INFORSE EAST AFRICA ZOOM WEBINAR

E-Cooking in East Africa? - Electric Pressure Cooker as a Clean Cooking Option for East Africa

FRIDAY 27TH NOVEMBER 2020
11:00 – 12:30 HRS EAT

CLEAN COOKING SOLUTIONS

TANZANIA EXPERIENCE

Estomih N. Sawe, TaTEDO, INFORSE - East Africa

USE EPCS, SAVE TANZANIAN FORESTS, TIME, ENERGY and Money.

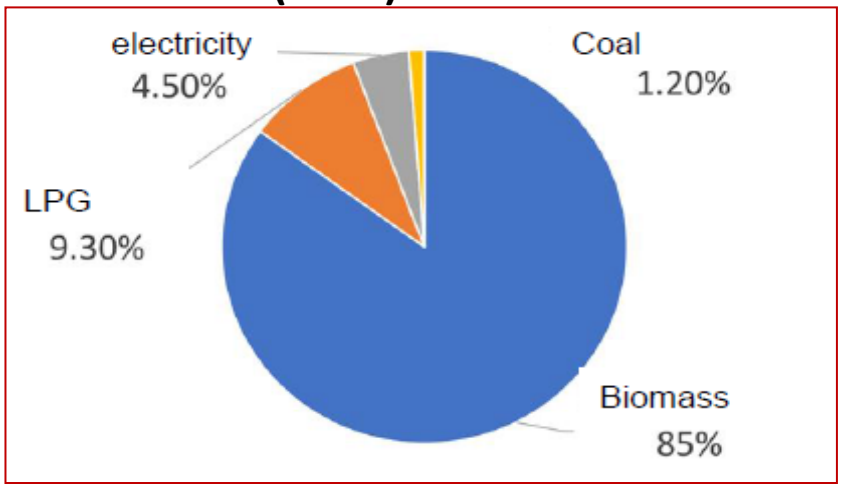
Presentation Outline

1. Introduction- Cooking Energy Context.
2. Government Efforts on Clean Cooking.
3. Other Stakeholders Efforts.
4. Barriers to Scaling up Clean Cooking.
5. Drivers for Scaling up Clean Cooking.
6. Clean Cooking Energy Market in Tanzania.
7. Assessment of Available Clean Cooking Options
8. E-Cooking Initiatives in Tanzania
9. Some Take Away From the Study
10. What is Electric Pressure Cooker (EPC)
    - 10.1 Some Characteristics of Quality EPC
    - 10.2 Some Pros and Cons of EPC
11. Efforts to Promote E-cook in Tanzania.
    - 11.1 Blocks of EPCs Delivery/Business Model
    - 11.2 Efforts to promote EPCs continue…
12. Some Selected Achievements
13. Some Policy Recommendations.

1.0 Introduction-Cooking Energy Context

- More than 85% of the households in Tanzania cook with either firewood or charcoal in low efficient stoves (NEP 2015)
- Charcoal consumption in 2014 was more than 2.3 million tones
- The estimated revenue in charcoal business (2014, ME BEST) was about 2 trillion TShs.
- The use of electricity for cooking is less than 3% and Gas (LPG) is 5.1% (REA,NBS 2020)

Energy consumption pattern in Tanzania (2015)



- Charcoal production and consumption is not sustainable (ME, BEST, 2014)
- Degradation of forest is at the rate of 400,000 hectares per year (TFS 2015)
- This situation contribute to environmental degradation, climate change, health problems and death.
- More than 25,000 Tanzanians die every year due to indoor air pollution from cooking with biomass (WHO, 2002).

2.0 Government Efforts on Clean Cooking

Tanzania energy policy promotes firewood and charcoal alternatives which include; gas, electricity, Biogas, etc.

