

# The PROSPERS Model Story. What Beneficiaries Say



*Photo: The Energy Challenge in Kyangwali leaves a huge burden on the Women to Collect fuel wood and in addition Prepare the Family meals that without improved technology consume up to 4 hours of Valuable time.*

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## Introduction

*"Women and Men don't have equal access to energy-the same energy service may impact women and men differently, driving distinct social and economic outcomes for each group".*

### **Africa Development Bank**

In their definition for Modern Energy Access, International Energy Agency (2014) have stated that it includes; Household access to safer and more sustainable cooking and heating fuels and stoves (i.e minimum harmful effects on health and the environment). While speaking at a recent (February 2021) conference on energy sponsored by African Development Bank, State Minister for Energy and Mineral Development in Uganda, Simon D'Ujanga stated that the government of Uganda remains committed to implement activities that expand women's access to clean energy solutions and tackle Gender Based Violence (GBV)

#### **Challenges in the Energy Sector**

- Energy is a social challenge due to disproportionate access and consumption levels
- Energy is an environmental challenge because excessive energy use could aggravate climate change.
- Energy is an economic challenge because the energy supply challenge can hinder economic growth.

Adapted from Africa Development Bank, 2021.

Thus, this documentation is designed to share real life experiences and lessons from the implementation of; Promoting Solar Powered Energy Efficient Stoves (PROSPERS) Project that was implemented by a consortium of three organizations, CARE-International in Uganda, KRC-Uganda and ACE the manufacturer of the ACE-One stove.

## PROJECT BACKGROUND

**The PROSPERS project sought to address the following challenge statement; How to improve accessibility (distance) for refugees, in particular women to be able to access / purchase quality and affordable clean energy solutions and / or obtain after sales / maintenance.**

The PROSPERS project document pointed out that 6 million households in Uganda are resigned to cooking on 3 stones which poses health hazards as a result of indoor pollution and this

pollution mostly affects women. Such indoor population was responsible for more than 20,000 deaths each year in Uganda. It further stated that these possessed risks and safety issues for children in the household as a result of cooking pots often toppling over and endangering children.

**Globally, Gender specific problems in relation to roles in energy production and use;**

- Women and men have different energy needs linked to their gender roles
- Women and girls bear the main burden of biomass collection
- Women are poorer than men (both in resources and time)
- Women are generally disadvantaged in terms of ownership and access to land, natural resources, credit, information and decisions-making at all levels

**Global Gender and Climate Alliance (2011) as adapted from Africa Development Bank.**

This project made special case analysis for the refugee populations in Uganda in which it argued that 89% of the refugees have Tier 0 lighting , 80% have Tier 0 cooking facilities and most have less than 4 hours access to electricity and most rely on open fire to prepare their meals. In Kyangwali where this project was designed to be implemented, 65.2% of the refugee household cook on open fire and depend on wood fuel that is unsustainably harvested and therefore endangering forest and natural resources, contributing to resource-based conflicts and GBV.

Kyangwali Refugee Settlement is one of the most densely populated refugee settlements in Uganda with a total of 127,923 and 67,661 are female and 70,003 are children below the age of 18 years. It's these latter groups that continue to suffer energy challenges.

**Summary of Problems identified at design stage**

- 6million + households affected by Household Air Pollution (HAP) while using rudimentary cooking methods in Uganda

- HAP resulted diseases lead to approximately 20,000 people death each year in Uganda

- For refugees In the settlements, 89% of have tier 0 lighting, 80% have tier 0 cooking facilities, which means less than 4 hours access to electricity and mostly reliant to open fire cooking

- In Kyangwali 65.2 of households cook on open fire, due to lack of alternatives

- The high dependence on firewood in Kyangwaali contributes to rapid defforestation

## THE PROSPERS MODEL

The (PROSPERS - Promoting Solar Powered Energy Efficient Stoves) project was designed and implemented by CARE International in Uganda in partnership with African Clean Energy (ACE) and Kabarole Research and Resource Centre (KRC-Ugabda) with funding from the Dutch Relief Alliance Innovation Fund. Initially conceived as a Model, the project **aimed at improving the accessibility of quality and affordable clean energy solutions to refugees (particularly women) in the Kyangwali refugee settlement.** There were three components of this model; **a)** The ACE-One stove, **b)** the Briquettes Programme backed up by Action Research and **c)** Gender integration. Each of these components was managed by the participating partner in the consortia; namely, African Clean Energy managed the delivery and technical support for the ACE-One stove package, KRC managed and implemented the Briquettes programme together with the action research and Care-International in Uganda managed the Gender integration Component along with the overall coordination of the project.

**The ACE-One Stove:** This is a biomass improved hybrid cook stove and clean energy system. Its fuel flexible, highly efficient, smoke free and generates solar electricity and has a 4G Airtel smart phone. This system was valued at UGX 670,000. The system was offered to clients on a loan scheme basis with payable monthly instalments of UGX 35,000 for 18months. The client had an opportunity to reduce their loan repayment by a month (up to 9 Months) by recommending the ACE-One stove to another client through what is called the User Referral Bonus (URB). The User Referral Bonus (URB) model is whereby the ACE package (ACE one stove + smartphone + solar powered lamp) is made affordable to clients in Kyangwali refugee settlement and host communities and allowing payment for the system in instalments and also enabling URB participants to earn waivers on their monthly instalments through recommendation of up 9 clients. As an experiment, ACE One would result in the design of a commercial model targeting the refugee clientele.

**The Briquette Programme:** This was designed as a complementary component of the PROSPER Project to strengthen local capacity to produce briquettes for use alongside the ACE One stove. It was desired that when combined with the ACE One stove, the programme would deliver a comprehensive package for clients in Kyangwali refugee settlement. Also desirable in the design was the **action research** sub component for generation of evidence to enrich the project implementation. Therefore, the first ten groups (farming cooperatives/VSLAs) with 50% enrollment of their members to the ACE one stove would qualify for support with knowledge and equipment for clean, biomass briquette production, and also empowered to set up their own briquette businesses.

