



Increasing the Adoption and Use of High Performance Stoves in Kenya through Behaviour Change Communication

Inception Phase

Technical Summary Report

August - October 2016

Authors	Matthew Owen Mattia Vianello
Date	10 th November 2016

PRACTICAL ACTION
Consulting

Contents

Abbreviations and Acronyms.....	3
Introduction.....	4
Kenya’s Clean Cooking Sector.....	4
Cookstove Market Status	6
Cookstove Selection.....	8
Geographic Focus	10
Distribution Model.....	12
Summary	15
Appendix A: Inception Phase ToR for PAC.....	18
Appendix B: Cookstove manufacturers and importers consulted.....	19
Appendix B: Leading cookstove distributors	20
Appendix C: Distributor profiles.....	22



Abbreviations and Acronyms

BCC	Behaviour Change Communication
CCAK	Clean Cookstoves Association of Kenya
DFID	United Kingdom Department for International Development
EGF	Equity Group Foundation
GACC	Global Alliance for Clean Cookstoves
GoK	Government of Kenya
IFC	International Finance Corporation
KCJ	Kenya Ceramic Jiko
KeBS	Kenya Bureau of Standards
KIRDI	Kenya Industrial Research and Development Institute
MEC	Micro-Energy Credits
MFI	micro-finance institution
PAC	Practical Action Consulting
PS Kenya	Population Services Kenya
SACCO	Savings and Credit Cooperative

Introduction

Population Services Kenya (PS Kenya) is leading a behaviour change communication (BCC) project funded by the UK Department for International Development (DFID) through the Global Alliance for Clean Cookstoves (GACC). The project runs for 24 months from August 2016 and aims to stimulate the adoption and consistent use of 377,000 higher tier cookstoves in Kenya. Practical Action Consulting (PAC) is responsible for providing technical support on clean cooking and the national cookstoves sector, while PS Kenya is leading the design and implementation of the BCC strategy.

In accordance with the Terms of Reference in Appendix A, PAC carried out a variety of formative research during a three month Inception Phase that ran from August to October. This will inform the process of designing an evidence-based BCC campaign, which is scheduled for launch in January 2017.

This Technical Summary Report provides an overview of the clean cooking sector in Kenya (covering the main institutions, their roles and relationships, and the evolution of the sector since the 1980s), and also brings together PAC's Inception Phase findings concerning the selection of cookstoves, project focal areas and distribution modalities.

Kenya's Clean Cooking Sector

Responsibility for overall governance, regulation and coordination in Kenya's clean cooking sector lies with the Government of Kenya, with roles assigned to different state agencies in line with their institutional mandates.

The **Ministry of Energy and Petroleum**, via its Renewable Energy Directorate, seeks to promote the development and use of energy technologies based on biomass (including ethanol), as well as other renewable energy sources. While the Ministry has no specific policy objective linked to the adoption of clean and efficient cooking systems, it aims to support general 'research and development of renewable energy technologies'¹.

The Renewable Energy Directorate's **Bio-Energy Development Department** is responsible for supporting the clean cooking sector and lists amongst its functions: research, development and promotion of biomass resources and technologies; setting technical standards and regulations; developing and promoting local manufacturing capacity; and promoting private sector participation. It has Divisions responsible for woodfuel, liquid fuel and biogas, and maintains 16 Energy Centres intended (among other things) to provide training, demonstration and extension on renewable energy and energy efficiency technologies. In the past these centres were active in a long-running GIZ-managed programme to promote rural woodstoves, though nowadays they are poorly resourced and reportedly not used by the leading cookstove developers.

¹ <http://energy.go.ke/index.php/about-us/directorates/renewable-energy.html>

The government's **Energy Regulatory Commission** (ERC) was established in 2007 to regulate all forms of energy, including renewables, to collect and maintain energy data and to perform various sector coordination and monitoring functions. In practice it has so far not engaged significantly in the cookstoves sector and is not seen by industry players as a prominent stakeholder, though this could change as capacity and experience is gained. It has, for example, recently expressed an intention to introduce licences for cookstove producers in order to better control their activities, with a requirement for them to share stove sales data.

Playing a more active role already is the **Kenya Industrial Research and Development Institute** (KIRDI). KIRDI is being supported by GACC and GIZ as a national energy testing centre, and has benefitted from equipment, training and other capacity-building assistance to become a credible facility for the testing of cooking (and other) appliances for efficiency, safety and emissions.

Kenya's National Energy Policy (2014) articulates a desire to 'promote and update standards for efficient conversion and cleaner utilization of biomass including cleaner charcoal and wood burning stoves.' This responsibility falls mainly to the **Kenya Bureau of Standards** (KeBS), with the support of KIRDI for the provision of testing services.

Other government agencies with interests in the clean cooking sector include the Ministries of Agriculture, Environment and Health, and the National Environment Management Authority (NEMA).

It is fair to say that the government's role in the clean cooking sector is not strongly felt in an operational sense. A recent GACC-funded study noted that "the resources they provide have been limited ... biomass energy often loses out to higher priorities around electricity access and generation."² Thus while Kenya is a leader within sub-Saharan Africa in developing and disseminating clean cookstoves, in order to achieve large-scale market transformation there is a felt need for greater government support to users of biomass energy, recognising the significant and growing importance of this sector for the economy and people's day to day lives.

The most prominent civil society organisation in the sector is the **Clean Cookstoves Association of Kenya** (CCAK), which was formed in 2012 from the previous Kenya National Cookstoves Alliance. It has a fluctuating membership of 20-30 companies, NGOs, donors and individuals. CCAK seeks to represent and coordinate sector actors, advocate on behalf of its members for supportive government policy, create public awareness of the benefits of clean cooking and build sector capacity. It aims to contribute to GACC's global clean cooking target by facilitating the adoption of clean cookstoves and fuels by all institutions and 5 million households in Kenya by 2020.

CCAK's core functions (including an office and three staff) are financed by GACC and other funds are sourced for specific initiatives (for example from the Government of the Netherlands). Members pay annual fees from which they expect to benefit

² Ipsos (2014) *Kenya Consumer Segmentation Study*. Commissioned by GACC

from access to funding opportunities, lobbying and advocacy platforms, sector information and participation in global discussion forums via GACC.

Several international and national NGOs provide technical support and business advisory services to the sector, or disseminate cookstoves directly. Among them are Practical Action, GIZ, Energy4impact (formerly GVEP International), CARE International, SNV, Food for the Hungry, World Vision and SCODE. The main sector donors beside GACC are the World Bank, EU, USAID, DFID, UNDP and the governments of Germany and the Netherlands.

