ENVenture Business Fellow Report

COMMUNITY ECO ENERGY CENTRES LTD
High Quality Energy Efficient Technologies

May 2017
Kasese District, Uganda
Foreword

The following report provides a narrative of the performance of a project undertaken between February and May 2017 in Kasese District, Uganda.

The project was the result of a partnership between the ENVenture business fellow and Friends of Nature Uganda (FoNU), a Community Based Organisation (CBO), based in Kasese Town. The project was funded by ENVenture, an NGO based in the US with offices in Uganda and they provided support, assistance and mentorship throughout the duration of the project term.

The basic aims of the project were simple: to set up a successful business selling clean energy products. But in line with ENVenture’s wider aims and goals, and those of FoNU, the project also aimed to increase awareness of the benefits of clean energy technologies, to educate the local public on the environmental and public health dangers of traditional lighting and cooking methods and to improve the livelihoods and budgets of the largely rural local population.

Moving forward, it is the continuing goal of the business that we set up – Community Eco Energy Centres Ltd (CEEC) – to expand, to continue in its educative mission and to increase access to low cost lighting, cheaper and improved cooking technologies and water that is safe to drink. In doing so, the overall goal is to improve local living standards and importantly, to protect the environment.

Mark Kelleher
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**1. Introduction**

**Location:** Kasese & Bwera, Kasese District, Uganda

**Partner CBO:** Friends of Nature Uganda (FoNU)

**CBO Director:** Paul Kamalah

**Time Period:** 13th February 2017 to 22nd May 2017

With the help and financial assistance of ENVenture, FoNU, a Community Based Organisation headquartered in Nyakasanga District, a suburb of Kasese, planned to establish a separate enterprise retailing solar powered lights, improved cookstoves, water purifiers and energy-saving briquettes that have been approved by ENVenture. To achieve this end, ENVenture also sent a business fellow to guide and mentor them through the process of setting up the private enterprise.

FoNU was established in 2010 and has been active since, maintaining working relationships with the district environment and natural resources departments and to other NGOs and CBOs in the area, including a close working relationship with WWF, with whom FoNU had been promoting efficient cookstoves and solar even before the start of the current project.

FoNU’s stated objectives are:

- **Bio-Diversity Conservation:** Promote local understanding and appreciation for nature conservation and improve livelihoods through the sustainable use and management of environmental goods and services.

- **Tourism:** Promote and support local community tourism development initiatives, improve community protected area relationships and tourism travel and information services.

- **Disaster Preparedness and Management:** Support and empower local communities to identify and address potential environmental risks and vulnerabilities and develop local capacities to prevent and mitigate disasters including hunger.

- **Waste Management:** Promote environmental rights to a safe and clean environment and support vulnerable communities to address waste management problems including campaigns against indoor and outdoor pollution.
FoNU is already engaged in a number of activities to achieve the following, which include:

**Tree Planting:** FoNU supports individual and group farmers to revegitate bare hills through establishing woodlots and promoting eco-friendly methods of farming.

**Water catchment protection:** the CBO works with communities to develop and implement management plans for the sustainable use and management of wetlands, riverbanks, springs etc.

**Clean energy and climate change mitigation and adaptation:** The CBO is actively raising community awareness, distributing clean energy technologies – in particular solar, improved cookstoves, biogas, briquettes etc. to households and institutions.

**Waste Management and Recycling:** The CBO is actively buying metal and plastic scrap and resells them to agents for recycling plants. This was their first social entrepreneurship venture.

**Support community tourist initiatives:** through training community roups and youth in handicraft making, support community engagement with UWA on resource access and revenue sharing, tourism guiding, travel and information services.

The help provided by ENVenture was access to a revolving loan, and a business development fellow to provide mentorship in launching the business, taking the business concept defined by ENVenture, repackaging and adapting it to meet local needs all the way to execution.

ENVenture aims to create and expand sustainable goods businesses in the developing world. In doing so, it aims to increase access to low cost lighting, energy efficient cooking and clean water that will improve health and sanitation, living standards and local environment, all the while cost-saving through efficiency to create money-saving opportunities for the local population.

The ENVenture fellow helped to set up a sustainable enterprise in Bwera, in south-west Uganda, near the DRC border. The fellow worked with FoNU employees in order to establish the business, and after assisting in the day to day running of the business, suggesting avenues for future growth and helping to overcome obstacles that emerged in the quotidian practice of the business.
It is FoNU’s goal that eventually, the local population will move away from environmental and health damaging sources of energy and toward clean, efficient energy practices, while promoting the wellbeing of the populace as a whole. In time, the enterprise aims to expand, to become the regional leader in clean energy products and services.

2. Market Research

Before embarking on the establishment and running of the business it was decided that we needed to fully understand the existing situation in the local area, and to ask, what were people’s and families’ existing cooking/lighting/purifying preferences and what were their aspirations for the future? In addition, it was necessary to take stock of the existing options available in local shops, at markets and from hawkers in order to differentiate ourselves from the competition.

To do this, we conducted two market research studies. The first of these was an in-depth study of the local population spread across three geographic areas; Kasese, Bwera and Customs. We were also careful to conduct interviews in differing locations within these areas, mixing urban, rural and suburban respondents in order to get a mix of needs and preferences from the study. The second research study was a smaller study, that of competitors based in Kasese and Bwera and was used in order to see what the market was like, and what other products were at that stage being sold.

2.1 Customer Survey

Research Objectives

- Get to know the needs and circumstances of a diverse set of potential customers
- Discover what are current practices and expenses linked to energy use/access and water use/access.
- Investigate which products are most attractive to the consumer and form an understanding of their willingness to pay thresholds for such products.
- Build an image of the principal anxieties/challenges related to energy use through the area.
- Confirm what are the principal factors influencing uptake and decision-making processes.
**Research Design**

The basic design of both studies was very similar, though the interviews with competitors were a little more in-depth due to the lower number of interviewees and their proprietary knowledge.

- Basic questionnaire, no longer than two sides of A4
- Minimise the use of hypothetical and qualitative questioning
- Interview to last no longer than 30mins (ideally, 15 – 20mins)
- Interviews to be conducted face-to-face, using an interpreter where necessary.
- Interviewees should come from a variety of socio-economic backgrounds and spread over rural, urban and suburban areas. To achieve this interviews will be conducted in:
  - Kasese town
  - Bwera town
  - Customs trading centre
  - Kisaka
  - Kanyageya

**2.2 Results**

In total, 45 interviews were conducted. Of the respondents, 22 males and 23 females took part. 33% lived in urban areas, 31% lived in suburban areas and 36% were living in rural areas. The average household size was 6.3 members. Most of the respondents identified as businesspeople or farmers (30% each) with the former mostly living in urban areas and the latter being almost uniformly rural.

**Cooking**

The most popular source of cooking fuel was firewood, with 28 out of 45 respondents reporting that it was their main source of cooking fuel (62%). Charcoal was also a popular source of fuel, with 15 respondents using it as their main cooking fuel (33%). However even in cases where charcoal was a main source of fuel firewood was still used, in order to ‘get a fire going’, to be used instead of charcoal when time was of the essence, or as a stand-by in cases where charcoal was not available due to cost.
Average household expenditure on cooking fuel per day – across all fuel sources – is UGX 2,388. However, both the mode and median expenditures are a bit lower, at UGX 2000, once some of the outliers have been taken into account.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Cost</th>
<th>Lifetime</th>
<th>Fuel/day</th>
<th>Outdoors?</th>
<th>Cooking time</th>
<th>Smoke?</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Stone</td>
<td>11</td>
<td>0</td>
<td>-</td>
<td>UGX 3,091</td>
<td>36%</td>
<td>3.2hrs</td>
<td>81.82%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>12</td>
<td>UGX 11,792</td>
<td>7.7mths</td>
<td>UGX 1,692</td>
<td>75%</td>
<td>2.64hrs</td>
<td>8.33%</td>
</tr>
<tr>
<td>Clay</td>
<td>16</td>
<td>UGX 3906¹</td>
<td>4.9mths</td>
<td>UGX 2,429</td>
<td>19%</td>
<td>3.13hrs</td>
<td>68.75%</td>
</tr>
</tbody>
</table>

**Water**

According to our findings there are two principal sources of water available to the population of Kasese district, either by using local natural water sources, or springs, or by purchasing water from a tap, using jerry cans to transport the water between the tap and the home.

<table>
<thead>
<tr>
<th></th>
<th>Tap</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>25</td>
<td>19</td>
</tr>
</tbody>
</table>
| Treatment Options
  | Boil | 8     | 11     |
  | WaterGuard | 6    | 0      |
  | None | 11   | 8      |
| Average Cost per week | UGX 4,283 | UGX 763 |

**Lighting**

Lighting is an extremely important access issue for almost all houses in Uganda. According to the 2014 census, just 20% of all Ugandan households had access to electricity, though this figure is much lower – around 5% – in rural areas. In fact it is the goal of the government as stated in their *Rural Electrification Strategy and Plan 2013-2022* to reach an energy access penetration rate of 22% in rural areas by 2022, only by then bringing rural areas into line with what is already considered to be the national average.

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¹ Average cost for a clay stove increases (UGX 4807) when one removes three of the respondents who claimed their stove cost UGX 0 to install as they were homemade using locally sourced materials.
Based on our findings, households possess an average of four indoor lights, and use artificial light for an average of 4.6 hours per day, across all energy sources.

The cost of lighting fuel was obviously a large issue among interviewees – but so was supply. Some of the solar users we interviewed were dissatisfied with their solar application due to weak battery issues and irregular light. However these customers often had older systems that needed to be updated, or in one unfortunate case, had bought a system from an unscrupulous street vendor that had sold them a poor system.

Many Umeme users were not happy with the supply of grid power, citing regular outages as a frequent problem. At the same time no one we interviewed that used Umeme were from rural or suburban areas – all were urbanites. These rural and suburban users were dissatisfied at the poor dispersion of Umeme throughout the country.

<table>
<thead>
<tr>
<th>Source</th>
<th>No of Users</th>
<th>% of Whole</th>
<th>Cost</th>
<th>Hrs of Light</th>
<th>No of Lights</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerosene</td>
<td>25</td>
<td>56 %</td>
<td>UGX 21,535 / month</td>
<td>3.8</td>
<td>2</td>
<td>Smoke pollution leading to health effects (60%). Dangerous for children, smoke damage to home.</td>
</tr>
<tr>
<td>Solar</td>
<td>11</td>
<td>24 %</td>
<td>UGX 407,730 / system</td>
<td>4.3</td>
<td>4</td>
<td>Insufficient lights, weak battery. Have to keep candles on the side for when the lights run out.</td>
</tr>
<tr>
<td>Umeme</td>
<td>8</td>
<td>18 %</td>
<td>UGX 31,875 / month</td>
<td>7.75</td>
<td>7.75</td>
<td>Ireggular supply and frequent power outages (50 %). Poor distribution of Umeme throughout the country – almost none in rural areas.</td>
</tr>
</tbody>
</table>

### 2.3 Competitor Analysis

In addition to acquiring knowledge of our customers, it was felt important that a proper survey of competitors in the local area was also carried out in order to ascertain which products were already being sold, and identify any gaps in the
market for products that are popular with consumers but are not readily available to purchase in the local environment.