**Gender integration:** This was considered an integral component of the PROSPERS Project. The integration of gender by CARE- International alongside the action research by KRC- Uganda would provide evidence for learning and any other modifications to the project as would emerge in the course of implementation. For this component, CARE was expected to lead on Gender equity and Diversity. Training for the actors involved in the programme, organise dialogues between refugees and duty bearers, showcase the innovation package during international events, and link the innovation packaged to its existing energy pilots on solar community kitchens in Kyangwali refugee settlement.

## How the PROSPER Model was implemented

The three partners, with the consortium leadership of CARE International had clearly defined, separated but complimenting roles in accordance to each one's expertise and longtime interest. CARE International took the lead in coordinating the partners but also spearheaded the integration of gender mainstreaming, advocacy and influencing into the entire project due to their known experience and interest on gender dynamics.

ACE brought in the aspect of the private sector business approach by enabling the beneficiaries access to the ACE clean energy innovation package. This included, promotion, sales, operations and maintenance and referral system of the ACE one package: ACE took lead, while working closely with CARE International and KRC on mobilization of participants and influencing the leadership at the settlement level to trigger wider uptake of the innovation package.

KRC - Uganda conducted training for 10 groups on quality briquette production. Prior, the organisation had conducted spirited sensitization of the target populations where the latter

accessed ample information about the PROSPERS project and the ACE One system model which readied them to embrace the entire project. The organisation also led the action research sub component of the project. The action research sought to follow the following steps; Step 1—Agreeing on the Focus and selecting the participant's/ energy system actors, Step 2—Clarifying Theories in the business model, Step 3—Enriching the Research Questions to address the energy needs of refugees, Step 4—Collecting Data from the cohorts of participants' / energy system actors, Step 5—Analysing data with the involvement of participants / energy system actors, Step 6—Reporting Results to inform reflections and learnings and Step 7—Taking Informed Action to improve the energy business model for scaling. According to Ms Medius Bihunirwa, these steps couldnt be implemented as they had been envisaged at proposal level, *"we realised that all the steps couldnt be implemented because some had been overtaken by events and no longer relevant"*. To this end, there was a change in how the action research was implemented as follows; undertake a situation analysis to supplement the quantitative project baseline conducted by CARE international. This helped to bring out the qualitative aspect of the challenge that included; the marketing and quality challenge for the briquettes that had been supported by other organisations in Kyangwali Refugee settlement. Therefore, the new steps were as follows

- 1) Situation analysis
- 2) The market research and developing a marketing strategy; to address the market challenge, KRC realized that the market model promoted by other organisations was not sustainable and therefore embarked on a market research and developing a marketing strategy. The key issues in the marketing research were the limited availability of briquettes in the markets, the poor quality of briquettes and the 1000UGX per kilogram was higher as compared to its competitor wood charcoal.

Therefore, a marketing strategy was developed with the following marketing strategies; ensuring availability of quality briquettes for wiser use at ease of reach of points in the settlement and host community, ensure affordability of briquettes bringing down its price per kilogram by Reduction of production costs, Investing in mechanization, Providing incentives for pace-setter, create awareness and sensitize masses on feasibility of using briquettes, support scaled up briquettes production as a panacea to bringing down the price and strengthening public private partnerships in briquettes production and marketing. However, the marketing strategy needs to be implemented since at the time of this documentation, the market study was being reviewed.

- 3) Reflection and information sharing with energy actors
- 4) Taking informed actions to improve the energy to improve the energy business model; the training and mentorship in quality briquette production emphasised, exposure learning on quality briquette production conducted to address the challenge of poor quality of briquettes. According to Ms. Medius Bihunirwa, KRC-Uganda had already considered the provision of 3 Tri-cycles for the production groups to help with the transportation and marketing of the briquettes.

CARE took lead on Gender Equity and Diversity training for actors in the energy sector, organised dialogues between refugees and duty bearers, showcased the innovation package during international events and linked the innovation package to its existing energy pilots on solar community kitchens in Kyangwali settlement. Monitoring & Evaluation, Coordination and learning was also the responsibility of CARE. A baseline survey was conducted and an end line evaluation will also be their responsibility. This aspect of the project implementation also included: consolidating information from ACE One usage and ongoing action research, convening quarterly reflections with partners and actors in the energy sector.

### **Target Group**

The target group for the PROSPERS project was 700 beneficiaries in total with 70% refugees and 30% from the host community. In the same vein, host communities of Kyangwali and Kabwoya Sub Counties were targeted.

According to Lameck Micheal the ACE Expansion Officer, 700 ACE One stoves had been distributed since September 2021 when the ACE One package was made available by the supplier, a time lag of 9 months into the project implementation time. Incredibly good performance given the late arrival of the packages. According to KRC-Uganda, this success is attributed to the preliminary social marketing of the package, when it finally arrived, the ground and uptake of the product was quite easy.

### **Methodology**

The study employed mixed research methods that included; desk review of PROSPERS project I and others related literature to the project being documented, meetings with KRC project staff that explained the project and also clarified the focus regarding this documentation and



field data collection from the sites of project implementation where interviews with 37 households, Key informants, that is; CARE Field staff, KRC-Uganda Energy field officer, and the Environment and Livelihood officer OPM, Kyangwali were interviewed and 5 Focus group discussions (FGDs) each with 8-10 people composed of 60% females.

Data was thematically analysed, and fed into this documentation. It's out of the 37 households that Most Significant Stories were documented in addition to observations made by the research team, for example, cooking activities on the ACE-One stove at individual household level as well as the production of briquette activities at the different production sites observed. Finally, consent was sought from participants before taking photographic images that exhibit real time experiences and best practices with project beneficiaries.

