



# CLEAN AND MODERN ENERGY FOR COOKING:

# A PATH TO FOOD SECURITY AND SUSTAINABLE DEVELOPMENT

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Webinar organised by:  
Modern Energy Cooking Services (MECS) Programme  
World Food Programme (WFP)

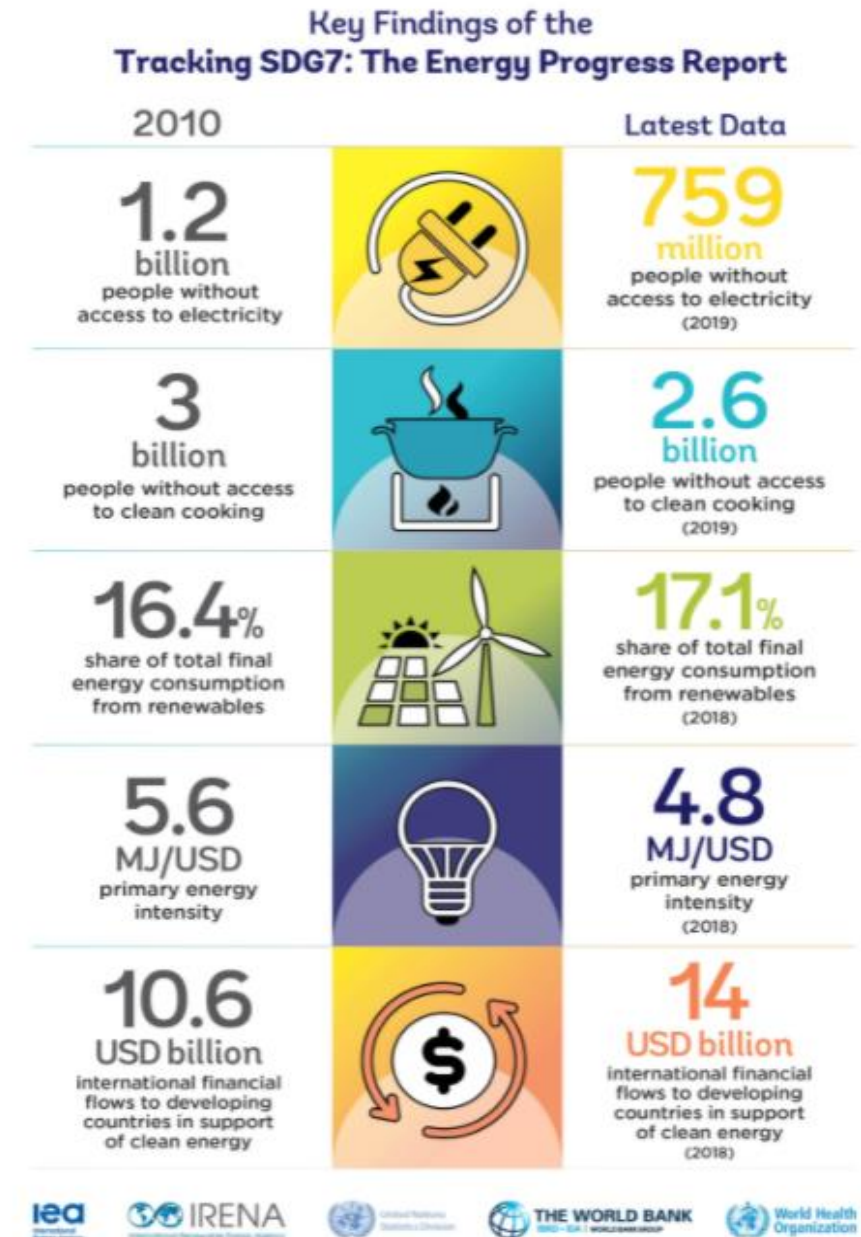
13<sup>th</sup> July 2022

# Energy access and SDGs

- Close to 760 million without electricity (and possibly more due to Covid-19)
- 3 billion without access to clean cooking; over 4 billion without access to modern energy cooking
- Fuel collection and preparation often time-consuming, labour-intensive and unsafe

*“Sustainable energy is the golden thread that connects economic growth, social equity, and a climate and environment that enables the world to thrive.”*