**Competitor Analysis Methodology**

- Undertake trips to electrical outlets/hardware stores in Kasese, Bwera and Customs.
- Take details of any clean energy products that are currently being sold.
- Enquire about prices to determine the market value of clean energy products.

**Kasese**

There are many electrical shops and hardware shops in Kasese centre selling solar goods. On the whole these are shops that sell solar energy products as part of their range of electronics, rather than being shops focussed on clean energy home products per se, though there are outlets of SolarNow and M-Kopa situated in the town centre fulfilling this role.

Though there are a range of suppliers for solar products in Kasese centre, this is not the case for other clean energy goods. During our visit to the town centre, we did not see any stores selling improved cookstoves, for example, or any stores selling water filters. There is a bi-weekly market in Kasese, Mawa Market (Mon and Thur), where charcoal stoves may be purchased, and even improved cookstoves. However, the quality and provenance of their manufacture must be questioned. Life spans of cookstoves bought from the market have been reported to range from anywhere between 1 month and 2 years. Most of the stoves that are sold at the market are made from scrap metal or clay; but improved cookstoves are also popular. These improved cookstoves closely resemble the Ugastove, but on closer inspection the quality of their manufacture looks to be lower than the Ugastoves that the project team have come into contact with in the past. There were no firewood stoves – improved or otherwise – on sale at Mawa Market on the day the research team visited, despite the fact that firewood remains an extremely popular choice of fuel for most households, especially those that live outside Kasese centre. Charcoal is widely available at the market, bought mostly in small quantities but also available to purchase per bag (indeterminate weight). No fuel efficient briquettes were on sale.

**Bwera and Customs**

The options available to consumers in Central Bwera and Customs (a suburb of Bwera, located on the border between Uganda and the DRC) wishing to purchase
clean energy products are nowhere near as developed as those to be found in Kasese.

During our trip to Bwera we found two businesses selling clean energy products. The first of these was a shop selling electrical goods and DVDs. Like many of the stores in Kasese, individual components were available for purchase, to be later put together into a system by the customer or a technician, inviting the problems and further costs outlined above. On sale were Sunshine Solar and Stormtech solar panels, ranging from 10W (UGX 30,000) to 30W (UGX 120,000) also available were strip lights (UGX 6,000). Other peripherals such as charge inverters or batteries would have to be purchased separately.

The second business was a dedicated shop, specialising in the sale and installation of large scale solar systems. All items needed to set up a domestic or commercial system were stocked – panels, batteries, LEDs, generators, back-ups, water heaters etc. Panels were priced at UGX 3,500 per watt and home system prices started at UGX 450,000 (30W panel, 17Ah Battery, 4 lights, radio and charger). Installation was priced separately, depending on the size of system, at around UGX 20 – 30,000 per installation.

The only cookstoves we saw on sale were not in Bwera but in Customs. One shop selling household goods and hardware stocked improved cookstoves, similar to the Ugastove but not of the same quality. These cookstoves resembled closely the cookstoves on sale in Mawa market. These retailed at UGX 20,000 (S2).

A much more detailed version of the final market research paper is available in the appendix, containing more information and fuller examples. Also in the appendix is the tabulated results of the entire set of market research responses, which offers better clarity on the above.

3. Store Location

As a result of the market research we did, it was felt that the market was perhaps less well developed in Bwera and Customs and therefore that FoNU could use a first mover advantage in these areas, rather than competing with established stores in Kasese, despite the fact that Kasese possesses a much more vibrant commercial centre.
Initial suggestions were for the store to be located in a rural Trading Centre, as FoNU had contacts in the area that could be used as shopkeepers, rents were lower, and these rural inhabitants rarely had the chance to take a trip into town. After a visit to the trading centre, above, it was felt that the location was too remote and that there would not be enough of a first-mover advantage to make up for the lack of regular footfall.

In addition, we discovered that the location is liable to be cut off from the rest of Bwera during the rainy season when the roads are impassable by car or truck. This would represent a problem for getting new stock, some of which is quite heavy and bulky.

As a result of these observations, it was decided that the next course of action should be to look closer to the town centre for any suitable vacant shop fronts. Fortunately, one of the competing solar stores in town had recently changed premises to a larger store slightly out of town and the original solar storefront was left vacant. Situated on one of Bwera’s main roads, on the way to the hospital, this road is a popular road for commuters that live in the hills above Bwera, and for hospital staff. It has a large shopfront, with room for deliveries to be made and demonstrations to be put on.

The interior had also been recently painted, meaning that the amount of renovation to the store would be minimal. All we needed to add were some display shelves, shop furniture and a sign out front. The shop size is fairly compact, in line with other retailers in the area but FoNU already has a storage space nearby so any stock overflow wouldn’t represent too much of a problem.

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2 See appendix for the design of the shop sign
4. Marketing

Due to the size of the town and the location of the store on one of the main thoroughfares, one of the most important channels of marketing the new enterprise, particularly in the first few weeks, was through word of mouth.

Each morning, the shopkeeper would set up a display of products on the veranda outside the store, providing a focal point for passersby and drivers, and providing a snapshot of the products that we had in stock at any time.

We also had a number of contacts in the area, technicians that had worked for FoNU in the past that live in the rural areas outside of Bwera, and staff at a popular local hotel, for example. Using these contacts was crucial to reaching a wider audience.

We designed some fliers advertising the store, and advertising the store opening\(^3\), once this had been organised. These were distributed to local people and businesses, containing information on our address and opening hours, and with pictures on the front of a selection of our stock. We also organised a promotion whereby anyone that gave in the flier when making a purchase from the store up to and including the opening day would be made eligible for a 5% reduction in the price of goods bought.

5. First Order and Budget

Before opening the store, we needed to make our first order and set out a rough budget for ourselves. The results of our market research had indicated that most people were interested in improved cookstoves by quite a margin, then solar and finally water purifiers.

Most of those that expressed an interest in solar had enquired about 4 light systems with peripherals. However, being our first order, we decided that we did not want to spend too much, and instead get a feel for what the customers were buying before working our way up to ordering larger multi-light systems. In total, we ended up spending UGX 3,592,400 (just over $1000) on the first order. This represents half of the ENVenture loan. Full details of our first order budget are below.

\(^3\) See appendix for the flier design/c
<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Product</th>
<th>Qty</th>
<th>COST</th>
<th>GROSS</th>
<th>PROFIT</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenlight</td>
<td>Pico</td>
<td>10</td>
<td>UGX 220,000</td>
<td>UGX 300,000</td>
<td>UGX 80,000</td>
<td>36.36%</td>
</tr>
<tr>
<td>Greenlight</td>
<td>King Home 120</td>
<td>5</td>
<td>UGX 1,190,000</td>
<td>UGX 1,500,000</td>
<td>UGX 310,000</td>
<td>26.05%</td>
</tr>
<tr>
<td>Sunny Money</td>
<td>SM 100</td>
<td>24</td>
<td>UGX 432,000</td>
<td>UGX 528,000</td>
<td>UGX 96,000</td>
<td>22.22%</td>
</tr>
<tr>
<td>Ultratech</td>
<td>D.Light S100</td>
<td>5</td>
<td>UGX 350,000</td>
<td>UGX 425,000</td>
<td>UGX 75,000</td>
<td>21.43%</td>
</tr>
<tr>
<td><strong>TOTAL SOLAR</strong></td>
<td></td>
<td></td>
<td>UGX 2,192,000</td>
<td>UGX 2,753,000</td>
<td>UGX 561,000</td>
<td>25.59%</td>
</tr>
<tr>
<td>Potential Energy</td>
<td>Mirembe S1</td>
<td>20</td>
<td>UGX 300,000</td>
<td>UGX 400,000</td>
<td>UGX 100,000</td>
<td>33.33%</td>
</tr>
<tr>
<td></td>
<td>Mirembe S2</td>
<td>10</td>
<td>UGX 200,000</td>
<td>UGX 250,000</td>
<td>UGX 50,000</td>
<td>25.00%</td>
</tr>
<tr>
<td>Int Lifeline</td>
<td>Firewood Stove</td>
<td>10</td>
<td>UGX 120,000</td>
<td>UGX 170,000</td>
<td>UGX 50,000</td>
<td>41.67%</td>
</tr>
<tr>
<td>Awamu Biomass</td>
<td>Biomass Stove</td>
<td>5</td>
<td>UGX 205,000</td>
<td>UGX 250,000</td>
<td>UGX 45,000</td>
<td>21.95%</td>
</tr>
<tr>
<td>Briketi</td>
<td>Briquettes</td>
<td>313</td>
<td>UGX 250,400</td>
<td>UGX 313,000</td>
<td>UGX 62,600</td>
<td>25.00%</td>
</tr>
<tr>
<td><strong>TOTAL COOKSTOVES</strong></td>
<td></td>
<td></td>
<td>UGX 1,075,400</td>
<td>UGX 1,383,000</td>
<td>UGX 307,600</td>
<td>28.60%</td>
</tr>
<tr>
<td>Spouts of Water</td>
<td>Purifaaya</td>
<td>5</td>
<td>UGX 325,000</td>
<td>UGX 375,000</td>
<td>UGX 50,000</td>
<td>15.38%</td>
</tr>
<tr>
<td><strong>TOTAL PURIFIERS</strong></td>
<td></td>
<td></td>
<td>UGX 325,000</td>
<td>UGX 375,000</td>
<td>UGX 50,000</td>
<td>15.38%</td>
</tr>
<tr>
<td><strong>GRAND TOTAL</strong></td>
<td></td>
<td></td>
<td>UGX 3,592,400</td>
<td>UGX 4,511,000</td>
<td>UGX 918,600</td>
<td>25.57%</td>
</tr>
</tbody>
</table>

It should be noted that although the above is the budget made for our first order, the order we finally made was somewhat different. For instance, The King Home 120 was not available to order from Greenlight when we came to make the first order so we had to do without this product when opening the store. Similarly, the Ultratech D.Light S100. The Awamu Biomass stove was also unavailable at the time and we were only able to acquire two bags of Briquettes instead of eight. The lesson learned is that it is always valuable to allow oneself plenty of time when ordering, and to be dynamic and flexible when calling suppliers as when there are problems with availability and alternative is usually offered.

Only the loan money from ENVenture was used to order our first consignment of stock. Transport costs from Kampala, the costs of new furnishings for the shop and other miscellaneous costs such as printing fliers, a shop sign and so forth all came from the budget set aside by FoNU for the set up and inauguration of the new sustainable enterprise. The budget for these costs is presented below.