- Tax subsidies were introduced by the government on gas.
- Limited efforts to promote the use of improved stoves have been initiated.
- Recently, the Government established a task force on charcoal issues.
- The government has scaled up efforts to generate and ensure greater access to electricity for all.
- Despite significant efforts by the government, only 37% of Tanzanians have access to electrify. (REA, NBS 2020).
- Significant efforts to develop mini-grids, have been made; where more than 109 have been developed with capacity of 157 MW (TaTEDO, WRI 2017)

3.0 Other Stakeholders Efforts

Different NGOs and private sector have made some efforts to reduce consumption of firewood and charcoal by;

- ❖Promoting the use of improved firewood and charcoal stoves.
- ❖Promoting and increasing the use of LPG in urban and rural areas.
- ❖Promoting the use of charcoal briquettes.
- ❖Promoting the use of biogas.
- ❖Promote use of electricity for cooking.

4.0 Barriers to Scaling up Clean Cooking Solutions

Despite the many known benefits of clean cookstoves for health, environment and climate change, large scale adoption is not happening due to the following barriers:

1.0 National levels

- **Limited enabling environment (policy and institutional framework).**
- **Inadequate support services.**
- **Lack of appropriate business models**

2.0 Producers/suppliers:

- **Lack of investment capital to start production and business.**
- **Lack of working capital to run business operations**

3.0 Stoves/ appliances users.

- **Lack of awareness of the benefits of clean cooking.**
- **Poor access to clean cook stoves-Limited availability.**
- **Low affordability of clean cook stoves.**
- **Concerns of safety, convenience and durability of the new stoves.**
- **Cultural resistance to clean cooking solutions.**

5.0 Drivers for Scaling up Clean Cooking Solutions

The following are key drivers to scaling up clean cooking services:

1.0 Appropriate support services such as:

- **Awareness raising on availability and benefits of clean cooking services.**
- **Capacity development on technology, business (marketing) and management for suppliers and agents.**
- **Innovative Financing for suppliers and users**
- **After sales services.**

2.0 Enabling Environment

- **Supportive policies**
- **Strong institutional framework**
- **Tax subsidies and other financial incentives etc.**

6.0 Clean Cooking Energy Market In Tanzania

- Clean cooking energy market in Tanzania is under developed, as such is dominated by solid biofuels.
- Inefficient biomass stoves dominate.
- Government has set a goal of 75%of households to have access to clean cooking by 2030.
- Clean cooking solutions on the list of promotion include LPG, biogas, ICS and electricity.

7.0 Assessment of the Considered Cooking Options

- Biogas initial costs and tedious operational practices have limited its adoption; less than 0.1 percent use biogas
- ICS (firewood and charcoal), have had limited success due to several factors, limited policy, institutional support and financing, less than 10 percent use ICS.
- Dependence on biomass is not sustainable in the long term.
- LPG, taxes waived, used by 5.1% of the population, all is imported and not considered a long term sustainable solution.
- Natural gas available is being piloted, but require high investment for its supply and demand infrastructure hence has limited access.
- Electricity, less than 3 % of the population cook with electricity due to high initial cost of the appliance and high monthly bills.
- High efficient electric cooking appliances, electric pressure cooker (EPCs) is emerging as an important clean cooking solution option.

8.0 Ecook Initiatives in Tanzania

- **The e-cook initial market study was conducted by TaTEDO, GAMOS, University of Surrey and, Loughborough University in 2017.**

- **Through this study, it was noted that cooking with electricity is now competitive and even cheaper than cooking with LPG, kerosene, or charcoal in urban, peri-urban and in rural settings.**