Cookstove Market Status

Sector evolution

Since the development of the Kenya Ceramic Jiko (KCJ) charcoal stove in the early 1980s, Kenya has been a pioneer in Sub-Saharan African in the adoption of modern cooking appliances for biomass. With initial support from the Ministry of Agriculture and international NGOs such as GIZ and Practical Action, various stoves were designed and commercialised for both rural and urban consumers, the most successful being the *Maendeleo* fired clay woodstove (also known as the *Upesi*). The informal sector has since developed variants of both the KCJ (for charcoal) and the *Maendeleo* (for firewood), as well as dual-fuel devices such as the *Kuni Mbili* and *Uhai*. Refer to Table 1

Table 1. Basic wood, charcoal and hybrid stoves developed in Kenya since the 1980s

		
KCJ (charcoal)	Maendeleo (firewood)	Kuni Mbili (dual fuel)

These stoves are locally-made in decentralised facilities operated largely in the informal sector, and their production continues at scale today.

With the development of the carbon market during the 2000s, the sector experienced an influx of more sophisticated stove designs (often based on the ‘rocket’ principle) with associated finance and marketing support, particularly from US-based social enterprises. Carbon developers entering the sector included CO₂ Balance, Uganda Carbon Bureau, Climate Care and Carbon Manna. Kenya now has a relatively well developed carbon market with five registered cookstove Gold Standard projects and five Programmes of Activities (PoAs) in the validation stage focusing on cookstoves. Despite the drop in the value of carbon credits, these initiatives have catalysed an aspirational market in Kenya for high quality cooking products, which various manufacturers have been able to consolidate and expand.

Kenya has adopted the draft ISO performance tiers for cookstove standardisation³, though debate is ongoing around the local suitability of the emissions standards because the available firewood stoves do not meet the Tier 2 performance level for particulate matter (PM) 2.5 and no charcoal stoves have achieved Tier 2 for carbon monoxide (CO) emissions. CCAK reports that localisation of the tiers may be required to accommodate the best-selling stoves in the market, perhaps later working towards more ambitious national performance levels.

Despite leading the sub-continent in the development of a market for higher tier cookstoves, Kenya's clean cooking sector can still be considered commercially immature. High dependency on donor finance is indicative of an industry still finding its footing and exploring the most durable models of manufacture and distribution. At the lower end of the market there are many artisanal producers of Tier 0-1 cookstoves operating without donor support, but most manufacturers of higher tier appliances are best described as social enterprises and rely on grant funding or soft loans. Some (such as Biolite) are explicitly not-for-profit and place social or health goals at the fore, while others (such as BURN Manufacturing) hope eventually to return a yield to investors, albeit investors with a social or philanthropic orientation that allow flexibility on the nature of the return.

Market potential

The latest surveys⁴ indicate that 84% of Kenyans cook with firewood or charcoal and that 49% of urban residents use liquid fuels (mainly LPG and kerosene). These headline figures conceal the widespread practice of multiple fuel use; and they make no distinction between users of advanced cookstoves and basic appliances. Thus while CCAK aims to have 5 million households practising 'clean cooking' by 2020, the definitions are unclear and neither the baseline situation nor rate of progress are known with any certainty.

Data on market size and penetration rates are similarly hard to come by. "Reliable information does not exist and there is limited data on specific market segments and on successful marketing approaches"⁵. 2014 market research by Ipsos (on behalf of GACC)⁶ produced in-depth profiles of consumers in selected market segments in three towns (Nyeri, Kilifi and Kakamega), but did not estimate total market size or current adoption rates. Some stove companies have conducted their own market assessments but are unwilling to share the findings for commercial reasons. Data gathered in 2007 by the Shell Foundation's Breathing Space Programme indicated that the market for improved stoves comprised mainly urban and peri-urban households living above the poverty line, at that time numbering an estimated 2.7M rural households and 0.7M urban households. Given that Kenya's population has since risen by 35% and become more urbanised, the market size for higher tier cookstoves might now be around 3.5M rural and 1.0M urban households. Manufacturer research by PAC suggests that market penetration is currently less than 100,000 units, representing only 2% of the potential opportunity.

³ See <http://cleancookstoves.org/technology-and-fuels/standards/iwa-tiers-of-performance.html>

⁴ 2012 data from: World Bank (2015) *Global Tracking Framework*. Washington, DC.

⁵ GVEP (2013) *Kenya Market Assessment: Sector Mapping*. Commissioned by GACC.

⁶ Ipsos (2014) *Kenya Consumer Segmentation Study*. Report for GACC.

The Ipsos (2014) research suggests that stove buyers are often attracted to a higher tier cookstove by the promise of fuel saving or faster lighting and cooking, balanced against the significantly higher cost of a better-performing device. They are less likely to be motivated by reductions in indoor air pollution and associated health benefits. This has implications for the messaging likely to be appropriate for different groups in different places, and is reflected in the branding and promotional approaches of the leading cookstove companies. These often make no mention of health benefits, though may highlight cleanliness improvements more broadly.

Even the functional benefits of higher tier stoves linked to fuel economy and speed may be of secondary interest to many potential buyers, perhaps over-stated in research because survey methods ask respondents to cite features that are tangible. “An emerging theme in the recent literature centres on the *personal, emotional and cultural drivers* in decision-making.”⁷ Intangible attractions may include appearance, status and modernity; appliances that families feel proud to own and confident to display. As reported by another recent study, “aspiration appears to be an important factor influencing decision-making on purchasing products such as cleaner cookstoves”.⁸ The marketing efforts of the leading cookstove companies are coalescing around the themes of modernity, pride, aspiration and social oneness. Figure 1 is a typical example in which functional attributes are not even mentioned. As stated on the company’s website: “*Envirofit stoves are the smart cooking solutions for modern mums.*”⁹



Figure 1. Aspirational marketing of Envirofit’s SuperSaver charcoal stove

Cookstove Selection

PAC appreciates the importance of working closely with cookstove manufacturers to ensure that the BCC campaign takes account of their extensive experience and keeps them closely engaged. During the Inception Phase, PAC therefore identified the leading manufacturers and importers of higher tier cookstoves in Kenya, and met with each of them to gather basic information on products, marketing strategies and future plans. Summary information on the companies and their products is provided in Appendix B.

⁷ Matin, N. (2016) *What boosts cookstove uptake? A review of behaviour change approaches and techniques*. Stockholm Environment Institute Discussion Brief. Stockholm.

⁸ Lambe, F. & Senyagwa, J. (2015) *Identifying behavioural drivers of cookstove use: A household study in Kibera, Nairobi*. Stockholm Environment Institute Working Paper 2015-06. Nairobi.