<table>
<thead>
<tr>
<th>Fixed Costs</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising for Opening (flyers, radio)</td>
<td>UGX 150,000</td>
</tr>
<tr>
<td>SIM cards</td>
<td>UGX 6,000</td>
</tr>
<tr>
<td>Mobile money registration</td>
<td>UGX 6,000</td>
</tr>
<tr>
<td>Uniforms (shirt + hat) for shopkeepers and manager</td>
<td>UGX 30,000</td>
</tr>
<tr>
<td>Business Cards/Stationery</td>
<td>UGX 50,000</td>
</tr>
<tr>
<td>Decorating (paint + brushes)</td>
<td>UGX 60,000</td>
</tr>
<tr>
<td>Office Furniture/Fixtures</td>
<td>UGX 75,000</td>
</tr>
<tr>
<td>Operating Cash (for change)</td>
<td>UGX 50,000</td>
</tr>
<tr>
<td>Point of Sale Hardware/Software (receipt book, invoice book, a sales record book)</td>
<td>UGX 25,000</td>
</tr>
<tr>
<td>Signposts (one for hanging, one for moving with)</td>
<td>UGX 100,000</td>
</tr>
</tbody>
</table>
## Deposit on Rent
<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating license</td>
<td>UGX 60,000</td>
</tr>
<tr>
<td>Registration Fee</td>
<td>UGX 20,000</td>
</tr>
</tbody>
</table>

**Total Non-Recurring Expenses**: UGX 832,000

## Launch Expenses
<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hire of PA system</td>
<td>UGX 100,000</td>
</tr>
<tr>
<td>Honorarium</td>
<td>UGX 100,000</td>
</tr>
<tr>
<td>Security</td>
<td>UGX 50,000</td>
</tr>
<tr>
<td>Hire of furniture</td>
<td>UGX 12,500</td>
</tr>
<tr>
<td>Beverages &amp; Cookies</td>
<td>UGX 75,000</td>
</tr>
<tr>
<td>Travel</td>
<td>UGX 60,000</td>
</tr>
</tbody>
</table>

**Total Launch Costs**: UGX 397,500

## Variable Costs
<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing (travel for moving through villages with partners)</td>
<td>UGX 50,000</td>
</tr>
<tr>
<td>Employee Lunch/Cookstove Demo</td>
<td>UGX 42,000</td>
</tr>
<tr>
<td>Rent for shop space</td>
<td>UGX 100,000</td>
</tr>
<tr>
<td>Employee Salaries</td>
<td>UGX 100,000</td>
</tr>
<tr>
<td>Travel</td>
<td>UGX 75,000</td>
</tr>
<tr>
<td>Airtime/Data for mobile phone</td>
<td>UGX 40,000</td>
</tr>
</tbody>
</table>

**Total Average Monthly Operating Expenses**: UGX 407,000

x **Number of Months**: UGX 4,884,000

**Total Monthly Operating Expenses**: UGX 509,458

**TOTAL Y1 EXPENSES per month**: UGX 1,162,791

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### 6. File Management System

A file management system was initially designed in excel, to keep track of all sales, costs, orders and customer after care.

However, early on in the running of the store it became apparent that the complexity of these computer-designed spreadsheets made them rather unwieldy to use for someone without existing Excel skills using them on a mobile phone. Though we had some success using them on a laptop – even with someone that had no existing Excel skills (they had been designed specifically for someone with no
Excel skills, and would need no formulae to be filled in) the likelihood of FoNU being able to supply the store with its own computer in the near future is very low.

Furthermore, the it was noted that in cases where there were any technical problems, the skills required to overcome these were not present – incurring further costs in future should a technician need to be called. It was decided therefore to stick to a paper-based system for the time being, at least until the enterprise has had a chance to grow.

The file management tools have been left with FoNU for their potential future use, and should a member of staff come on board that has the technical skills required to use them, they have them to hand.

7. Launching the Shop

The shop opened its doors to the public on 4th April 2017. Although we did not have our full first order through – there were still some solar lanterns to arrive and the briquettes had not yet been delivered – we felt that with the existing stock there would be enough to start dealing with the public, and in any case, we were expecting that customers would come to look around the store, ask questions, enquire about prices and so forth, before finally expecting to make a purchase later down the line.

We printed and bound a product catalogue with pictures, the key benefits of each product, and prices and this was used as an invaluable resource for showing customers goods that were on order or comparing what we had in stock with other products on the market\(^4\).

After being open for two weeks, at which time we had had a chance to iron out any issues with our working methods, the staff had become fluent in describing the products, and we had received the remainder of our first order of stock we had our Grand Opening Celebration.

This was held at the store location between 10am and 4pm on Saturday 15th April 2017. We wrote to local schools and dignitaries to invite them to the opening, and we re-priced all the products as a special introductory offer. A local artist printed a banner for us with the store logo and we hired a gazebo-style tent to go in front of the store in case of rain. Chairs were placed under the tent for the customer’s

\(^4\) See appendix for catalogue
comfort and to improve the overall viewing experience. A local DJ was hired to provide the PA and manage the music for the day. Local teenagers who have had training from FoNU also provided general assistance on the day.

We moved the shop counter out to the front of the store and had one example of each of our products on top. It was also from behind this counter that we were able to make speeches, give announcements and demonstrate the products to the crowd gathered in front.

We had a number of notable guests on the day – despite the fact that it was the Easter Weekend – and were honoured to welcome our local MP Godfrey Katusabe who not only made a speech endorsing the store and clean energy in general but also bought some of our products.

The store was officially opened with the cutting of the ribbon by the Imam of Bwera and the Representative of the LOC3 at 11am. Bwera has a large Muslim population so it was quite advantageous to have each of those communities represented at the opening.
There was a prize-giving ceremony held in the afternoon where we gave a free bag of charcoal and a free t-shirt to our best customer. The individual in question is a local trader who, in the short time that we had been operating (just 10 days), had already bought from us briquettes, a Purifaaya and an ILF Firewood Cookstove. We wished to congratulate her for her forward-mindedness, thank her for her custom but also to show the assembled crowd that those that had bought one product were so pleased with it that they came back to purchase more.

The celebrations started winding down at approximately 4pm, though there was a significant drop-off in interest before then, after the food had run out.

Overall, the day was a great success. We made 46 sales (though most of these were for packs of briquettes), but more importantly, we made some important ties with the local community and in particular, with the Muslim section of the population who, until that time, had not been visiting the store.

8. Savings Groups and Market Days

Despite the fact that Bwera is such a small town – village, to be exact – the population is not very mobile, and encouraging new customers to come from another part of Bwera to visit your store can be a challenge. Therefore, in addition to the sales made in store, we decided that it was necessary to take a more proactive approach in reaching new customers. For the time being, since a radio advert has been deemed too costly, the best way of reaching new customers is directly, in person.

The two ways that we have done this is by mobile selling Briketi Briquettes on market days and by making visits and presentations to savings groups.

On market days (Saturdays) we have enlisted the assistance of local teenagers who move to the other side of Bwera with several bags of Briketi briquettes and sell these to the traders and shoppers that have gathered around the market place for market day. The teenagers have been trained in our products and have been working with FoNU for some time, so are already knowledgeable about clean energy and nature conservation. The results have been very successful so far with most of
our vendors making five or six round trips between the market and the store to pick up more stock.

On Sundays and Mondays the Business Fellow and a member of CEEC staff has visited one or more local savings groups with a selection of our products and some promotional materials. We usually start the meeting by giving a general presentation about clean energy and the benefits of switching away from traditional methods of cooking and lighting. After questions we move on to a more focussed presentation of the products and prices and finally open the floor to anyone that would like to make a purchase. These visits have also been quite successful and have so far always resulted in making sales. The only downside to these sessions is that they are quite time consuming and transport is required to get to these savings groups, who are generally located in the hills around the town so bringing large stocks of products is not possible. However, these groups do represent a steady stream of income; for example, we have an agreement with one group whereby they have promised to make one purchase per week, using a revolving loan scheme.

9. Challenges

Over the set up an installation period of the sustainable enterprise there have been some hurdles to overcome, and some things that we would do differently. These are presented here as a guide for future fellows. Also presented here are some issues with the day to day running of the business that to my mind, need to be addressed in order to assure the continuing wellbeing of the project.

9.1 Registering the Business

One of the biggest challenges we faced when setting up the business was simply registering the name. Because the parent organisation, FoNU, wishes the business to have future growth potential, it was important that we got the registration right first time, and that the company has a future right to operate across the whole of Uganda – not just in one location.

Unfortunately, this threw up a number of issues with it and the registration process was far more complex than if we had wanted to operate from one site only. In the end, it took around two and a half weeks to complete the registration process, visiting various municipal offices and having to return on more than one occasion with new paperwork. This process was obviously very frustrating but even more so, until it was complete we were unable to move forward with the business. Setting up
a bank account, ordering stock, securing a premises, all had to wait until registration was complete so that it could be done under the name of the new company.

My advice for future fellows is to hit the ground running and start registration of the new business straight away. Once that process is going, even if it takes two weeks to do, there are other things that one can turn one’s attention to – doing market research is a perfect example – that would be a profitable use of the ‘dead time’ while waiting for registration papers to come through. Or, it is perfectly suitable to make the decision that the business is not going to grow beyond one district, and that simplifies the registration process immensely.

Unfortunately, we had assigned the tasks sequentially rather than multi-tasking and had done the market research first so that by the time we were registering the market research was completely finished. The resulting two and a half weeks without the freedom to proceed freely, as we were unable to use the company name in business transactions until it had been registered, were extremely frustrating.

9.2 Transport and Delivery of Products

Bwera is on the bus route between the DRC and Kampala and so is fortunately well catered for by all the principal bus companies.

However, we have had some issues with deliveries that have ended up in Customs – a satellite of Bwera, on the border between Uganda and DRC – which has resulted in costly efforts to recover stock that has ended up in the depot in Customs and bring this back to Bwera. Luckily, the CEO’s wife has a wholesale business in Customs and we have been able to use their transport to recover any lost goods – for now – but this is clearly an unsustainable arrangement and also does not take into account the lost time chasing the products, trying to find their whereabouts and arranging for their recovery. It also does not take into account the danger of theft that the products are in when they are left in the bus depot in Customs, largely unattended.

After using all of the major bus companies for our ordering, we have come to the conclusion that in future, Link Bus Company represents the safest, most trustworthy method of delivery. The other bus companies we have used, so far, have let us down. Therefore, we are going to stipulate with all future deliveries that Link Bus must be used to transport products.
9.3 Low Staff Numbers

At the time of writing, there is only one permanent member of staff at the store, the Shopkeeper. Other members of staff are part time, casual workers, most of whom have a long history of working with FoNU and so bring with them a developed knowledge of clean energy and nature conservation, but are unable to dedicate large periods of time and/or energy to CEEC Ltd.

Whilst keeping to low levels of staff has been an understandable strategy at the outset of the business in order to keep costs down, moving forward it is clear to see that staff numbers need to be increased in order to maintain the business. In addition, many outreach and business development opportunities are being missed because the existing staff are tied to the store location at almost all times. So far, the situation has been tempered by the presence of the business fellow, working full time, but as this partnership comes to an end an alternative needs to be found.

Recruitment efforts have already begun to find a full time regional salesperson that will be able to visit local savings groups, set up stalls at nearby markets, talk to schools and businesses. Interviews are still being held, but the extra flexibility that will give to create outreach potential in what is a conservative marketplace should be extremely beneficial. However, it is my recommendation that staff numbers should be advanced further. Much of the business administration should be passed to the shopkeeper, and further salespersons – perhaps earning commission – should be hired to take on some of the day-to-day sales activities.

9.4 Fake Products

Though there are few shops or market stalls in Bwera and Customs selling solar products or cookstoves (none selling water purifiers), the products that are on sale are largely cheap, low-quality fakes that are sold at a price which undercuts our store by up to 50%.

Customers coming to the store therefore expect CEEC prices to be in the region of these fakes, given their physical similarity to the products that CEEC sell. However, although to the untrained eye the products look very similar, careful examination shows marked differences in production quality – the quality of the clay liner in one of the cookstoves, for example – though these can be difficult to ‘prove’ to a customer.

