

Cookstove Sector of Ghana

A Baseline Study and Survey of Stakeholders



*Empowered lives.
Resilient nations.*

2014

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Disclaimer

This report is a product of a synthesis of two reports: consumer segmentation survey commissioned by the Global Alliance for Improved cookstoves and Fuels and a nationwide survey of major stakeholders in the cookstove sector in Ghana commissioned by the Ghana Alliance of Clean Cookstoves supported by SNV and EC.

The objectives, methodologies and limitations of the two projects are elaborated in the respective final reports.

The interpretations, suggestions and opinions or points of view given are those of the author(s) and do not necessarily reflect the official position or policies of the funders and sponsors of these two projects.

Executive Summary

This report is a synthesis of the reports of two studies, consumer segmentation study and nationwide mapping of stakeholders in the cookstove sector, aimed to generate one single report to establish a baseline study for the improved cookstove awareness level in Ghana. The report is intended to enhance areas in the sector that require immediate awareness campaign programs to augment the uptake of improved cookstoves in the country. It will also serve as a point of reference for evaluating and assessing awareness programs that would be subsequently undertaken by other stakeholders in the sector.

The following key conclusions can be drawn from the two studies (mapping exercise and consumer segmentation study):

Major actors/stakeholders

The actors within the cook stove value-chain can be categorized into seven main groups as shown below:

- Consumers (End-users),
- Stove manufacturers (household, institutional),
- Fuel Producers,
- Financial institutions and international donor agencies,
- Distributors and retailers of stoves and fuels,
- Raw material suppliers, and
- Training and research institutions.

Target consumer segment

The two key segments of consumers that clean and efficient cooking technologies promoters can target are:

1. **HI-MI Urban Charcoal:** High and middle income urban charcoal users are the households, for whom the potential for improved cookstoves and fuel adoption is highest due to their purchasing power and the fact that they are facing high cooking fuel prices. They account for 17% of the market, roughly 1.04 million households.
2. **HI-MI Rural Wood:** High and middle income rural wood users also represent a significant opportunity for marketers of clean cooking solutions. Although, the cost of fuel is less of an issue for them, their

purchasing power enables them to invest in modern homeappliances. In areas where wood is becoming harder to collect in particular, they might have an additional incentive to consider clean and efficient cookstoves. In addition, they may be sensitive to other incentives such as convenience, cleanliness or speed-of-use. This segment represents 29% of the market or 1.8 million households.

Cooking habit and household characteristics

1. Amongst married couples, the wife is the main cook and is also the main person in charge of grocery shopping. Most women have at least one professional occupation or income-generating activity and develop strategies to save time on cooking tasks. Technologies which can help them manage their time are in high demand (microwave, LPG).
2. Women's cooking behaviours underline the need for mobility and for better usage of space. Products which enhance their interior and make a statement about their social status are also in high demand (kitchen cabinet). Priorities for kitchen equipment focus on storage capacity (fridge, freezer), time-saving (microwave, LPG) and diversification of recipes (oven for baking).
3. Overall, improved cookstoves are largely within the financial reach of the target, but replacing one's coal pot is likely to be quite low in their list of priorities compared to the acquisition of a microwave, a freezer or a blender.

Fuel and Stove Preferences among consumers

1. Consumers are familiar with a broad range of cooking options for each fuel type. The woodstove segment is still largely dominated by 3-stone fires although some alternatives exist (tire-rim, clay stove). The charcoal cookstove market is dominated by traditional coal pots and 'Gyapas'. While the 'Gyapa' has convinced a broad consumer segment, many are still reluctant to use it because they have doubts about the robustness of the clay liner and the value of their investment. Safety issues and fuel shortages are driving some consumers away from the LPG category. Those who would still like to use LPG are particularly attracted to the 4 burner stove with oven, due to its versatility. LPG is often used to heat up food rather than for proper cooking and therefore competes with microwaves more than with other stoves.

2. Urban and rural targets regularly mix fuels. LPG users have to resort to charcoal because LPG is sometimes hard to find or to prepare specific recipes. Many charcoal users also have a LPG stove, although they don't always use it. Wood users also use charcoal when it's raining or when they are in a hurry. High prevalence of fuel mixing means that there is a lot of overlap between the various target groups and the types of stoves that can be promoted among them.
3. When selecting new cookstove consumers focus their attention on material quality first and foremost. Other important criteria include speed-of-use, aesthetics, portability, and versatility (grilling and baking options). Efficiency isn't a purchase criteria but will drive loyalty. Lighting issues will be a strong barrier to the adoption of a product.

Consumer financing

1. Urban middle-income and high-income charcoal users enjoy a good level of access to financial services. They are served by several financial institutions and trust commercial banks in particular to take care of their savings. However, borrowing money from a bank or an MFI isn't common among the target groups as this type of commitment conveys very negative associations (stress, harassment, high cost). Buying products on credit on the other hand is a familiar type of arrangement which all respondents are comfortable with.
2. Rural wood users are significantly less financially integrated into the financial market: few of them have access to formal savings services from a bank or a microfinance institution, even less so from loan services.
3. When it comes to offering financial services to help consumers invest in clean cooking solutions, formal loan services offered through financial institutions aren't attractive, in part because domestic cookstoves are seen as non-productive assets and in part because the price point that respondents consider for such products doesn't make a loan necessary.
4. The most attractive services are by far "payment plans", referred to as "credit" by most Ghanaians. These are seen as more flexible and less risky than a loan. Although women know that vendors charge them more than the cash price for products purchased on credit, they don't see this as a barrier to buying a non-productive good on credit.

5. In order to appeal to Ghanaian women, financial services for improved cookstoves should seek to mimic the principles of the traditional "credit": limited paperwork, flexible payment terms, no formal interest, convenient payment collection mechanism

Stove manufacturing sector

1. **Different types of stoves made from different materials are manufactured** locally in Ghana. Manufacturers have the capacity and have been fabricating both domestic and institutional stoves for years. The domestic stove sector is well established and diverse than the institutional stoves. It was observed that production of some institutional wood stoves for activities such as fish smoking, oil processing, soap making, cooking, and pito brewing is done on demand.
2. **Some stove types or designs can only be found in certain parts of the country.** Improved/efficient stoves are manufactured mostly in Greater Accra and Ashanti Regions. Several [modified] firewood stoves are manufactured in the Northern Region. These are not necessarily improved/efficient stoves but firewood stoves made from metals (tyre rims and scrap metals). Interestingly, there is high demand for these stoves suggesting that households are moving away from the conventional three-stone and mud type firewood stoves.
3. **Most manufacturers do not test their stoves.** Only 35% test their stoves and most of them are manufacturers of improved cook stove. Manufacturers of other types of stoves perform their own tests which do not follow any standard protocols. These tests are performed basically to determine if the stoves would work.
4. **47%** of manufactures claim they do not perform any testing on their stoves due to lack of testing facilities.
5. **84%** of the manufacturers require less than GHC 5,000 to support and expand their businesses.
6. **The price of stove is mostly dependent on the material of construction and size.** The prices also vary significantly in each region for the same size and type of stove.
7. It is perceived by manufacturers that lack of finance, lack of awareness, marketing and government policies are the **main barriers** affecting their business.

8. Capacity building activities should focus on metal fabrication, financial management, book keeping, welding and spraying to enhance the quality of their work.
9. This sector is dominated by males.

Stove distribution and retailing

1. **The stoves are mostly sold in shops.** Although few of the shops are located in different parts of town within the region, most shops are located in the main market centers of the respective regions such as Aboabo market in Tamale and Central market in Kumasi.
2. **Word-of-mouth** remains the most important channel to spread awareness and generate customer confidence. About 90% of stakeholders use this means to market their stoves.
3. **The final market price of stoves is determined by the seller.** The price is largely dependent on the manufacturers/supplier price and the seller's own [profit] margin. Some of the stoves have fixed prices by the suppliers but about 90% of the price of stoves is determined by the retailer and are usually negotiable to a certain minimum amount. The prices also vary significantly in each region for the same size and type of stove.
4. **Main barrier to doing business is access to finance.** 60% of retailers claim providing access to finance could help enhance their business. 16% believe increased awareness of the sector could enhance their business.

Fuel Producers

1. Mostly located in remote villages producing charcoal and firewood.
2. Most of them get the raw material (wood) for production for free from the bush.
3. The price of charcoal is usually determined by intermediaries (middlemen) who buy them from the producer for further distribution. This price is usually dependent on the season and quality of charcoal.
4. Besides, access to finance, government policy, marketing and access to wood for the production of charcoal were identified by fuel producers as challenges facing their business. The producers claim that wood is increasingly becoming scarce and that they have to go deep into the forest to harvest wood to produce charcoal or buy the wood.

5. About 69 % of fuel producers want technical training in financial management.

Financial Institutions and International Agencies

1. Not many financial institutions or International agencies are involved in the [clean] cookstove sector.
2. 50% have funded and will continue to fund activities in the cookstove sector.
3. Most, 90%, of the funding goes to support manufacturing and distribution of stoves.
4. 33% of respondents provide funding because it fits in their company strategic goals, 50% provide it purely as business while 17% provide funds to support their SME drive. Most of the funding is also provided by either financial NGOs or International donors.
5. The funding usually is in the form of loans (83%).

Training and Research Institutions

1. 77% of respondents in this sector have heard of GHACCO.
2. There are just a few capacity builders in this sector involved in training, research and advocacy. Capacity building activities are generally low – almost non-existing.
3. Capacity builders see inadequate funds as a major challenge facing the development of the cookstove sector. Other challenges identified are
 - Inadequate information in the sector
 - Poor quality of some stoves
 - Limited standardization in the sector
 - Poor packaging for consumers
 - In-fighting among stove manufacturers while there is a large and available market
4. Their areas of specialisation are fuel consumption, protection of forest resources, and air pollution and climate change
5. Most of them know about carbon financing.

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List of Abbreviation and Acronyms

BAR – Brong Ahafo Region
BoG – Bank of Ghana
CDM – Kyoto Clean Development Mechanism
CEESD – Centre for Energy, Environment and Sustainable Development
CF – Carbon Finance
COTVET – Council for Technical and Vocational Education and Training
CSIR – Council of Scientific and Industrial Research
CR – Central Region
ER – Eastern Region
GACC – Global Alliance for Clean Cookstoves
GhACCO – Ghana Alliance for Clean Cookstoves
GAR – Greater Accra Region
GHC – Ghana Cedis
GLSS – Ghana Living Standards Survey
IAP – Indoor Air Pollution
IEA – International Energy Agency
ICS – Improved Cookstove
IIR – Institute of Industrial Research
ISO – International Organization for Standardization
LPG – Liquid Petroleum Gas
MFI – Microfinance Institution
NAB – National Accreditation Board
NCTE – National Council for Tertiary Education
NGO – Non-Governmental Organization
NR – Northern Region
KNUST – Kwame Nkrumah University of Science and Technology
KPREEE – Kumasi Polytechnic Renewable Energy and Energy Efficiency Center
RI/EW – Relief International/ Enterprise Works
SME – Small and Medium scale Enterprise
SNV – Netherlands Development Organisation
UER – Upper East Region
UNDP – United Nations Development Program
UWR – Upper West Region
USD – US Dollars
VR – Volta Region
WR – Western Region

1. Introduction

This report is a synthesis of the reports of two studies commissioned in 2013 to conduct a fact based survey and assessment of the cookstove sector in Ghana:

1. A consumer segmentation study commissioned by GACC with the aim of identifying the three consumer segments with the greatest potential to reach scale for improved cookstove and fuel adoption in Ghana and to better understand the needs of users and to reveal the market triggers that can facilitate large scale and sustained uptake of clean cooking technologies; and
2. A nationwide mapping of stakeholders in the improved cookstove sector in Ghana with the aim of identifying and categorizing all stakeholders in the cookstove value chain and to collect important information on their activities commissioned by GhACCO with support from EC and SNV.