## What we see

The subsequent text below presents the story of the PROSPERS Project by answering the following questions; how the project addressed Household Clean Energy needs?, how it contributed to the reduction of health risks associated with cooking using wood fuels especially for women, how it triggered the use and extension of sustainable and efficient energy fuels, how the project tackled gender disparities in the households, how it enabled access to information and finally how it contributed to protection of forest landscapes in the project area.

### Addressing Household Clean Energy Needs

In Kyangwali, the state of Energy poverty is very eminent. To date, women and girls still trek long distances to collect firewood from neighbouring forests of Nguse and Bugoma. These treks are not less than 10 kilometres on average and often there are social and environmental risks associated with collecting firewood from these distant forests. Among the risks mentioned by the beneficiaries of the PROSPERS project include; rape of women and girls, and sometimes death when firewood collectors get abducted or get involved into fights with the locals. On the one hand, the pressure on the natural forests and wetlands is so immense that there is a lot of environmental degradation.

According to the Environment and Livelihood officer in the Office of the Prime Minister in Kyangwali, Mr. Akampa Bandahura, he says that refugees are allowed only 1 day a week to go collect firewood in Bugoma Forest reserve. Because, what they collect cannot provide for all their household energy cooking needs, the refugees are forced to go in the search of additional firewood supplies from the Lake Albert escapements and hence continue facing serious energy challenges as well as the risks that come with finding solutions to this problem.

Therefore, the PROSPERS Project came in handy and is an extremely vital solution to address energy needs for both refugees and host communities in Kyangwali.

### **The ACE-One Stove and The Briquettes Programme**

In a space of 3-4 months, 700 pieces of the ACE-One stove technology were sold out to both refugees and host community beneficiaries in Kyangwali. According to ACE 1 management of the sales centre at Maratatu, 511 of these pieces were sold to clients through the User Referral Bonus Model. About 37% beneficiaries of the ACE-One cook stove are also beneficiaries of the Briquettes programme implemented by KRC alongside the stoves. Therefore, KRC supported 10 groups which have become decentralized production centres with 9 motorised machines and 1 manual). The 9 motorised machines have a production capacity of 450kgs per day while the manual machine has capacity of 50kgs per day, thus giving total production 4,100kgs per day when utilized at full capacity. However, at the time of this documentation the production schedule was weekly per group with a weekly production of 100-125kg per day of production giving 1000- 1250 kgs per week that was a low production as compared to the capacity of the machines

Both components of the project are mutually supportive of one another. From the onset, the design of the project sought to see that both the ACE-one stove and the briquettes programme go hand in hand and from what was observed on the ground this aspect of the programme was achieved by 90%. For Example, all the households that were engaged in this documentation had accessed carbonised briquettes made by their groups and there was great excitement about both the stove and the briquettes. They said that the product had worked so well and a cut in the expenses on charcoal and use of firewood had been registered in their households. We noted that the ACE-One stove had triggered interest in use of Carbonised briquettes within the Refugee communities in Kyangwali and this had received great admiration from other community members within the settlement.





*Photo1: ACE-One stove after cooking a day's Meal for the Family. The stove has been reported by the users to be highly efficient in terms of turn around time to prepare a meal for the family.*

Observations and feedback from the clients of the ACE-one stove in Kyangwali shows that the ACE-One stove is very efficient. The stove has the capacity to convert both carbonised and non-carbonised material into energy for cooking in a short time compared to other traditional methods of cooking. Clients interviewed revealed that the stove uses very little material (briquettes, and kitchen refuse, small pieces of wood collected from around the household) and is able to cook food very quickly. Indeed, KRC- Uganda briquette expert that conducted training in quality briquette production recommended the use of Maize cobs as one of the best raw materials in briquette production since their char can produce dense briquettes competitive to wood charcoal.

Today, households with the ACE-One stove and subscribed to the Briquettes Programme say that they no longer have to travel long distances to collect fuelwood for cooking and lighting their homes. Where the household has run out of Briquettes, they are able to use kitchen refuse or miniature pieces of wood collected from around the household including maize cobs. Others have also used charcoal on the stove and say that it lasts longer compared to when

it's used on an ordinary stove. Those using charcoal on the stove say that a bag of charcoal now lasts for 3 months instead of 1 month when they used an ordinary cook stove. The stove has also solved a lighting problem in the house. For many, lighting is such a huge relief from the use of kerosene lamps that in addition to cooking using firewood polluted households and presented health risks to women who do most of the cooking at home. However, it was also observed that there were capacity aspects of the ACE-one stove to be able to provide for the extended family needs within both the settlement and host communities. To this end, we saw that, while there was excitement about the stove and its efficiency, most households still retained a lorena stove, while others still continued to cook food in the open air. This is because the ACE-One stove is not able to cook food for many family members. This was more so when there were guests in the household. The question that clients asked, is it possible for the manufacturer to make an advanced modification of the stove to cater for the extended family energy needs?



*Photo 2: Ms. Akong proudly shows off the briquettes that she uses on her ACE-One stove.*

Further observed was the fact that the briquettes programme was working very well. The participants in the programme exhibited skill on how to make the briquettes and knowledge on the benefits of using briquettes. The motivation was also brought about by the motorised machinery that enabled the speedy production of the briquettes and the ACE-One stove that

created demand for the briquettes except for isolated cases where the machinery sometimes broke down.