In addition to being undercut on price, these bad quality products create a negative perception of CEEC’s own products when they frequently fail, break or have a short
product life. More than one customer has said that they would never buy solar again as they had spent a lot on a solar system in the past, only for it to fail within the year.

The only way to combat this issue is through education and outreach. Building trust with existing customers and getting them to spread that trust through word of mouth will also be important. One strategy that has worked in the past is to point to the store’s warranty system as evidence of the quality of the products we sell, and contrast this with the warranty-free nature of the products sold by hawkers and at local markets.

9.5 Support from Friends of Nature Uganda

For the young business to succeed – not just to survive – the people involved in it need to show strength of vision, dynamism, commitment and passion. All businesses, especially in their infancy, need time and attention from their leadership and the case of CEEC is no different.

Thus, the continuing dedication and full support of Friends of Nature Uganda is vital – especially at these early stages – to ensure that the business is a success.

Unfortunately, after a very promising start, involvement in the business from the FoNU management team has trailed off. At the same time, key responsibilities for the day to day running of the business such as stock ordering, access to finances, accounts access and so forth has remained wholly in the control of FoNU, which has led to some incoherence in the daily running of the store and some project management issues which need to be straightened out.

It is crucial that the FoNU leadership renew their commitment to the young enterprise, by visiting the store occasionally, remaining in telephone contact (ideally every day) and providing support where needed. Or, the FoNU leadership ought to cede responsibility for the running of the business to a store manager, devolving key business decisions to them to give them the freedom and flexibility to change the business as they see fit.

Either option has the potential to propel the business forward, boost sales and, crucially, improve staff morale and involvement. However, remaining in the middle, with low involvement from a management team that nevertheless holds the reins on all key business decisions does not promise to deliver a dynamic, successful and profitable business.
10. **Roadmap of Future Steps**

10.1 **Further Engagement with Savings Groups**

Initial visits to savings groups in the area around Bwera have so far yielded very positive results. On each occasion sales have been made and those present have reacted positively to the products that have been demonstrated.

To best use this opportunity, a calendar of savings groups appointments should be established, timetabling future meetings with these same groups on a month by month basis. By knowing when the CEEC staff are going to visit, these groups will be able to provide a revolving loan for their members, so that with each visit, a new member will get a chance to purchase one of CEEC’s products.

10.2 **Engagement with Customs**

There is a very large bi-weekly market in Customs, on the DRC border, which is popular with Congolese residents. Due in part to the relative strength of the Congolese currency, but also to the lack of manufactured goods available in the DRC, many Congolese move across the border habitually to do their shopping.

Though customs is just 2km away, few if any come all the way to Bwera when they cross the border. Therefore it is important that the business establishes a presence at the market in order to vend its goods to the cash-rich Congolese that come across for their shopping. Fliers could also be produced for distribution from the market stall – in French, for example – that would be aimed directly at a Congolese market.

We have already made the first steps toward establishing a base at Customs, and have identified a shop-front space that we could rent there which happens to be on the main road along the Customs/DRC border. It is really important that this investment is carried through and that we install trained staff at the shop front to make the best of this unique and potentially highly profitable opportunity.

10.3 **Alternative Payment Methods**

Despite the fact that to this point, the majority of the goods in-store retail for between UGX 20,000 and UGX 30,000 and that only one item – the Purifaaya – is above UGX 50,000, the CEEC staff regularly receive requests for items to be given on credit and paid for over time. To date, because of the low value of most of the products, the question of alternative payment methods has not been seriously addressed. However, over time, as some of our solar packages grow in size and
value, it seems inevitable that some sort of credit terms and repayment plans will need to be set up.

As we move our customer base from the store itself to the surrounding countryside this seems ever more prescient, however, in moving towards a geographically more diffuse population such a system will become even more unwieldy to operate, and harder to administer.

Any such system will have to be carefully thought out with various fail-safes and robust mechanisms for debt collection. Again, partnering with savings groups here would provide an institutional architecture to such arrangements, and would ease the burden of debt collection whilst, arguably decreasing the probability of default.

10.4 Engaging the Local Community: Churches, CDCs, Mosques

At the opening day celebrations there were some very promising discussions between the CEEC leadership and the local Imam about possible opportunities for establishing ties between the business and the local Muslim population; offering workshops, courses, employment opportunities.

Similarly, visits to church leaders, discussions with headmasters and other school leaders have all yielded similar results: there seems to be a real and active interest from community leaders to engage with the theory and practicalities of environmental sustainability and to have a local organisation come to them to provide training and leadership.

To date, CEEC has not been able to capitalise on this initial enthusiasm in any meaningful way, but reaching out to local leaders looks to be a fantastic way of not only reaching out the message of sustainability to new people but in doing so demonstrating the products that CEEC stocks and showing them how these can save money, thereby accessing a new set of customer bases and diversifying sales.

10.5 Customer Service and Outreach

Although we have the contact details of almost all our customers – certainly for any that have bought cookstoves, solar lights and water purifiers – CEEC has not yet made the most of this contact information to link with customers to perform much aftercare.

With extra staff and resources, CEEC will be able to contact all customers after a month, enquire about the progress and health of their product and give customers
the assurance that their needs are being looked after, and their opinions are of value to the enterprise. Already, our experience of repeat custom suggests that customers that try our products and experience our service are happy with the product they receive. However, in an environment where word-of-mouth and the power of personal recommendation are so important, CEEC needs to be better than ‘good’, and providing excellent customer service is a great way to do this.

11. Final Thoughts

Such a short space of time has elapsed since this project was brought from initial conception, to opening day and finally to daily running. Thanks must first go to ENVenture and its staff, without whose help and assistance this project would have taken far, far longer to get off the ground.

Though this section reads somewhat like a wrapping up what I really want to drive home here is that this project isn’t ending; it has barely gotten started. It is really important, therefore, that the staff at CEEC continually look for new ways to improve this young business, to make it more efficient, to build new working relationships with new suppliers and search for new deals, new products and new ways of working.

Thus, I have found the experience of the last few weeks of the project slightly unsettling. It seems that there has been something of a downturn in interest from the management team, which has led to a drop in sales and a slowing of momentum.

I hope that those involved in the business can recapture some of the initial impetus that created this innovative organisation and work to keep it fresh. I certainly think that hiring a regional salesperson and setting up a satellite store in Customs are steps in the right direction.

I know that CEEC can discover new and novel ways to keep the business exciting and build upon these. I have seen firsthand when presenting to local groups, to customers, to clients that being enthusiastic about something rubs off – people believe it.

So finally best of luck and thank you to all the staff at CEEC and at FoNU, you have all made me feel so welcome, and have made my stay with you so memorable, enjoyable and rewarding.
12. APPENDICES

12.1 Market Research: Energy Use and Demand, Kasese District

Friends of Nature Uganda

Energy use and demand, Kasese District

The aim of the market research program is to fill the information gaps that exist concerning household energy use in Kasese and its surrounding suburbs and villages. Most current knowledge on household energy use and any associated demand for energy products is based on local, anecdotal information. By using questionnaire data and making field visits, we aim to formalise this information and provide a basis from which to build a more developed understanding of current local energy needs. This will identify any market gaps that can inform future investment decisions and will assist in the creation of a business plan for the remainder of the project, and beyond. The questionnaire will not be a definitive document; it is our aim that it can be amended and adapted for repeat usage, to build up a picture of changing consumer patterns over time.

An example of a typical storefront display in Nyakasanga, Kasese.

Research Objectives

• Get to know the needs and circumstances of a diverse set of potential customers
Discover what are current practices and expenses linked to energy use/access and water use/access.

Investigate which products are most attractive to the consumer and form an understanding of their willingness to pay thresholds for such products.

Build an image of the principal anxieties/challenges related to energy use through the area.

Confirm what are the principal factors influencing uptake and decision-making processes.

**Research Design**

- Basic questionnaire, no longer than two sides of A4
- Minimise the use of hypothetical and qualitative questioning
- Interview to last no longer than 30 mins (ideally, 15 – 20 mins)
- Interviews to be conducted face-to-face, using an interpreter where necessary.
- Interviewees should come from a variety of socio-economic backgrounds and spread over rural, urban and suburban areas. To achieve this interviews will be conducted in:
  - Kasese town
  - Bwera town
  - Customs trading centre
  - Kisaka
  - Kanyageya

**Sample Survey**

**Personal Details**

<table>
<thead>
<tr>
<th>Name</th>
<th>Sex</th>
<th>M / F</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number in household</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Cooking**

- What cooking fuel do you use?
- What is your daily expenditure on cooking fuel?
- What stove do you use (3stone, Clay, Metal, clay liner)?
- Why did you choose this type of stove?
- How often do you need to replace it?
- How much did your stove cost?
- Where did you buy your stove from?
- How many hours do you spend gathering fuel per day?
- Is there an outlet near you that sells cookstoves?
- How many hours do you spend cooking per day?
- Do you cook inside or outdoors?

Would you be prepared to pay:

<table>
<thead>
<tr>
<th>Would you be prepared to pay?</th>
<th>Y / N</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) UGX 22,000 for a stove that uses 50% less charcoal?</td>
<td>Y / N</td>
</tr>
<tr>
<td>b) UGX 20,000 for a stove that reduces firewood and smoke by 50%?</td>
<td>Y / N</td>
</tr>
<tr>
<td>Have you ever thought of buying an energy efficient stove?</td>
<td>Y / N</td>
</tr>
</tbody>
</table>
### Why haven't you bought one yet?

- What problems/challenges do you face when cooking?

### Water

- Where do you get your drinking water from?
- How do you treat your water?
- What is your weekly expenditure on buying/treating water?
- Has anyone in your household gotten sick from drinking water? Y / N
- Would you pay UGX 75,000 for a water purifier (no chemicals/boiling)? Y / N

### Lighting

- How many hours per day do you use indoor lighting?
- Which of these methods do you use for indoor lighting and how much do you spend?
  - a) Kerosene/paraffin Y / N UGX/day litres/wk
  - b) Candles Y / N UGX/candle candles/wk
  - c) Battery torches Y / N UGX/batt batts/wk
  - d) Solar Y / N UGX/System hrs light/day
  - e) Umeme Y / N UGX/month
- How many lights are there in your home?
- What problems/challenges do you have with your lighting?

### Mobile Charging

- How many mobile phones does your household own?
- How are the phones charged?
- How often do you charge your phones per week?
- What is the approximate cost per charge?
- Do you use mobile money? Y / N
- What problems/challenges do you have with mobile charging?

### Radio

- Do you own a radio? Y / N
- What is the cost of batteries?
- How often do you change batteries?
- What problems/challenges do you have with radio?

### Non-Solar Owners

- Have you heard of solar? Y / N
- If yes, why haven't you bought a solar product yet?
- Which of these deals would you consider buying?
  - a) One solar light for UGX 70,000
  - b) A solar light with mobile charging for UGX 155,000
  - c) A system with 4 lights, mobile charging and a radio for UGX 400,000
- If you bought the system for UGX 400,000 how would you like to pay for it?
  - a) A one-off payment of UGX 400,000
b) 5 mths monthly payments of UGX 50,000 (+ deposit of UGX 200,000)
c) 5 mths weekly payments of UGX 12,500 (+ deposit of UGX 200,000)

Would you buy a solar product with 2 lights and mobile charging? Y / N
Would you pay UGX 125,000 deposit + 5 mths at UGX 25,000? Y / N

Solar Owners
Which company did you buy your system from?
What does the system include?
Did you pay up-front or in instalments?
What was the total cost of the product?
When did you purchase your system?
What do you like about the system?
What do you dislike about the system?
What would you like to add to your system?
Have you had to replace anything in your system?
Would you recommend solar to neighbours?