⁹ <http://envirofit.org/products/east-africa/#our-products>

Having identified the full range of cookstoves in the market, PAC proposed minimum functional standards for appliances to be included in the BCC campaign. After discussion with CCAK, GACC, SNV and the cookstove producers themselves, it was agreed that qualifying devices should achieve Level 2 and above in the draft ISO Tiers of Performance for efficiency, safety and PM 2.5 emissions, based on test results from credible third parties such as the Kenya Industrial Research and Development Institute (KIRDI), the University of Nairobi or established international testing facilities. This reduced the list of qualifying appliances to those in Table 2.

Table 2. Higher tier cookstove available in Kenya¹⁰

Fuel	Stove	Manufacturer or importer
Charcoal	Jiko Bora	EcoZoom
	Jiko Fresh	EcoZoom
	Jikokoa	BURN Manufacturing
	SuperSaver	Envirofit
Ethanol	SAFI stove	SAFI International
	Moto Safi	Consumer's Choice
Pellets	Homestove	Biolite Energy
	Wisdom stove	Wisdom Innovations

The GACC-supported project concerns behaviour change and lacks resources to develop supply chains for either cookstoves or fuels. It was therefore further agreed during a two day 'Delta' marketing planning workshop facilitated by PS Kenya on 18th and 19th October that it should concentrate on cookstoves already available to a significant percentage of Kenyans via existing distribution networks, and for which the required fuels are likewise accessible at scale. On this basis, the promotion of stoves that use pellets or ethanol was deemed inappropriate, because the stoves are difficult to acquire and the fuels are not available beyond the immediate vicinity of the respective stove supplier. Such devices could be addressed in the BCC campaign through generic clean cooking messaging.

It was also agreed during the Delta process that the project should focus on cookstoves for which knowledge, attitudes and behaviour are the main barriers to uptake, thus meaning that BCC efforts could make a real difference. A BCC intervention will not be impactful if other factors – such as fuel availability or high appliance cost – are the main barriers to adoption. This rules out stoves for liquefied petroleum gas (LPG), as this fuel is well known to all Kenyans but faces constraints linked to cost, storage and distribution. A 2013 industry study¹¹ estimated that \$175M would be required for additional storage and distribution infrastructure to increase LPG adoption rates from 11% to 18% of households by 2020. The further uptake of LPG thus requires enhanced infrastructure, alongside the growth of a wealthier middle class, which are both well beyond the scope of an awareness-raising initiative.

¹⁰ The table excludes the many suppliers of Tier 2+ electric, kerosene and LPG stoves, as the barriers to adoption of these technologies relate to the supply and cost of the appliances and the fuels, rather than consumer awareness, and are thus beyond the scope and potential impact of the BCC project.

¹¹ Dalberg (2013) *Global LPG Partnership: Kenya Market Assessment*. For Global Alliance for Clean Cookstoves.

Based on these deliberations, Table 3 lists the cookstoves that meet the qualifying criteria for performance, availability and uptake potential. These three products will be included in a category-specific BCC campaign, while remaining neutral on which particular device would be preferable and allowing consumers to make that choice.

Table 3: Qualifying cookstoves for the BCC project

Cookstove			
Fuel	Charcoal	Charcoal	Charcoal
Manufacturer / importer	EcoZoom	BURN Manufacturing	Envirofit

Geographic Focus

The project aims to reach urban and peri-urban populations in central and western Kenya. During the Inception Phase this urban emphasis was confirmed, in line with the choice of charcoal stoves as the chosen clean cooking category. A set of 39 towns and cities was identified across 17 counties, up from the original 11 counties but retaining tight clustering in the same regions. Refer to Figure 2.

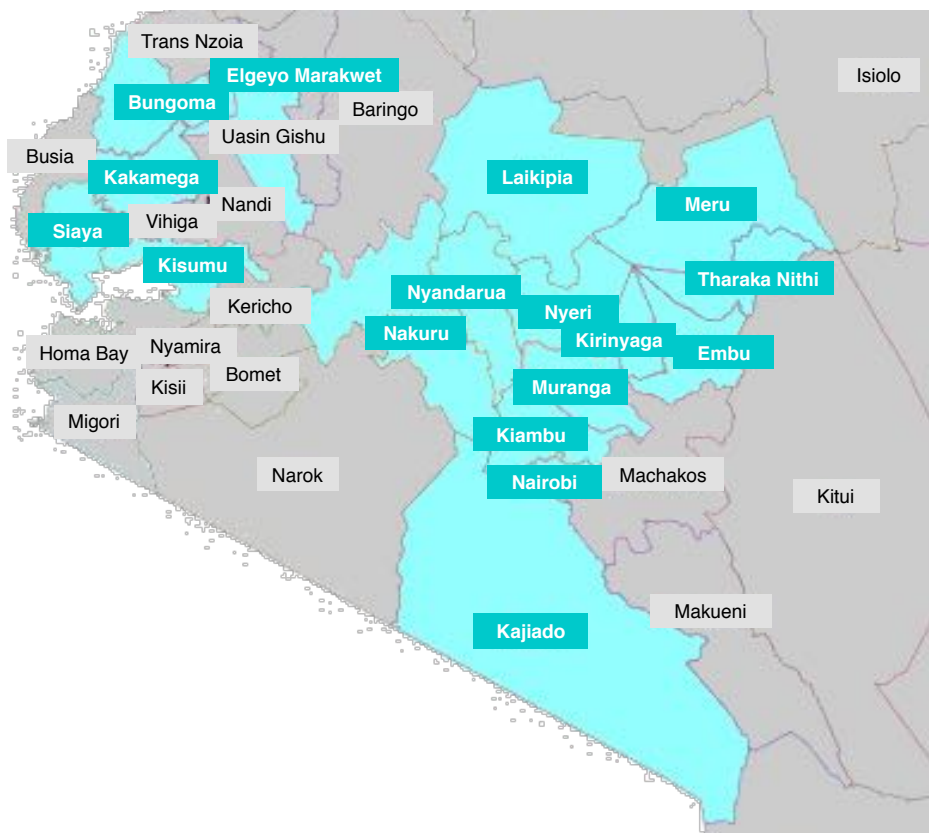


Figure 2. Revised focal counties

The towns to be covered are listed in Table 4. Note that the exact locations within Nairobi are still to be confirmed.