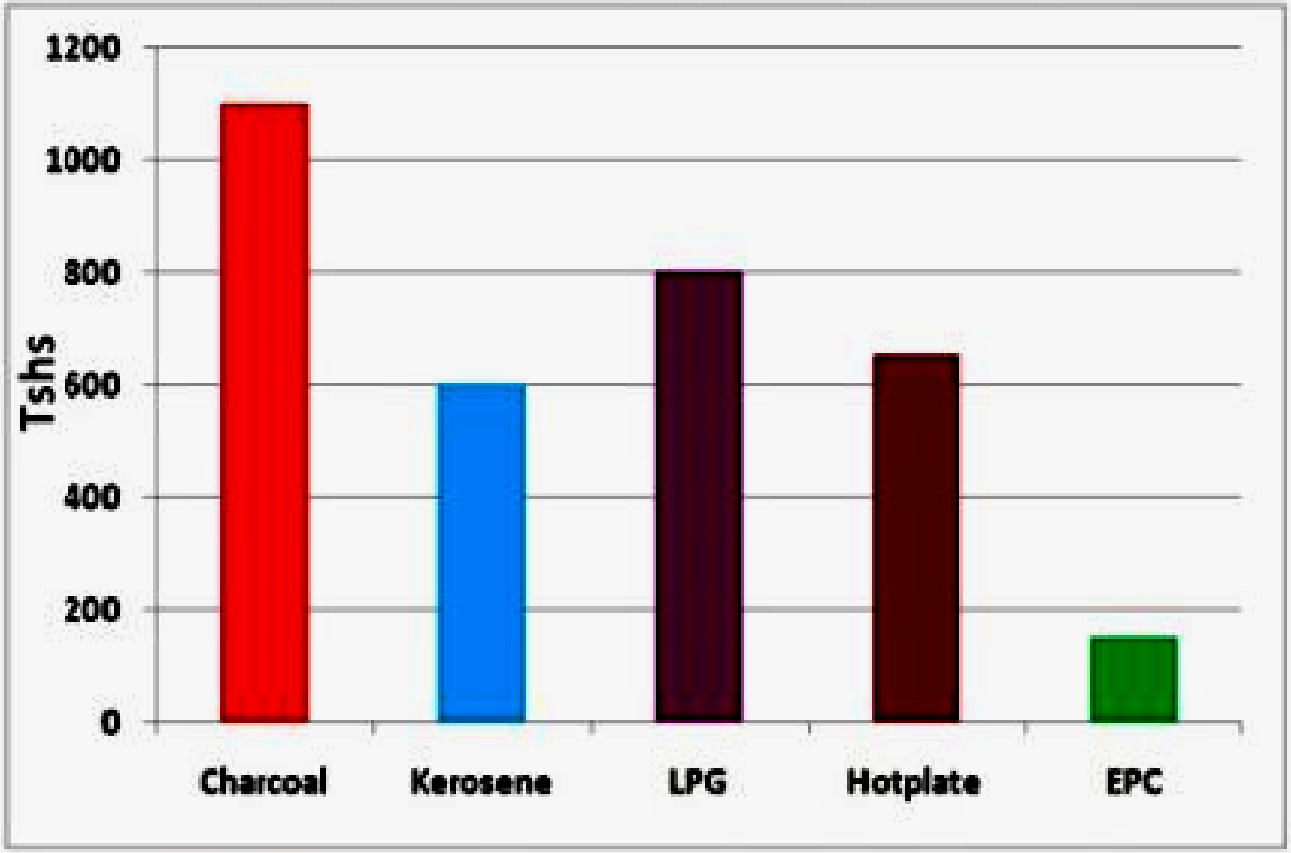
- **The positive findings of the eCook Study, motivated TaTEDO and partners to initiate efforts towards developing sustainable delivery/business models for scaling up uptake of efficient eCook appliances.**

9.0 Some Takeaways from the Study

- Cooking with charcoal consume 5.5 times more energy compared to gas, and 13 times more compared to using Efficient electric pressure cooker.
- With energy efficient appliances like EPCs, one can cook with less than 2kWh/day which is equal to 720 TSh (30 USDC.) for national grid users.
- Cooking practices can have as much influence on energy use as appliances and fuels, so could reduce this to below 1kWh/day
- The total cost for cooking all foods using EPC was about 21,900 TSh (10 USD) per month.
- The food prepared using EPC was more delicious.