General
Do you think you need a nearby shop selling energy products?
If yes, where would you like the shop to be?
Which of the following mediums do you use for getting product information?
a) Radio  b) Word of mouth  c) Posters  d) Road Shows  e) Fliers  f) local events

Results
Demography
In total, 45 interviews were conducted in Kasese district in locations ranging from town centres to rural hill-top areas and border crossings. This diversity in the sample population was felt to be important as the organisation plans to reach out to as many different consumers as possible, rather than attempting to corner one sub-sector of the market. The gender makeup of the respondents was almost even, with 22 males and 23 females being interviewed. Due to the diverse backgrounds of the respondents, it would not be useful to divide them by their exact home locations, however, 15 of the respondents (33%) lived in urban areas, 14 (31%) lived in suburban areas and 16 (36%) were living in rural areas. The average household size was 6.3 members, while both median and mode household size was slightly lower at 5. The majority of respondents self-identified as either farmers or business people – 14 (30%) each – this divide was geographically felt, with almost all farmers interviewed coming from rural areas and all business persons interviewed coming from urban and suburban areas.

Cooking
The most popular source of cooking fuel was firewood, with 28 out of 45 respondents reporting that it was their main source of cooking fuel (62%). Charcoal was also a popular source of fuel, with 15 respondents using it as their main cooking fuel (33%). However even in cases where charcoal was a main source of fuel firewood was still used, in order to ‘get a fire going’, to be used instead of charcoal when time was of the essence, or as a stand-by in cases where charcoal was not available due to cost.

The average household expenditure on cooking fuel per day – across all fuel sources – is around UGX 2,388. However, both the mode and median expenditures are a bit lower, at UGX 2000, once some of the outliers have been taken into account.

The most popular cooking stoves were found to be the homemade clay oven (16 respondents, 35%), the charcoal stove (12 respondents, 26%) and the traditional 3-stone stove (11 respondents, 24%). A small minority of respondents used metal stoves and just 2 respondents said that they used an improved cookstove. The preferences were quite clearly geographically defined, with almost all of the charcoal stove users living in urban areas, while users of 3-stone stoves or clay ovens were predominantly from rural and suburban areas.

Although almost all the respondents had heard of improved cookstoves and over half had contemplated purchasing one, most felt that an improved cookstove was too expensive, and they lacked the funds to acquire one. A smaller, but significant number also stated that they did not know where to acquire one from. When asked if they would consider purchasing a cookstove that reduced charcoal use by a half over 50% responded affirmatively, while for a stove that reduced firewood use and smoke by a half the responses were 75% affirmative.

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Cost</th>
<th>Lifetime</th>
<th>Fuel/day</th>
<th>Outdoors?</th>
<th>Cooking time</th>
<th>Smoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Stone</td>
<td>11</td>
<td>UGX 0</td>
<td>-</td>
<td>UGX 3,091</td>
<td>36%</td>
<td>3.2hrs</td>
<td>81.82%</td>
</tr>
<tr>
<td>Charcoal</td>
<td>12</td>
<td>UGX 11,792</td>
<td>7.7mths</td>
<td>UGX 1,692</td>
<td>75%</td>
<td>2.64hrs</td>
<td>8.33%</td>
</tr>
<tr>
<td>Clay</td>
<td>16</td>
<td>UGX 3906</td>
<td>4.9mths</td>
<td>UGX 2,429</td>
<td>19%</td>
<td>3.13hrs</td>
<td>68.75%</td>
</tr>
</tbody>
</table>

Above is a table grouping respondent’s answers to some key questions by the type of stove they use. The responses throw up some interesting results. The ‘stand out’ figure above is probably that the 3-Stone stove is effectively costless to install and has an infinite product life time as it relies on the use of locally sourced materials and is home-made. However, what is also apparent from the research is that it is the most expensive to run – around double the fuel cost of a charcoal stove, for example. It also requires the longest cooking time (due to heat lost from lack of insulation) and is the most polluting with just over 80% of respondents citing smoke as their greatest complaint when cooking.

The clay oven, the most popular form of cooking device among respondents, looks at first glance to be the best option as it is approximately one-third of the cost of a charcoal cookstove. However, when product lifetime is taken into account, we see that the cost per month of installing a charcoal stove is approximately UGX 1531.43 while the cost per month of a clay oven is around UGX 797.14, a saving of UGX 734.29, almost 50%, which is still a considerable saving, but much less than a saving of two-thirds. Finally, if the cost of fuel expenditure is taken into account, on fuel alone, a family using a clay oven will spend on average UGX 22,110 more than a family using a charcoal stove over a 30 day period. This difference in the variable costs of cooking clearly vastly outweighs the saving of UGX 734.29 above. These are the sort of real-life examples that we need to harness to promote the

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5 Average cost for a clay stove increases (UGX 4807) when one removes three of the respondents who claimed their stove cost UGX 0 to install as they were homemade using locally sourced materials.
improved cookstoves, which after all have an even longer product lifetime than a standard charcoal stove and use even less fuel.

The numbers above only capture some of the story. Looking deeper into the numbers, and using some of the most interesting cases illustrates some illuminating points. For example, we see that the clay oven lifetime is much shorter on average than that of a charcoal stove. However, during the rainy season, this expected product lifetime can be even shorter still. One respondent even went so far as to say that the lifetime of her homemade clay oven was “until it is rainy”. The same respondent claimed to spend UGX 5000 on the installation of her clay oven and to cook outside – hence the rain damage. If a customer has to rebuild their oven at a cost of UGX 5000 every time it rains, these costs are going to add up significantly over time. An improved cookstove, on the other hand, can be moved in and out of doors to take account of weather conditions.

For this reason, most of those choosing to use a clay oven decide to cook indoors (81%). This is to avoid damage from rainfall and also because a clay oven is a stationary built unit, it cannot be moved in and out of the home like a portable, charcoal stove can. Almost 70% of clay oven users reported that smoke damage was a significant problem for them when cooking; a problem further compounded by the fact that they are cooking mostly indoors. In addition, clay ovens use firewood which creates more smoke than charcoal. This problem is especially felt in the rainy season when wet firewood emits even more smoke as it burns, causing even greater smoke damage and health problems.

Incredibly, one respondent went so far as to say of the smoke emitted when cooking: “it can make you feel like you shouldn’t cook at home”.

Water

According to our findings there are two principal sources of water available to the population of Kasese district, either by using local natural water sources, or springs, or by purchasing water from a tap, using jerry cans to transport the water between the tap and the home.

The split between the two alternate sources was fairly even, with slightly more (25) opting to use tap water as compared to those opting to use the water from a local source (19). As might be expected, almost all of the respondents that reported to use natural sources lived in rural areas, whilst all of those using tap water were urban or suburban.

The most popular form of water treatment was through boiling water, which was the method chosen by 19 of the respondents (42%). A smaller, but significant number (7 – 15%) chose to use WaterGuard capsules which are made available free of charge by local government. However, half of WaterGuard users reported only occasional use, due to inconsistencies in municipal supply forcing them to purchase stocks through private means, or simply go without.

<table>
<thead>
<tr>
<th>Treatment Options</th>
<th>Tap</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>Boil</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>WaterGuard</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>None</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>Average Cost per week</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research Questions

<table>
<thead>
<tr>
<th>Illness in household related to water consumption</th>
<th>UGX 4,283</th>
<th>UGX 763</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would purchase a water purifier</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Main concern is water quality</td>
<td>10</td>
<td>13</td>
</tr>
</tbody>
</table>

The table above condenses the responses given to the research team on the topic of household water use, and divides the responses between households that use tap water and those that use spring water. As one might expect, the proportion of those that boil their water is higher in cases where spring water is used (58% versus 32%), nevertheless the percentage that opt for no treatment at all is more or less the same in both cases, despite the fact that most tap water has had at least some form of treatment before it reaches the end user, whereas spring water has had none.

Most of our interviewees did not feel that any of their household had been negatively affected by their drinking water, with a third reporting negative health effects in the case of tap users and a quarter in the case of spring users. As a result, coupled with the financial constraint, reported interest in purchasing water purification technology was also low, at around 25% in the case of tap users and just 10% for spring users.

These results, however, are somewhat contradicted by the reported concerns over dirty water and water safety in general. For instance, 40% of tap water users and 68% of spring water users placed water quality and the danger of dirty water as their main cause of concern related to water use – greater than supply, cost, or time spent fetching water (though irregular supply was an important secondary concern). These results, coupled with the widespread reports of yellow fever and typhoid gathered from our suburban and rural interviewees – we even made personal contact with some typhoid sufferers during the course of our research – would suggest that there may be more demand for water purification measures than the figures on their own demonstrate.

In such cases it can be instructive to look beyond the simplified research findings and concentrate on some of the responses themselves, and certainly there were a number of comments regarding dirty water. This is the case particularly in the rainy season, with many users complaining that the large influx of rainwater often overwhelms municipal systems, leading to dirty tap water and its adverse effect on personal health. One interviewee in particular, asked us to look at her eyes which were a deep yellow colour. The interviewee reported that the yellow eyes had developed as a result of contracting typhoid caused by drinking un-purified water taken from a municipal tap, and that this problem was a common cause for complaint in the area (the interviewee lived in a suburb of Kasese). So although cases of these water-borne illnesses are certainly present in the population, it is possible that some respondents have not developed a clear link between drinking un-purified water and developing water-borne illnesses. There is a clear role here for any outreach/education/promotion campaign to take this knowledge gap into account.

Also of note is that the reported cost per week of boiling water is probably higher than in the table above. Many respondents claimed to spend nothing on boiling water for purification purposes as this was done during the course of daily cooking, once food has been prepared, water is placed on the embers and boiled. Upon further questioning, however, it was noted that these embers on their own would not be sufficient to boil a large pot of water and would routinely be supplemented by fresh charcoal or firewood in order to fully boil the water. The respondents were not able to place an estimated cost on this extra fuel for our analysis, but highlighting the fact that boiling water after cooking is not cost-free should play a part in our marketing strategy.
Lighting

Lighting is an extremely important access issue for almost all houses in Uganda. According to the 2014 census, just 20% of all Ugandan households had access to electricity, though this figure is much lower – around 5% – in rural areas. In fact it is the goal of the government as stated in their *Rural Electrification Strategy and Plan 2013-2022* to reach an energy access penetration rate of 22% in rural areas by 2022, only by then bringing rural areas into line with what is already considered to be the national average.

Based on our findings, households possess an average of four indoor lights, and use artificial light for an average of 4.6 hours per day, across all energy sources.

The majority of households – 25 of the interviewees – depend on kerosene lamps for their main source of light (56%). Most households purchase kerosene on an almost daily basis, rather than in bulk, despite the widespread knowledge that buying in bulk is cheaper. Average daily spend on kerosene is UGX 708, which equates to a monthly spend of UGX 21,535. Kerosene users used fewer indoor lights – an average of 2 – and were also most likely to have some secondary form of light source, predominantly candles, for when kerosene stocks had run out or were unattainable due to cost.