County	Town/urban centre
Kajiado	Kiserian
	Kitengela
	Ngong
	Ongata Rongai
Kiambu	Kiambu
	Juja
	Kikuyu
	Gatundu
	Kimende
	Limuru
	Ruiru
	Thika
Nairobi	Makadara
	Kamukunji
	Dagoretti
	Embakasi
Embu	Embu
Kirinyaga	Kerugoya/Kutus
	Mwea / Wang'uru
Laikipia	Nyahururu
Meru	Meru
Tharaka-Nithi	Chuka
Murang'a	Kangari
	Kangema
	Murang'a
Nyeri	Karatina
	Nyeri
Nakuru	Gilgil
	Molo
	Naivasha
	Nakuru
Nyandarua	Oi Kalou
Uasin Gishu	Eldoret
Bungoma	Bungoma
Kakamega	Kakamega
	Mumias
Siaya	Bondo
	Siaya
Kisumu	Kisumu

Distribution Model

Channels available

Product distribution is one of the main challenges facing producers of cookstoves for the Kenyan market, with disproportionately high costs associated with moving stoves from central storage facilities to individual consumers scattered around the country. As reported by GVEP, “although issues have been raised around product quality and scale of production, the greatest challenge in Kenya remains sales and distribution.”¹²

A register of cookstove distributors was compiled by PAC during the project Inception Phase and meetings were held with those believed to be selling at least 100 units per month. A standardised set of information was gathered on sales, geographic reach, capacity to respond to increased demand and credibility as dependable providers of cooking solutions at scale. Summary information is provided in Appendix C and further information is given on interviewed distributors in Appendix D.

The following four categories of distributor were identified:

- a) **In-house sales teams**, typically working on a combination of commission and basic salary, often with a tight geographic focus.
- b) **Specialised distributors** of household durables and lifestyle products such as solar lamps and domestic appliances, alongside cookstoves, who buy in bulk from manufacturers and on-sell to the public with a percentage mark-up.
- c) **Financial organisations** offering consumer credit so that stoves may be paid for in instalments. These include banks, micro-finance institutions (MFIs) and SACCOs.
- d) **Supermarkets** retailing a full range of consumables and consumer goods. A 2012 Citi Group study ranked Kenya the second most developed retail market in sub-Saharan Africa, with about 30% of retail shopping taking place in formal outlets¹³. Supermarkets continue to grow market share as they become the preferred outlet for middle and high-income shoppers. Kenyan consumers are also increasingly aspirational in their purchasing selections, with mid-income consumers notably focused on status purchases¹⁴.

¹² GVEP International (2013) *Kenya Market Assessment: Intervention Options*. Study commissioned by GACC.

¹³ www.businessdailyafrica.com/Supermarkets-expansion-squeezes-out-small-traders/-/539546/1528410/-/r4knkz/-/index.html

¹⁴ www.euromonitor.com/non-grocery-retailers-in-kenya/report

Table 5 summarises the main channels used by each type of distributor, with examples of each.

Table 5. Categorisation of cookstove distributors and sales channels

		Sales Model			Examples
		Door-to-door	Small groups	Retail outlets	
Type of Distributor	In-house sales team				<i>Biolite</i>
	Financial organisations				<i>Equity, Jihudi Kilimo, MEC, VEP, SACCOs</i>
	Distributors specialising in household durables				<i>Micro Energy Credits, iSmart, Living Goods, Give Watts, Pamoja Life, Klarisse, Arimathea, P&T, Human Needs</i>
	Supermarkets				<i>Naivas, Nakumatt, Tuskys, Clean Shelf</i>

N.B. Primary sales channels are shaded green, secondary channels shaded amber, unused channels shaded red.

Preferred distribution option

The PAC team consulted numerous manufacturers and distributors to develop the optimal model for cookstove distribution that can satisfy the additional demand generated by the BCC campaign, seeking to adopt a model that is simple and implementable, at the same time as being fair for all companies represented within the chosen product category. It was particularly important to take account of manufacturers' own preferences, as their support will be vital for a successful campaign, ensuring that they endorse the BCC approach, provide manpower and resources to complement direct marketing initiatives and ensure the reliability of supply chains to get their products to interested consumers in the areas targeted.

Supermarkets were ruled out as a distribution channel, as only BURN and Envirofit stoves are stocked by any of the national chains, and only BURN supplies all three market leaders (Nakumatt, Tuskys and Naivas). Ecozoom is not prepared to accept the poor payment terms applied by these chains so chooses not to use this distribution channel. Partnering only with supermarkets would therefore disproportionately favour BURN (and to an extent Envirofit), and would entirely rule out Ecozoom.

The specialised household goods distributors present a similar challenge to product neutrality. PAC analysed their product ranges and found only one distributor (Micro Energy Credits) stocking all three of the shortlisted cookstoves, though a partnership with the Equity Bank Foundation known as *Eco-Moto*. Other distributors have diverse product ranges, geographic strengths and organisational priorities (e.g. profit, job creation, female empowerment, health promotion). Finding two or three like-minded distributors for each of the selected stoves across the nearly 40 focal towns would necessitate working with potentially hundreds of separate intermediaries. This would be both confusing for consumers and unmanageable for the project team.



Partnering only with credit providers is also not an ideal option as it pre-supposes that a loan is required to buy a stove, whereas the majority of purchases are made on a cash basis. SACCOs and MFIs by definition aim to encourage loan-taking and are thus in a sense promoting a financial product rather than a cookstove. Working only with such entities would potentially limit access to stoves to those ready to take a loan, though offering credit would still be a useful facility for any consumers that may need it.

A hybrid distribution model is seen as the most viable option, building on distribution channels that carry all three products, offer both cash and credit purchase options, and keep the number and type of retail outlets as low as possible for simplicity of messaging and ease of management.

Proposed approach

Various distribution models were considered during the Inception Phase and the team is in the process of finalising a strategy under the leadership of PS Kenya. The clean energy project known as *Eco-Moto* seems to offer an attractive and viable partnership proposition for reaching the majority of the towns to be targeted. This ambitious initiative, funded by the Lighting Africa program of the International Finance Corporation (IFC) and the Equity Group Foundation (EGF), works with Equity Bank and private manufacturers to promote the adoption of both clean cooking and solar lighting solutions via 120 selected Equity Bank agents. Stoves may be bought via an innovative mobile app using either a short-term loan or by debiting a customer's current account, or directly from an Equity agent with cash (for non-account holders). Stove distribution is managed by Micro Energy Credits (MEC), which acts as a neutral aggregator of the cookstoves being promoted (which are the three also to be included in the BCC campaign).

Building on the infrastructure and financial technology of the country's most prominent bank, and with the endorsement of the three leading cookstove companies, Eco-Moto offers a promising partnering opportunity to which the BCC effort can add real value. Working alongside Eco-Moto in the same urban centres, the project can deliver multiplier benefits from a complementary campaign that will reinforce the parallel investments of IFC and EGF. PS Kenya will bring to the initiative its unique skills in inter-personal communication, working in particular at the grassroots through community-based channels that Eco-Moto does not currently reach. PS Kenya will also work above-the-line through radio programming.