### **The User Referral Bonus Model**

The design of the PROSPERS Project presented a unique sales model that would benefit clients to cut down the cost of the stove, code named; The User Referral Bonus Model. The model gave an opportunity to the client to reduce the cost of their stove by presenting up to a maximum of 9 clients to the supplier and the supplier would in turn reduce the price of the product at UGX 35,000 for every client presented. In other words, a client had a chance to reduce the cost of the stove by UGX 315,000 amounting to a reduction of 47% in price. According to the ACE-One Expansions Officer Maratatu, 511 pieces of the 700 ACE-One stoves had been sold using the URB Model. Asked whether they had benefited from this sales model, refugee clients said that they had not. In fact, they claimed that their clients were often rejected in preference to those from host communities. Indeed, the host community said that they had benefited from the sales model and they expected a reduction in the price after the 18<sup>th</sup> month has elapsed. Infact, host community clients said that they were closely monitoring the deduction they had received on their phones. This was not the case with the refugee clients. It appears that this sales model was not appropriately communicated among the refugee community and was therefore less understood on how it works.

*"We used to take customers to the sales centre at Maratatu but they chased us away and instead accepted those from the host community. We were only told that the systems left were for the host community.*

It was also revealed by the ACE expansions officer that ACE One clients that were presented by VSLA groups were paying more promptly.



*Photo 3: Ms. Akong preparing a day's meal on the ACE-One stove using Briquettes.*

*My name is Akong Margret. I'm 54 years old and I have 5 children, most of whom are attending school.*

*I got enrolled on the PROSPERS Project on 4<sup>th</sup> October 2021. This is when I bought my ACE-One stove. I bought it from Kony/Paco Savings and Credit Group where I'm the chairperson. In my group, 16 out of the 30 members bought the stove. I personally bought the stove because of the firewood challenges that we face in this community. We used to walk 10kms to collect firewood. Sometimes we would send children but this would leave us worried because of the risks involved such as rape and snake bites. Because of trekking these long distances, I got a chronic knee injury.*

*Thankfully, we got this stove. I no longer go beyond my homestead to find fuelwood to cook for the family. Instead, I use briquettes, and sometimes small pieces of wood that I collect from around the house.*

*Being a refugee and without a sustainable income, we struggle to raise the monthly instalments but I can say that the benefits outweigh the struggles to raise the money for the stove.*



*Photo 4: Ms. Ladu in Her Kitchen cooking on the ACE-One stove alongside the traditional Lorena stoves.*

*My name is Hellena Ladu from South Sudan. I'm 42 years old and a widow.*

*These days I don't go far to collect firewood. Use briquettes, charcoal and other times I use chuff collected from the garden or around the homestead.*

*The stove cooks very quickly and food will be ready in real time.*

*The phone that came along with the stove has helped me call family back home in South Sudan, and here in Uganda. Sometimes we use the phone to watch a film as a family but also get information on social media on what is happening in the world.*

*Before the stove, we had the challenge of finding firewood. We used to walk 10km to fetch firewood. If we left at 7am in the morning, we would return at 3pm and sometimes at 4pm in the evening. This is no more.*

*When cooking, there is no smoke. In the past, I would go to bed with my eyes hurting from the smoke.*



Photo 5: Members of Wekahakiba Saving and Credit Group.

**Story of Wekahakiba:** Wekahakiba a Savings and Credit Association composed of Refugees, mostly women from the D.R. Congo. The group was founded in 2013 and has been growing Gradually through support by various organisations, namely; AH, LWF and today, KRC-Uganda and CARE-International in Uganda. The group is made of 25 members and 11 of these members are clients of the ACE-One stove, and have also been supported with briquette machinery for the production of Briquettes by KRC-Uganda. Weka Hakiba is also the production centre for briquettes that are supplied to its members. In addition to briquettes production, the group has received training support by the KRC-Uganda energy officer to make energy saving cook stoves that they are also producing and hope to sell them to the wider community. The group is also passing on these skills to youth who were impregnated during the Covid-19 pandemic. The groups says that since the introduction of the ACE-One stove and making of briquettes, they have since forgotten the use of charcoal and firewood. The group supplies each member 15kgs of briquettes per month at a price of UGX1,000 per kilo. In order to ensure that the members are in position to pay for the briquettes, the group introduced an energy Saving product that is used for the production and payment for the briquettes. However, the group has a challenge to solicit and transport the material (char) from gardens which are far away from the production point.





*Photo 6: Tuwungane Nguvu Savings and Credit Group Members. Standing on the Extreme right is Mr. Okeng Alfred, the KRC-Uganda Energy Officer. In the background is the char Equipment that was given to the group by KRC-Uganda.*

**Story of Tujungu Nguvu:** Also, a savings group composed of 50% male and 50% female members. In 2021, KRC-Uganda introduced the ACE-One stove and Briquettes programme to the Group and they were very excited about this development. They say that before the introduction of these activities, women used to walk long distances including hills to go collect firewood and there had also been incidences of rape. This challenge is no more, as women don't have to trek long distances to collect firewood but instead use briquettes and small pieces of wood collected from around the homestead. The group expressed a concern that, once the ACE-One stoves break down, response to fix them is very slow and this was frustrating for those whose stoves had broken down. So, they ask for a quick response by suggesting that a technician should be located within the group so that they can solve the problems very quickly and in time. Besides this challenge, the group says that the ACE-One stove has given women a peace of mind. The women don't have to worry about cooking- and how long it will take to prepare a meal for the family.



*Photo 7: Tuwungane Nguvu members here preparing char that will be used to make the briquettes.*

## Reduced Health risks associated with fuel wood cooking and Kerosene lighting in Households.



The risks associated with the energy challenge in the household also included health risks resulting from the use of fuelwood and also kerosene lighting, both responsible for air pollution in the homes. Again, such pollution affected most of the women and girls and of course other household members as secondary victims of the air pollution. Some beneficiaries of the PROSPERS project also said that they had suffered physical health problems resulting from trekking long distances and carrying firewood. For example, The Chairperson of Kony/Paco a VSLA

group that is also involved in making briquettes is currently nursing a chronic knee injury as a result of trekking long distances to collect firewood.