THE CHEAPEST & FASTEST WAY TO COOK IS TO USE EPC

Efforts were made to know if anything could beat an Electric Pressure Cooker (EPC) on cost, so we boiled 500g of yellow beans as carefully as we could on charcoal, kerosene LPG, an electric hot plate and on EPC.



All the tricks in the book were applied–lids on the sufarias, turning down to a simmer, just enough water, etc. However, we still couldn't get close to an EPC.

Not only was it thirteen times cheaper than charcoal, but it cooked in half the time without any stirring or topping up of water or fuel.

10.0 What is Electric Pressure Cooker (EPC)

COMPLETE EPC

Lead/cover

Cooking pot

Housing (Exterior Pot/Cooker Base/heating base)

COOKING APPLIANCE-highly insulated & works on the principle, steam pressure.

10.1 Some Characteristics of Quality EPC

- **A good EPC is insulated-minimize heat loss.**
- **Has automatic control of the cooking process-save time.**
- **Is pressurized for fast cooking.**

10.2 Some Pros and Cons of EPC

Pros

- ✓ **Can cook verities through boiling, steaming ,baking etc**
- ✓ **Consume very little energy (e.g. beans can be cooked by 0.4-0.5 units)**
- ✓ **Energy efficient, can save up to (85%), time and money**
- ✓ **Retains food nutrients.**
- ✓ **It is safe**
- ✓ **It is convenient**
- ✓ **Environmental protection**

Cons

- Use only one type of pot
- Not suitable for some food like BBQUE (nyama choma) and chapati

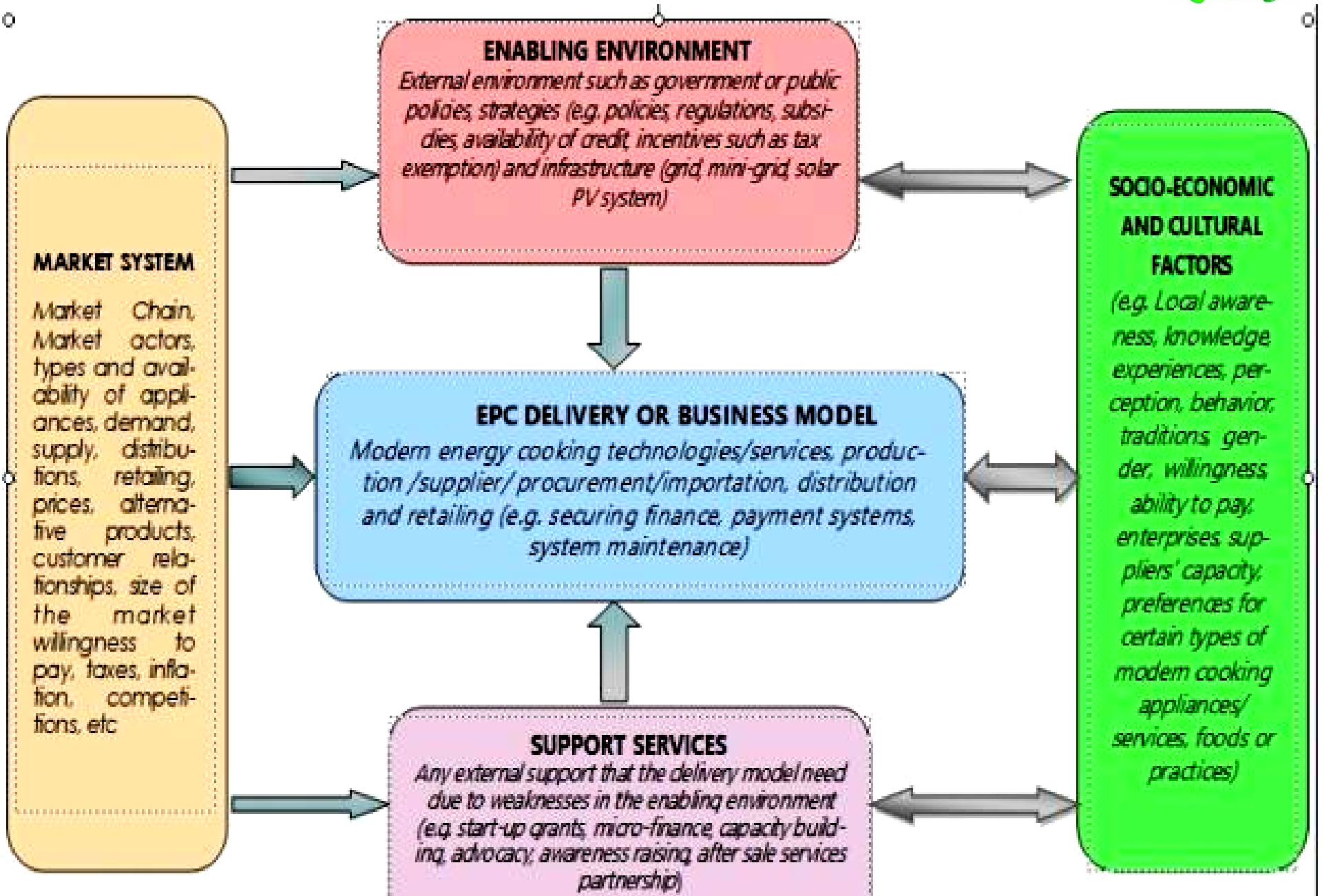
11.0 Efforts to Promote e-cook in Tanzania

