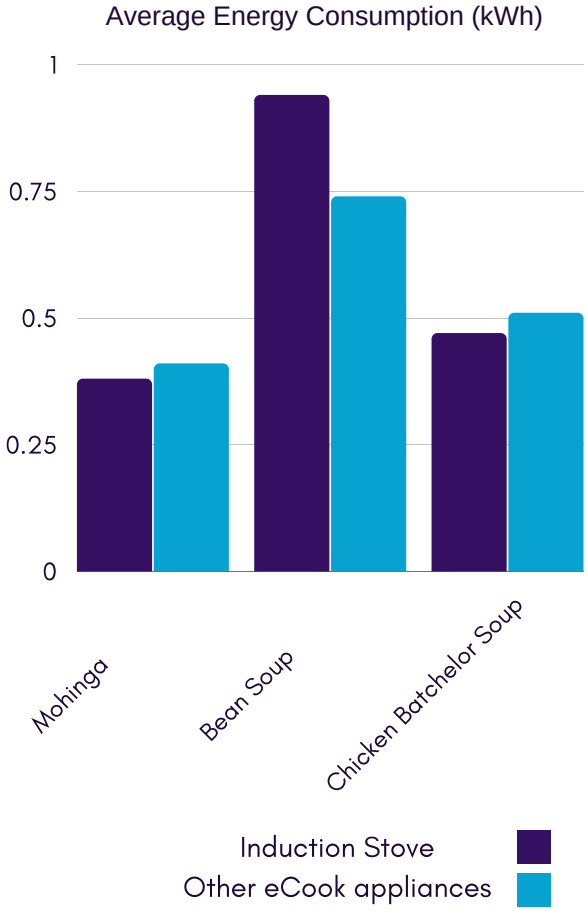
Appliance Attributes

Versatility (range of dishes)	High
Can deep fry?	Yes
Adjustable temperature	Yes
Easy to clean?	Yes

The induction stove is a huge time saver for Myanmar cuisine



The induction stove is more efficient than most appliances except for 'long boiling' dishes



Induction Stove

Easy to use and clean...Can control the temperature.

Perfect!

Rice

Leafy Soup

Chicken Batchelor Soup

Mohinga

Sauteed Vegetables

Possible

Tempura

Green Tea

Bean Soup

Wouldn't recommend

None!

Best for:

Time saving

Quick dishes

Rice Cooker

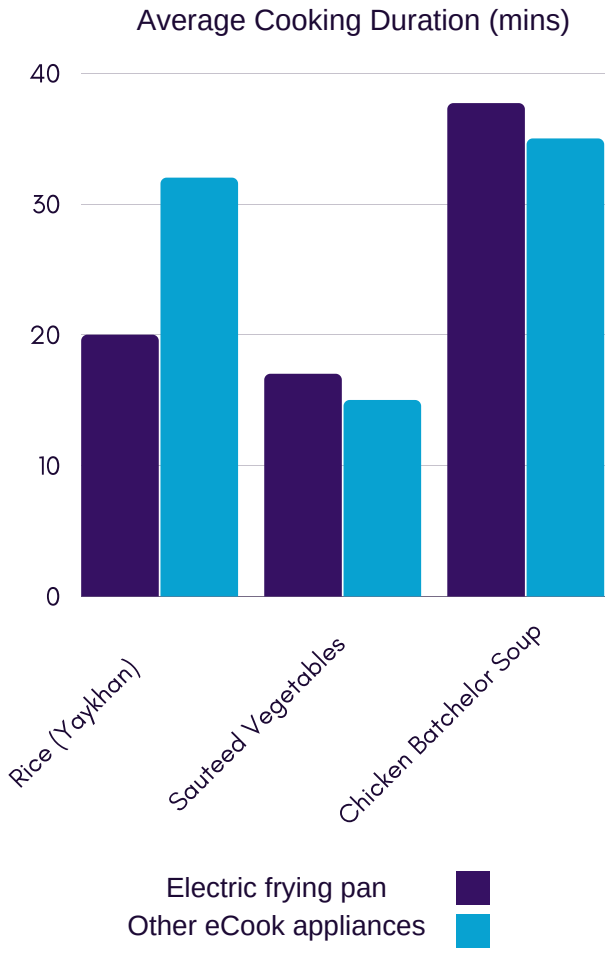
Appliance Comparison

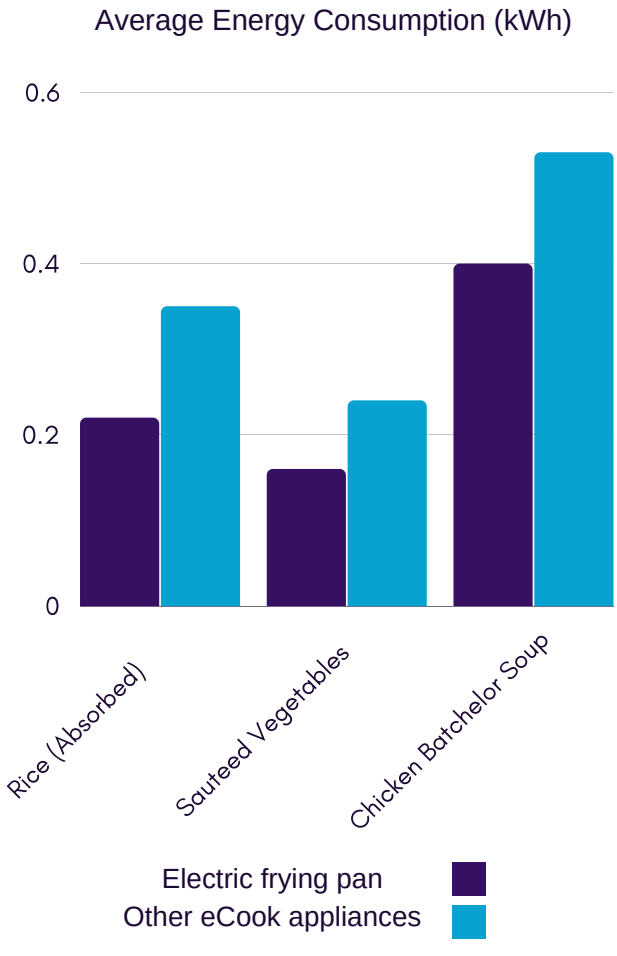
Appliance Attributes

Versatility (range of dishes)	High
Can deep fry?	No
Adjustable temperature	Yes
Easy to clean?	Yes

The rice cooker tends to take longer - except for steaming rice

It's an efficient option not just for steaming rice but for soups and even for frying





Rice Cooker

Easy to use. Can boil the soup and cook food well. No need to care. No spill over boiling. Not burnt.

Perfect!

Rice

Leafy Soup

Chicken Batchelor Soup

Mohinga

Bean Soup

Possible

Sauteed Vegetables

Green Tea

Wouldn't recommend

Tempura

Best for:

Energy saving ✓

Simmering/ steaming ✓

Infrared Stove

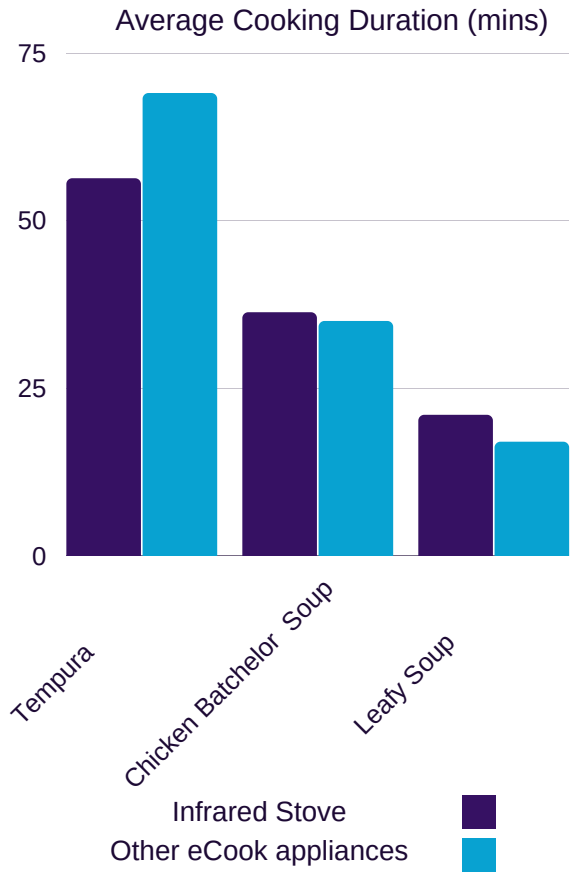
Appliance Comparison

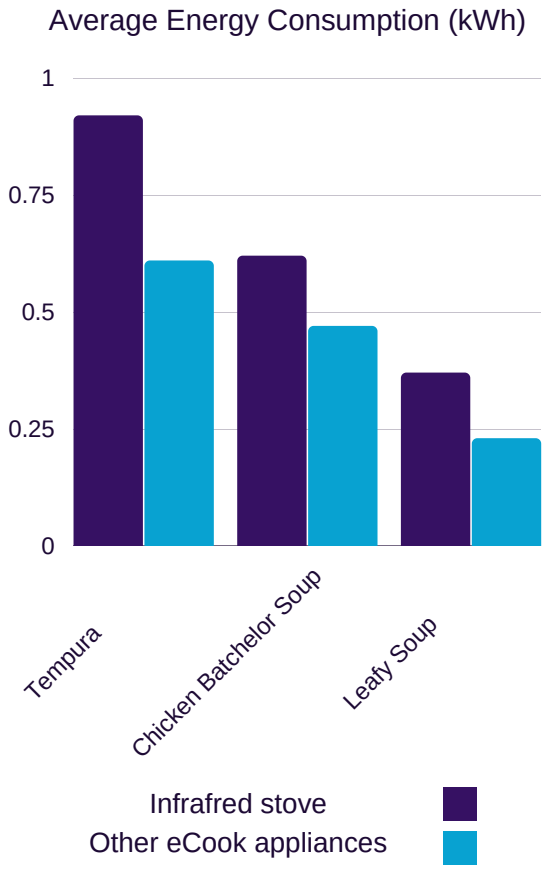
Appliance Attributes

Versatility (range of dishes)	High
Can deep fry?	Yes
Adjustable temperature	Yes
Easy to clean?	Yes

The infrared stove saves time on tempura, but is otherwise average.

It is less energy efficient than other appliances.





Infrared Stove

> It has a high power setting, very quickly. It's very easy to control the heat levels. It's easy to clean afterwards

Perfect!

Rice

Leafy Soup

Chicken Batchelor Soup

Mohinga

Possible

Bean Soup

Sauteed Vegetables

Tempura

Green Tea

Wouldn't recommend

None!

Best for:

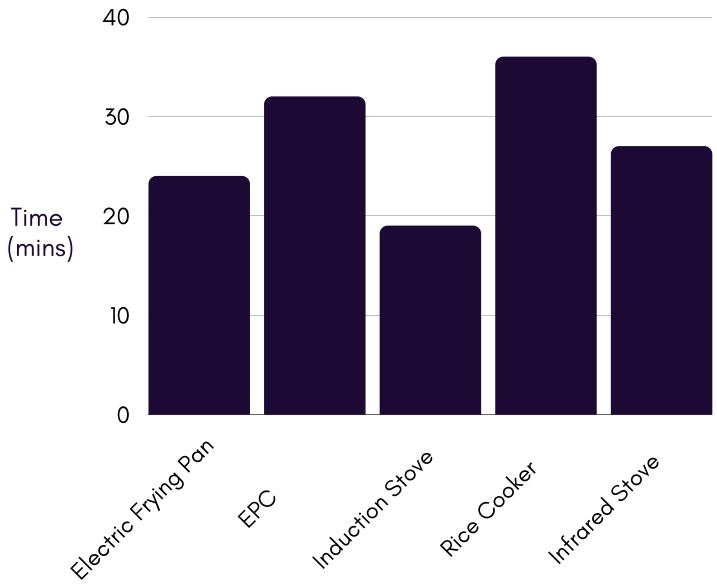
Cooking experience ✔

How do the appliances compare?