To this end, the introduction of the ACE-one and the Briquettes had for the beneficiaries of the PROSPERS project managed to bring some relief to the households. Beneficiaries reported that household air pollution had been contained through the use of the ACE-One stove that is also providing the household with clean lighting. Indeed, they also say walking long distances by women is no more. Meaning that, for as long as the benefits of the PROSPERS project are retained in the

households, the physical health challenges associated with trekking long distances will be reduced.

**The ACE-One stove triggered the Production and use of Briquettes in Kyangwali Refugee settlement.**



*Photo 9: A briquettes production activity at one of the Production points set up by KRC-Uganda in the Kyangwali Refugee settlement.*



According to the baseline survey for the PROSPERS Project, there was no reported use of Briquettes in Kyangwali refugee settlement and neighbouring host communities (Baseline survey, 2021). From the on-set, the PROSPERS Project introduced the production and social marketing of briquettes alongside the ACE-One stove and therefore set up 10 briquette production centres within the refugees settlement and surrounding host communities of Kyangwali and Kabwoya Sub Counties. These centres are responsible for the production of briquettes that they sell to their members. In fact, one centre, Tukungane Nguvu, has plans to start selling briquettes beyond their members. These production centres have a combined membership of 300 people, and about 37% of the members are consumers of briquettes. This is in addition to the 590 ACE-one clients who are not members of these production groups. These members buy briquettes at UGX 1,000 per Kilo. In some of the groups like Wekahakiba, an energy saving scheme was set up for its members so that they are able to save for both the materials and briquettes that are produced at the Wekahakiba production briquettes centre.

Arguably, the ACE-One stove, had re-born the earlier failed efforts to introduce Briquettes among refugee communities in Kyangwali. It was easy to see during our visits to the households, women entering their houses and walking out with briquettes in their hands to be added onto a lit ACE-one stove. It was an indicator that for beneficiaries of the PROSPERS Project, briquettes had become household items.





*Photo 11: Women from one of the Briquettes Production Groups in Kyangwali seen here sun drying briquettes.*



*Photo 12: Ms. Isoke seated next to her cooking area at her home.*

*My name is Isoke Penina. I'm 49 years Old. I'm a member of Mugisa Gwamukama Savings and Credit Group here in Kyangwali Sub County.*

*It is KRC-Uganda that introduced to us the ACE-One stove. We liked the idea of paying in instalments for the stove.*

*Here in Kyangwali, we suffered a lot. Firewood was always hard to get and we thought that the stove would help us overcome this problem. I personally used to buy a bag of charcoal at UGX 35,000. On the ordinary stove, it would last 1 month, and on the ACE-One, it lasts 1 ½ months.*

*I can also cook inside the house without worrying about fire or smoke. However, If I'm cooking for many people, I still need my ordinary stoves as the ACE-One alone will not be enough. Otherwise, the stove lights up quickly and it's very helpful when I have returned from the garden when I'm too tired to use other stoves which take some time to start. The stove helps me relax after a long day in the garden. This really was not the case in the past where I would immediately after returning from the garden, I have to struggle to look for firewood or light up the ordinary sigiri which would take me a lot of time and leave me exhausted.*



*The only problem we have is that we are often disconnected before our days have expired and we don't get compensated for these days. This is really frustrating. Otherwise, the phone has helped remain connected to the outside world. Recently I had a court case, and the phone helped me take photos of the evidence that I submitted to court.*



*Photo 13: Members of Kabaganda Savings and Credit Group in Kabwoya.*

**Story of Mugisa Gwamukama Credit and Savings Group, Kabwoya:** Mugisa Gwamuka is a farmers group located in Kabwoya town. Among the group's activities include; collective marketing, savings and credit and environmental education. The group was introduced to the ACE-One stove and the briquettes technology by KRC-Uganda. Group members say that they are now connected to the world through the phones that were supplied along with the stove. The group however says that there have been some challenges with the system; the breakdowns are not quickly responded to and after making payment, it takes 2 days before the client is connected again. Otherwise, they say the system has helped save woodfuel. It also saves charcoal. The chairman of the group said that he can now prepare a meal for himself without any fear of being found in the Kitchen. As a group, we are certain that the technology will help with the protection of the environment. That is if the whole sub county acquires the stove. Our children and women will no longer trek long distances to collect firewood. It will also help solve people –wildlife conflicts.

## Tackling Gender disparities in households

It's notable that energy poverty is mostly experienced by Women. According to the Project baseline (2021), it indicated that, 27.7% of the mothers spend a large portion of their valuable time preparing food for their households. On a normal day this would translate to approximately 4 hours of their time. Unlike before, women beneficiaries of the PROSPERS Project reported that they now have more time available to them. They say that they spend less time preparing food while using the ACE-one stove. They say that Food on the ACE-One stove cooks much faster compared to ordinary stoves. For example, Akello Betty 38years, a mother of 7 and a refugee from South Sudan says that because of the extra time saved from the cooking activity using the ACE-One stove, she has been able to start an alcohol brewing business at home. She says that this was never thought of before because of the lack of time. Other women who have spare time say that they are able to find time to go to the market and also visit friends and relax away from the household chores. For others, relations among household members had improved. For example, now husbands and wives are able to find time together and talk about developments in the household and also how to find money for the monthly payments for the stove.

***"This stove has now brought us close to one another with my husband"***, said the Chairperson of Kony/Paco VSLA group.

Beneficiaries of the ACE-one stove also reported that the stove had improved participation of the men in the cooking activity at the household. They say that normally men fear to be found in the kitchen cooking but with the ACE-One stove, you don't have to be in the traditional kitchen. The men can also cook away from the Kitchen without any embarrassment for participating in the cooking activity.

***" I can also prepare a meal for myself as my wife is involved in another activity"***. Said the Chairperson Kabaganda, VSLA group in Kabwoya.