*Dr Jim Yong Kim (former World Bank Group President)*



# Modern Energy Cooking Services (MECS) Programme

MECS's goal is to break out of business-as-usual approaches and rapidly accelerate the transition from biomass to clean cooking on a global scale. It does so through:

- Research partnerships
- Supporting innovation
- Going to scale
- Leaving no one behind

Focus on:

- understanding progress in the transition to modern energy cooking services
- taking advantage of new technological developments, relative price movements and new knowledge
- generating new knowledge on how to scale the transitions and transformations, putting these into practice in collaboration with private sector partners
- strengthening the monitoring of global progress in order to influence the policy environment



Photo credit: MECS

# World Food Programme (WFP)

We are the world's largest humanitarian organisation, saving lives in emergencies and using food assistance to change lives by building a pathway to peace, stability and prosperity for people recovering from conflict, disasters and the impact of climate change.

**128M people**  
in over 120 countries and  
territories

**2M farmers**  
in 60+ countries

**15.5 M children**  
in 59 countries

The WFP is the  
**2020 Nobel Peace  
Prize Laureate**

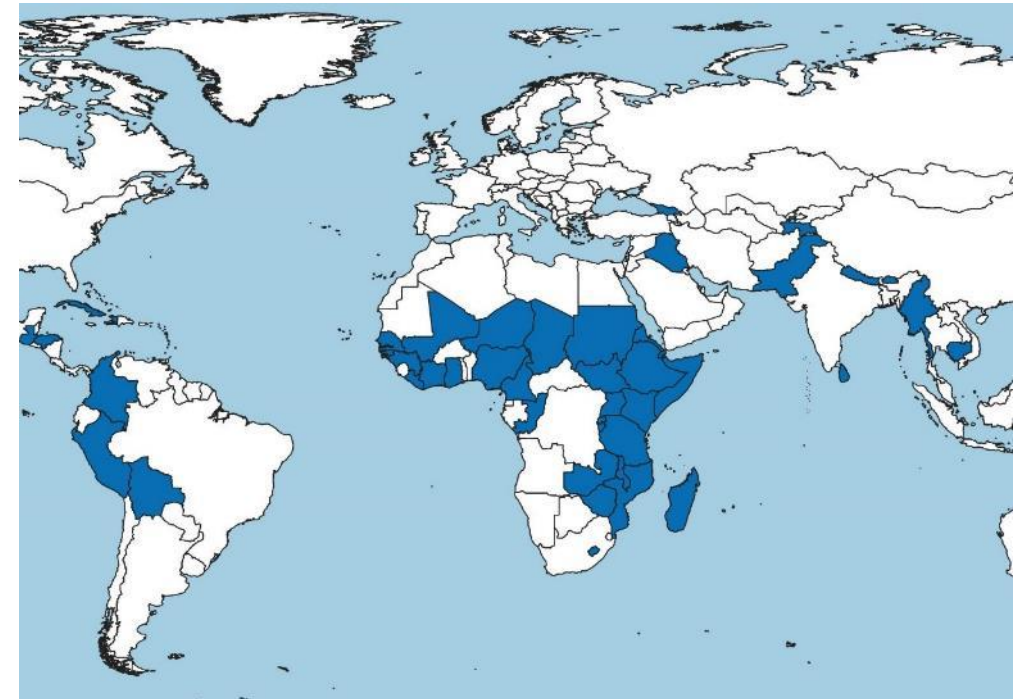
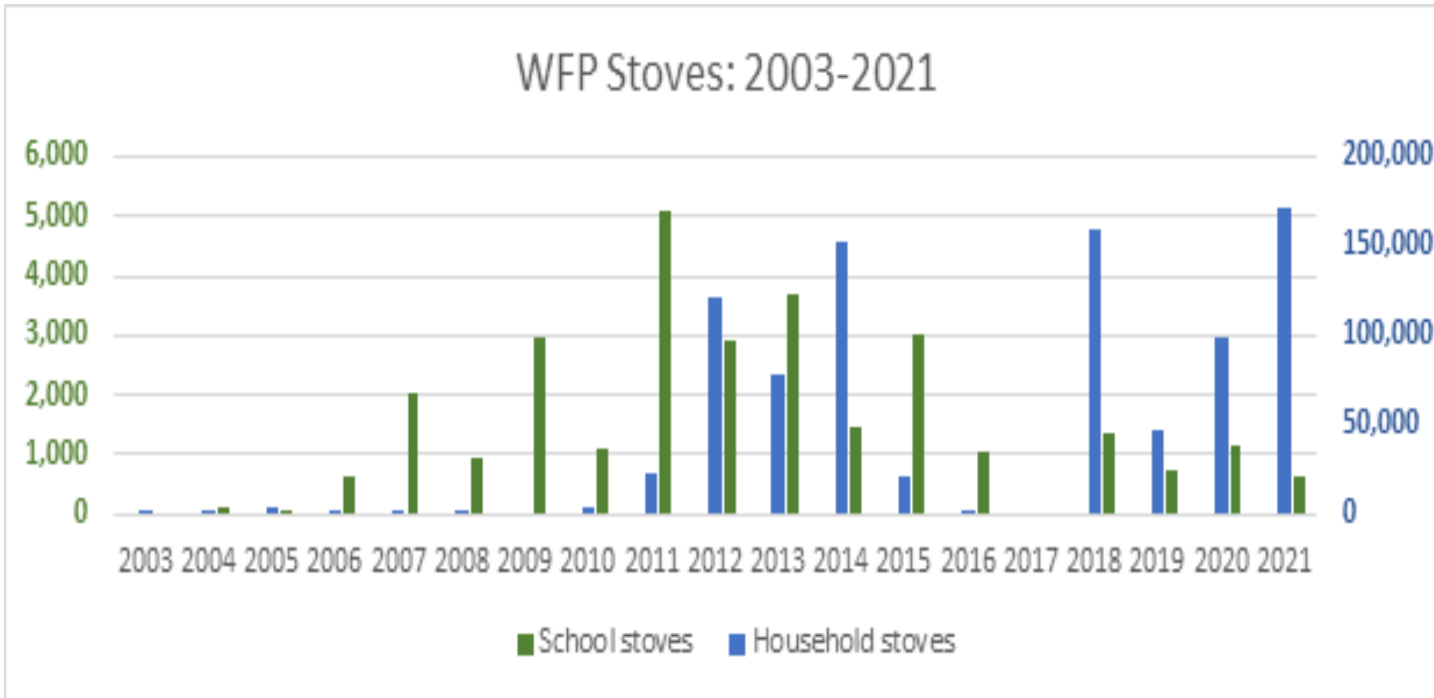
## **SAVING LIVES IN EMERGENCIES, CHANGING LIVES WORLDWIDE**