During the course of our investigations we interviewed two kerosene users that in fact used kerosene to supplement solar systems that had previously been used as principal light sources. In one case this was due to the fact that the battery in their system (which had been installed in 2013) had weakened over time and was not able to provide enough light for four lights over a four hour period. In the second case, although the solar system had only been bought a year previously, it had deteriorated very quickly. This system had been bought from a street hawker offering no system of aftercare or warranty. Unfortunately, cases such as these have a very detrimental effect on public perceptions of clean energy products and so it is very important that future customers are made fully aware of the expected product life of any application they are investing in, and also to make the public aware of the importance of purchasing such products from established, reputable sources.

The greatest complaint among kerosene users was related to smoke pollution from using kerosene lamps in an indoor setting. 60% of kerosene users complained of the smoke, citing health problems, stinging/sore eyes and smoke damage to the home as the principal negative effects of kerosene use. Also notable were complaints that kerosene lamps provide insufficient light and that naked flames are a potential hazard for children.

After kerosene, the most popular form of lighting was solar, with 11 households (24%) reporting to use it as their main light source. The average solar system consists of 4 lights, which are used to provide light for 4.3 hours per day. The average cost per system was found to be UGX 407,730, and most systems were bought relatively recently, within the last year. The main complaint about solar was due to poor lighting as a result of weak battery life (50%) – especially among those that had older systems. Again, it is important to take this fact on board and to ensure that future customers are made fully aware of the need to replace their battery pack after approximately 4 years in order to ensure their system is performing to its full capacity, and that they have taken this cost into account when investing in their solar system.

Grid electrification, or ‘Umeme’, was used among 8 of our respondents (18%). These users generally had more lights installed in their homes, and also used lights over a longer period: an average of 7.75 lights over 7.75 hours, respectively. These users paid for their energy on a monthly basis, with the average monthly bill coming to UGX 31,875. Grid users were most likely to complain of supply
problems, with 50% reporting irregular supply – unexpected power outages and planned load shedding (announced as ‘technical problems over the radio’) – as their greatest cause for concern. Dissatisfaction at irregularities in the power grid were often commented on. One grid user even went so far as to report that “If you can bring solar, it will be much better: reason being that sometimes Umeme is not on throughout”.

As might be expected, differences in lighting methods were found to have geographic divides. For instance, all the grid users we interviewed came from urban areas. No one we interviewed in suburban or rural areas had grid electricity access, which is obviously less than the 5% average and indicates that much will need to be done to reach the target of 22% by 2022. Solar users were also much more likely to live in or near urban centres with 8 solar users (73%) coming from urban or suburban areas. This means that just three solar users (27%) were from rural areas, despite the fact that, arguably, solar access may make the most impact in these very locations. Kerosene users were found across all locations, though they were most likely to be found in rural areas.

**Mobile Charging**

Mobile phones are an extremely important source of communication, B2B interaction, sales, personal banking and internet access for almost all Ugandans. Just 3 out of 45 respondents reported not using a mobile phone at all and in at least one case that was because they owned a mobile phone but it was currently not working.

Our respondents reported an average phone ownership of 2.3 phones per household. Of the 45 individuals interviewed, 12 charged their phones using grid electricity (27%), 14 took their phones to local traders that have grid access to have their phones charged for them (31%), 8 used their own solar chargers (18%) and 7 gave their phone to a neighbour that has grid access or solar power to have their phone charged for a fee (16%). At an average cost of UGX 413 per charge, and an average charge rate of 2.6 charges per phone per week, the average household spends UGX 2,470 a week on mobile phone charging alone. 35 of 45 interviewees – 78% – were mobile money users.

Unsurprisingly, the principle complaint among mobile phone owners was the cost of recharging their phones, with approximately a third citing expense as their main concern. However, a number of practical and security issues that are perhaps not as immediately obvious also came up during our investigation.

First of these is the travel cost/time incurred when taking a phone to a trader for charging. This was especially felt in rural areas where trader charging was most common, due to lack of grid and solar access. There were complaints that sometimes charging points with traders were not available due to demand, and that if given to traders mobiles were never fully charged. There were even some reports that traders have been known to take functioning batteries out of newer mobiles and replace them with older, weaker batteries so that the superior part can be sold on. Even if given to a trusted neighbour to charge for you there is always the practical issue that a phone is unusable for the duration of the charge, while it is in someone else’s care. This situation clearly has problematic repercussions for anyone that depends on their phone for everyday business use, for example.

**Radio**

A large proportion of interviewees owned a radio, with radio ownership at 35 out of 45 households, or 78%. As most households do not have a television, and do not buy a paper regularly, the radio is an essential source of news, local information and entertainment. The average cost of replacing
batteries is UGX 2000, and batteries are replaced, on average, every 2.5 weeks, leading to a monthly expenditure on radio batteries of approximately UGX 3,500.

Although this cost is not in the same order of magnitude as some of the others that we have been discussing it is nonetheless a significantly felt cost for most households with 17 out of 35 radio owners citing the expense of batteries as their major cause for concern. A further 4 respondents cited not the expense, but the everyday hassle of having to go to the local shop, buy, and replace batteries as the most significant cause for complaint. Clearly, these users would benefit from having a system that does not incur the ongoing cost of battery replacement, and which can be recharged on an ongoing basis, thereby avoiding the loss of service that occurs each time batteries run out of power.

**Non-Solar Users**

In addition to questions based on current energy use in the household we asked interviewees a number of hypothetical and opinion-based questions in order to discover their current levels of knowledge about clean energy products and to derive a broad-based picture of which products were most attractive to the public.

Knowledge of solar products, especially, was high. Among non-solar owners, 28 out of 31 respondents (90%) knew what solar power was, and were aware of solar products. However, despite being aware of the potential benefits from solar power there was a widespread feeling that solar is quite expensive, with 7 of 31 (23%) citing this as the reason for not investing in solar yet. An even greater proportion of interviewees did not necessarily feel that solar was more expensive than other forms of energy – and so had not ruled it out – but felt that they lacked sufficient savings to pay for the up-front costs (13 out of 31 respondents, or 42%), and thus preferred to pay for energy on an ongoing basis, by buying kerosene in small increments, for example. This information in particular, illustrates the need to engage dynamically with new and innovative forms of payment schemes and funding if we wish to reach a wider market.

When asked about which solar products they would like to buy, respondents opted almost uniformly for the larger systems, offering a selection of lights, radio and the option to charge mobile phones. They were also mostly interested in paying for these on a monthly basis, rather than making a one-off payment, or paying on a weekly basis.

This perceived interest in one particular product and payment scheme must, however be viewed within the context of the other answers that have been given in the course of the research and some allowance needs to be given for the aspirational effects that some forms of questioning can take. For instance, 16 respondents said that they would consider purchasing a solar system that included two lights and a mobile charging unit. However, this number dropped in half to 8 when they were made aware of the cost of the product, and some caution must be applied when taking respondents’ stated preferences on face value. These must always be filtered through interviewees’ willingness to pay, as revealed through previous questioning.

**Solar Owners**

One of the best ways to ascertain which products are likely to be popular in future is to see what is being bought now, by those in similar socio-economic circumstances and from the same region. We therefore asked all solar owners to tell us what products they had and what they liked/disliked about that product.
In total 15 respondents said that they had bought solar products, though only 12 of those were current users of those products as two had experienced battery problems and stopped using solar, while one had had repayment issues and their solar access had been terminated until they can resume their payment plan.

Due to the small sample size, it is difficult to generate a picture of the ‘most popular’ system. However the most often used suppliers among the respondents were Bboxx (4) and Barefoot (2) for larger integrated systems and ‘Street Hawkers’ (3) for smaller ‘once-off’ purchases.

The average cost of a system comes to UGX 557,667 although the median price is lower, at UGX 400,000 – taking into account some of the outliers. In general, this points to the popularity of larger systems instead of small one-off purchases. Out of those interviewed, only three (20%) could be classified as small systems (UGX 150,000 and under) while the rest were large systems, with one very large system which would be outside the reach of most – if not all – of our potential customers. Twelve of the systems purchased included lights and a mobile charger (80%), and five of these included a radio also (33%). Interestingly, just one of the products purchased consisted of lights only, giving further weight to the observation that – for those that can afford it at least – larger systems comprising of a few applications are most popular.

The biggest complaint among solar adopters was related to battery performance. Five respondents placed battery weakness as the principal system disadvantage. It should be noted, however that three of those respondents had systems that were over 3 years old, while another respondent had bought from a street hawker, whose products do not carry the same guarantees as those bought from more reputable sources. Again, this reinforces the need to inform our customers and make them fully aware of the expected lifetime of their products before they buy, and also to promote the quality aspect of purchasing from a reputable trader instead of a street hawker or at a market.

Despite these disadvantages, however, when asked if they would recommend solar to a neighbour or friend, our interviewees replied with a 100% positive response rate. Even the respondent that had bought a faulty solar good from a street hawker acknowledged the benefits of solar: “In theory I would recommend solar, I can see the advantages, but I wouldn’t recommend buying from a hawker and I wouldn’t recommend my product”. In general, others had a much more positive outlook, due to their own beneficial experience of solar ownership. For example, one respondent that had recently bought a solar system with lights and a mobile charging unit told us: “I recommend solar to my neighbours every day!”

What might not be captured by the individual sub-sections of these interviews is that people are really quite aware of the importance that energy plays in their lives and do see energy access as an issue that is significant to them. For instance, when asked if they thought they needed a shop nearby selling energy products, 41 people said they did (91%). There was also a strong opinion amongst interviewees that radio is generally the best medium for reaching out to the public at large, an opinion reflected by levels of radio ownership, above. However, many also stressed the importance of looser social outlets – word of mouth, churches, meetings and social groups – in getting positive messages across, especially as these are able to transcend local language barriers.

**Competitor Analysis**

In addition to acquiring knowledge of our customers, it was felt important that a proper survey of competitors in the local area was also carried out in order to ascertain which products were already
being sold, and identify any gaps in the market for products that are popular with consumers but are not readily available to purchase in the local environment.

**Competitor Analysis Methodology**

- Undertake trips to electrical outlets/hardware stores in Kasese, Bwera and Customs.
- Take details of any clean energy products that are currently being sold.
- Enquire about prices to determine the market value of clean energy products.

**Kasese**

There are many electrical shops and hardware shops in Kasese centre selling solar goods. On the whole these are shops that sell solar energy products as part of their range of electronics, rather than being shops focussed on clean energy home products per se, though there are outlets of SolarNow and M-Kopa situated in the town centre fulfilling this role.

Due to the fact that most of these outlets do not specialise in solar products, they invariably tend to sell solar components separately, offering a range of solar panels, batteries, lights, cables and so forth that have to be bought separately and assembled together to make a complete system. This obviously raises certain barriers to entry for most consumers who lack the technical knowledge required to be able to put together a system of appropriate components, and furthermore to install this system without assistance.

As a result, an outside technician is required that has the skill and knowledge to be able to place the suitable components together and assemble these correctly, adding to the cost of the unit.