With the support from UKaid and ESMAP- MECS programme which is managed by Loughbrough University, TaTEDO and partners in Tanzania have made some efforts to promote EPCs by;

Undertaking Market and Business Study and came up with an approach to design Delivery/business Models of Clean Energy Cooking Services in Tanzania. The study assessed the market systems consisting of :

- **Market chain, support services and enabling environment.**
- **Understanding the socio-economic and cultural factors affecting adoption of efficient appliances.**

11.1 Blocks of EPCs Delivery/Business Model



11.2 Efforts to Promote EPCs....

1.0 Promote support services along market chains:

- **Awareness creation.**
- **Capacity building.**
- **Financing through linkage with MFIs.**

2.0 Undertake lobbying and advocacy to influence the government for fostering enabling environment.

13.0 Selected Achievements

- **Developed three Sustainable Energy Services Support Centres**
- **Developed capacity of 37 women groups, 14 MFIs and 15 sales agents now marketing EPCs.**
- **Undertook cooking practices study (cooking diary, focus group discussion and Choice modelling) in Kilimanjaro and Dodoma,**
- **Rebranded former NIKAI EPC to SESCOM EPC brand**
- **Imported 710 units of SESCOM electric pressure cookers from manufacturers to meet growing market demand.**
- **Lobbying for Tax exemption on EPCs.**
- **Prepared and Published Tanzania eCook Books (English and Swahili)**
- **Supplied more than 650 EPCs to end-users who have now transitioned to using electric pressures cookers for most of their cooking.**

14.0 Policy Recommendations

For e-cook solutions efforts to succeed, the following policy issues need consideration,

- **Government commitment and strong leadership through effective policies and progressive policies is required.**
- **The ongoing focus on electrification for lighting and productive uses need to now include for cooking.**
- **To encourage suppliers to import quality EPCs, tax waiver**
- **Incentivize Local production of EPCs.**
- **Support establishment of market and service networks**
- **Support suppliers, distributers and end users to access affordable financing.**
- **Support consumers to understand benefits and the need for behavioral change and adopt greater use of EPCs.**

MANY THANKS FOR THE OPPORTUNITY AND ATTENTION

TaTEDO
S.L.P 32794
Dar es Salaam
Tanzania
Email; energy @tatedo.or.tz
Sawe_en@yahoo.com
Phone; 0738201498
Web; www.tatedo.or.tz
INFORSE-East Africa
www.inforse.org/africa/EASE.htm