The synthesis is aimed at generating one single report to establish a baseline study for the improved cookstove awareness level in Ghana. The report is intended to enhance areas in the sector that require immediate awareness campaign programs to augment the uptake of improved cookstoves in the country. It will also serve a point of reference for evaluating and assessing awareness programs that would be subsequently undertaken by other stakeholders in the sector.

2. Detailed analysis of the cookstove and fuels value chain

This section presents an analysis of the responses obtained from stakeholders who were interviewed across the country. As indicated in the introductory sections, stakeholders identified and interviewed were classified as stove manufacturers; fuel producers; financial Institutions and international donor agencies; distributors and retailers of stoves and fuels; raw material suppliers; and training and research institutions; and consumers.

2.1 Summary overview of stakeholders

The survey revealed that 98% of all stakeholders in the cook stove sector are owned by the private sector. About 75% of the privately owned businesses in the cookstoves sector are not registered with any state institution.

The remaining 25% are mostly registered with the district assemblies.

Ownership of business is fairly balanced in terms of gender. About 49% of business owners are male, 44% are female while about 7% are jointly owned by both sexes. However, there is wide variation in gender distribution across each value chain. For instance there are more males involved in the stove manufacturing sector while the distribution and retailing sector is female dominated across the country.

Most stakeholders self-finance their businesses and the amount of money invested annually is generally not more than GHC 5000.

According to all the respondents across the country, the major barriers/challenges affecting their business are access to finance and awareness creation. They agree that, increasing awareness in the sector would help improve their business and therefore expect more activities targeted at increasing public awareness about cookstoves and means of getting easy access to funds to support the business.

Other expectations of the stakeholders are;

- Elimination of traditional cookstoves and promotion of improved/efficient stoves,
- Development of standards for cookstoves,
- Building capacity of local manufacturers to produce quality stoves,
- Increased adoption of improved cookstoves by Ghanaian households,
- Subsidize stoves for the poor, and
- Using the cookstove industry to eradicate poverty.

2.2 Database of stoves manufactured

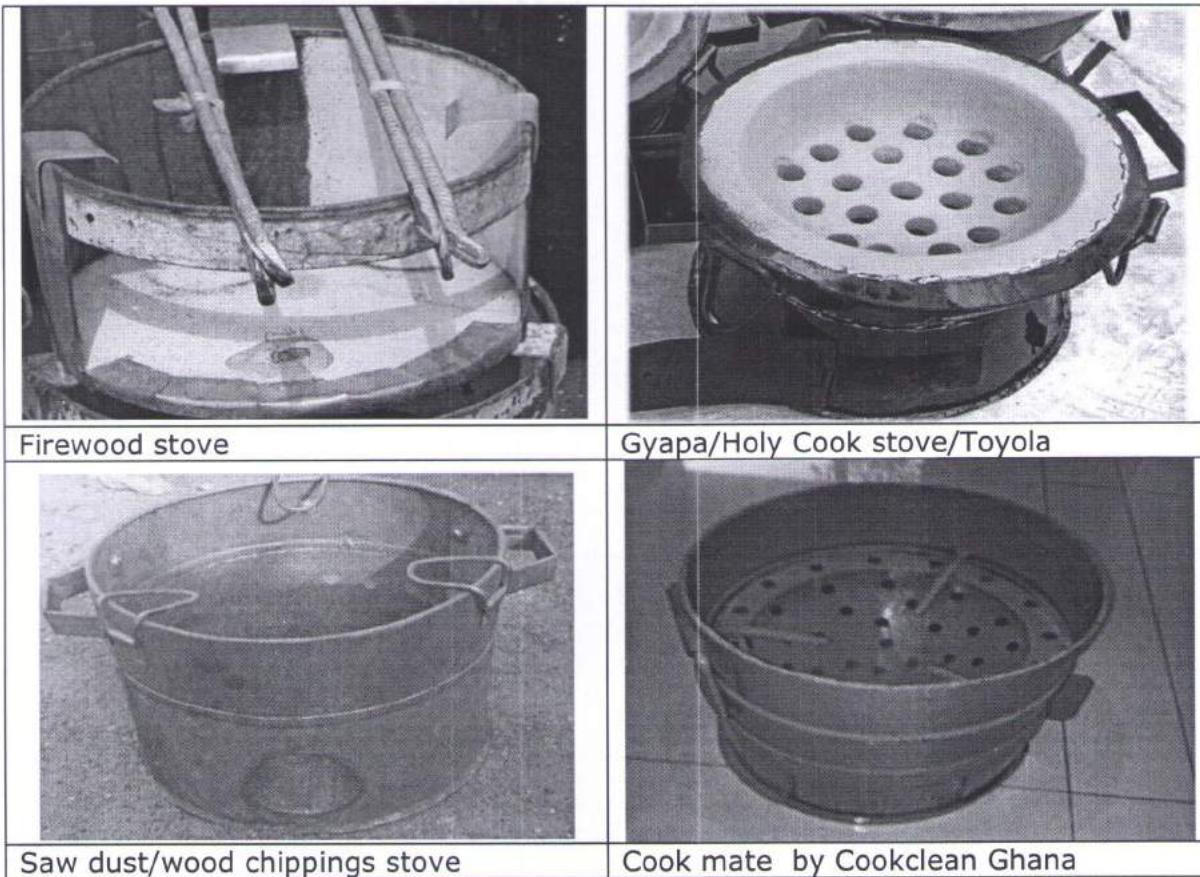
Different types of stoves made from different materials are manufactured locally in Ghana, figure 1. Manufacturers have the capacity and have been fabricating both domestic and institutional stoves. Each Region has a unique stove design but the stoves can generally be categorized as:

- Conventional charcoal stove (coalpot);
- Improved charcoal stove with clay lining;
- Improved firewood stove;
- Metal firewood stove;

- LPG stoves;
- Electric stove;
- Ethanol stove;
- Saw dust stoves;
- Kerosene stoves; and
- Palm kernel/pellets/briquettes stoves.

These stoves are produced from different materials (metals) as follows:

- Mild steel;
- Tyre rim;
- Scrap metal;
- Aluminium cast; and
- Cast iron.



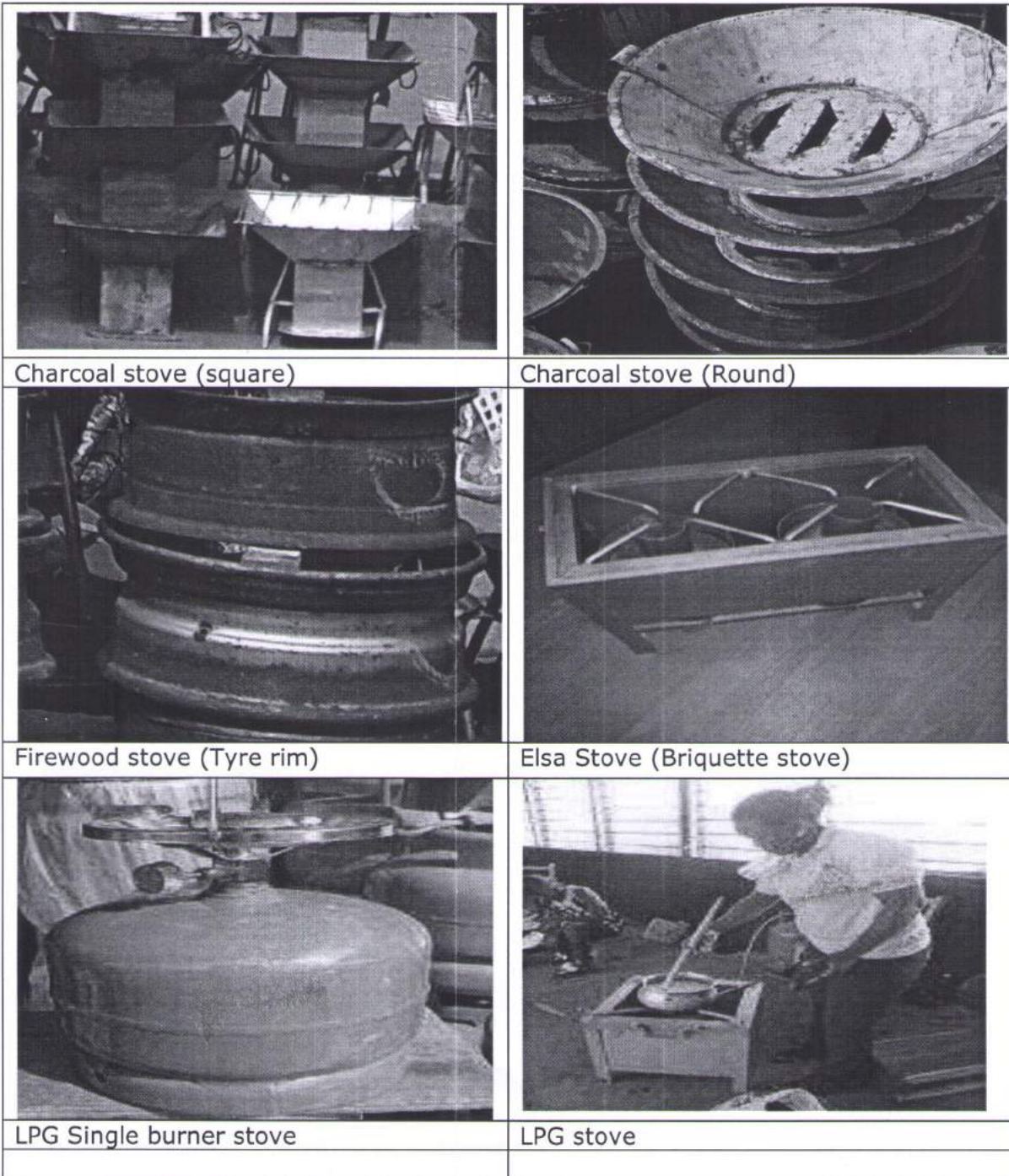


Figure 1: Types of locally manufactured stoves

According to the manufacturers, the lifespan of the stoves depend on the material used for construction and on the end-user. However, they estimate that the stoves should have lifespan as indicated in the table 1 below.

Table 1 Lifespan of stove manufactured

Material of construction	Expected Life span
Tyre rim	6-10 years
Mild steel	3-5 years
Cast iron	3-5 years
Aluminium cast	3-5 years
Scrap metal	1-2 Years

2.3 Pricing of stoves

The price of stove is mostly dependent on the material of construction and size. The final price of stove is determined base on several factors as indicated in figure 2. The prices also vary significantly in each region for the same size and type of stove. Table 2 and 3 presents the wholesale prices (manufacturer’s price) and retail prices for each group of stove.