Eco-Moto has limited outreach in Nairobi, because the market in the capital for solar lighting systems is deemed too limited to justify full project roll-out. As Nairobi still offers an excellent opportunity for promoting the adoption of clean cooking, it will be included in the BCC project under a separate arrangement with other distribution partners such as iSmart (see box).

iSmart is a non-for-profit company mainly grant-funded from US-based foundations, which has been distributing cookstoves since 2011 in the slums of Nairobi, Kiambu and Mombasa. It targets low-income urban households with monthly income of \$63 to \$205.

Its sales model has four components:

- (a) **Door to door sales** by agents who take up to \$75 of inventory every morning and make sales on foot. They meet 5-10 prospects a day.
- (b) **Pop-up displays** and demonstrations using a table and tent in areas where customers have expendable income, such as bank parking lots. These events drive customers to their outlets, create excitement around their brand and build trust in the community.
- (c) A least 12 **local branches** where they secure inventory and distribute products to sales agents as well as offer after sales service;
- (d) **Partnerships** with Micro-Energy Credits and SACCOs.

In addition to selling cookstoves, iSmart agents distribute solar products, reading glasses and household appliances. Over 85% of sales come from cookstoves, mainly the BURN Jikokoa, but also the Envirofit SuperSaver and an Ecozoom charcoal stove.

iSmart has trained over 2,000 people, given 920 people jobs and sold over 13,000 stoves. Sales peaked at 1,000 units/month but the average is 600-1,000. They are a major player, possibly the largest distributor of higher tier cookstoves in the country.

Growth is anticipated in Kawangware, Pipeline, Githurai, Makadara, South B, Mathare, Thika, Kikuyu, Limuru and Kitengela, plus Changamwe and Kongowea in Mombasa.

The project will include a third distribution channel to cater for potential stove buyers who are not Equity account holders or do not have access to an Equity stockist affiliated to the Eco-Moto programme. Each of the three cookstove manufacturers will be asked to provide the details of one alternative distribution outlet in each target town, and also to supply their Consumer Care hotline numbers. The details will be communicated to consumers as part of the BCC campaign, so that they have a choice of where to acquire a stove of their choosing: either via an Equity account through the mobile app, through straight purchase from an Equity agent, via an alternative local distributor or by calling the company in question to be directed to any additional suppliers in their locality.

Summary

Kenya's clean cooking sector has attracted significant donor and commercial investment over the last 30 years, and a range of higher tier products are now available through diverse supply channels. An injection of finance and expertise linked initially to the carbon market has catalysed a vibrant and growing market, in which the aspirational nature of Kenyans consumers is proving to be a strong driving force.

On the basis of extensive consultation with manufacturers and distributors, and the inclusive 2-day Delta marketing planning process, it has been decided that the BCC

project will adopt a two-level approach that raises awareness of clean cooking at generic level while promoting higher tier charcoal stoves as a brand category. This means working with the three leading manufacturers: BURN, Ecozoom and Envirofit, each of which has a product that meets agreed performance and availability criteria.

Acknowledging the significant distribution bottleneck that impedes consumer access, the project will work via existing distribution channels to ensure sustainability beyond the 21 month promotional campaign. This requires a hybrid model working in part with Eco-Moto and MEC to promote cookstoves through Equity agents and the Equity mobile app, but also informing consumers of alternative outlets in their local towns outside the Equity network. In Nairobi, where Eco-Moto is not active, the project will work also with the established distribution partner iSmart. Detailed planning of the BCC campaign is now underway and formal launch is scheduled for January 2017.

APPENDICES

Appendix A: Inception Phase ToR for PAC

Running concurrently with the consumer research out-sourced by PSK to a specialist consultancy, the project's technical team in PAC will be researching the national cookstoves sector during the project Inception Phase, confirming the products to be included and recommending an optimal distribution model.

PAC's specific tasks during the Inception Phase are as follows:

Aug 2016	<ul style="list-style-type: none"> • Output: Generate a list of producers of higher tier cooking solutions with products available on the Kenyan market, including their contact details. The assessment should include producers, importers and assemblers • Action: Make contact and meet with a cross-section of these producers to gather more detailed information on products, sales volumes, geographic reach, capacity to respond to increased demand, and overall credibility as dependable providers of cooking solutions at scale under the project. • Action: Decide upon the optimal approach to deciding which products to choose and how to link them to the BCC campaign. Share this chosen approach with PSK for onward communication to GACC. 	Consult periodically with the Clean Cookstoves Association of Kenya and the local GACC office during the Inception Phase to ensure consistency with their respective objectives and approaches, and to keep both organisations informed of developments and decisions. Consult with The Mediae Company to promote consistency in approach where possible.
Sep 2016	<ul style="list-style-type: none"> • Action/Output: Develop shortlisting criteria for cooking solutions to be included in the project. Produce a summary list of cooking solutions that qualify. • Output: Generate a list of distributors of qualifying higher tier cooking solutions in Kenya. • Action: Make contact and meet with a cross-section of these distributors to gather more detailed information on sales volumes, geographic reach, capacity to respond to increased demand, and overall credibility as dependable providers of cooking solutions at scale under the project. 	
Oct 2016	<ul style="list-style-type: none"> • Action/Output: Develop shortlisting criteria for distributors to be included in the project. Produce a summary list of distributors that qualify. • Output: Produce an Inception Phase Summary Report, bringing together the key findings concerning products, distributors, the shortlisting processes applied to select those for inclusion in the BCC campaign, and the proposed way forward for the project. This should also include a summary profile of the clean cooking sector in Kenya, including key institutions, roles, relationships and implications for the project's ways of working. 	

Appendix B: Cookstove manufacturers and importers consulted

Stove	Fuel	Price (KES)	Manufacturer/Importer	Location	People met
Bio-moto	Ethanol	n/a	Int'l R&D Africa	MESA Centre of Excellence, Kariobangi	James Kariuki
Wisdom stove	Pellets	3,500	Wisdom Stoves	Climate Innovation Centre, Ole Sangala Rd.	Dan Waitthaka
Jiko Bora	Charcoal	4,500	EcoZoom	Cathy Flats, Lenana Road	Ronald van Harten
Jiko Fresh	Charcoal	3,800			
Jiko Dura	Firewood	3,000			
Forced air gasifier	Ethanol	3,500	SCODE	Nakuru	Samuel Kisengi Laban Okeyo
Natural draught gasifier	Ethanol	3,500			
Moto Safi	Ethanol	2,200	Consumer's Choice	Auto-Litho, opp. Engen, Enterprise Rd.	Mohammed Kadhi
Jikokoa	Charcoal	3,990	BURN Manufacturing	New Horizons Ind. Park, Ruiru	Chris Akin Boston Nyer
Homestove	Ethanol	7,500	Bio-lite Energy	No office	Mercy Keraro
Super Saver	Charcoal	4,950	Envirofit	Plot 16, Kabarsiran Ave., Lavington	Tim Rump Christine Ndeto Paul Opiyo
Smart Saver	Charcoal	3,500			
M5000	Firewood	4,230			
Econofire	Firewood	2,900			
SAFI stove, 1 burner	Ethanol	3,600	SAFI international	Olympic estate, Kibera	Anthony Ojowi Barry Omotto Pheena Oyagi
SAFI stove, 2 burner	Ethanol	4,800			
Dometic stove, 2 burner	Ethanol	6,500	Leocom	Evangelical Churches head office, Valley Rd.	Jones Wambua