Some of the women/mothers interviewed said that they feel more relaxed because of the ACE-One stove. It was further observed at the household there was a lot of excitement among women because of the problems that the stove was able to solve, namely; its able to cook quickly and therefore meals can be provided in time especially for school going children in the morning and when they return home for lunch, and being able to address the fuelwood challenge that many households on the project faced in the past.

There was only one instance in Nguruwe village in the refugee settlement where a male partner in one of the households complained that the stove was taking away a lot of money and yet the family needed food. However, this complaint was not in disregard of the many good attributes the ACE-One stove had brought about in the family.

## Improving access to information and family bond

The phone component of the ACE-One cook stove system has been reported to have improved access to information within the household. Because of the high tech nature of the phone, most often the phone is being used by the Children and sometimes the Women after being taught how to use it by their children. In addition to the stove creating some form of unity between husband and wife, the phone was reported to have improved a lot on family bondage. Some beneficiaries said that they often come together and watch a movie using the phone. This means that the men don't have to stay out late for long but can return early to join a family entertainment and discuss information that has come through the phone.

The phone component of the ACE-One stove has enabled women to access online information and become more connected beyond their household but with the rest of the world. The fact that they access free MBs provided by the supplier, women can now access online information at any time of the day. Women can browse the internet by themselves or with the help of their more technologically savvy children.

## Forests and landscape protection

Beneficiaries of the PROSPERS project reported that their frequency and demand for firewood had significantly dropped. For example, those who use charcoal on the ACE-One stove reported that they didn't need so much charcoal to cook but only small amounts leading to reduction on household expenditure on charcoal because a bag of charcoal with the ACE-One stove lasted for more time, that is; 1 ½ - 3months instead of 1month. In addition, the stove uses kitchen refuse and miniature pieces of wood, including maize cobs collected from around the homestead. To the beneficiaries of the ACE-one stove, this meant that stress on the local forests will significantly be reduced. However, the PROSPERS Project should be seen as a drop in the ocean that has only proven that it's possible to reduce stress on local forests with the adoption of better renewable energy technology. Otherwise, the stress on the local forests can only be greatly reduced when there is universal adoption of the technology for both the ACE-One stove and the Briquettes. Such universal adoption of the technologies will also have to be supplemented with policy enforcement to reduce the production of charcoal from the neighbouring forests.

The OPM Kyangwali argues that, in order for the project to contribute to the broader goals of forest forest and other natural resources protection, the project should be in position to address the past gaps in renewable energy activities within the settlement, namely; availability, accessibility and affordability of the products. If these can be addressed, then it will be possible to increase universal access to the products, that is the ACE-One stove and

the briquettes. Otherwise, without the 3 attributes, the efforts towards the protection of the forests in Kyangwali are bound to remain futile.

*"If the attributes of; Availability, Accessibility and Affordability are not balanced, people will continue to go to the forests in the search for fuelwood",* said Akampa Bandahura, the Environment and Livelihoods officer, OPM, Kyangwali.

## Challenges and Recommendations

Despite all the positive outcomes of the PROSPERS Project, there have been challenges, namely;

1. **Project time limit:** The time span for the project was inadequate to provide for the ACE One package arrival but also work through the emergent aspects such the marketing for the briquettes. Even when an extension for three months (Jan-March 2022) was provided, it will not be possible to test out the Marketing plan for the briquettes that is currently being developed by KRC-Uganda. In addition, more time will be needed for ACE One and KRC-Uganda to develop briquettes that will be fully compatible with the stove.
2. There have been **frequent breakdowns of the ACE-One stove, accompanied by the delayed response to fix the problems.** There were many such challenges reported by refugee clients than there were with the host communities. In one instance, 5 of 11 stoves bought by Wekahakiba members had broken down and had not not been repaired for 2 months. This had come with a lot of frustration from the clients and putting a lot of pressure on Group chairpersons to respond to their members' concerns and yet the company expects that clients should make good of their monthly payments. Sometimes clients made good on their monthly payments but were cut off before their due date but also in other cases, they were not reconnected in time. These kinds of challenges if not responded to in time could lead to loss of integrity and trust in the product. It seems that the slow response by the ACE-one centre to the litany of complaints by refugee clients is not informed by a business mindset while targeting refugee clients and this will have to change.

**Recommendation 1:** : ACE-One sales centre at Maratatu other than concentrating on recovery, should also respond to breakdown complaints in time. In order for this to happen, they should fully and technically equip technicians. Such technicians should be located within the Briquettes Production groups. This should be the same for technicians that can repair briquette production equipment.

3. The 700 stoves sold within the settlement and host communities are too few to attend to current demand for the stoves but also suffice to say be able to address the energy challenge experienced by both refugees and host communities in Kyangwali.

**Recommendation 2:** Where resources are available, say through additional fundraising, to support mainly the Briquettes programme to have it multiplied. This would mean that the Manufacture of the ACE-One stove should increase on the supplies and respond to the current demand and market for the stoves.

4. Disconnection of the ACE-One Clients before their due time and the insufficient understanding of how the URB Model worked. The URB Model remains a white elephant among the refugee clients and has generated some level of mistrust. Arguably, for the refugee clientele, the project didn't fulfil part of its bargain to offer them a reduction in the price by recommending new clients to them.

**Recommendation 3:** It is recommended that ACE-One company administration should consider a 6-day grace period to allow time for mostly refugee clients to pay up before disconnecting them.

**Recommendation 4:** The ACE-One Company and or its service centre at Maratatu should in future take deliberate effort to effectively communicate how the URB Model works and how clients will benefit from it.

5. **Threats from charcoal sellers:** These seem to have posed a serious threat to the Briquettes programme. For example, Wekahakiba group made an effort to take their briquettes to the market but they were told to back off by charcoal sellers or else they risk being killed or bewitched. The charcoal traders see the briquettes programme as a threat to their business and are willing to do anything possible to frustrate the briquettes programme.