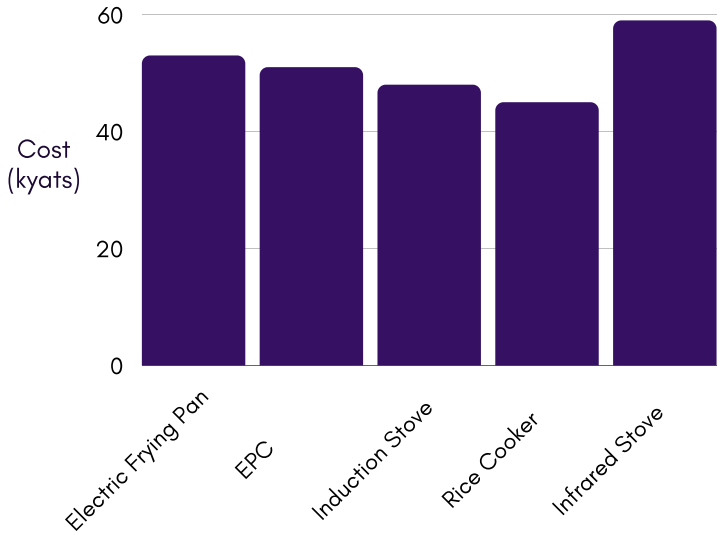
The graphs below show the cooking time and cooking cost of the five main electric appliances for two sample dishes: mohinga (boil/simmer), chicken batchelor soup (combination)