If the customer decides to put together the system themselves, in a bid to cut costs, there is the danger that they will install the system incorrectly, or that they will neglect to include essential parts in their system, both of which would probably lead to system malfunction and increased costs later on. Even if these problems are avoided, there is the possibility that the customer either by mistake or because a vendor has chosen to exploit the asymmetry of information, purchases a system or components in a system that are much greater than their needs. For example purchasing a 40W panel just to power a few bulbs, or pairing a 16Ah battery with an 8W panel.

These issues add to the complexity of buying a system, can lend credence to the conception that solar too complicated and technical for most, or that it is exorbitantly expensive.

As mentioned above, however, there are two outlets that deal with complete solar power systems specifically, and thus seek to address these issues. M-Kopa and SolarNow are both based in Kasese town centre and both sell bespoke systems for a range of domestic and institutional clients. These stores only sell their own products, rather than selling from a range of suppliers as is the case with most of the other stores in Kasese. This simplifies the purchase process for the consumer but it does restrict choice somewhat. Furthermore, the systems on offer tend to be larger systems, and are thus out of the reach of a lot of the consumers that we interviewed. Further details of products on offer are given below.

There is at least one source of funding available for anyone in the Kasese district wishing to invest in solar energy for their home or business. The ACCF\(^6\) is a community-based lending scheme that gives out small loans on a case by case basis. Due to the fact that these loans agreements are made on an individual basis and exclusive repayment terms are agreed to each time a loan has been made, it was

\(^6\) Not, in this case, the African Climate Change Fund – but they have stolen the acronym!
not possible to ascertain an average interest rate on loans given out by this organisation. However, it functions in a similar way to established savings circles, and represents an alternative source of financing for those unable to procure financing from more established sources.

Though there are a range of suppliers for solar products in Kasese centre, this is not the case for other clean energy goods. During our visit to the town centre, we did not see any stores selling improved cookstoves, for example, or any stores selling water filters. There is a bi-weekly market in Kasese, Mawa Market (Mon and Thur), where charcoal stoves may be purchased, and even improved cookstoves. However, the quality and provenance of their manufacture must be questioned. Life spans of cookstoves bought from the market have been reported to range from anywhere between 1 month and 2 years. Most of the stoves that are sold at the market are made from scrap metal or clay; but improved cookstoves are also popular. These improved cookstoves closely resemble the Ugastove, but on closer inspection the quality of their manufacture looks to be lower than the Ugastoves that the project team have come into contact with in the past. There were no firewood stoves – improved or otherwise – on sale at Mawa Market on the day the research team visited, despite the fact that firewood remains an extremely popular choice of fuel for most households, especially those that live outside Kasese centre. Charcoal is widely available at the market, bought mostly in small quantities but also available to purchase per sack (indeterminate weight). No fuel efficient briquettes were on sale.

<table>
<thead>
<tr>
<th>Name</th>
<th>Product</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
</table>
| M-Kopa Kasese Systems  | Connect 600: UGX 600,000                                                | Only M-Kopa store in the district | Use sales agents, who derive a commission based on daily and monthly sales.                                                          | Have some sales agents already in Bwera and Customs.  
| SolarNow Domestic, Commercial and Institutional SolarNow Systems | Home Welcome Pack (50W, charger, 3 lights, radio/torch, 45A batt) UGX 805000 (discount) UGX 1.41m (non-discount) | Only shop selling SolarNow products in Kasese | Offers discounted prices for certain clients (cash payments, farmers etc.)  
| Hujati Nusabuga Shop  | 20W Panel, 3 lights and charging = UGX 120,000  
| Habuga General Supplies | Sells ADH Solar Panels and Kysun batteries  | Payments made in instalments | No fixed packages, all are negotiated.                                                                                               | Sells batteries and panels only  
| Touree General Supplies | Light = UGX 7,000  
| Sunshine Solar Panels | 15W = UGX 50,000                                                        |                                | Sells batteries and panels only  
| General Supplies      | Light = UGX 7,000                                                        |                                | Customer has to buy other peripherals from elsewhere  
<p>|                       | 15W = UGX 50,000                                                        |                                | Installation by customer or private technician                                                                                      |</p>
<table>
<thead>
<tr>
<th>Stores</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huawei/Itel Store</td>
<td>Stores: Sunshine Solar, Solar Tec, King Canada, Motoma&lt;br&gt;• 75W = UGX 2.2m</td>
</tr>
<tr>
<td>Volts Electrical Services</td>
<td>Stores: Sunshine Solar panels and batteries&lt;br&gt;• 10W = UGX 28,000&lt;br&gt;• 20W = UGX 50,000&lt;br&gt;• 85W = UGX 170,000&lt;br&gt;• 3W Light = UGX 6,000&lt;br&gt;• 7A Batt = UGX 30,000&lt;br&gt;• 12A Batt = UGX 60,000&lt;br&gt;• 24A Batt = UGX 95,000</td>
</tr>
<tr>
<td>Yusuma Enterprises</td>
<td>Batteries only&lt;br&gt;• 50A = UGX 190,000&lt;br&gt;• 100A = UGX 360,000&lt;br&gt;• 150A = UGX 550,000</td>
</tr>
<tr>
<td>Swami Autospares</td>
<td>Stores: Sunshine Solar panels, DP / UBL / Incoe / Goldstar Batteries (powder and liquid)&lt;br&gt;• 10W = UGX 30,000&lt;br&gt;• 100W = UGX 200,000&lt;br&gt;• 70A (liquid) batt = UGX 230,000&lt;br&gt;• 70A (powder) = UGX 250,000</td>
</tr>
<tr>
<td>Low Price Electronics</td>
<td>Stores: Sunshine Solar panels, 3W solar lights, solar batteries</td>
</tr>
<tr>
<td>Kasese Electronics</td>
<td>Stores: ADH and King Canada solar panels, UBL 12V Batteries</td>
</tr>
<tr>
<td>TM Net Computer Services</td>
<td>Stores: Sunshine Solar Panels</td>
</tr>
</tbody>
</table>
| Mawa Market                  | Cookstoves: Improved, Metal, Charcoal and Simple Clay<br>• Improved = UGX 13,000<br>• Metal = UGX 3,500<br>• Lined clay = UGX 6,000<br>• Simple Clay = UGX 3,250<br>• Bag of charcoal = UGX 44,000<br>• Indicated prices are for smallest stove size.  
The improved cookstoves on sale resemble the Ugastove S1, but on close inspection do not seem to be of the same build quality – possibly fakes? |

**Bwera and Customs**

The options available to consumers in Central Bwera and Customs (a suburb of Bwera, located on the border between Uganda and the DRC) wishing to purchase clean energy products are nowhere near as developed as those to be found in Kasese.
During our trip to Bwera we found two businesses selling clean energy products. The first of these was a shop selling electrical goods and DVDs. Like many of the stores in Kasese, individual components were available for purchase, to be later put together into a system by the customer or a technician, inviting the problems and further costs outlined above. On sale were Sunshine Solar and Stormtech solar panels, ranging from 10W (UGX 30,000) to 30W (UGX 120,000) also available were strip lights (UGX 6,000). Other peripherals such as charge inverters or batteries would have to be purchased separately.

The second business was a dedicated shop, specialising in the sale and installation of large scale solar systems. All items needed to set up a domestic or commercial system were stocked – panels, batteries, LEDs, generators, back-ups, water heaters etc. Panels were priced at UGX 3,500 per watt and home system prices started at UGX 450,000 (30W panel, 17Ah Battery, 4 lights, radio and charger). Installation was priced separately, depending on the size of system, at around UGX 20 – 30,000 per installation.

The only cookstoves we saw on sale were not in Bwera but in Customs. One shop selling household goods and hardware stocked improved cookstoves, similar to the Ugastove but not of the same quality. These cookstoves resembled closely the cookstoves on sale in Mawa market. These retailed at UGX 20,000 (S2).

Unfortunately, there were two stores in Bwera that were closed on the day of our visit but which we were told also sell electrical goods for use in solar applications. Having carefully looked at similar businesses elsewhere in the district we estimate that it is more than likely that these stores stock similar products to those found in the table above, and within more or less the same price range. That is to say, these are stores that stock individual components that are bought separately and put together by the customer/technician.

After undertaking the above competitor analysis it is clear that there is a wide-open gap in the market – especially in Bwera – for businesses selling smaller off-the-peg solar solutions and improved firewood cookstoves. There are almost no stores in the area selling reasonably priced small-scale solar systems that can be installed at home by the customer, without needing a developed understanding of solar technologies, installation and maintenance. Equally, there are few options available for anyone wishing to purchase a durable, efficient, improved cookstove made by a reputable dealer. During the course of our market research we met a number of individuals that had purchased improved charcoal stoves – most likely fakes – from market sellers, only to find that these needed to be replaced after only a few months. With guaranteed products, we believe that we can capture a market for quality applications that are simple and easy to use, and that will save households essential cash reserves in the long run, improve their health, and rescue them from energy poverty.

### 12.2 File Management and Accountancy Plan

**Essential**

- Set up a separate bank account for the retail business – all business transactions relating to the store to go through this account and not through the FoNU account. The only transactions to go through both accounts relate to the ENVventure loan and repayment of that loan.
• Set up Airtel and MTN business lines and register both of these as mobile money accounts in order to accept payments and do banking through the use of mobile money.
• Set up a dropbox folder that can be used by the management team for recording sales, orders and inventories. Ensure that each member of the management team has dropbox installed on their mobiles so that they are able to gain access remotely.

**Shop Duties**

- Any cash taken during the day must be banked on the same day. The shopkeeper should start cashing up at 4.15pm each day in order to leave enough time to get to the bank before it closes.
- A float of UGX 150,000 will be kept in a locked cash box and used for change. This cash must also be counted on a daily basis as part of the cashing up process.
- All receipts, purchase orders, warranty agreements and delivery notes to be uploaded to the requisite dropbox folder **every evening**.

**Management Duties**

- Manager to visit shop at least once a week in order to check the condition of the store, liaise with staff, count cash in the petty cash box and to take account of stock, to determine future inventory needs.
- Manager to audit records at least once (preferably twice) a week to balance receipts with deposits, reconcile these with the business bank account, ensure that all necessary documentation is present and accounted for and that these match with what has been reported.
- Manager to fill out new invoices and purchase orders, either send these via email or by contacting suppliers directly over the phone, and finally upload these to dropbox.

**Shop Admin**

- All physical documents to be photographed and uploaded to dropbox (as outlined above) must be filed away and kept in order. Uploading to dropbox means that these files will be timestamped, and can be audited from any location, however an ordered physical record is vital for accountability purposes.
- At least four binders will be required: One for customer information and warranties, one for invoices, one for orders/delivery notes and finally a folder for all receipts from purchases made.
12.3 Deposit and Part-Payment Policy

April 10th 2017

POLICY BRIEF

Although it is CEEC’s general belief that all goods should be paid for up front and delivered straight to the customer at the point of sale, we understand and are sympathetic to the fact that some customers are not always able to pay the full cost of some goods in one go, and that it is not always convenient – due to lack of transport, other commitments or previous purchases – to pay for, and transport certain goods on certain days.

In light of this, we have developed this company policy to deal with cases where a part payment may be made and goods collected at a later date, or where a product can be paid for in instalments.

We wish to be absolutely clear that ONLY agreements of the type described in this document will be valid under company policy, and that any agreement entered into that is not covered under this policy document will become the liability of the member of staff that entered into this agreement, and that any subsequent non-payment will have to be covered by the aforementioned member of staff, or will be docked from that staff member’s wages.