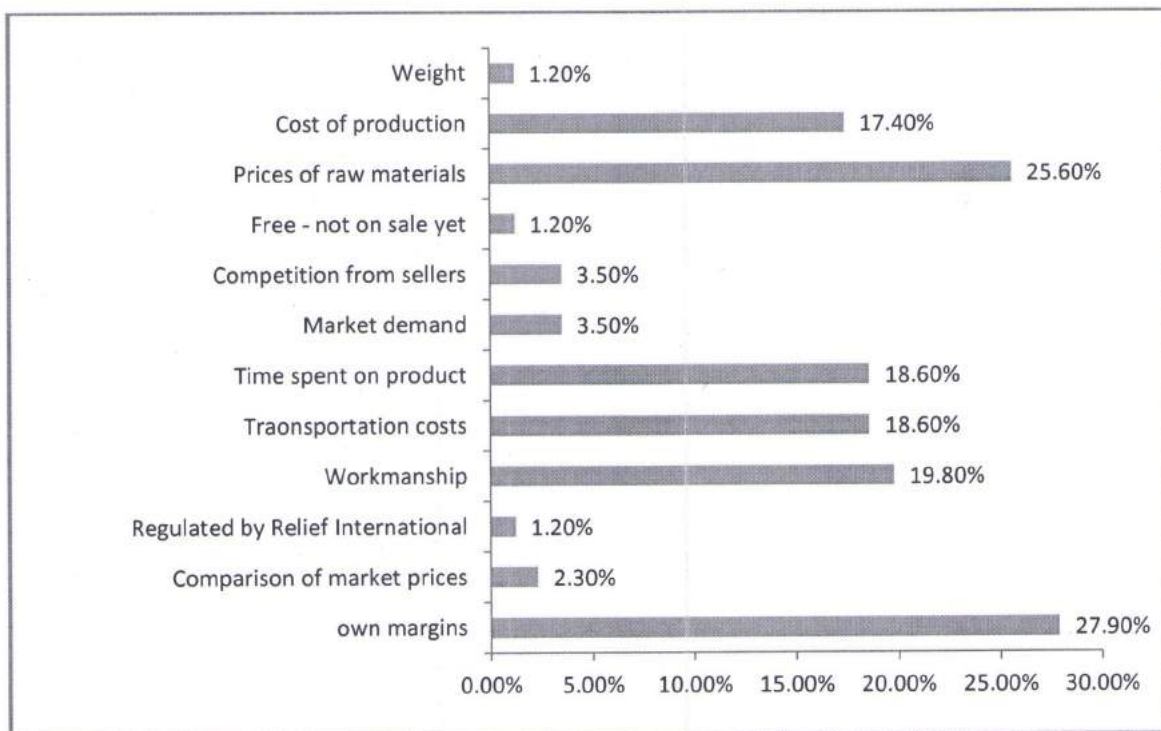


Figure 2: Determinants of stove price

Table 2 Price of stoves in Ghana (Manufacturers Quote)

Type of Stove	National, GHS		Regional Mean Prices, GHS					
	Price Range	Mean Price	Ashanti Region	Brong Ahafo	Central Region	G. Accra	Northern Region	Upper East Region
Traditional Charcoal stove (Scrap metal)	2.5-4	2.5					2.5	
Tradition charcoal stove (Mild steel/aluminium cast)	5-30	13.8	11	11.7	14.5	15.8	18.9	17
Tyre Rim Charcoal stove	20-30	25	24	22.5			26.5	
Improved Charcoal stove	12-36	17	13	14.4	17.6	20		
Firewood stove (Scrap metal)	5-7	6.4					5	6
LPG stove (Local)	35-120	55.4	77.5		55.8	49		

Table 3 Price of stoves in the Market (Distributors/Retailers Quote)

Type of Stove	National, GHS		Regional Mean Prices, GHS							
	Price Range	Mean Price	Ashanti Region	Brong Ahafo	Central Region	Eastern Region	G. Accra	Northern Region	Upper East Region	Upper West Region
Traditional Charcoal stove (Scrap metal)	2.5-25	9		9	8			4.5	4	5
Tradition charcoal stove (Mild steel)	6-45	15	11	11.7	14.5	12	15.8	18.9	17	
Tyre Rim Charcoal stove	12-60	25.7	24	22.5						
Improved Charcoal stove	10-36	17.5	15	14.4	17.6		20	26		
Firewood stove (Scrap metal)	5-7	6.4						6.5	6	5.5
Tyre rim Firewood stove	12-60	22	31					14	25	35
Saw dust stove	5-7	6.5						6.5		
LPG stove (Local)	20-90	55.4			55.8		49			

Table 4 Stoves common in markets across the country

Type of Stove	Ashanti Region	Brong Ahafo	Central Region	Eastern Region	Greater Accra	Northern Region	Upper East Region	Upper West Region
Traditional Charcoal stove (Scrap metal)				√	√	√	√	√
Tradition charcoal stove (Mild steel/aluminium cast)	√	√	√	√	√	√	√	√
Tyre Rim Charcoal stove				√		√	√	√
Improved Charcoal stove	√	√	√		√			
Firewood stove (Scrap metal)						√	√	√
Tyre rim Firewood stove			√	√		√	√	√
Saw dust stove						√	√	√
LPG stove	√	√	√	√	√	√	√	√

2.4 Marketing strategy

The stoves are mainly sold in shops. However, most shops are located in the main market centres (traditional markets) of the respective regions such as Aboabo market in Tamale, Central market in Kumasi, Mallam Atta Market, Kaneshe market, timber market in Accra, etc. Only 12% of the respondents sell their stoves through exhibitions.

2.5 Database of stakeholders in the value chain

Table 5 List of manufacturers in the value chain with their locations, contacts and production capacity

Name	Contact	Location	Type of Stove (s)	Production capacity, 2013
Abbah Welding And Fabrication	0247703097	Volta Region, Ho, Market Area	LPG stoves, Improved charcoal stoves, Firewood stoves	1200
Abdulai Workshop	0546906913	Upper West Region, Wa Municipal	Improved charcoal stove Coalpot Firewood stove	
Abdul Basiru Mohammed	0209656134	Upper West Region, Wa Municipal	Saw dust stove Firewood stove	936
Abdul-Manan Metal Workshop	0203171106	Northern Region, Tamale, Dagbandabifong, Near SGSSB In Tamale	LPG Stoves Improved Charcoal Traditional Charcoal	Unknown
Abellon Clean Energy Ghana Ltd	Pragnesh Mishrah, 020222385 0542965206	Ashanti Region, Asafo, Kumasi	Pellet and Briquette stoves	
Adciana Zinye		Upper East, Kyirer	Improved charcoal	612
Adongo Albert	0545503255	Upper East Region, Bolgatanga	LPG Traditional charcoal stove	40 Unknown
Adumpola		Upper East Region, Bongo, Akayonga, Near Akayonga Market	Stove Manufacturer	
Agya Boat Metal Works	Collins Ntiamoah, 0275190588	Ashanti Region, Kumasi	Stove Manufacturer	
Alice Coffie	0200246619	Volta Region, Ho	Institutional Stoves	

	(ARSUD)	(Gari Manufacturers)
Alfred Metal Works	Alfred Afedomenyo 0244065707 0204147931	Ashanti Region, Mampong Municipal LPG Stoves, Improved firewood stoves, Coalpot 600
Alidu Alhassah	0243481836	Ashanti Region, Kumasi, Suame Zone 6, Opposite Positive Micro Finance Stove Manufacturer
All Is Good Ltd	0244897549	Eastern Region, New Juaben, Koforidua Coalpot
All Shall Pass Metal Works	Antwi Boasiako Emmanuel, 0241549832	Ashanti Region, Mampong Coalpot Firewood stoe 130
Amoako Desmond		Eastern Region, New Juaben, Koforidua Improved charcoal stove
Ankrah Metal Works	0208294467	Upper East Region, Near Metro Mass Station, Bolgatanga Coalpot (Scrap) 16,300
Asedu Welding/Straightening Shop	Opoku Yaw Frank 0243986946	Brong Ahafo, Techiman, Wangala lane. Coalpot Saw dust stove
Atubga Sinaba	0201848324	Upper East region, Bolgatanga Coalpot 1030
Awal Mohammed	0266084178	Ashanti Region, Ejura Firewood stove (Metal) Coalpot Unknown
Azaaman Metal Works And Fabrication	Isaac Quansah 0242-723918 0247529010	Ashanti Region, Obuasi Metro Firewood stove (Metal) Coalpot Unknown
Bernard Agbley	0247529010	Ashanti Region, Kumasi Suame Zone 6 And 7 Stove Manufacturer
Bernard Awuku	0244504971	Ashanti Region, Kumasi, Suame Zone 9 Stove Manufacturer
Bismark	0275231325	Accra Stove Manufacturer
Bukare Enterprise	0540631659	Upper East Region LPG stove

Cookclean Ltd	Erasmus Osei-Essah	Greater Accra	Coalpot	
Daniel Gbemu	0245770463 0208208955	Volta Region, Keta	Stove Manufacturer LPG stove	
Dotse	0249510207	Central Region	Stove Manufacturer	
Duramanu Alijatu	0507193973	Upper West Region, Wa Municipal, Wa West District, Choghsia	Stove Manufacturer	
Edivine Kpetii	0242786743	Eastern Region, New Juaben, Koforidua Magazine	Stove Manufacturer	
Ekem Arts Pottery Ltd	Richard Ekem, 0244795459	Central Region, Winneba	Stove Manufacturer	
Emodie Engineering	Adu Kofi Murphy, 0244991144	Ashanti Region, Kumasi, Suame Zone 6	LPG stoves, Improved charcoal stoves, Improved firewood stoves, Traditional charcoal stoves	4,800
Eric	None	Accra	Stove Manufacturer	
Fati	0576200146	Accra	Stove Manufacturer	
Frimpong Mason	0277143238	Ashanti Region, Suame Zone 6	Stove Manufacturer	
Fusenni Issaka	0261292123	Ashanti Region, Kumasi, Moshie Zongo behind Zeba Mosque	Coalpot	11,700
Gagrapah Tech.Works (Ashmiu Ibn-Adam)	0243365021	Volta Region, Jasikan		
Ghana Cylinder Manufacturing Company Limited (GCMC)	0302 811720 0302811698	ACCRA, Spintex Road	LPG Stove	

God Never Fails Welding And Fabrication Workshop	Bernony Akpo 0277-644673/0545-506653	Ashanti Region, Obuasi, Bogobiri-Born Again Junction	Stove Manufacturer	
Good God Metal Works	Asuako Richard, 0204296668	Ashanti Region, Mampong	Coalpot	110
GRATIS Foundation	Eric Kwame ANIM	Volta Region	LPG stoves	
Greener Impact	Kassim 0570388869	Accra	Stove Manufacturer	
Gyapa	Titiati Atsu Macatsu@yahoo.com	Accra	Stove Manufacturer	
Gyenname Welding Workshop	Master Ackon, 0246535457	Central Region, Swedru	Stove Manufacturer	
Halidu Adam	0248870726	Ashanti Region, Kumasi, Suame Zone 21	Stove Manufacturer	
Ibrahim Osman	0242-643224	Ashanti Region, Obuasi, Stadium Junction	Stove Manufacturer	
Innocent Abledu	0243785670	Accra	Stove Manufacturer	
Isaac Asamoah	0244057041	Ashanti Region, Kumasi, Suame, Opposite Anointing Pillars	Stove Manufacturer	
Issahaku Sowed	0546368504	N/R, Bulpelatuugbeni, Tamale, Lat: 9.39889 - Log: 0.83833	Coalpot	Unknown
Jacob Agyei	0267921370	Accra, Teshie	Stove Manufacturer	
Justice Agblor	0243821653 0209416222	Volta Region, Hohoe, Near The Main Market Close To CRAN (Christian Rural Aid Network) Office	Stove Manufacturers	
Kakpagyilli Doo Sani	IdrisuSeidu, 024125446	N/R, Bulpelatuugbeni, Tamale, Lat: 9.39889 - Log: 0.83833	Coalpot (Scrap metal)	3,900
Kakpagyilli Doo Sani	0243811911	NR/Tamale/ Bulpela,	Coalpot (Scrap metal)	6,300