**Recommendation 5:** KRC-Uganda and partners should closely work with the office of the Prime Minister to a) create wide spread awareness about the benefits of the briquettes programme and therefore make it popular among the local communities, b) enforce the law and prevent the illegal extraction of charcoal from the forest but also ensure that those trade in charcoal have the permits that allow them to do so.

## Lessons Learnt

1. **The private sector approach in the humanitarian Context:** The experience of the PROSPER Project and in particular the involvement of a private sector actor in the humanitarian conditions presents an opportunity for private sectors to remodel their

business operations to fit in a humanitarian context. This form of remodelling demands that economic, social and humanitarian considerations will have to be made and in addition create a balance between doing business and being responsive to the humanitarian conditions of the client.

2. **Brick-by- Brick strategy:** The Implementers of the PROSPERS Project, namely; KRC-Uganda, and CARE sought to build on earlier activities in Kyangwali. For KRC-Uganda, the organisation was building on the AMS programme funded by the World Food Programme. This programme established the VSLA activities in Kyagwali Refugee settlement. It is with these VSLAs that KRC placed their Briquette production programme and this created a natural fit and foundation for energy activities. One could see that both activities were alive within the groups. This has in the end, helped yield quick outcomes of the PROSPERS Project that is relatively new (Only 4months of implementation) but supplemented with earlier social marketing by KRC-Uganda in their old AMS activities in Kyangwali.
3. Energy poverty in both communities is so high that there is anxiety for a solution that works even for communities at the lowest level of the income ladder. This is a recipe for savings and demand for high technological solutions that work.
4. The group approach presents a repository of knowledge and group members suffer less from some of the social challenges such as Gender Based Violence that individual members often face. We find a greater understanding and emancipation among both male and female members in appreciation of the need for individual empowerment to support household development in which both male and female partners can actively participate. This is the reason that all recipients of ACE-One technology and all its associated developments like exposure of women to the outside world and a woman being in possession of the phone didn't present any fears of gender based violence for example. There was no insecurity at all, because the product is seen to be a development tool for the household.
5. **Efficient Technology and tapping into youth energy:** The dynamism and energy of the youth combined with appropriate technology that works inspires productivity and particularly so among the youth. The briquettes programme for example demands a lot of energy and youth involvement in making it work. It's the reason that significant success has been registered by the briquettes programme because of active youth involvement.

## Conclusion

Despite the short Period of the PROSPERS Project, it was received with a lot of excitement and enthusiasm amongst the refugee and Host community clientele. The results in such a

short time (Only 4months) of technology usage are immense and show a lot of opportunities for the wider refugee and host communities of Kyangwali and beyond. The current model of the ACE-One is already a marketable product on its own and could as well go into the market alone and in the long run also stimulate the acceptability of briquettes across communities in Kyangwali and other neighbouring areas/districts. However, to accelerate adoption of the programme, the following attributes of; accessibility, Affordability, and availability need to be urgently factored into present and future programming.

Otherwise, the time the project has been under implementation is too short and also because it was implemented on an experimental basis, it's not possible to capture elaborate and in-depth best practices. What is clear though is that the project is working and has potential for wider replication both in the current scope (geographic and refugee context) in which it is implemented but also beyond to the wider community.

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# Annexes:

Introductory

Letter

**KRC UGANDA**

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**Your Ref:**  
**Our Ref: KRC/ADM/LETTER/12**

..... **24<sup>th</sup> January 2022**  
.....

Dear Sir/ Madam

**RE: INTRODUCTORY LETTER FOR DOCUMENTATION OF THE PROSPERS PROJECT:**

Kabarole Research and Centre in partnership with Care International and African Clean Energy with funding from the Dutch Relief Alliance are implementing a project titled "Promoting Solar Powered Energy Efficient Stoves in Kyangwali Refugee Settlement (PROSPERS).

The main objective of the project is to promote access to quality and affordable clean energy solutions to refugees and host communities with special attention to women and girls. KRC is undertaking a market study for briquettes with the main aim of developing a clear briquette marketing strategy for the PROSPERS project. The overall objective of the documentation exercise is to undertake an in-depth analysis of the PROSPERS project and document best practices and lesson learnt to inform scale up and future programming

The purpose of this letter is to introduce to you the Consulting team led by Mr. Busiinge Christopher (Lead consultant) that was contracted KRC-Uganda to document the best practice for the PROSPERS in Kyangwali Refugee settlement and as well request you to accord them the necessary support to accomplish task

Hoping for your usual cooperation

Yours sincerely,

  
.....

Mohammed Ahamed Shariff  
Executive Director  
Tel. +256 772 911693 | Email: shariff@krcug.org  
Kabarole Research & Resource Center (KRC)



## TOOLS

### **HOUSEHOLD DISCUSSION GUIDE TOOL (beneficiaries of the PROSPERS project)**

This tool will be administered to household members who have been beneficiaries of the PROSPER project for the period from 2021. With this tool, the team is interested to find out the direct household positive effects of the project. Before diving into asking the questions listed here, the research assistant who will be administering this tool is expected to debrief the household member, by first reminding them about the PROSPER project and the objective of this documentation exercise by explaining to them that we are interested in recording the direct positive effects that the programme had on the household.

#### **Bio data**

Age\_\_\_\_\_

Gender: Male|Female

Education|not been to school|Completed Primary school|Completed Secondary School

Marital Status/Married/Not Married

#### **a) Addressing household energy needs at the household level-access to clean energy**

- ACE One-share your experience about the ACE One system in the Household. How were you enrolled on the project? How convenient was the pay plan system? How did you benefit from the User Referral Bonus Model? How has the ACE One system worked for you? What materials do you use for lighting the ACE One stove? How well have these materials worked?Do you use the briquettes in the ACE1 stove? If not, why?
- What is the recommended price for 1 Kg of briquettes?
- What can be done to increase the number of households using the briquettes in their ACE1 stoves? Have you used briquettes and how do they work in the ACE One stove? Where do you get the briquettes from?