- Food Assistance
- Resilience Building
- Nutrition
- School Health and Nutrition
- Social Protection and Safety Nets
- Climate Action
- Smallholder Farmers Market Support
- Country Capacity Strengthening and South-South Cooperation

# WFP's Clean Cooking in Schools Track Record

Between 2003 and 2021, WFP had clean cooking activities in **48 countries**, distributing **888,535 household stoves** and **28,932 improved institutional stoves**.

Impacting lives of some **4.4 million household members** and **5.8 million students**.



# Energy access in WFP's mandate

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- Critical in delivering on the goal of achieving zero hunger through food assistance in emergencies
- Energy for cooking is key to improving nutrition and building community resilience
- Driver for socioeconomic transformation , underpins the achievement of most SDGs

HEALTH

EDUCATION

ECONOMIC  
GROWTH

GENDER

PEACE



# Cooking contexts



Photo credit: Inyenyeri



Photo credit: I.Bisaga



Photo credit: L.Heddam



Photo credit: I.Bisaga

Households

Institutions

Commercial  
businesses

Displacement  
settings

*Community-level energy access – a whole systems approach*





# Energy delivery models

Different models offer different opportunities for sustainability, longevity and community socio-economic development and resilience building.



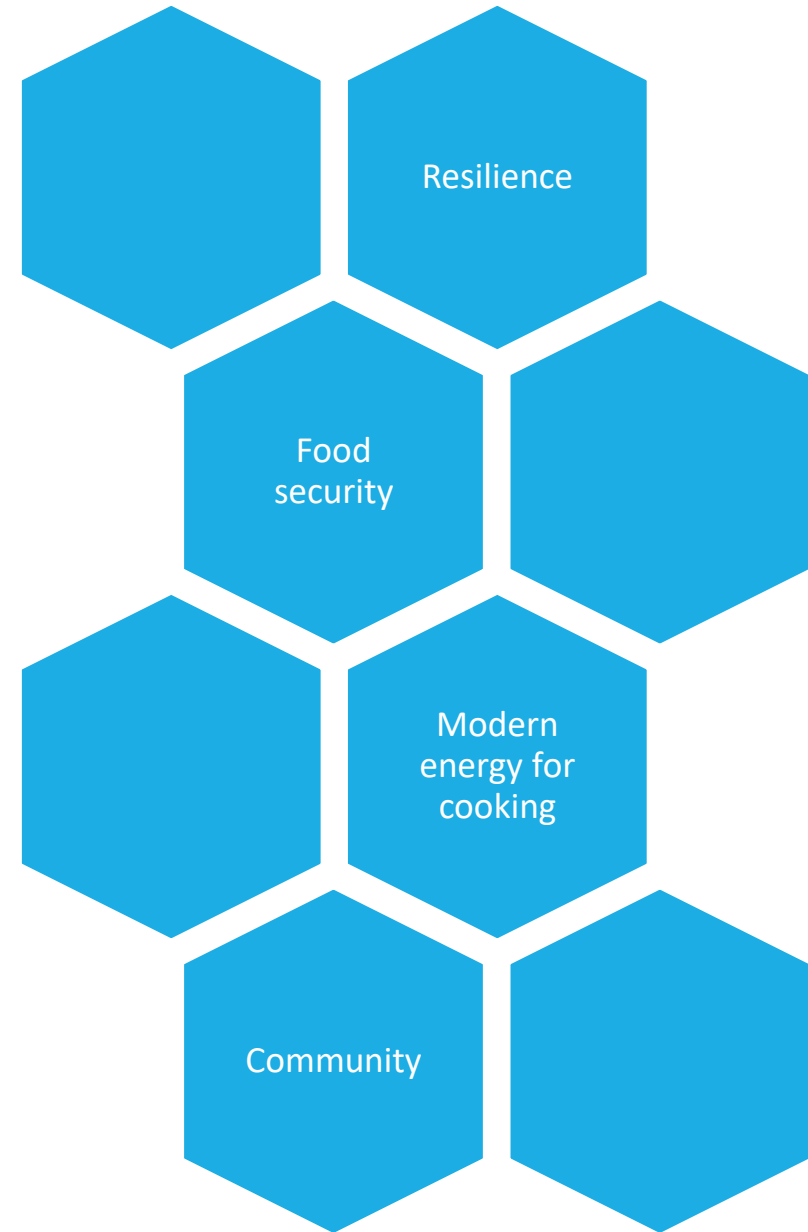
Photo credit: I.Bisaga

Public-sector led models, e.g. public utility providing cooking gas connection or electricity

Market-based models, e.g. private sector companies selling cooking fuels and stoves

Donor-led models, e.g. free distribution

# Energy for cooking and community resilience



# Case study presentations

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1

Cooking with electricity in Lesotho's schools (Geoffrey Ndegwa, WFP)

2

Fuel-efficient menus and cooking in Rwanda's School Feeding Programme (Suzy Huber, WFP)

3

Modern energy for cooking in Chad's displacement settings (Maarten Kleijn, WFP)



# Fuel Efficient School Feeding Study: Rwanda

Suzanna Huber, Energy for Food Security Advisor  
WFP Regional Bureau Eastern Africa  
13 July 2022



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# School Feeding in Rwanda

- Comprehensive National School Feeding Policy approved by Government in late 2019
- Government constructed kitchens and provided stoves to more than 2,600 schools nationwide during 2020-2021 school year
- Government scaled up school feeding nationally in October 2021, from 600,000 students to more than 3.3 million pre-primary, primary and secondary students
- **Key challenge: affordability and availability of firewood**