King Solomon	0244435680	Near Baobab Tree	Stove Manufacturer	
Koffas Metal Work	Fosu Ameyaw 0274296786 0508613439	Ashanti Region, Abuabo Ashanti Region, Railways/Scrap Dealers Brong Ahafo, Sunyani Area 3.	Coalpot	2400
Kofi	0244880177	E/R, NJ, Ada	Improved charcoal stove	
Kojo Obeng	0203170008	Central Region	Stove Manufacturer	
Kow Quansah	0245880194	Central Region	Stove Manufacturer	
Kwaku Obeng	0246-140023	Ashanti Region, Sekyere Afram plains, Bodomase Behind Roman Catholic Church	Stove Manufacturer	
Kweku	None	Accra	Stove Manufacturer	
Kwesi Amankwah	0249537270	E/R, New Juaben, Koforidua Effiduase	Stove Manufacturer	
Kwesi Anyesi	0241931491	Central Region, Apam	Coalpot	
Lanchina Metals Work		UWR/ Wa West District/ Chogisia, Along In- Service Wall Wa	LPG Improved charcoal Coalpot	624
Lansini Abdu		UWR/ Wa West District/Chogisia	Stove Manufacturer	
Less is More Metals	Muniru Sumaila	UWR/ Wa Municipal/ Dzuiegu, Kabanye	Ethanol stove Improved charcoal Coalpot	Unknown
Man and Man Enterprise	Michael Yaw Agyei0243473642	Ashanti Region, Kumasi	Improved charcoal stove (Ceramic)	28,000
Master Efo Coalpot Shop	0247529010	Ashanti Region, Suame zone 6.	Coalpots	Unknown
Master Issah Welding	0246676457	Gumbinini ,Tamale	Firewood (metal)	850

Shop			Lat: 9.42167 – Log: 0.84722	Saw dust Coalpot	On-demand 270
Mawusi Amar	0508797473		Volta Region, Kpando Main Station	Stove Manufacturer	
Michael Duway	0243859682		Ashanti Region, Kumasi, Suame Zone 6	Stove Manufacturer	
More and More metal works	Mohammed Salifu 0268-013520		Ashanti Region, Obuasi, Kunka Newtown	Coalpot Firewood	2880
Mpaebetsefo Ltd	Kojo Obeng, 0203170008		Central Region, Foso	Stove Manufacturer	
Mr. Kwame Boah	0575965696 / 0244090640		Ashanti region , Suame, People Lover	Stove Manufacturer	
Mr.Kwame Boah	0575-965696 0244-090640		Ashanti Region, Suame	Stove Manufacturer	
Nayare Enterprise	Madam Charity, 020 3142898		Upper East	LPG stove	624
New Era Enterprise	Mr. Nyaaba, 0200333669		UER /Bolgatanga	LPG stove Traditional charcoal	1200
Nicholas Oray Dadzie	0549900370		Central Region, Mankesim	Coalpot	600
Northern Reg. Association Of Blacksmith	Numanu Saynti (Secretary) 0244862043		Northern Region, Near Central Mosque, Tamale Lat: 9.40083– Log: 0.84056	LPG Stoves Improved Charcoal Improved Firewood Coalpot	11,400
Nuhu Co. Ltd.	0205899112		UWR/ Wa Municipal	Improved Charcoal stove Firewood stoves Coalpot	490
Nuurideen Isshaku	0540458390		UWR/ Wa West District/Chogsia	Firewood stoves Saw dust stove	
Nuhu Yahaya	0207246764		Upper East, Wa	Firewood stove	624
Ojugu Manufacturing	Beniako Ankomah		Brong Ahafo,	Coalpot	2400

Company	0545487779	Sunyani Magazine, First Gate.		
Peter Agordzeter	0277121678	Accra	Stove Manufacturer	
Progress Enterprise	Fuseine Keita, 0543781939	C/R, Tarkwanaboso	Stove Manufacturer	
Quasco Metal Works (Michael Kugblenu)	0243145956	Volta Region, Opposite Kpando District Assembly Office by the Old RC Cemetery	Stove Manufacturer	
Raymond	0207137719	Accra	Stove Manufacturer	
Richard Ekem	0244795459	Central Region	Stove Manufacturer Raw Materials Supplier	
Samuel	None	Accra	Stove Manufacturer	
Samuel Akpo	0207657817	Ashanti Region, Kumasi	Coalpot	4860
Samuel Opoku	0233-437123	Ashanti Region, Obuasi	Stove Manufacturer	
Senyo	0204196409	Volta Region, Kpando	Stove Manufacturer	
Stella Adebé	0245590255	Volta Region	Stove Manufacturer	
Sualah Aluminium Works	Sualah Yussif, ,024 396562	Upper East	LPG Stove	4,100
SulamaKaasim	0270325580	Ashanti Region, Kumasi, Abuabo Railways/Scrap Dealers	Stove Manufacturer	
Sule	0543865015	Central Region, KEEA	LPG stove	
Tam Welding	0244875986	Volta region, Ho, Bankoe	LPG stove	
Toyola	Suraj Wahab 0243115898	Accra	Stove Manufacturer	
Vakiss Metal Works	Stephen Akolatse 0243-852468	Volta, Ho, Opposite SIC	LPG STOVE	480

Wilson Metal Works	Wilson Kofi Sarpong, 0278954380	E/R, New Juaben, Koforidua	Coalpot	
Yaw	0244538590	E/R, NJ, Ada	Improved charcoal stoves	
Yaw Owusu	0204245687	E/R, NJMA, Magazine	LPG Stove Coalpot	
Yussif Osman	0209717290	UWR/ Wa Municipal	Coalpot Improved charcoal stove Firewood stove	600
Zaliyatu Abdullah		N/R, Tamale, Aboabo Market	Stove Manufacturer	
Zenabu (Kyirenaa)	0244113351	Upper West, Dzuiegu	Improved charcoal stove	936
Zuyena Baaba	0203266631	N/R, Tamale	Stove Manufacturer	

Table 6List if capacity builders within the cookstove value chain with contact details and location

S. No	Name	Contact	Location	Type of Activity in Cookstove sector
1.	Industrial Research (CSIR)	Dr. Gabriel Laryea 0243222370/0302500195	Accra, Otinshie (East Legon Near American House)	Testing Of Stove
2.	Agya Boat's Metal Works	0275190588	Ashanti Region, Kumasi	Trainer
3.	Capecoast Technical Institute	Alfred Davis, Head Of Department, 0332132203	Central Region, Cape Coast	Educational Institution-Government
4.	Kumasi Institute Of Technology, Energy &Environment (KITE)	Stephany Lawson 0302-256800/01	Accra, Dzorwulu	Research And Advocacy
5.	International Network For	Michael Kwaku, 03220-	Ashanti Region, Fumesua,	Researcher,

	Bamboo And Rattan	61375, info@inbar.int	Forestry Institute Of Ghana, Fumesua-Ejisu	Capacity Builder, Trainer
6.	Technology Consultancy Centre (KNUST)	Michael Commeh, 0322060296/97	Ashanti Region, Kumasi	Researcher, Capacity Builder, Trainer
7.	Centre For Energy, Environment And Sustainable Development	Julius Ahiekpor, 0244529589 juliusahiekpor@yahoo.co.uk info@ceesdghana.org	Ashanti Region, Kumasi, Maxima	Researcher, Capacity Builder, Trainer
8.	HO Polytechnic	Louis Atsu	Volta Region, Ho	Researcher, Capacity Builder, Trainer
9.	University Of Energy And Natural Resources	Mawufemo Modjinou 035223461	Brong Ahafo	Researcher, Trainer
10.	Tamale Polytechnic	Dr. Clifford Braimah 0205975820/0244210612	NR/Tamale	Researcher, Trainer
11.	Kumasi Polytechnic	Edward Antwi, 0268250357	KUMASI	

Table 7 List of Financiers in the value chain with their locations and contacts

FINANCIAL INSTITUTIONS				
1.	Imperial Women's Trust (Microfinance)	Frank K. Nutakor 0302814404 0249265488	Accra	Microfinance
2.	Shell Foundation	Sylvia Atalobrasylvia.Atalobra@vivoenergy.com	Accra	Sponsor
3.	Dera Foundation	0265090505/0201319084	Accra, Art Centre	Finance

4.	Standard Chartered Bank			Accra, High Street	Banking
5.	Barclays Bank	Corporate Affairs 0302661293		Accra, High Street	Banking
6.	UNDP	Paolo Dalla Stella 0302215670-83 Ext. 629		Accra, UN House No.7 Ring Road East, Accra	Donor agency
7.	Multi-Credit Savings And Loans	Alexander Opoku 0322037418 0322034719		Ashanti Region, Kumasi	Microfinance
8.	Ecobank	Esther Aboagye, 0322021417		Ashanti Region, Kumasi, Adum	Banking
9.	Ut Bank			Ashanti Region, Kumasi, Adum	Banking
10.	Sinapi Aba Savings and Loans	Degraft Acheampong, 0511277466		Ashanti Region, Kumasi, Adum	Microfinance
11.	Good News Credit Union	Albert Whyte, 0233235632		Ashanti Region, Kumasi, Amakom	Credit union
12.	Multi Credit Savings and Loans	Rudolf Ofori Appiah 0501257535		BA, Sunyani	Microfinance
13.	Golden Trust Finance Ltd.	Winston Kuthin 0352093884		BA, Techiman	Finance
14.	Multi Credit Saving and Loans	Rudolf Ofori Appiah 0501257535		Brong Ahafo	Finance
15.	Opportunity International Savings and Laons	Dominic Anim Kessi 0352091186		Brong Ahafo	Finance
16.	IC Bank	Rexford Sam 0352522684		Brong Ahafo	Finance
17.	Asa Initiative	Veronica Akitti, Asainitiative@yahoo.com		Central Region, Cape Coast	Finance
18.	Persistent Energy Partners Ghana Limited	Michael Larbi 0302776507 michael.larbi@persistente nergypartner.com		Accra, Silver star building, Airport	Finance

19.	Daasgift Foundation	GiftY Baaba Asmah	Western Region, Takoradi	Finance
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Table 8 List of fuel retailers and distributors in the value chain with their locations, contacts

Fuel Retailers and Distributors				
S. No	Name of Organisation/Individual	Contact	Location	Type of Activity in Cookstove sector
1.	Achimota Old Station (Union of Charcoal Distributors)	Chairman 0208190649 0246456005	Accra	Fuel Distributor
2.	GAG Gas	Osei Boakye Yiadom, 0243103393	Ashanti Region, Kumasi	Fuel Distributor
3.	Diana	0245935664	Central Region, Asikuma	Fuel Distributor
4.	Gladys Koho		Central Region, Asikuma	Fuel Distributor
5.	Selestina Bawa	0545611799	Ashanti Region, Asokwa	Fuel Distributors
6.	Afua Kyerewah	0245773394	Ashanti Region, Asokwa, Behind MOFA	Fuel Distributors
7.	Fati Alhasan	0547274793	Ashanti Region, Ejura/Ashanti	Fuel Distributors
8.	Charcoal Queen Mother	0547148976	Ashanti Region, Ejura/Ashanti	Fuel Distributors
9.	Yaa Tanya	0247518672	Ashanti Region, Ejura/Ashanti	Fuel Distributors
10.	Fulera Isifu	0544123648	Ashanti Region, Ejura/Ashanti	Fuel Distributors
11.	Grace Addo	0249098622	Ashanti Region, Ejura/Ashanti	Fuel Distributors
12.	Alima Monkaye	0541802183	Ashanti Region, Ejura/Ashanti	Fuel Distributors
13.	Elizabeth Konadu	0547148041	Ashanti Region, Ejura/Ashanti	Fuel Distributors
14.	Salamatu Issifu	None	Ashanti Region, Ejura/Ashanti	Fuel Distributors
15.	Hannah Addai	0242208092	Ashanti Region, Ejura/Ashanti	Fuel Distributors
16.	Theresa Nkansah	0242327644	Ashanti Region, Kumasi, Pankrono	Fuel Distributors