Appendix B: Leading cookstove distributors

Name	Location	Stoves stocked	Monthly sales	Sales model	Geography	Consumer segment
Naivas Supermarket	Sameer Business Park	<ul style="list-style-type: none"> • Jikokoa • SuperSaver 	1,000	Retail outlets	Naivasha, Nairobi, Machakos, Eldoret, Kisii, Embu, Kitui, Narok, Thika, Mombasa, Ukunda	Middle class
Nakumatt Supermarket	Road C, off entreprise road, Nairobi	<ul style="list-style-type: none"> • BURN • Jikokoa • Moto Safi 	1,000	Retail outlets	Naivasha, Nairobi, Machakos, Eldoret, Kisii, Embu, Kitui, Narok, Thika, Mombasa	Middle class and niche consumers
iSmart	Old Naivasha Rd., Kawangware	<ul style="list-style-type: none"> • Jikokoa • Super Saver 	600-1,000	Door to door in slums	Nairobi, Kiambu, Mombasa	Slum dwellers
Pee and Tee Enterprises	SHL Godowns, Mlolongo	<ul style="list-style-type: none"> • Jikokoa 	500-1,000	Retailers in different counties	Kiambu, Nairobi, Machakos	Medium and small traders
Living Goods	Gem Rd., Kileleshwa	<ul style="list-style-type: none"> • Jikokoa • Jiko Fresh 	50/county	Door to door through agents	Kisii, Busia, Thika, Kakamega	Hard to reach rural families
Give Watts	EA Business Hub, Waiyaki Way	<ul style="list-style-type: none"> • Jikokoa • Jiko Bora 	650	Parents via schools	Kilifi, Kwale, Taita, Makueni, Kitui, Machakos, Migori, Homa Bay, Kisumu, Uasin Gishu, Laikipia, Nandi, Kericho, Kajiado, Mombasa, Tharaka, Nyeri, Baringo, Vihiga, Busia, Siaya, Tana River	Farming families
Klarisse		<ul style="list-style-type: none"> • SuperSaver 	565	Women's groups and CBOs	Kisii, Nyamira, Kakamega, Vihiga, Bungoma, Kericho, Bomet, Nakuru, Kirinyaga, Muranga, Makueni, Machakos, Kitui, Embu, Meru, Kilifi, Kwale, Mombasa	Upper BOP to middle class
Visionary Empowerment Programme (VEP)	Stadview apartments, Commercial St., Thika	<ul style="list-style-type: none"> • Jikokoa • Jiko Safi • Wisdom gasifier 	300	Membership groups	Kiambu, Machakos, Meru, Laikipia, Nairobi, Embu, Kajiado	BOP markets

Name	Location	Stoves stocked	Monthly sales	Sales model	Geography	Consumer segment
Clean Shelf Supermarket	Homa Bay Rd.	<ul style="list-style-type: none"> • Jikokoa 	200	Retail outlets	Rongai, Langata, Limuru, Kiambu, Kahawa West, Ruaka, Nyahururu, Kerugoya	Upper BOP and lower middle class
Botto Solar	Nairobi Hwy., Nakuru	<ul style="list-style-type: none"> • Jikokoa • SuperSaver 	200	Retail outlets and door to door through agents	Nakuru, Eldoret, Kericho, Nairobi	Walk-in buyers
Arimathea Traders	Kakamega	<ul style="list-style-type: none"> • Jikokoa 	150	Institutions targeting members	Kakamega, Bungoma, Busia, Bungoma, Nandi	Upper BOP and lower middle class
Human Needs Project	Town Centre Bldg., Kibera	<ul style="list-style-type: none"> • Jikokoa • SuperSaver • Jiko Safi • Biolite Homestove 	35	SACCOs in slums	Kibera (Nairobi)	Slum dwellers

Appendix C: Distributor profiles

1. Naivas Supermarkets

Naivas is a private company registered in Kenya and headquartered in Nairobi. The descendants of the founders are now its shareholders. The company has 4,000 employees across all branches in Naivasha, Nairobi, Machakos, Eldoret, Kisii, Embu, Kitui, Narok, Thika, Mombasa and Ukunda. The main focus is fast-moving consumer goods (FMCG) and general merchandise. The supermarket buys cookstoves directly from manufacturers. The contribution of cookstoves to total sales is said by the category manager to be very small compared with other product lines, especially food.

The supermarket targets mostly the middle class (lower to upper). It has no marketing budget for stoves but is open to promotion by manufacturers and could offer support when requested. The chain is constantly strategising on ways to increase market share and plans are underway to open new outlets (they would not share details). This would no doubt result in higher stove sales. Traditional stoves (e.g. the KCJ) still account for most of their stove sales, which they attribute to low awareness and the higher price of higher grade stoves.

2. Klarisse

Klarisse is a social enterprise registered in Kenya as a private company with four shareholders and between 5 and 30 sales agents depending on ongoing campaigns. The governance is by a Board of Directors with an acting commercial manager (being groomed to be CEO) and a sales manager. Non-core activities are outsourced

Klarisse operates countrywide but the largest operations have been in Kisii, Nyamira, Kakamega, Vihiga, Bungoma, Kericho, Bomet, Nakuru, Kirinyaga, Murang'a, Makueni, Machakos, Kitui, Embu, Meru, Kilifi, Kwale and Mombasa. Smaller and less successful operations have been in Laikipia, Nyeri and Marsabit.

The main activities are commercial distribution of cookstoves and solar lanterns. Klarisse uses a cost + margin pricing approach. Most customers belong to women's groups, community based groups and MFIs. Sales are achieved through demonstration to these groups and through local FM stations, especially via environmental programmes. The messages emphasized are fuel and money savings, and the modernity of the stove.

Klarisse develops market partnerships with distribution channels and then sells through these organisations. Over 80% of the company's sales are cookstoves especially the Envirofit firewood and charcoal stoves. The main brands sold are the Supersaver and the M5000, with recent sales of 565 units per month. Peak sales have been 3,000 per month. The Supersaver is the flagship product and sales have reached 120 per month, with an aim of achieving 1,200 units/mth.