# State of Cooking in Schools in Rwanda

- In the scale up of the National SF Program – a **key challenge** raised by Government: **affordability and availability of firewood**
- **93% of schools use firewood** – 7% other types of fuels such as briquettes, biogas, cooking gas (LPG)
- **80% of firewood/fuel usage is for cooking beans**
- Average cooking time for beans – 4 hours
- Average SPEND on fuel for schools: ranges from \$0.01- \$0.08/student/meal. If compared to a food budget of \$0.10 student/meal, **fuel costs can increase the cost of a school meal by 10-80%!**



# Research questions

How can we make school menus in the National School Feeding Program more energy efficient and economical?

a) What is the impact of:

- introducing alternative fuels and adjustments to cooking;
- firewood and food storage and handling practices;
- changing menus to be more fuel efficient, including the introduction of pre-prepared foods;
- the above within school kitchens on food preparation budgets?

b) What are the key considerations and future recommendations for fuel efficient menus?



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Loughborough University

STEER - Centre for Sustainable Transitions: Energy, Environment and Resilience

# Study design

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1) Desktop research: literature review

2) Quantitative and qualitative research:

- cooking diaries (incl. kitchen performance tests): at baseline and during new menu implementation;

- interviews with school cooks, school management teams and other stakeholders (e.g., MINEDUC, WFP school feeding team, firewood distributors, etc.)

Research was conducted in 14 schools.

Fuels used include firewood, briquettes and LPG (or a combination of more than one of these).



# Testing different fuel, stove, foods and cooking method configurations

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Type of fuel and stove	Foods cooked	Cooking Preparation Methods
<ul style="list-style-type: none"><li>• Muvelo stoves with firewood</li><li>• Improved stoves with briquettes</li><li>• LPG</li><li>• Electric pressure cookers (test to be conducted by partners in TNZ)</li><li>• Combinations of the above</li></ul>	<ul style="list-style-type: none"><li>• Select recipes developed for the NSFP</li><li>• Regular beans</li><li>• Pre-cooked beans</li></ul>	<ul style="list-style-type: none"><li>• Pre-soaking beans</li><li>• Flame reduction after reaching boiling point (LPG)</li><li>• Use of lids</li><li>• Use of dry wood (firewood storage practices at schools)</li></ul>



# High-level observations

- Considerable firewood consumption reduction:
  - Can savings on firewood help increase the budget for food costs?
- Better student retention rate:
  - students would stay for lunch, those previously not attending came back to school
- Improved quality and quantity of food:
  - students satisfied, better performance in class





# Next steps

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Study report dissemination events - both regionally and with the Government of Rwanda.

Key messages from the study to be used in advocacy and guidance in Rwanda and the region for:

- Supporting governments in school feeding program; policies for cleaner cooking in schools
- Guidance/training for schools how to budget for fuel purchases
- Training of school management and cooks on the cooking behaviour changes (pre-soaking beans, storing/drying firewood). This will be included in the further development of training materials as well as the recipe book.





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# Modern Cooking Solutions in Chad and Beyond Project

- Funded by SIDA and implemented jointly by WFP, UNHCR, and the UNEP/OCHA Joint Environment Unit (JEU)
- Aims to transform the supply and management of energy in humanitarian settings in eastern Chad
- Aims to implement a market-based mechanism to promote clean cooking in refugee camps