17.	Millicent Asante	0544931989	Ashanti Region, Mampong/Ashanti	Fuel Distributors
18.	Felicia Yeboah	0241965683	Ashanti Region, Mampong/Ashanti	Fuel Distributors
19.	Adwoa Tima	0243773524	Ashanti Region, Sekyere East/Kumawu, Behind Kumawu Market	Fuel Distributors
20.	Comfort Agyei	0546386559	Ashanti Region, Sekyereaffram Plains/Bodomase, Opposite Kumawuman Rural Bank	Fuel Distributors
21.	Elizabeth Adomako	0247-456379	Ashanti Region, Sekyere-East, Kumawu, Behind Liberation Church	Fuel Distributors
22.	Emmanuel Asante	0547123964	Ashanti Region, Woraso, Opposite Roman Catholic Church	Fuel Distributors
23.	Charity Pokuua	0242328562	Ashanti Region, Yonso/Mampong Municipal	Fuel Distributors
24.	Rose Blago	0546386559	Ashanti, Opposite Kumawu Rural Market	Fuel Distributors
25.	Abena Dufie	NONE	Brong Ahafo, Nkoranza	Fuel Distributors
26.	Efuowuayem	0544851534	Central Region	Fuel Retailer
27.	Charcoal Sellers Association	Ajuaalhassan	UER /Bolgatanga, Bolga Market	Fuel Retailer

Table 9 List of Fuel producers in the value chain with their locations, contacts

FUEL PRODUCERS ¹				
S. No	Name of Organisation/ Individual	Contact	Location	Type of Activity in Cookstove sector
1.	Emmanuel Asante	0547123964	ASHANTI REGION, BODOMASE	Fuel Producer
2.	Katapilar Dankara	0209742890/0241426744	Ashanti Region, Bodomase	Fuel Producer
3.	Naade-Binanimda Joshua	0241426744/0209742890	Ashanti Region, Bodomase	Fuel Producer
4.	Kwaku Laari	0248408023	Ashanti Region, Bodomase	Fuel Producer
5.	Alsanakarim	0261672127	Ashanti Region, Kaase-Angola	Fuel Producer
6.	Osei Kwadwo	0247-931275	Ashanti Region, Yonso	Fuel Producer
7.	Boateng Samuel	0242-3228562	Ashanti Region, Yonso	Fuel Producer
8.	Seidu Salifu	0247300492	Ashanti Region, Yonso	Fuel Producer
9.	Sulemana Sampana	0542162572	Ashanti Region, Yonso	Fuel Producer
10.	Adwoa Nuvi		BA, Abesem	Fuel Producer
11.	Isatu		BA, Abesem	Fuel Producer
12.	Ankomah Ernest	0546134478	BA, Kintampo South	Fuel Producer
13.	Branah Selamamu	0207983853	Brong Ahafo	Fuel Producer
14.	Dramani Adamahilla	0209728754/0263602632	Brong Ahafo	Fuel Producer
15.	Ernest Ankomah	0546134478	Brong Ahafo	Fuel Producer
16.	Ibrahim Nuhu	0243176094	Brong Ahafo	Fuel Producer
17.	Kwame Appiah	0244742201/0549970355	Brong Ahafo	Fuel Producer
18.	Richard Takyi	0248651325	Brong Ahafo	Fuel Producer
19.	Samson Adjei	0241845346/0243682488	Brong Ahafo	Fuel Producer
20.	Mary Mensah	0541709307	Central Region	Fuel Producer
21.	Raymond Ajaname	0574527049	Central Region	Fuel Producer
22.	Kwame	0547973589	Central Region, Efutu	Fuel Producer
23.	Foster	0245188135	Central Region, Elimina	Fuel Producer

¹ Fuel producers in this context refers to charcoal burners. However, most charcoal burners also collect firewood for sale.

24.	Maame Wonye			Central Region, Elimina	Fuel Producer
25.	Bismark Sonny Azuma	0545709391		Eastern Region, Afram Plains	Fuel Producer
26.	Ntiamoah Desmond			Eastern Region, Afram Plains	Fuel Producer
27.	Maame Krobo			Eastern Region, Afram Plains	Fuel Producer
28.	Simon Addae	0248269347		Eastern Region, Afram Plains	Fuel Producer
29.	Azaglo Gideon			Eastern Region, Afram Plains	Fuel Producer
30.	Enyonam Mamutor	0249537270		Eastern Region, Afram Plains	Fuel Producer
31.	Kporsu Benjamin			Eastern Region, Afram Plains	Fuel Producer
32.	Kweku Ntiamoah	0241572107		Eastern Region, Afram Plains	Fuel Producer
33.	Simon Abanam	0542941357		Eastern Region, Afram Plains	Fuel Producer
34.	Kwame Tortine	0542115262		Eastern Region, Afram Plains	Fuel Producer
35.	Stephen Azaglo			Eastern Region, Akenteng	Fuel Producer
36.	Abellon Clean Energy Gh. Ltd	Country Head 020222385/0542965206 <a href="mailto:abellonghana@abellonclea
nenergy.Com">abellonghana@abellonclea nenergy.Com		Kumasi, Ahanti Region	Fuel Producer (pellets)
37.	Niipaa Batubuga			Lat: 10.44167 – Log: 0.87972	Fuel Producer
38.	Sikena Abrahaman			Lat: 9.30888 – Log: 0.96056	Fuel Producer
39.	Sanatu Musah			NR/Central Gonja/ Changyilli Lat: 9.3140 – Log: 0.96000	Fuel Producer
40.	Rabi Lansa			NR/Central Gonja/ Changyilli	Fuel Producer
41.	Rackia Baba			NR/Central Gonja/ Changyilli Lat: 9.31528 – Log: 0.95972	Fuel Producer
42.	Adisa Issahaku			NR/Central Gonja/ Changyilli	Fuel Producer
43.	Safiatu Sulemana			NR/Central Gonja/ Changyilli	Fuel Producer
44.	Memunatuissahaku			NR/Central Gonja/ Changyilli	Fuel Producer
45.	Zara (Hajia)			NR/Tamale / Tugu	Fuel Producer
46.	Fuseina Alhassan			NR/Tamale / Tugu	Fuel Producer
47.	Zuleiha			NR/Tamale / Tugu	Fuel Producer
48.	Sana			NR/Tamale / Tugu	Fuel Producer
49.	Ayishatu			NR/Tamale / Tugu	Fuel Producer
50.	Sanatu			NR/Tamale/ Tugu	Fuel Producer

				Lat: 9.403889 – Log: 0.84528	
51.	Fati Nagantabri			NR/West Maprusi/ Nabari	Fuel Producer
52.	Abiba Adable	0506219504		NR/West Maprusi/ Nabari	Fuel Producer
53.	Samari Joseph	0245228496		NR/West Maprusi/ Nabari Near CHPS (Hospital)	Fuel Producer
54.	Hamna Sandow	0541629873		NR/West Maprusi/ Nabari	Fuel Producer
55.	Saali Sandow	0541629873		NR/West Maprusi/ Nabari	Fuel Producer
56.	Cecilia Sandow	0541629873		NR/West Maprusi/ Nabari	Fuel Producer
57.	Nmunian Bigman			Volta Region, Nkwanta South	Fuel Producer
58.	Macham Kikiya Nakor			Volta Region, Nkwanta South	Fuel Producer
59.	Tiyangmache Mbagnen			Volta Region, Nkwanta South	Fuel Producer
60.	Bitabim Balaugnen	0542843253		Volta Region, Nkwanta South	Fuel Producer
61.	Tason Bindakpe	0543007385		Volta Region, Nkwanta South	Fuel Producer
62.	Tinatue Konja	0249356429		Volta Region, Nkwanta South	Fuel Producer
63.	Ndammayi Nsanban	0548976682		Volta Region, Nkwanta South	Fuel Producer
64.	Nlagmela Binfortt	0543007385		Volta Region, Nkwanta South	Fuel Producer
65.	Nyegmabo Kpajah			Volta Region, Nkwanta South	Fuel Producer
66.	Balaugnin Adbowa	0245452396		Volta Region, Nkwanta South	Fuel Producer
67.	Tiyanbidor Ajo	0245721530		Volta Region, Nkwanta South	Fuel Producer
68.	Comfort Njochala	0249054543		Volta Region, Nkwanta South	Fuel Producer
69.	Makante Bidaba Esther	0540944750		Volta Region, Nkwanta South	Fuel Producer
70.	Kpasi Wapoh	0247740641		Volta Region, Nkwanta South	Fuel Producer
71.	Paka Ndati			Volta Region, Nkwanta South	Fuel Producer
72.	Sabiya Binibdo			Volta Region, Nkwanta South	Fuel Producer
73.	Nyamafeh Limolla	0540513523		Volta Region, Nkwanta South	Fuel Producer
74.	Gulondo Akosia	0542839000		Volta Region, Nkwanta South	Fuel Producer
75.	Njogmayan Ntimbi	0543016801		Volta Region, Nkwanta South	Fuel Producer
76.	Abotsi Musah	0202937526		Volta Region, Nkwanta South	Fuel Producer
77.	U-Yangnaba Abukari	0245740850		Volta Region, Nkwanta South	Fuel Producer
78.	Nsikila Thomas	0204536262		Volta Region, Nkwanta South	Fuel Producer

79.	Sando Enoch	0204526262	Volta Region, Nkwanta South	Fuel Producer
80.	Nena Nsikila	0204536262	Volta Region, Nkwanta South	Fuel Producer
81.	Soyeni Naja	0543016801	Volta Region, Nkwanta South	Fuel Producer
82.	Nyame Ntimbe	0243258104	Volta Region, Nkwanta South	Fuel Producer
83.	Beguar Donkor		Volta Region, Nkwanta South	Fuel Producer
84.	Nborikye Tapome		Volta Region, Nkwanta South	Fuel Producer
85.	Kozolina Salomey	0548949388	Volta Region, Nkwanta South	Fuel Producer
86.	Kpetab Bikpa	0548988585	Volta Region, Nkwanta South	Fuel Producer
87.	Mawan Jagba	0540513523	Volta Region, Nkwanta South	Fuel Producer
88.	Buwue Janet	0245474422	Volta Region, Nkwanta South	Fuel Producer
89.	Denteh Yaw	0547564814	Volta Region, Nkwanta South	Fuel Producer
90.	Ntembi Gnananti	0243258104	Volta Region, Nkwanta South	Fuel Producer
91.	Jemory Mborlar	0243258104	Volta Region, Nkwanta South	Fuel Producer
92.	Benye Dora	0246482485	Volta Region, Nkwanta South	Fuel Producer
93.	Chiyabisi Tandam	0243258104	Volta Region, Nkwanta South	Fuel Producer
94.	Njembi Nignak	0202937526	Volta Region, Nkwanta South	Fuel Producer
95.	Alhaji		Western Region, Ayiem	Fuel Producer
96.	Osumanu		Western Region, Ayiem	Fuel Producer
97.	Kodjo Nketsiah		Western Region, Ayiem	Fuel Producer
98.	Sofu Ayiteh		Western Region, Ayiem	Fuel Producer
99.	Akua Koko		Western Region, Ayiem	Fuel Producer
100.	Dickson Seth Kwabena Ofosu		Western Region, Ayiem	Fuel Producer
101.	Daniel		Western Region, Ayiem	Fuel Producer
102.	Ntiamoah		Western Region, Ayiem	Fuel Producer
103.	Edward		Western Region, Ayiem	Fuel Producer
104.	Boye		Western Region, Ayiem	Fuel Producer
105.	Kwamina		Western Region, Ayiem	Fuel Producer
106.	Dominic		Western Region, Ayiem	Fuel Producer
107.	Bruce		Western Region, Ayiem	Fuel Producer
108.	Aninguasi		Western Region, Bokoro	Fuel Producer