Klarisse has faced challenges including affordability, stove design, high distribution costs, working capital strain, and lack of awareness. They received a grant of \$170,000 for working capital, sales channel development and recruitment of female last mile entrepreneurs



3. Give Watts

This is a hybrid limited liability company owned by a Swedish not-for-profit parent organisation. The company is run by two Executive Directors (Michael Waiyaki and Jesper Hornberg) and has 33 employees in Kenya. Regions of operation include Kilifi, Kwale, Homa Bay, Kakamega, Kisumu, Laikipia, Vihiga, Busia, Siaya in order of priority and Taita, Makueni, Kitui, Machakos, Nakuru, Migori, Uasin Gishu, Nandi, Kericho, Lamu, Kisii, Narok, Kajjado, Mombasa, Tharaka, Nyeri, Baringo, and Tana River as growing areas. Central Kenya is reportedly the hardest to penetrate while Western, Lake region, coastal Kenya and Uasin Gishu are said to be more open to new technologies.

The company sell its products through schools by targeting parents who buy solar lamps or stoves in instalments over 3-4 months, on top of an upfront deposit. The school becomes the guarantor. Cookstoves account for 10% of the business but are expected to grow to 30%. Currently the company sells the BURN Jikokoa and Eco-Zoom Jiko Bora. It stopped distributing Envirofit stoves citing 'business ethics deficiencies'. Availability of the product, repair centres, warranty, competitive pricing, the sustainability of manufacturers' businesses were also cited as key factors to consider in selecting manufacturers.

Sales stand at 2,000 units/quarter and the Jikokoa accounts for 90% of this, while Ecozoom (which just started) accounts for the balance. Marketing activities include roadshows, T-shirts, fliers and music. These activities are supported by manufacturers focused on the rural areas since the urban population is already quite well exposed to the products. The company believes that the greatest stove sales growth will be in Western Kenya and Lake Victoria in the next year, e.g. Homa Bay and Kakamega. Also the North Rift and Kajjado. Their experience in Central Kenya is that most people buy from supermarkets, hence Give Watts is not putting much effort into this region. During the roadshows consumers are informed where to buy the products and how to use them, with clear follow up from Give Watts. Cost is a major factor that limits sales and result-based finance helps. It is reportedly difficult to excite customers on value versus cost.

4. iSmart

iSmart is a non-for-profit company limited by guarantee and registered locally as iSmart, though in the US they are called Livelyhoods. They are grant-funded (Rockefeller, EEP, GACC, family foundations, etc) and have been distributing cookstoves since 2011 and work in the slums of Nairobi, Kiambu and Mombasa.

The sales model has four components:

- (a) Door to door sales by agents who take up to USD75 of inventory every morning and walk on foot making sales. They meet 5-10 prospects a day.
- (b) Pop-up displays and demonstrations: setting up a table and tent in areas where customers have expendable income, such as bank parking lots. These events drive customers to their outlets, create excitement around their brand, and build trust in the community.
- (c) Local branches: at least 12 local branches where they secure inventory and distribute products to sales agents as well as offer after sales service;
- (d) Partnerships with Micro-Energy Credits and SACCOs.



In addition to selling cookstoves, their agents distribute solar products, reading glasses and household appliances (mostly Ramton brand). They can offer credit to customers who want it via Kiva, but most customers prefer to pay cash.

Over 85% of sales volumes come from cookstoves, making them central to the Smart business model. They mainly sell the BURN Jikokoa, but also the Envirofit SuperSaver and one of the Ecozoom stoves (all charcoal stoves). They have in the past stocked the Biolite and Wisdom gasifiers, but they were not selling well so they stopped.

They have trained over 2,000 people, given 920 people jobs and sold over 13,000 stoves. Sales peaked at 1,000 units/month but the average is 600-1,000. So they are a major player, possibly the largest distributor of higher tier cookstoves in the country. They seem to operate in areas where there is already plenty of product awareness, but by actually bringing the stove to people's door, they can make the sales in areas that might be seen by others as saturated.

Growth will be in the regions where iSmart is located in Kawangware, Pipeline, Githurai, Makadara, South B, Mathare, Thika, Kikuyu, Limuru and Kitengela, plus Changamwe and Kongowea in Mombasa. iSmart will continue to grow in the slum settings. iSmart targets households with monthly income of between €63 and €205. This market segment has some discretionary income.

5. Botto Solar

Botto Solar is a private company based in Nakuru. It is a family business owned by Ephraim and Edith. Botto employs 70 employees; 50 in Nakuru, 10 in Kericho, 10 in Eldoret, three in Narok and one in Nairobi (mainly institutional stoves). The company is run by two directors, a finance manager, human resources, research and development, sales and marketing manager, regional supervisor and sales agents

Botto Solar has shops in Nakuru, Eldoret, Kericho and Narok. Most sales are made through these shops. Sales agents are responsible for driving demand to the shops. For domestic stoves, sales agents reach out to individual consumers as well as organised groups and institutions. In Nairobi, they have one sales agent who sells institutional stoves

The company is best known as a manufacturer of institutional cook stoves and some KCJ domestic ceramic stoves. The company also sells BURN stoves, solar products and large institutional solar systems, and installs boilers which they also assemble.

Tier 2 domestic stoves make up approximately 10% of the company. Their main business is institutional stoves, solar products and boilers which have a higher margin. The main models are Jikokoa and Envirofit at an average of 200 stoves/month.

Walk-in cash buyers are the main customers although the traffic to the shop is driven by sales agents who work at shows, demonstrations and door to door. Botto Solar attends all ASK shows. Sales of Tier 2 stoves are mainly in Rift Valley where they have shops as people know the company and can visit the shops with good marketing.

The messages that resonates with consumers fuel saving and durability. The key is to show the consumer that there are added benefits of using the stove and how to



use it. In their opinion, Tier 2 stoves may need subsidy to drive uptake. Some people may purchase but there is need to find a way to make the stoves cheaper.

6. Pee and Tee Enterprises

This is a partnership business between Anthony Njuguna, his wife Purity and a third person Anthony Muriithi. Currently the business has no other employees. Anthony acts as the sales and procurement manager and Purity manages the finance.

The business mainly supplies BURN Jikokoa stoves in Nairobi, Kiambu and Machakos, though orders sometimes arise from elsewhere. The company buys stoves directly from the manufacturer and sells to retailers. This is done on an order to order basis and very little stock is held. They move a minimum of 500 units/month and a maximum of 1,000.

The company sells to small and medium retailers who in turn sell the product to the public. Most sales result from referrals from existing clients, though the company also does direct marketing. The messages that resonate with their consumers are faster cooking time and cost saving. Customers are inquiring about possibilities of having a firewood model. since charcoal is becoming more expensive.