Mohinga

Time

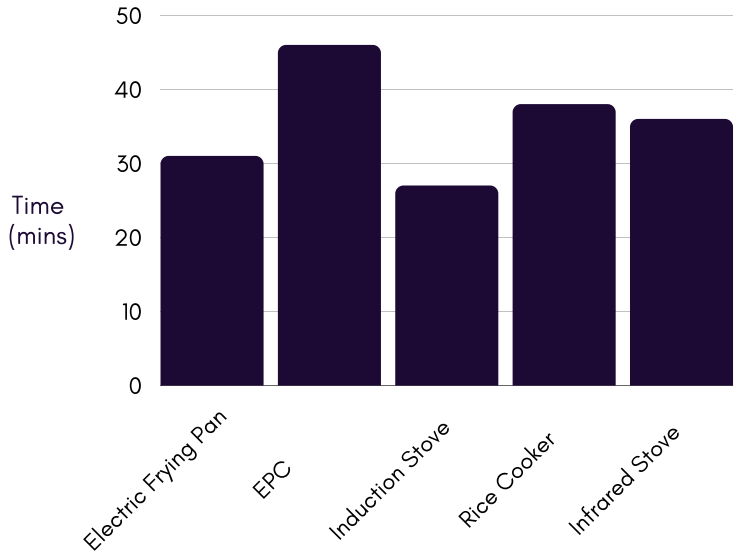


Cost

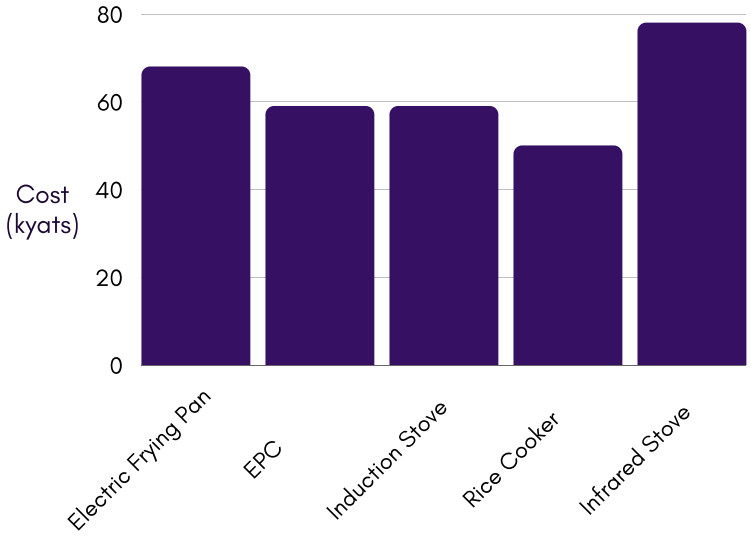


Chicken Bachelor Soup

Time



Cost



Other Appliances

Thermo-pots and Kettles

Thermo-pots and kettles were only included in the green tea tests. However, households can save time and money by using these appliances to boil water that can then be used in the cooking of soups, curries, rice and noodles.

Slow Cookers

Insulated electric slow cookers are great for curries and soups that are cooked over a number of hours. They are excellent for off-grid contexts, as they help spread the load across a longer cooking period.

Hot Plates

Hot plates are not as efficient as induction and infrared technologies, and cooking times and cooking costs can often be higher. We recommend more efficient electric cooking appliances where they are available.

And Remember...

If you are in a hurry, cooking using pressurisation in an electric pressure cooker can reduce cooking times and replace the need to soak beans!

07

PRODUCT INFORMATION

Product Information

The Modern Energy Cooking Services (MECS) Programme also worked with Geres in Myanmar on an Electric Cooking Outreach (ECO) project in Thazi Township.

Geres worked with a network of female entrepreneurs to bring efficient electric cooking to households that recently grid-connected villages in rural Myanmar.

The research team tested different models of rice cookers, electric frying pans, electric pressure cookers, and electric kettles, to assess value-for-money, energy efficiency, and consumer protection/safety measures.

The pages below provide a summary of the findings, and general information for consumers and retailers.

Electric Frying Pans

FOUR APPLIANCES TESTED

24,500 - 50,000 MMK

1000 - 1500 W

ALL 12"

The best appliance was the cheapest and had the lowest power rating!

Electric Pressure Cookers

FOUR APPLIANCES TESTED

54,000 - 91,000 MMK

900 - 1000 W

5 - 6 LITRES

Only one of the four EPCs came with a safety standards test certificate

Rice Cookers

NINE APPLIANCES TESTED

11,000 - 32,000 MMK

400 - 1000 W

1.8 - 2.8 LITRES

Research found there was a demand for larger rice cookers. 3.6 litre rice cookers are available in Myanmar (costing up to 65,000 MMK, power rating up to 1300 W).

Kettles

SIX APPLIANCES TESTED

12,000 - 17,000 MMK

1500 - 1850 W

1.5 - 2 LITRES

Like the frying pan testing, the best appliance was the cheapest and had the lowest power rating!

Which appliances are best for my electricity connection?

Energy efficient appliances save energy, time and money.

All appliances can be used in off-grid contexts, but it can be impractical and expensive to use inefficient or high-powered appliances in these contexts.

In off-grid or weak grid contexts:

A **thermo-pot** may be more practical than a kettle, as thermopots tend to have lower power ratings but are able to heat water efficiently.

A **rice cooker** is a versatile, low-powered and highly-efficient appliance, and is a better choice in off-grid contexts than high-powered infrared and induction stoves

An **electric pressure cooker** or low-power **electric frying pans** are also more suitable than infrared/induction stoves.

Low Power → High Power






Product Checklist

When choosing what type of electric cooking appliance to bring to market, or purchase for the home, it is 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?

Repair and Maintenance

Sometimes, appliances can stop working. But they can be very simple to fix! It is important to repair and re-use appliances, as it will save you money and be better for the environment.
Product warranties and guarantees are the best forms of consumer protection. Below are a list of other considerations to make sure you get the best out of your appliances!

What can I do myself if my appliance isn't working?

If it's a digital device (usually has an LCD display), turn if off and on again to reset the electronics.

If it has a fuse in the plug, check whether it has blown and if so, replace. If you can't find a new fuse, you could borrow one from another device, but make sure it has the same current rating (or higher).

What should I do if I can't fix it myself?

Speak to a local electrician
Take it back to the retailer you bought it from