109	Kwabena Awotwi		Western Region, Bokoro	Fuel Producer
110	Atta Banyin		Western Region, Bokoro	Fuel Producer
111	Kwasi Awul		Western Region, Bokoro	Fuel Producer
112	Joseph Baidoo	0545903131	Western Region, Bokoro	Fuel Producer
113	Albert Arthur		Western Region, Bokoro	Fuel Producer
114	Yaakwa		Western Region, Bokoro	Fuel Producer
115	Kodjo Blackman		Western Region, Bokoro	Fuel Producer
116	Kwesi Daade		Western Region, Bokoro	Fuel Producer
117	Kwame Aboi		Western Region, Bokoro	Fuel Producer
118	Kojo Enyiwa		Western Region, Bokoro	Fuel Producer
119	Gyan		Western Region, Miawoani	Fuel Producer
120	Kudjoe		Western Region, Miawoani	Fuel Producer
121	Kofi Alhassan		Western Region, Mpohor	Fuel Producer
122	Adjoa Gruma		Western Region, Mpohor	Fuel Producer
123	Ebo		Western Region, Mpohor	Fuel Producer
124	Sansa		Western Region, Mpohor	Fuel Producer
125	Adjoa Broma		Western Region, Mpohor	Fuel Producer
126	Alex Tawiah		Western Region, Mpohor	Fuel Producer
127	Asana		Western Region, Mpohor	Fuel Producer
128	Akua Akoh		Western Region, Mpohor	Fuel Producer
129	Patrick Mensah		Western Region, Mpohor	Fuel Producer
130	Adjoa Dagati		Western Region, Mpohor	Fuel Producer
131	Kodjo		Western Region, Mpohor	Fuel Producer
132	Adwoa Otwima		Western Region, Mpohor	Fuel Producer
133	Yaa Kosua		Western Region, Mpohor	Fuel Producer
134	Odoom Stephen		Western Region, Mpohor	Fuel Producer
135	Kwadwo Kofi	0544514415		Fuel Producer
136	Richard Vifa	0547774638		Fuel Producer
137	Oboade Bedjibe	0241592232		Fuel Producer
138	Emmanuel Nano	0248988287		Fuel Producer

Table 10 List of raw material suppliers in the value chain with their locations and contacts

Raw Material Suppliers				
S. No	Name of Organisation/Individual	Contact	Location	Type of Activity in Cookstove sector
1.	Rita Bayeti	0249560579	Ashanti Region, Asokwa, Behind MOFA	Raw Material Supplier
2.	Hannah Atia	0246418365	Ashanti Region, Bogobiri Stadium Junction-Obuasi	Raw Material Supplier
3.	Azumah Atia	0247301710	Ashanti Region, Suame Zone 5, Behind The Mosque	Raw Material Supplier
4.	Joel Nyaa	0204605960	Ashanti Region, Suame Zone 5, Behind The Mosque	Raw Material Supplier
5.	KwabenaAbodee	0248460863	Ashanti Region, Suame Zone 5, Behind The Mosque	Raw Material Supplier
6.	Alhassan Nuru	0246531542	Ashanti Region, Suame Zone2, Alaje Mode Enterprise	Raw Material Supplier
7.	Ekem Arts Pottery Limited	Ekem, 0244795459	Central Region, Winneba	Raw Material Supplier
8.	Akos		Eastern Region, Koforidua	Raw Material Supplier
9.	Comfort Boadi		Eastern Region, Koforidua	Raw Material Supplier
10.	Owusu Boateng	0574957157	Eastern Region, Koforidua	Raw Material Supplier
11.	Yaw Mintah	0249075302	Eastern Region, New Juaben	Raw Material Supplier
12.	Kofi Mantey		Eastern Region, New Juaben	Raw Material Supplier

13.	Salomey Gbemou		Eastern Region, Suhum	Raw Supplier	Material Supplier
14.	Abena		Eastern Region, Suhum	Raw Supplier	Material Supplier
15.	Amos Kofi		Eastern Region, Suhum	Raw Supplier	Material Supplier
16.	Wisdom Noamesi	0264669766	Eastern Region, Suhum	Raw Supplier	Material Supplier
17.	Nana Owusu Ansah and Sons Ltd.	Theophilus Larweh Aidoo, 0322021725 noaslx@yahoo.com	Ashanti Region, Kumasi, Macro	Raw Materials Supplier	Raw Materials Supplier

Table 11 List of distributors and retailers of stoves in the value chain with their locations and contacts

Stove distributors and retailers					
S. No	Name of Organisation/Individual	Contact	Location	Type of Activity in Cookstove sector	
18.	Attah Kwadu	0242-181919	Ashanti Region, Asafo	Stove Distributor	
19.	Centre For Energy, Environment And Sustainable Development	Julius Ahiekpor (Director) 0244529589 juliusahiekpor@ceesdghan.a.org	Ashanti Region, Kumasi	Stove Distributor	
20.	Afia Boatemaa	0246-003884	Ashanti Region, Kwadaso, Kwadaso Market A-KMC/003	Stove Distributor	
21.	Ernestina Sofia Kwarteng	0242967991	Central Region	Stove Distributor And Retailer	
22.	James Kotey	0242671669	Central Region, Abura Dunkwa	Stove Distributor And Retailer	
23.	Elisabeth Appiah	0275272108	Central Region, Twifo Praso, Opposite Police Station	Stove Distributor And Retailer	

24.	Melcom Group Of Companies	Donkor Fredrick Rockson	Ashanti Region, Kumasi, Adum	Stove Distributor/Retailer
25.	Gimiya Trading Ent	Stephen Kwarteng, 0208114705, 0244511475	B/A Techiman	Stove Distributor/Retailer
26.	Augustine Yeboah	0208410413	B/A, Berekum	Stove Distributor/Retailer
27.	Nyame Adom Ent	Samuel Kyere, 0208204494	B/A, Berekum	Stove Distributor/Retailer
28.	Antwi Commercial	Akwasi Boadi, 0246780440	B/A, Sunyani Near Ark FM	Stove Distributor/Retailer
29.	Associated Consortium	Eghan Mensah 0208433311 0275632622 0202580435	C/R, Cape Coast	Stove Distributor/Retailer
30.	Rashied	0244745192	Accra	Stove Retailer
31.	Kofi	None	Accra	Stove Retailer
32.	Faizam Mohammed	None	Accra	Stove Retailer
33.	Happy Store	0266707442	Accra	Stove Retailer
34.	Nancy Kuntoh	0248184932	Accra	Stove Retailer
35.	George Ofosu	027474100	Accra	Stove Retailer
36.	Grace Mensah	0207737951	Accra	Stove Retailer

37.	Nkrumah	0246150033	Accra	Stove Retailer
38.	Mensah Bonus	0249416692	Accra	Stove Retailer
39.	Antie Bridget		Accra	Stove Retailer
40.	Anthony	None	Accra	Stove Retailer
41.	Spintex-Opposite Cylinders	None	Accra	Stove Retailer
42.	Kwabena	None	Accra	Stove Retailer
43.	Florence	None	Accra	Stove Retailer
44.	Green Garden House Enterprise	None	Accra	Stove Retailer
45.	Nyarko-B Enterprise	0243063588	Accra	Stove Retailer
46.	Faustina Asanti	0208095008	Brong Ahafo, Sunyani	Stove Retailer
47.	Rose Danso	0245944147	Brong Ahafo, Sunyani	Stove Retailer
48.	Prince Addai	0246535103	Brong Ahafo, Sunyani	Stove Retailer
49.	Bernice Yeboah	0205222466	Brong Ahafo, Sunyani	Stove Retailer
50.	Dangbor David	0242237758	Brong Ahafo, Techiman	Stove Retailer
51.	Rose Enterprise	Terchi Rose, 0206504625	Brong Ahafo, Wenchi	Stove Retailer
52.	Elder Anane	0273035587	Brong Ahafo, Sunyani Market	Stove Retailer
53.	Big Joe Enterprise,	Joseph Kyeremeh, 0244070379	Brong Ahafo, Techiman	Stove Retailer
54.	Yesu Ne Adwumawura Ent	0245809986	Brong Ahafo	Stove Retailer
55.	Florence A. Badu	0244091320	Brong Ahafo	Stove Retailer
56.	Linfah Enterprise	0244774709	Brong Ahafo	Stove Retailer
57.	Samcharyent	None	Brong Ahafo	Stove Retailer
58.	Cad Gas	0243184794	Brong Ahafo	Stove Retailer
59.	It Is Written	0279456552	Brong Ahafo	Stove Retailer
60.	The Best Electrical	0202212264	Brong Ahafo	Stove Retailer
61.	Belgium Hardware	0208200049	Brong Ahafo	Stove Retailer
62.	Grace Anterprise	0275058817	Brong Ahafo	Stove Retailer
63.	Juliana Serwaah	0247980195	Brong Ahafo	Stove Retailer
64.	Next Gate Gas	`0244165416	Brong Ahafo	Stove Retailer
65.	Esi Ahema		C/R, Mankessim	Stove Retailer

66.	Diana	0245935654	Central Region	Stove Retailer
67.	Omari Trading Ent	Grace Bentil 0249164684/0205720653	Central Region	Stove Retailer
68.	Maame Esi	0206674015	Central Region, Abura Dunkwa	Stove Retailer
69.	Ato	0275205604	Central Region, Assin-foso	Stove Retailer
70.	Rukiya	0208695337 0572630921	Central Region, Cape Coast	Stove Retailer
71.	Victoria Quansah	0249050279	Central Region, Cape Coast	Stove Retailer
72.	Sebastian	0244629866	Central Region, Capecoast	Stove Retailer
73.	Erasmus	0244580868	Central Region, Damang	Stove Retailer
74.	Master Ekow	0233280431	Central Region, Elimina	Stove Retailer
75.	Esther Anhiwaa	0244032521	Central Region, Foso	Stove Retailer
76.	Veronica Dadebo	0546770117	Central Region, Kasoa	Stove Retailer
77.	Nana Yaw	0244596922	Central Region, Kasoa	Stove Retailer
78.	Regina Fumador	0278319106	Central Region, Kasoa	Stove Retailer
79.	I.W. Enterprise	Rebecca Buaku, 0244750124	Central Region, Swedru	Stove Retailer
80.	Paulina Denkyi	0209015172	Central Region, Swedru	Stove Retailer
81.	Awuradekae Me Ent	Sandra Yeboah, 0249980316	Central Region, Swedru	Stove Retailer
82.	Adwoa 10-10	0541935367	Central Region, Twifo Heman	Stove Retailer
83.	Maxi B Enterprise	Mensa Lassy Emmanuel, 0208125346	E/R, New Juaben / Koforidua	Stove Retailer
84.	Might Light Ltd	0243610511	E/R, Nima, Koforidua	Stove Retailer
85.	Nyame Tease Enterprise	0244735720	Eastern	Stove Retailer
86.	Hwenea Awurade Aye	0509184742	Eastern	Stove Retailer
87.	Sister Corner	None	Eastern	Stove Retailer
88.	Madam Esi		G/A, Accra	Stove Retailer
89.	Omensa Ventures		G/A, Agbobloshi	Stove Retailer
90.	Kwaku Gyasi	0570571775	G/A, Dansoman	Stove Retailer
91.	Albert		G/A, Nungua Barrier	Stove Retailer
92.	Cynthia	0240186203	G/A, Nungua Market	Stove Retailer