#### **b) Improvement of gender conditions at the Household level**

- Relations and support from the male partner- Participation of the husband in a cooking activity? How do your relate with one another on the usage of the ACE One package?How has the system contributed to the peace of the household?How has the project helped you improve your way of living as a family /

- Walking long distance /averting risks associated with collecting firewood. Have these risks reduced?
  - Boasting economic activity at the household- Participation in additional economic activities that boast income of the household.
  - How has the ACE One system contributed to the reduction in workload/participation in social and public activities
  - How has the ACE One Project affected Power relations/economic empowerment of the female partner and that of the household?
  - What have been the negative impacts of the ACE One system in the household?
- c) health situation of the woman in the kitchen and now with the use of the new technology which is smoke free**
- How the ACE One system contributed to the improvement of the health condition of the household occupants?
- d) Natural resources protection/the use of alternative biomass other than trees fetched from the forests/wetlands.**
- How has the ACE One system contributed to the protection of forests in the area?
- e) New opportunities presented by the Product/Project.**
- What new opportunities have emerged with the advent of the ACE One system?
- f) Challenges**What challenges as a family have you identified or encountered through using the stoves?What should be done to improve in the next coming years as the project continues?

## KEY INFORMANT TOOL

This tool seeks to gather responses from Key informants in the PROSPER project. It will therefore be administered to individuals with a versed knowledge about the local situation and or are part of solving the problem.

### **Bio data**

Age, sex, marital status, education level responsibility in the community, location .....

#### **1. Knowledge base**

- Do you know about PROSPER intervention, what do you know about it?

#### **2. Addressing household energy needs at the household level-access to clean energy**

- In your view, to what extent do you think the intervention has addressed clean energy needs for the refugees and the community? How much briquets have been produced under this project?

#### **3. Improvement of gender conditions at the Household level**

- How has the intervention contributed to the improvement of household conditions of;gender relations, health etc.

#### **4. Natural resources protection/the use of alternative biomass other than trees fetched from the forests/wetlands.**

- How has the ACE One system contributed to the protection of forests in the area?

#### **5. New opportunities presented by the Product/Project.** What opportunities have been presented by this intervention for; the household, and the community?

## FOCUS GROUP DISCUSSION TOOL

This tool seeks to gather responses about the PROSPER project from community members gathered in a Focus Group Discussion. Generally, responses will be guided by the broad themes of the documentation exercise and the questions here under. To exhaustively discuss these themes, it's estimated that each FGD will take approximately 45 minutes. It's therefore important that the researcher prepares the group well and also informs them about the time they will spend. The research assistant will conduct this interview in a gender sensitive manner by organizing women, youth and men separately to attract honest responses from the groups.

### 1. Knowledge base

- Do you know about PROSPER intervention, what do you know about it?
- What changes has the intervention brought to the community?

### 2. Addressing household energy needs at the household level-access to clean energy

- In your view, to what extent do you think the intervention has addressed clean energy needs for the refugees and the community? Are there members of the community who would have loved to access the product and didn't? Why?

### 3. Improvement of gender conditions at the Household level

- How has the intervention contributed to the improvement of household conditions of;gender relations, health etc.

### 4. Natural resources protection/the use of alternative biomass other than trees fetched from the forests/wetlands.

- How has the ACE One system contributed to the protection of forests in the area?

### 1. New opportunities presented by the Product/Project. What opportunities have been presented by this intervention for; the household, and the community?

(Have smartphones helped to identify new opportunities in your community? If yes, how?)

### 2. Make comments about the briquettes (carbonated / non carbonated) - researcher explains how the two different types look like....

## Interview, Video and Photo Consent and Release Form

I .....Without expectation of compensation or other remuneration, now or in the future, I hereby give my consent to CECO - Uganda, its affiliates and agents, to use my image and likeness and/or any interview statements from me in its publications, advertising or other media activities (including the Internet).

This consent includes, but is not limited to:

- a) Permission to interview, film, photograph, tape, or otherwise make a video reproduction of me and/or record my voice;
- b) Permission to use my name; and
- c) Permission to use quotes from the interview(s), the film, photograph(s), tape(s) or reproduction(s) of me, and/or recording of my voice, in part or in whole, in its publications, in all print medias, on television, radio and electronic media (including the Internet).

### 1. **Revocation**

I understand that with my authorization below the photograph(s) may never be revoked.

I understand that I may revoke this authorization at any time by notifying CECO - Uganda in writing. The revocation will not affect any actions taken before the receipt of this written notification. Images will be stored in a secure location and only authorized staff will have access to them. They will be kept as long as they are relevant and after that time destroyed or archived.

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We understand that you might change your mind in the future and would like to withdraw your consent to using your photo or video. Withdrawing your consent will have no negative consequences for you. If you withdraw your consent, we will not use your photo or video in future communications. We may not be able to withdraw images already published.

### 3. **Contacts**

For those purposes, please contact:

- CECO - Uganda E-Mail; [ceco.dsuganda.org](mailto:ceco.dsuganda.org)
- CECO - Uganda offices, Fort Portal City

4. **Authorization**

**Contributor is over the age of 18 years**

Full name of contributor: .....

Signature: .....

Location: .....

Date: .....

I give my consent to CECO - Uganda to use my image, film, sound or story.

**Contributor is under the age of 18 years**

Full name of contributor: .....

Signature of child (optional):  
.....

Signature of parent/ guardian:  
.....

Relationship to child: .....

Location: .....

Date: .....

I am a parent or guardian and I freely give my consent, on behalf of my child, for CECO - Uganda to use their image, film, sound or story.