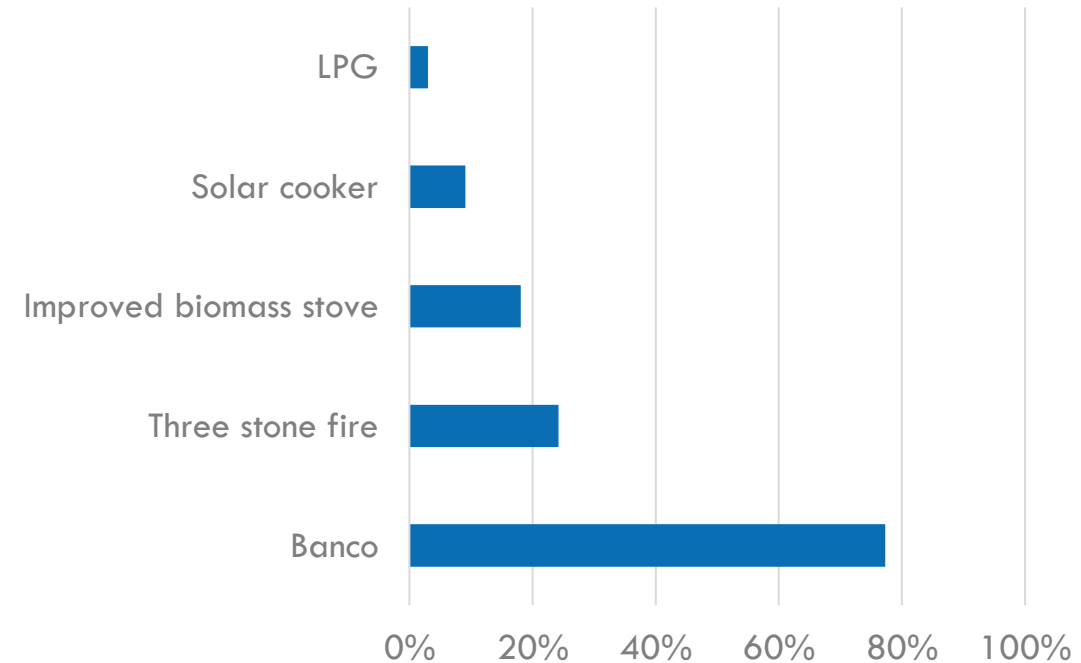
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# Household cooking

- **98% use firewood** as primary source of fuel for cooking
- **61% of households collect firewood** by themselves
- **Women do the cooking** in all households interviewed
- Nearly all **households are willing to pay** a small amount to access an improved cooking technology
- Households prefer **solar electric cookstoves**, notably due to a desire to eliminate the usage of wood fuel



Households cook using a combination of Banco stoves, three stone fires, improved biomass stoves, solar thermal cookers, and in some cases LPG

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# Institutional cooking

- **83% use firewood, 75% use gas**
- Procure fuel by refilling their gas cylinders at refill stations, receiving a delivery, or purchasing at market
- Both **men and women do the cooking**
- Nearly all institutions are **willing to pay for an improved cooking technology**
- **LPG and solar electric cookers are preferred**



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# Results and way forward

- LPG stoves and cylinders distributed
- Training on usage of cylinders
- Desk research and field assessments undertaken
- Knowledge materials developed and shared
- Communications materials developed
- More to come in the next phase!



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LIVES



# TRANSITION FROM TRADITIONAL COOKING TECHNOLOGIES FOR SCHOOLS TO EPCs



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Geoffrey Ndegwa  
2022 July

# Cooking Technologies at the Schools in Lesotho

Many schools cooking with firewood in open fires

A few schools, especially in Maseru, cooking with LPG

Firewood procurement the responsibility of the cooks





# The EPC4S Lesotho Pilot Project

**Aim was to demonstrate EPCs can sustainably displace dirty cooking fuels in school cooking**

- ✓ Implemented in 5 schools with over 2000 leaners
- ✓ Four ECCD and one primary school
- ✓ 12 pressure cookers procured



# Project set-up

## Experimental set-up

- Data collection on “Before” and “After” the pressure cookers
  - Fuel/energy consumption and costs
  - Cooking processes
  - Time taken

## Infrastructure set-up

- Retrofitting of the electrical infrastructure.
- Adapting the kitchen tables

## Training and operations

- Training of Trainers (of cooks)
- Adaptation of the school recipe to the eps



# Key findings...

- ✓ **The cooks are able to cook all meals with the pressure cooker**
- ✓ **Time saving- takes less than half the usual time to cook meals in most cases**
- ✓ **Money saving- Over 60% savings on cost of cooking with firewood**
- ✓ **Tasty- food reported to taste “better”**
- ✓ **Convenient while cooking inside the kitchen-no exposure to sun, rain, wind, dust etc.**
- ✓ **Hygiene- no exposure to dust/ dirt**
- ✓ **And so on...**





# Q&A

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