93.	Mmasanatu	0204034369	N.R, Aboabu Market, Tamale Lat: 9.403883 - Log: 0.84278	Stove Retailer
94.	Raikia Sayati	0570952179	N/R, Tama, Tamale	Stove Retailer
95.	Raikia	0264380192	N/R, Tama, Tamale, Aboabo Market	Stove Retailer
96.	Kusumi Sani	0262645125	N/R, Tama, Tamale, Aboabo Market	Stove Retailer
97.	Meri Sasana	0540445769	N/R, Tama, Tamale, Aboabo Market	Stove Retailer
98.	Salamatu Issifu	0240994083	N/R, Tama, Tamale, Aboabo Market	Stove Retailer
99.	Suraya Kadiri	0260635205	N/R, Tama, Tamale, Aboabo Market	Stove Retailer
100	Lawal Andaratu		N/R, Tama, Tamale, Aboabo Market - Stove Lane	Stove Retailer
101	Salamatu Issahaku	0263362419	N/R, Tamale	Stove Retailer
102	Sanatu Ibrahim	0540475198	N/R, Tamale	Stove Retailer
103	Sikina Lukman	0541623191	N/R, Tamale	Stove Retailer
104	Wasila Yahaya	0268418142	N/R, Tamale	Stove Retailer
105	Baraka Salmudween	0241553610	N/R, Tamale	Stove Retailer
106	Amshawa Zakari	0506230576	N/R, Tamale	Stove Retailer
107	Mari Minu	0243914689	N/R, Tamale	Stove Retailer
108	Bentu Abdallah	0248566575	N/R, Tamale	Stove Retailer
109	Fatahya Moro		N/R, Tamale	Stove Retailer
110	Wudada Yakubu	0269043479	N/R, Tamale	Stove Retailer
111	Meri Majeed	0540475198	N/R, Tamale	Stove Retailer
112	Zania Safianu	0245940263	N/R, Tamale, Aboabo Market	Stove Retailer
113	Mujana Yakubu	0262909217	N/R, Tamale, Aboabo Market	Stove Retailer
114	Azaratu Sayuti	0545195353	N/R, Tamale, Aboabo Market	Stove Retailer
115		0245952702	N/R, Tamale, Aboabo Market	Stove Retailer
116	Nafisa Ibrahim	0543384414	N/R, Tamale, Aboabo Market	Stove Retailer
117	Sumaya Mussah	0205460426	N/R, Tamale, Aboabo Market - Near Royal Motors	Stove Retailer

118	Rabi Sayuti	0264380192		N/R, Tamale, Aboabo Market – Stove Lane	Stove Retailer
119	Ikima Iddrisu	0248961866		Northern	Stove Retailer
120	Hamza Abida	0202728005		Northern Region, Aboabu- Uganda Station, Tamale Lat: 9.403889 – Log: 0.84528	Stove Retailer
121	Hajia Kusumi	0244720088		NR/Tamale/ Aboabo Market	Stove Retailer
122	Amisha Wagazah	0207581386		NR/Tamale/ Aboabu-Uganda Station Lat: 9.40389 – Log: 0.84333	Stove Retailer
123	Justice	0543188423		Opposite Pentecost Church Ashaiman, Right Before The Unibank Building	Stove Retailer
124	Sariata Adam	0244113251		U/W, Wa Municipal Government Residential Area	Stove Retailer
125	Ajua Enterprise	Ajua, 0248273187		UER	Stove Retailer
126	No Hurry In Life Enterprise	Atubgaazore 0201848324		UER /Bolgatanga	Stove Retailer
127	Suallah Yussif	0240396562		UER /Bolgatanga	Stove Retailer
128	Mary			UER /Bolgatanga	Stove Retailer
129	Samuel Ababila	0208489744		UER /Bolgatanga	Stove Retailer
130	Melcom Ghana Ltd.	Mustapha 0244214741	Adam,	UER /Bolgatanga	Stove Retailer
131	Apukomah Enterprise	Apukomahadanduba, 0200957690		UER /Bolgatanga	Stove Retailer
132	Emarno Enterprise			UER /Bolgatanga	Stove Retailer
133	Anita			UER /Bolgatanga	Stove Retailer
134	Abodeem Enterprise	0549353431/0207900436 8		UER /Bolgatanga	Stove Retailer
135	Ajarawahabu			UER /Bolgatanga	Stove Retailer
136	Madam Charity Enterprise	0203142898		UER /Bolgatanga	Stove Retailer
137	His Grace Enterprise	0248610759/02000643996		UER /Bolgatanga	Stove Retailer
138	Ajua Alhasan	0248277187		UER /Bolgatanga	Stove Retailer

139	Ahamed Ibrahim	0507193973		UER /Bolgatanga	Stove Retailer
140	Mauex Ventures	Akumpule Emmanuel, 0244606368		UER /Bolgatanga, P. O. Box 786	Stove Retailer
141	Mr. Ankrah	0208294467		UER /Bolgatanga, Near Metro Mass Station	Stove Retailer
142	Maxcom Enterprise	0243553238		UER /Bolgatanga, Santé Boys	Stove Retailer
143	Dayure Enterprise	Adayure Charity, 0203142898		Upper East	Stove Retailer
144	Castro Linda			UWR/ Gbankor Nadoli District	Stove Retailer
145	Ben Masah			UWR/ Nadoh District /Gbanko	Stove Retailer
146	Abdul Basiiru Mohammed	0209656134		UWR/ Wa Municipal	Stove Retailer
147	Alhassan Siltu			UWR/ Wa Municipal/	Stove Retailer
148	Sariata Adam	0244113351		UWR/ Wa Municipal/ Government Residential Area	Stove Retailer
149	Garbire Memuna			UWR/ Wa Municipal/Sakera	Stove Retailer
150	Yusif Hawawu	0247806920		UWR/ Wa West District/	Stove Retailer
151	Majid Fatuma			UWR/ Wa West District/Gorgu	Stove Retailer
152	Karim Mariam			UWR/ Wa West District/Gydaayire	Stove Retailer
153	Klent	0508407767		Volta Region	Stove Retailer
154	White Dove Ent	0546645671		Volta Region	Stove Retailer
155	Dazka Esther	0246146096		Volta Region	Stove Retailer
156	Nyatah Ivy	0249141496		Volta Region	Stove Retailer
157	Mrs Gloria Agyapong	0540775821		Volta Region	Stove Retailer
158	Kofi Oduma	0246161630		Volta Region	Stove Retailer
159	Yellow Man	0548988583		Volta Region	Stove Retailer
160	Juana Adziuda	0249493405		Volta Region	Stove Retailer
161	Amazing Grace Enterprise	0246188598		Volta Region	Stove Retailer
162	Nyamekye Victoria	None		Volta Region	Stove Retailer
163	James	0542368842		Volta Region	Stove Retailer
164	Yaayaw Co Ltd	None		Volta Region	Stove Retailer

165	Shape Lives Foundation	Alexander Kedje 0244313929	Volta Region	Stove Retailer
166	Lovina Teiko	0242585877	Volta Region, Aflao	Stove Retailer
167	Margaret Oyelowo	0231059307	Volta Region, Aflao Main Market	Stove Retailer
168	House Of Cylinder (Maxwell Iwhua)	0247749622/0540879639	Volta Region, Aflao Main Road	Stove Retailer
169	Abubakar Mahmudu	0240476095	Volta Region, Anloga Main Market	Stove Retailer
170	Enyonam Agbozo	0547744872	Volta Region, Anloga Main Market	Stove Retailer
171	Insha Allahu Ent.	0245263324/0267785079	Volta Region, Anloga Main Market	Stove Retailer
172	Janet Afanu	0249565726	Volta Region, Denu	Stove Retailer
173	Eba	0208183772	Volta Region, Hohoe Near The Main Market	Stove Retailer
174	Dzigbordi Agbosu	0243637602	Volta Region, Keta-Dzeluko	Stove Retailer
175	World Market	None	Western	Stove Retailer
176	Asadul Enterprise	0312027190	Western	Stove Retailer
177	Appliance World	None	Western	Stove Retailer
178	Lygeo Enterprise	02444998091		Stove Retailer
179	Joesams Company	0244790145		Stove Retailer
180	Nyame Akwan	Ernestina Sofia Kwarteng, 0242967991	Central Region, Twifo Praso	Stove Retailer

3. Consumer preference: Key issues in stove selection

Consumers are familiar with a broad range of cooking options for each fuel type. The woodstove segment is still largely dominated by 3-stone fires although some alternatives exist (tire-rim, clay stove). The charcoal cookstove market is dominated by traditional coal pots and the Kenyan Gyeco Stoves 'Gyapas'. While the Gyapa has convinced a broad consumer segment, many are still reluctant to using it because they have doubts about the robustness of the clay liner and the value of their investment. Safety issues and fuel shortages are driving some consumers away from the LPG category. Those who would still like to use LPG are particularly attracted to the 4 burner stove with oven, due to its versatility. LPG is often used to heat up food rather than for proper cooking and therefore competes with microwaves more than with other stoves.

Consumers identified several factors would influence their decision to purchase a new cookstove. These factors can either been seen as a driver, barrier or both (polarizing) as can be seen in figure 3.

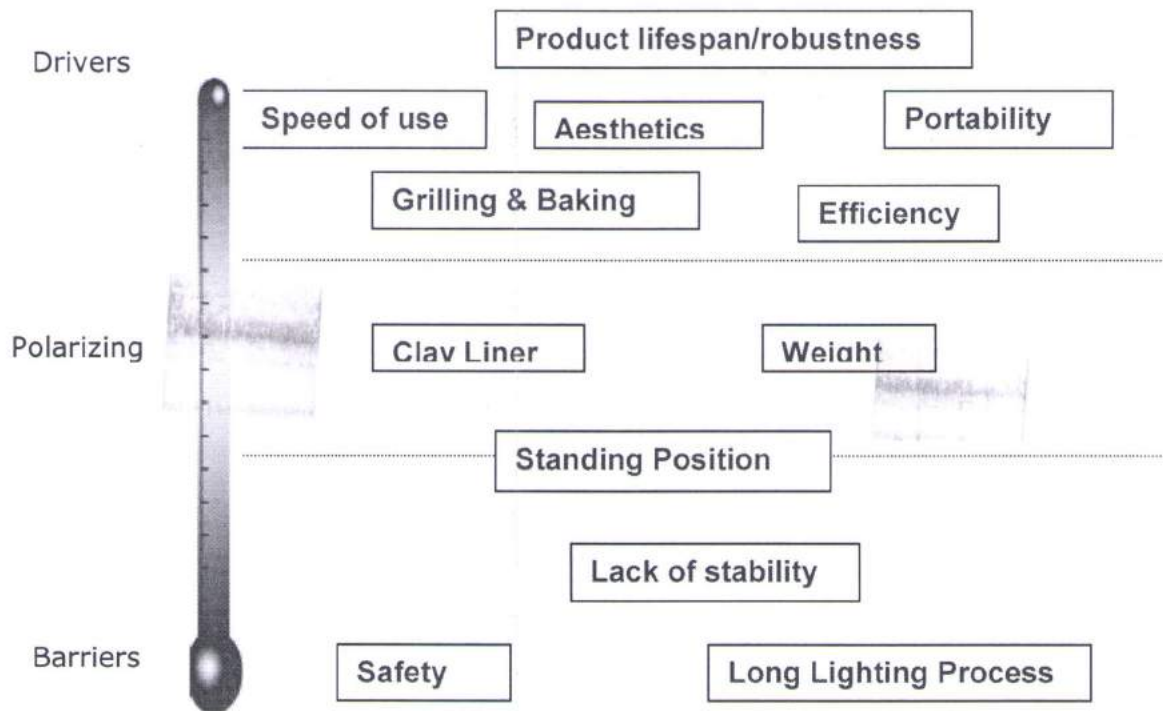


Figure 3: Consumers criteria for purchasing a new cookstove

Robustness or durability is by far the most important purchase criteria for the majority of the target women. When selecting new cookstove,

consumers focus their attention on material quality first and foremost. Value propositions which combine a long lifespan with other benefits such as speed-of-use, design, portability, or baking/grilling options will be particularly attractive.