Clause 1

Deposit for Future Collection

In cases where an individual has arrived at the store, market, or is present at a product demonstration seminar, and has expressed a desire to buy a product but cannot transport it on that day we will be able to reserve that product for the customer. The cost of reservation of the product is 25% of the product’s total cost.

In such cases, the product remains the property of CEEC Ltd., and will remain under their care until such time that the full balance is paid. The product must be marked and recorded and at this point cannot be sold to another customer. After reservation the product must be kept in exactly the same state of quality and must be delivered to the customer as such upon payment of the full balance.

After reservation, the customer has 14 days in order to pay the full balance and collect the product. If the customer is unable or unwilling to pay the balance, full ownership is returned to CEEC Ltd., and the company is thereafter free to place the product back on the market. The customer loses their reservation payment which is treated as a fine for non-payment, and for breaking the deposit agreement.

During the 14 day reservation period it is CEEC Ltd.’s duty to remind the customer of the due date for payment of the balance on their goods. This will be carried out by the shopkeeper, who must call the customer 7 days after the original agreement to remind them of the due date of the balance, and again on the date that the balance is due. If the shopkeeper is unable to reach the customer by telephone call, an SMS can be sent.
In order to validate the agreement, the Shopkeeper will fill out a receipt when the reservation has been made, indicating the reservation amount, the product, the name and contact number of the customer, the total balance outstanding and the due date of the balance. The original receipt must be brought to the store when collecting the good(s) and checked against the counterfoil in order for the goods to be released. Another receipt indicating payment of the balance will be written out when full payment has been made and must indicate the receipt number of the reservation docket so that these may be linked back to each other for accounting purposes.

If, during the reservation period the customer decides not to go through with the full purchase of the goods they may do so but are expected to inform CEEC Ltd at the earliest possible opportunity. In such cases, the customer will receive 50% of their deposit back from CEEC Ltd.

Clause 2

Deposit due to Liquidity Issues

In cases where a customer would like to purchase a product but cannot do so due to liquidity issues we would suggest that in the majority of cases the customer should come back to the store or market when they have enough funds in order to pay for the product outright.

In special cases, such as when a customer is previously known and trusted, or has bought from the business before, it may be possible to offer a customer the opportunity to place a reservation on a product so that they may be able to collect it and pay the full balance at a later date. In such cases, the cost of reservation is 40% of the product’s total cost.

In such cases, the product remains the property of CEEC Ltd., and will remain under their care until such time that the full balance is paid. The product must be marked and recorded and at this point cannot be sold to another customer. After reservation the product must be kept in exactly the same state of quality and must be delivered to the customer as such upon payment of the full balance.

After reservation, the customer has 14 days in order to pay the full balance and collect the product. If the customer is unable or unwilling to pay the balance, full ownership is returned to CEEC Ltd., and the company is thereafter free to place the product back on the market. The customer loses their reservation payment which is treated as a fine for non-payment, and for breaking the deposit agreement.

During the 14 day reservation period it is CEEC Ltd’s duty to remind the customer of the due date for payment of the balance on their goods. This will be carried out by the shopkeeper, who must call the customer 7 days after the original agreement to remind them of the due date of the balance, and again on the date that the balance is due. If the shopkeeper is unable to reach the customer by telephone call, an SMS can be sent.

In order to validate the agreement, the Shopkeeper or Sales Agent will fill out a receipt when the reservation has been made, indicating the reservation amount, the product, the name and contact number of the customer, the total balance outstanding and the due date of the balance. The original receipt must be brought to the store when collecting the good(s) and checked against the counterfoil in order for the goods to be released. Another receipt indicating payment of the balance
will be written out when full payment has been made and must indicate the receipt number of the reservation docket so that these may be linked back to each other for accounting purposes.

If, during the reservation period the customer decides not to go through with the full purchase of the goods they may do so but are expected to inform CEEC Ltd at the earliest possible opportunity. In such cases, the customer will receive 50% of their deposit back from CEEC Ltd.

Clause 3

Payment in Instalments for Savings Group Members

Recognising the potential for Savings Group members to prudently manage their money as part of a member of a larger saving association we offer an instalment plan program for members of these societies. This instalment plan will make it possible for members of these groups to pay for their purchases over time in ways that will be more manageable for them, whilst at the same time, leveraging the security and guarantee of the group for cases of non payment.

This instalment plan is designed to be used only in cases where CEEC team members have made a visit to a Savings Group and are making sales in front of the group in view of fellow members and in the presence of the Savings Group Leader, who will act as guarantor.

In these cases, an initial payment of 50% of the good(s) must be made in order to enter into the instalment scheme. Once this 50% payment has been made, ownership of the good(s) passes from CEEC Ltd to the customer, who is now full custodian of the good(s) whilst full repayment is being made. After the payment of 50% of the goods, the individual has 1 month (28 days) in which to make full payment of the balance, using the Savings Group to make weekly payments of 25% of the outstanding balance alongside their monthly savings contributions.

After 28 days, the customer must either make full payment of the balance on their goods to CEEC Ltd, or must return the goods to the company. In cases where the full repayment cannot be made the customer loses their 50% investment. If the goods have been broken within the 28 day period a further month can be offered for full repayment to be made, or the issue is escalated to a police matter. In cases of non-repayment by an individual after 28 days, CEEC Ltd should encourage the Savings Group to meet the balance and restructure the debt among the group, to bring about the best solution.

During the 28 day reservation period it is CEEC Ltd’s duty to remind the customer of the due date for payment of the balance on their goods. This will be carried out by the shopkeeper, who must call the customer and the Savings Group leader at 7 day intervals after the agreement has been made, in order to check on the progress of repayment.

In order to validate the agreement, the Shopkeeper or Sales Agent will fill out a receipt when the reservation has been made, indicating the reservation amount, the product, the name and contact number of the customer, the name and contact number of the Savings Group leader, the total balance outstanding and the due date of the balance. The original receipt must be brought to the store when collecting the good(s) and checked against the counterfoil in order for the goods to be released. Another receipt indicating payment of the balance will be written out when full payment
has been made and must indicate the receipt number of the reservation docket so that these may be linked back to each other for accounting purposes.

Clause 4

Payment in Instalments for Teachers and CDC Members

Teachers are an important part of CEEC Ltd’s strategy for outreach and we recognise and value their potential as product ambassadors and educational leaders with the power to positively influence their community. This instalment plan will make it possible for members of this profession to pay for their purchases over time in ways that will be more manageable for them, whilst at the same time, leveraging the security and guarantee of their workplace in cases of non-payment.

This Instalment plan is designed to be used only in cases where CEEC team members have made a school or CDC visit, and are making sales in the workplace, in the full view of the workplace members and their superiors, who will act as guarantor.

In these cases, an initial payment of 60% of the good(s) must be made in order to enter into the instalment scheme. Once this 60% payment has been made, ownership of the good(s) passes from CEEC Ltd to the customer, who is now full custodian of the good(s) whilst full repayment is being made. After the payment of 60% of the goods, the individual has 1 month (28 days) in which to make full payment of the balance. The balance must be paid in weekly instalments of 25% of the remainder and should be paid in person at the CEEC Ltd store or by mobile money.

After 28 days, the customer must either make full payment of the balance on their goods to CEEC Ltd, or must return the goods to the company. In cases where the full repayment cannot be made the customer loses their 60% investment and their School/CDC will be informed. If the goods have been broken within the 28 day period a further month can be offered for full repayment to be made, or the issue is escalated to a police matter. In cases of non-repayment by an individual after 28 days, CEEC Ltd should encourage the School or CDC Administration to meet the balance and restructure the debt among the organisation, to bring about a mutually acceptable solution.

During the 28 day reservation period it is CEEC Ltd’s duty to remind the customer of the due date for payment of the balance on their goods. This will be carried out by the shopkeeper, who must call the customer at 7 day intervals after the agreement has been made, in order to check on the progress of repayment.

In order to validate the agreement, the Shopkeeper or Sales Agent will fill out a receipt when the sale has been made, indicating the initial payment amount, the product, the name and contact number of the customer, the name and contact number of the School/CDC leader, the total balance outstanding and the due date of the balance. The original receipt must be brought to the store when collecting the good(s) and checked against the counterfoil in order for the goods to be released. Another receipt indicating payment of the balance will be written out when full payment has been made and must indicate the receipt number of the reservation docket so that these may be linked back to each other for accounting purposes.
**12.4 Regional Salesperson Job Advert**

**WANTED: Regional Salesperson, CEEC Ltd.**

Are you a confident self-starter? Do you know how to sell a product? Can you inspire people and teach them the benefits of making the switch to clean energy? *Do you want to make money?*

Community Eco Energy Centres Ltd (CEEC) is looking for an out-going, experienced and dynamic person to work as a regional sales person. The job will be very varied and will involve moving around the local area to demonstrate products, develop new markets and generate sales. This will mean setting up stalls on market days, visiting local savings groups, even giving talks at schools and churches. The key is that you need to be a self-motivated person, ready to learn and take on board new concepts and ideas, able to develop new opportunities and to spot gaps in the market that you can take advantage of.

**Minimum Requirements:**

- Local knowledge, we need a sales rep that is originally from MLTC and knows the area and it’s people very well
- Senior Level 4 or above (O-Level) education
- Fluency in English, Lhukonzo and Swahili
- Knowledge of business, finance and sales

**Desirable Requirements:**

- Ability to ride a motorcycle
- Certificate in business studies or a similar field of study
- Proven experience in sales, self-starting, taking on responsibility and marketing (ideally, owning their own business or working in a small family enterprise)
- Knowledge of clean energy and environmental stewardship

The role will involve taking on a great deal of responsibility for your own work and creating your own opportunities so we need someone that is confident and adaptable and that wants to make a great success of the themselves and work in something they really believe in!

**Remuneration:** Wages will be set at the market value, based on experience, but there will be a generous commission based bonus system for generating sales.

**Deadline for Applications: Saturday 20th May 2017.** All Applications must be handed into the CEEC Ltd. store on Hospital Road, Bwera. Please provide a CV and a covering letter stating how you meet the minimum and desirable requirements, your goals for the future, and what makes you the right candidate for the role.

**Interviews** will be held at 2pm Monday 22nd May 2017 at CEEC Ltd’s premises on Hospital Rd, Bwera.
12.5 Marketing Materials

Company Logo

![Community Eco Energy Centres Ltd Logo]

Shop Front Sign

![Community Eco Energy Centres Ltd Shop Front Sign]
Opening Day Invitation Flier

OFFICIAL OPENING DAY CELEBRATION!

Come down to our store to join in the official opening day celebrations at your brand new, CLEAN ENERGY outlet this Saturday! There will be speakers, product demonstrations, free food & drink and more throughout the day! Come and see our products, learn more about what we sell and find out how YOU can improve your HEALTH, save the ENVIRONMENT and save MONEY!

We sell a range of energy efficient cookstoves, solar lights, water filters, bio-briquettes and much more!

SAVE ENERGY. SAVE the ENVIRONMENT. SAVE MONEY.

Time: 10:00 – 16:00
Date: 15th April 2017
Where: CEEC Ltd, Hospital Road, Bwera

5% OFF all purchases with this flyer!!!