



Beyond the Laboratory Lessons from CSIR-IIR-Regional Testing and Knowledge Center

By: Gloria Boafo-Mensah
Ferdinand Tornyie
Kofi Ampomah-Benefo
Patience Agbedor



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Introduction

Eni Ghana Expl. & Prod. Ltd

&

The World Bank Accra Office
launched

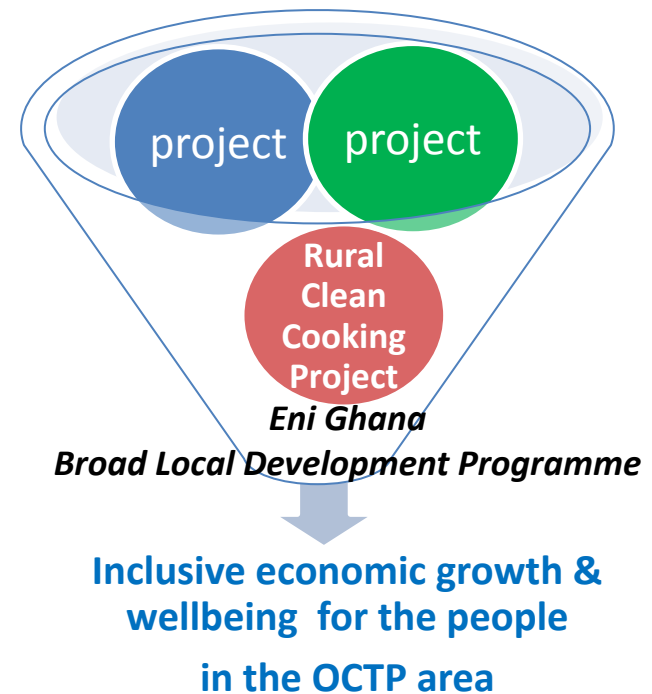
The Rural Clean Cooking Pilot Project

Implemented in 10 communities

In the OCTP's area of influence

Implemented by

GHACCO & CSIR-IIR-RTKC



Objectives

- Identify the most suitable domestic cookstove model design and technology for rural areas
- Select a private-led business model for ensuring the local availability and affordability of the devices



Scope

- Awareness-creation campaign on clean cooking;
- Identify three models of domestic woodfuel cookstoves;
- Test their efficiency in nationally certified stove testing lab;
- Perform a field performance test on the above-mentioned models
- Assess the local supply chain
- Identify market potentials for improved woodfuel cookstoves



Approach and Methodology

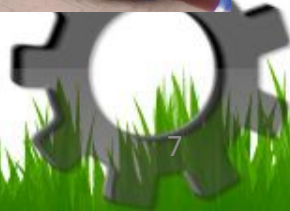
- Lab Testing of Cookstoves
 - Water Boiling Test (WBT)
- Field Performance Test
 - Controlled Cooking Test (CCT)
- User Feedback Survey
- Business & Market Assessment

Evaluation Scores/Weights				
No.	Main Assessment	Specific method	Available score	Weight assigned
1	Lab Testing of Cookstoves	Water Boiling Test (WBT)	100%	0.3
2	Field Performance Test	Controlled Cooking Test (CCT)	0.4	0.4
3	User Feedback Survey	Household survey	100%	0.3
		Focus Group Discussion (FDG)		
Total Score				1.00

Implementation Process

Community Engagement and Mobilization

- Engaged Traditional Authorities
- Engaged larger community
- Worked with local volunteers
- Conducted baseline survey
- Conducted resource mapping



Implementation Process

Lab Testing of Sample Woodfuel cookstove models

- Sampled 10 existing cookstove models
- Adopted an evaluation criteria
- Conducted the Water Boiling Test
- Analyzed/Evaluated the test results
- Categorized successful models
- Recommended 4 models

Criteria for Technical Assessment

Test	Parameter	Weight (%)
Technical Assessment	Thermal Efficiency	22.4
	Specific Fuel Consumption	18.7
	Emission	14.4
	Safety	12.0
	Time Efficiency	8.4
	Durability	10.9
	Ease of Operation	7.2
	Ease of mobility	6.0
	Total	



Implementation Process

Recommended Cookstove Models

1. SuperSaver M5000 by Envirofit Ghana Ltd
2. CookMate, by CookClean Ghana Ltd
3. Ecofire, by SETECH
4. Obaahemaa, by Nasam Brand Ent.



Implementation Process

Field Performance Test of Recommended Models

- Deployed **616** cookstoves to selected households for use
- Sensitized & trained participating households to ensure proper use
- Conducted Controlled Cooking Test against the 3-stone fire
- Analysed/Evaluated results of the CCT
- Trained 28 local Artisans



Implementation Process

Cookstove User Monitoring Feedback Survey

- Conducted monitoring covering all participating households
- Conducted feedback survey targeted at all participating households
- Conducted Focus Group Discussions
- Analyzed/Evaluated results of the survey



Implementation Process

Supply Chain and Market Assessment

- Conducted literature review
- Deployed Instruments for market survey
- Conducted key informants' interviews across the value chain
- Analyzed results of the survey and proposed Business models



Results

Overall assessment outcomes of cookstove models' suitability for rural areas

No.	Cookstove model	Assessment Scores (100%)				Weighted Scores)				Rank
		Lab. Test	CCT	Feedback Survey	Average Score	Lab. Test (0.3)	CCT (0.4)	Feedback Survey (0.3)	Cumulative Score (1.0)	
1	SuperSaver M5000	82%	69%	54%	68%	0.25	0.28	0.16	0.68	2nd
2	CookMate	73%	19%	64%	52%	0.22	0.08	0.19	0.49	3rd
3	Ecofire	69%	31%	49%	50%	0.21	0.13	0.15	0.48	4th
4	Obaahemaa	66%	69%	80%	72%	0.20	0.28	0.24	0.71	1st
Average scores		73%	47%	62%	60%	0.22	0.19	0.19	0.59	
5	CookMate (big pot)	73%	44%	64%	60%	0.22	0.18	0.19	0.59	5th
6	Ecofire (modified)	69%	56%	49%	58%	0.21	0.23	0.15	0.58	6th