The main limiting factor is competition with 6 kg LPG stoves, which cost the same as the Jikokoa. Cost is also a factor and many customers require credit. Despite a stated preference for LPG, customers still need a charcoal stove for cooking foods like pulses, since it is deemed too expensive to use LPG for slow-cooking dishes.

7. Human Needs Project

This an NGO managed by a board of Directors from both Kenya and the USA, with 35 local employees. The Kibera centre is managed by personnel trained to manage all the departments of the centre. They are overseen by a General Manager and a corporate affairs coordinator.

They are currently focussed on Nairobi, but aim to open a branch in Kisumu too. They buy stoves from distributors and sell to the community in Kibera directly from their shop. Hire purchase is available as well financing via their own SACCO.

The main activities of the organisation are to provide social amenities to the local community at an affordable price, e.g. toilets, showers, drinking water, youth training, savings and credit, and work stations for local entrepreneurs.

Stove sales contribute about 30% of total income. The main models are Jikokoa, Jiko Safi, Supersaver and Homestove (Biolite). Current sales are 25 units per month with Jiko Safi leading at 40%. Most people buy stoves for their families upcountry.

They have a budget for marketing and promotional activities through events and via social media. Stove demand is reportedly increasing though price is a barrier. At the time of the visit, they were out of stock of the Jiko Safi due to Ecozoom importation delays, but customers were still asking for it.

8. Living Goods

Living Goods is a US-based non-profit organisation operating in Kenya and Uganda. They have 70 employees and over 800 agents, with a target to grow to 1000. The aim of the organisation is to improve the health of children under 5 years. The main



activities involve distribution of health products. Cookstoves are not a major product line but are important for their agents as they can make be sold for good profit.

The company has a clear procurement, finance, marketing, operations departments as well as supervisors and field agents. Agents are in Kisii (300), Busia (500), Thika (30) and Kakamega (150; one sub-county only).

One agent is in charge of 100 households and makes door-to-door sales. The agents get to know families well and the organisation has achieved excellent coverage in its target areas. Stove models have included BURN Jikokoa (90%) and Ecozoom Jiko Fresh. Wood stoves do not sell unless they cost less than \$20 and are not of interest to Living Goods. They sell an average 50 stoves per county per month with no real promotion. With organised promotion they thing sales could easily rise.

Living Goods work in areas of very low income earners, mostly farmers and women, with agents making door to door sales. They have done market activations with BURN and SMS campaigns with Ecozoom.

Consumers are interested in aspirational products, cost saving, high quality and durability. Communicating health benefits is seen as misleading because this is not yet sufficiently demonstrated. They believe that campaigns need to raise consumer awareness and education on what is an efficient stove and why it is valuable. Their experience is Kenyans are prepared to pay much more for a stove (\$20-40) than Ugandans. If the price is between 40 and 20 USD they can purchase. Living Goods used to rely on carbon finance, but with the collapse of this market they use other funds to subsidise the stove prices.

9. Clean Shelf Supermarket

Clean Shelf is a family business run by the sons of the original founder. The procurement manager claimed there were over 600 employees. There are eight branches and some are said to employ over 100 people. Stores are located in Rongai, Lang'ata, Limuru, Kiambu, Kahawa West, Ruaka, Nyahururu and Kerogoya.

The supermarket buys the Jikokoa from distributors, not the manufacturer. Other products stocked include food, drinks, furniture, kitchenware and cosmetics.

The procurement manager disclosed that the cookstove business did not contribute much compared to other activities. They are moving an average of 240 units/month, but this is little against KES 3 billion annual turnover. Larger branches can move 40 units/month and smaller branches 20-30 units/month. The supermarket targets the lower middle class. Currently there is no marketing program or budget for the Jikokoa and other stoves.

The procurement manager thinks that prospects for growth are good, with more customers asking for the Jikokoa as it is more efficient than other stoves, They introduced the Jikokoa two years ago, starting with five stoves per branch, which initially took up to two weeks to move. They have no experience in campaigns, and did not know the limiting factors to stove uptake.

10. Arimathea Traders

Arimathea is a family business, managed by two directors with six employees. They operate in Kakamega, Bungoma, Busia, Vihiga and Nandi counties. The organisation deals mainly with cookstoves and solar products by marketing through institutions.



Stoves contribute 60% to their income. The company can move 150 units/month. The traditional jikos contribute 2% of sales. The business targets Institutions like SACCOs in order to reach out to members. Marketing is based on hands-on demonstrations to group members.

11. Nakumatt Supermarkets

The contact for Nakumatt Supermarket was initiated through Tradecare networks who put us in contact with the cookstoves procurement head, Mr. Kagwara. He initially advised that any engagement should be organised through their suppliers. However, a meeting was secured and was attended by both Mr. Kagwara and the head of Promotions, Joseph Waiganjo, at Nakumatt's head office.

The meeting mainly focused on providing information to Nakumatt on the campaign, what clean cookstoves are and why they are important, as well as on hearing expectations from Nakumatt.

Nakumatt was keen to establish details of what this campaign is about and know how they can position it within their organisation. In the end, an agreement was reached that if PSK/PAC wanted to engage with Nakumatt in the campaign, a note should be prepared providing relevant background information and proposals on how to engage with the chain, with possible scenarios of what would be expected from them. Such a proposal would be presented to their senior management before a decision is made.

12. Visionary Empowerment Programme (VEP)

VEP is a locally registered NGO with Bernard Karanja and Anastacia Wairimu as the Managing Directors. It currently employs 20 people in all its offices. The main office are in Thika (Commercial Street) and areas of operation are Kiambu, Machakos, Meru, Laikipia, Nairobi, Embu and Kajiado.

The organisation operates a model of distribution that involves selling through groups e.g. women's groups and SACCOs. Their portfolio includes renewable energy (solar lamps) and improved cook stoves, via micro lending. Cookstoves contribute 30% of total activities.

VEP's cookstove brands are Jikokoa, Ecozoom stoves and the Wisdom gasifier. The organisation is able to move 300 units per month, with brand contribution being 50% Jikokoa, 30%, Ecozoom, 20% Wisdom. The organisation targets the BOP market.

VEP markets through regional newspapers and magazines, as well as energy forums. These activities are budgeted for by the organisation. The Manager anticipated the organisation to grow 20% in the next year due to increasing product demand. The main message that resonates with their markets is availability of credit. The organisation has been involved in a campaign before, though not for cookstoves.

Lack of awareness of cookstoves is said to be the main limiting factor for the uptake, followed closely by price and lack of consumer finance products. VEP has not received any grants linked to cookstoves.