All else equal, the interest of consumers for a given stove increased significantly when actual fuel savings could be easily noticed during the cooking tests. Being able to personally experience or observe the fuel savings is key to activate this driver. What really drives interest is the actual increase in efficiency delivered by the stove. On the other hand, specific features which can be associated with efficiency improvements turned out to be only moderately attractive. Indeed, most respondents consider air regulation doors or power regulation knobs as convenient devices but few of them actually used them during the cooking process. Similarly, pot skirts were considered as a good reason to believe that a stove would save fuel, but didn't drive a lot of interest and sometimes prevented cooks from using iron rods to prepare their banku.

A fastidious lighting process is the most significant purchase barrier mentioned by respondents. Safety issues, lack of stability, and the need to stand up while cooking can also put off some respondents.

Clay liners and heavy weight are factors that can be both positively and negatively assessed depending on the consumer's experience. For instance, adjusting the weight of a stove to please consumers is challenging. Weighing the stove is used as a test to assess material quality: if a stove is too light, consumers will conclude that the materials used to produce it are of low quality. On the other hand, excessively heavy stoves will also be rejected by consumers who like their stove to be portable.

4. Proposed Advocacy Plan

4.1 Target market segment

The consumer segmentation developed in this study has identified two key segments that clean and efficient cooking technology promoters can target. These are:

1. HI-MI Urban Charcoal : High and middle income urban charcoal users are the households for whom the potential for improved cookstoves and fuel adoption is highest due to their purchasing power and the fact that they are facing high cooking fuel prices. They account for 17% of the market, roughly 1.04 million households.

Refining the segmentation by geographic area, **Greater Accra, Western and Central regions** were identified as the most promising areas for the promotion of clean cooking solutions among high and middle income urban charcoal users due to their population size and to the price of charcoal in these regions. Together, the three regions represent 46% of the HI-MI segment.

2. HI-MI Rural Wood: High and middle income rural wood users also represent a significant opportunity for marketers of clean cooking solutions. Although, the cost of fuel is less of an issue for them, their purchasing power enables them to invest in modern home appliances. In areas where wood is becoming harder to collect in particular, they might have an additional incentive to consider clean and efficient cookstoves. In addition, they may be sensitive to other incentives such as convenience, cleanliness or speed-of-use. This segment represents 29% of the market or 1.8 million households.

The **Northern region** along with **Ashanti** and **Eastern regions** offer the best perspective for clean firewood cookstove uptake because they host relatively large high and middle income rural populations and the density of biomass suggests that there is less wood available for collection in these regions than in other populated regions such as the Western and Central regions. This creates a higher incentive to adopt more efficient cooking technologies or alternative fuels. The three regions represent 43% of the segment.

Table 12 Key Regions for HI-MI Urban Charcoal Users

Region	Population	Share of segment	Fuel Prices	Market Potential
Greater Accra	High	26.90 %	High	High
Ashanti	High	23.90 %	Low	Medium
Eastern	Medium	10.30 %	Medium	Medium
Western	Medium	9.60 %	High	High
Central	Medium	9.50 %	High	High
Brong Ahafo	Medium	8.30 %	Low	Low
Volta	Low	5.90 %	High	Medium
Northern	Low	3.10 %	Low	Low
Upper East	Low	1.60 %	Medium	Low
Upper West	Low	1.10 %	Low	Low

Table 13 Key Regions for HI-MI Rural Wood Users

Region	Population	Share of segment	Biomass	Market Potential
Greater Accra	Low	2.2 %	Scarce	Low
Ashanti	High	18.1 %	Mixed	High
Eastern	High	15.4 %	Mixed	High
Western	Medium	13.2 %	Dense	Low
Central	Medium	11.8 %	Dense	Low
Brong Ahafo	Medium	11.9 %	Mixed	Medium
Volta	Medium	12 %	Mixed	Medium
Northern	Medium	9.6 %	Scarce	High
Upper East	Low	3.7 %	Scarce	Low
Upper West	Low	2.0 %	Scarce	Low

4.2 Communication strategy

In order to assess the relevance of various communication messages to consumers, short communication ideas were presented to the respondents during the consumer segmentation study. The messages tested revolve around a different benefit:

1. Savings : The ability to save fuel and money thanks to improved Cook stoves
2. Modernity: The pleasure of cooking with comfortable, high-quality equipment
3. Health: Enjoying a cleaner and healthier kitchen due to smoke reductions

It was observed that message which focused on "**savings**" and to some extent "**Cleanliness**" as a key benefit was by far the most relevant and the most appealing to a majority of respondents.

The following key messages are proposed for use to win target market over:

1. Clean and Prestigious -
2. Fast and Easy to use
3. Saves fuel and money

For all the proposed communication strategies, reassurance on weight, durability, stability and safety should be provided as background to the main message. Product aesthetics must also be suggested through well-selected visuals.

It is important to note that the traditional coal pot is a valued element of the respondents' environment and traditions. Although consumers are aware of their limitations, they like their coal pots and feel personally criticized when the coal pot is negatively depicted in communication work.

4.3 Key Product Features

To make the needed impact in the target market, stove manufacturers should prioritize the following product improvement features:

1. **Invest in long-lasting materials:** This is by far the most important purchase criteria and creates willingness to pay for cookstoves. Quality materials convey both durability and prestige. The weight of the selected materials or at least of the final product, is crucial: cookstoves should be heavy enough to suggest quality and robustness, but still light enough to be easily transported during and after cooking. It is important to visualize aesthetics and solidity of materials on all communications/packs as this is a highly important purchase factor.
2. **Invest in insulation systems:** The study showed that clay was an attractive but polarizing insulation material. Alternatives which could convey the same benefits without arousing concerns about the robustness of the stove would have a good market potential.
3. **Promote "quick starter", "easy regulation" and "2 burner" technologies:** The target women like their cooking to be fast and effortless. Technologies which speed the lighting process, can heat two pots at a time or allow them to adjust fire power instantly are highly valued.
4. **Offer features which can increase the versatility of a stove:** Respondents like to diversify their recipes. *Examples: grill, charcoal oven...*

5. **Develop portable/transerable technologies:** Stoves which are easy to move around the courtyard and even better to travel with, appeal to consumers. *examples: handles, foldable parts, transportation bag...*

4.4 Proposed mechanism/ mediums to be used to carry message

Increasing the deployment of improved cookstoves will require behavioral, technical, and cultural approaches that will vary widely amongst communities, involving changes in public awareness, supply chains, consumer preferences, policy, and product design.

In both the mapping exercise and consumer survey, **Word-of-mouth** remains the most important channel to spread awareness and generate consumer confidence. About 90% of retailers and 80% of manufacturers indicated that their products are sold through recommendation of their customers to others. This is attested by consumers that they buy a new product mostly through referrals from friends and relatives based on the experience of the later.

Almost all participants during the consumer segmentation study, mentioned their friends and relatives as their main influence when it comes to making a purchase decision.

However, there is the opportunity to use **mass media**, particularly television (TV) to increase awareness, generate consumer confidence and build the improved cookstove brand through the Ghana Alliance for Clean Cookstoves.

For instance, **Gyapa advertising campaign** although dated back a long time ago is still remembered by many women. The women explained that the Gyapa adverts attracted their attention to the product and had a significant impact on its adoption.

In order to raise awareness of the benefits of improved cookstoves relative to traditional coal (charcoal) pots and advocate for their adoption by households and institutions and also to break successfully into the market, there is the need to adopt sustained and existing marketing strategies applicable in Ghana. These strategies have proven to be successful in promoting other policies and products and these include:

1. Sustained and continuous radio and television advertisement highlighting the benefits of using clean cook stoves,

2. Outdoor campaign and demonstration through public announcement in vans and community forums. This could be done at commercial centres (traditional markets) where it is likely to have many people,
3. Display of posters and billboards at vantage positions and the use of car stickers,
4. Collection of feedback on performance of stoves from end-users.
5. Reward for consumers through raffles.

5.0 Monitoring and Evaluation Plan

Activity	Indicators		Data collection method/source	Tools/Resources	Frequency	Responsibility
	Output	Outcome				
Objective 1: To build the capacity of manufacturers of traditional coal (charcoal) pots to produce improved and efficient stoves						
Provide technical training for existing stove manufacturers	Training Documentaries Workshop and seminars	Number of clean cookstove producers Increased number of new stove models available on the market Improved quality and efficiency of stoves	Baseline studies GLSS data Census	Expertise Funding Training Manuals	Yearly	Energy Commission GhACCO Ministry of Energy
Train manufacturers on proper record keeping and financial management	Workshop and seminars segregated by region	Improved financial management and book keeping practice	Baseline studies	Expertise Support Funding	Yearly	GhACCO
Provide financial assistance to		Increased number	Baseline studies		Yearly	GhACCO Financial

trained manufacturers.		manufacturers reporting that they have accessed finance for business development				institutions
		Increased amount of finance disbursed to stove producers by producer segment				
		Increased Number of households using clean stoves by stove type	GLSS data Baseline studies Census		Biennial	GhACCO Energy Commission Ministry of Energy
		Number of households using clean fuels				
		Reduced number of conventional coal pot in the market				
Objective 2: Increase the usage of improved cookstoves and fuels by households and institutions						
Increase access/availability of clean cookstoves/fuels in the market						

Promote clean cookstoves/ fuels	Advertisement Documentary Community forums and demonstration	Increased Number of households using clean stoves by stove type Number of households using clean fuels Number of new stove models on the market	GLSS data Baseline studies Census Interview with retailers	Mass media (Television, Radio, Posters, Billboards)	GhACCO Energy commission Ministry of Energy Ministry of Children and Gender Development
Collect feedback on the usability, durability and performance of stoves		Rate of sustained adoption of clean cooking stoves	Consumer Interviews	Biennial	GhACCO
Objective 3: Ensure durability and efficiency of manufactured stoves					
Conduct test on stoves		Improved quality and efficiency of stoves manufactured	Baseline reports	Testing laboratories/Centres	Energy commission
Develop and enforce standards and labels of stoves		Number and type of clean stoves tested	Reports from testing centres		Energy Commission
Promote quality and efficient stoves by way of labeling	Advertisement Documentary	Increased Percentage of customers able to interpret	Consumer segmentation studies	Mass media	GhACCO Energy Commission

		quality and standard labels on stoves				
Objective 4: Increase coordination and collaboration among stakeholders						
Formation of regional and National association	Workshop and Seminars	Unified voice and common code of practice				GhACCO
GHACCO liaises with financial and donor agencies for funds for stakeholders, special concessions and rates for members of the cookstove sector		Number of grant and financial aid to retailers, manufacturers and researchers in the cookstove sector	Surveys	Proposals	Yearly	GhaCCO
Formation of functional GhACCO regional coordinating offices		Active Number of regional offices Number of meetings	Reports Stakeholders interviews	Funding Support	Quarterly	GhACCO (National) Other sponsors
Objective 5: Increase awareness about the benefits of using improved cookstoves						
Conduct campaign about the health implication of using traditional cook stoves		Percentage of consumers reporting awareness of health effects of cookstove smoke	Consumer segmentation study	Funding Questionnaire	Yearly	GhACCO Energy Commission Ministry of Health
Generate	Community	Percentage of	Baseline studies	Questionnaire	Yearly	GhACCO

awareness about the benefits of using clean cook stoves	forum Documentary Product demonstration	consumers reporting awareness of benefits of clean cooking stoves	Consumer segmentation study		
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