Results

Major features of the cookstove market in the Project Area

Existing Key Market Actors

- Cookstove Retailer
- Cookstove Distributors
- Local Fabricators (Welders)
- Artisans
- Micro-finance institutions

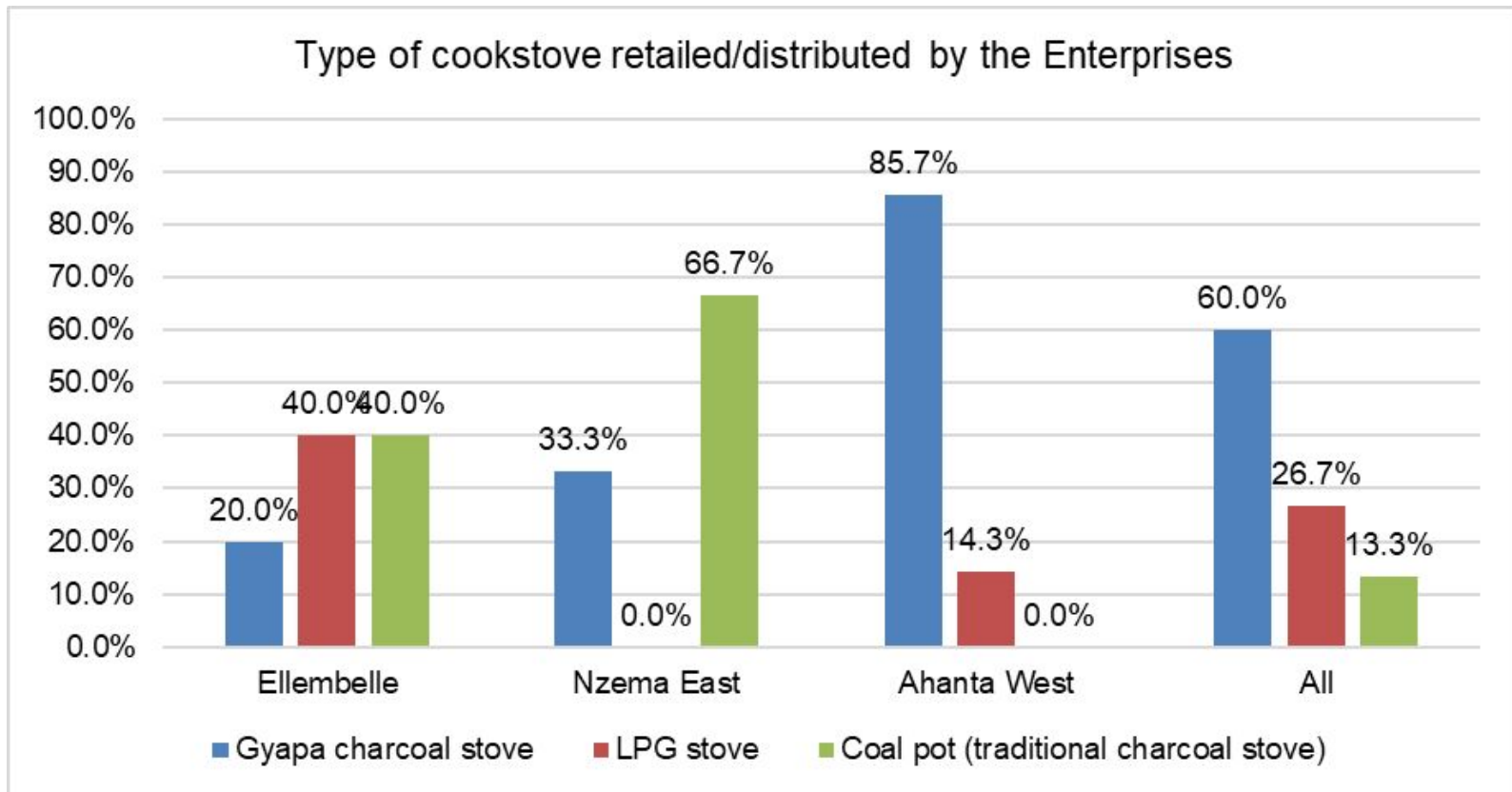
Existing Cookstoves Models

- Gyapa improved charcoal stove
- LPG stove
- Traditional coalpot (charcoal)
- Traditional 3-stove/clay stoves
- Traditional tire rim wood stove



Results

General Situation of the Cookstove Market in the Project Area



Results

- Obaahemaa & CookMate emerged as most favoured models by Households
- LPG stoves and the Gyapa Cookstoves were also recommended for upscaling of the Project



The Cross-Subsidy Business Model was proposed to facilitate market development



Conclusions and Recommendations

- Most Ghanaian dishes take long time to cook with constant heat characterised by high power at initial stage and a long simmering cooking phase
- The concept of cookstove sharing by households was also discovered during the implementation of the project.
- Within **3 months of use**, the state of some of the cookstoves



Conclusions and Recommendations

- This Project provided insightful lessons on understanding how the location (whether coastal or not), socio-cultural and specific cooking practices are key considerations for stove design, manufacture, and adoption.
- The Project again provided lessons on how the durability protocol should consider a complementary locally developed test protocol based on cooking practices to give field results that are comparable to the lab results.





THANK YOU

