

Briquettes Training Report

Project: Training PROSPERS project beneficiaries in Quality briquette making and marketing in Kyangwaali Sub county & Kabwoya Sub County in Kikuube District;

Client: Kabarole Research & Research Center;

Author: Green Bio Energy Ltd;

Submission date: 31/12/2021



Briquettes extrusion machine



Briquettes dryer

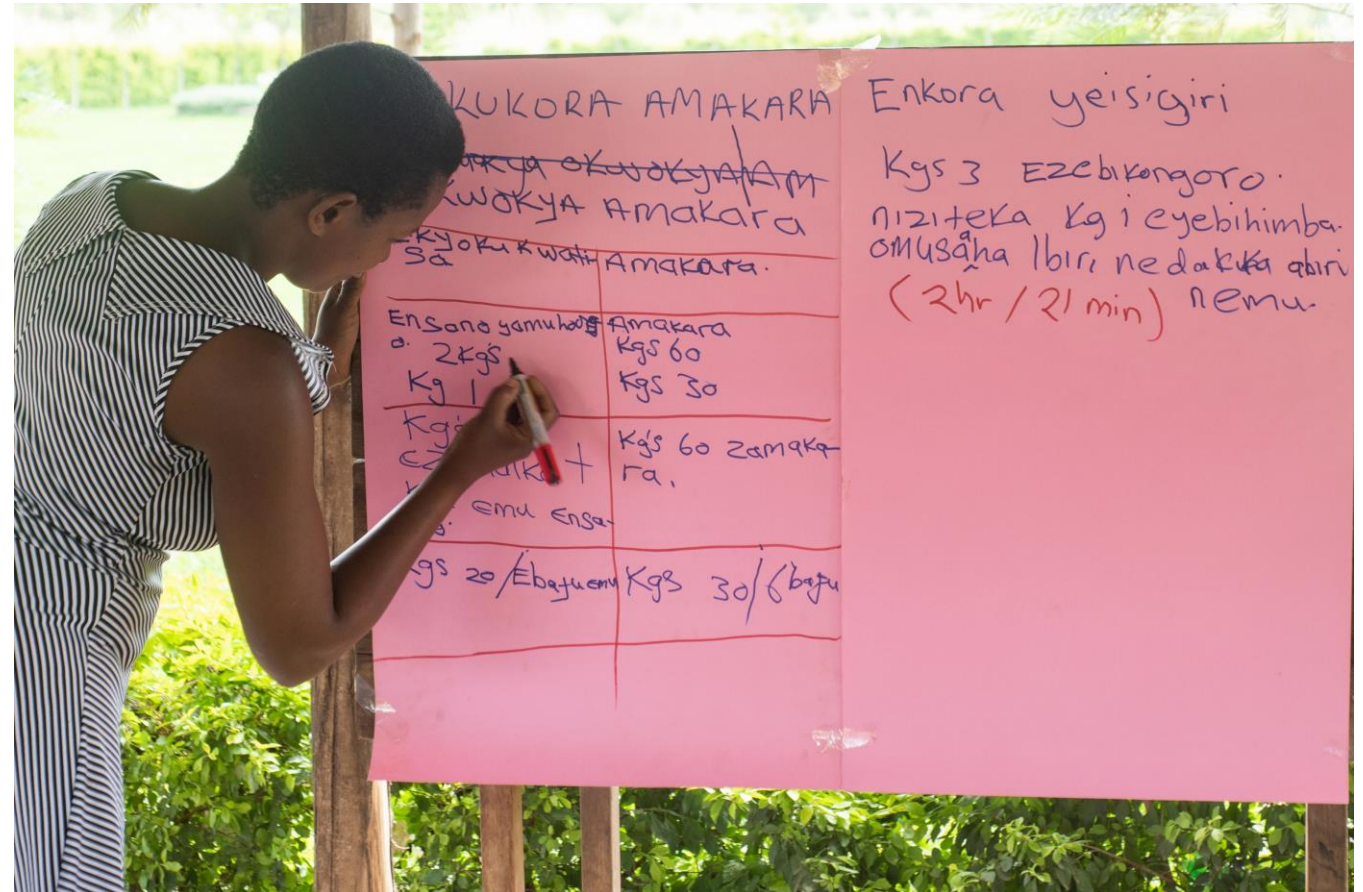


Beans boiled on ACE one stove



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1. Introduction

Kabarole Research and Resource Center (KRC) In partnership with African Clean Energy (ACE), and CARE partnered on the Dutch Relief Alliance (DRA)'s Innovation Fund Call, and proposed the Project: **PROSPERS (Promoting Solar Powered Energy Efficient Stove in Kyangwaali Refugee Settlement - 1.2210° N, 30.8183° E).**

PROSPERS project promotes clean energy and sustainable fuel accessible to refugee households in Kyangwaali settlement in Kikuube. The refugees have access to an innovation package with two complementary programmes namely; the **ACE User Recommendation Bonus (URB) and the KRC briquettes programmes.** Through these programs the project empowers women and girls, by reaching 700 households, 70% refugees and 30% host community members.

The ACE one stove with its complementary 4G smart phone are sold to refugees at UGX 670,000, paid over 18 months, with installments of UGX 35000 per month. Through the URB, participants reduce their loan repayments by a month (up to a maximum of 9 times) by recommending the ACE one stove to another refugee/host community member. The ACE one stove is supplemented with the briquettes fuel, both the briquettes and ACE one stove combined are a comprehensive package for the refugee households.

The project targets 700 refugees and host community households (3,500 people). 70 refugees will be trained as trainers, and each of them will train other 10 people to reach 700 ACE one and briquettes user households.

For the briquettes component, it was planned to train 70 refugees as TOTs in briquettes production skills. Significantly with the training and implementation of the briquettes program, the project would result into 1,000 tons of briquettes produced to replace 1,200 tons of wood fuel and 300 tons of charcoal annually and hence the restoration of threatened tree species of Bugoma forest.

KRC's research and feedback from the different energy actors and stakeholders, briquettes users, groups in briquettes making indicated that the current briquettes are not of good quality, which limits success of the briquettes marketing and usability. Therefore KRC with its PROSPERS project partners proposed to contract an individual or companies to train **10 groups in quality briquettes making in Kyangwaali and kabwooya subcounties in Kikuube District.**

It was on the above background that **Green Bio Energy Ltd (GBE)** was contracted started the 30th/11/2021 to deliver a training program for the PROSPERS project beneficiaries in Quality briquette making and marketing in Kyangwaali Sub county & Kabwoya Sub County in Kikuube District. The delivered objectives included;

- *Train 10 groups in quality briquette production*
- *Train 10 groups in quality briquette drying, packaging and storage*
- *Produce an inventory of raw materials for quality briquette*
- *Produce a training manual (pictorial with few narrations) for quality briquettes production*

The next sections/slides describe the training project in details;



Ultimately the PROSPERS project addresses clean energy access challenges in the refugee settlements and host communities, such as those listed below:

- *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 Kyangwaali 65.2 of households cook on open fire, due to lack of alternatives*
- *The high dependence on firewood in Kyangwaali contributes to rapid deforestation*

2. Training Project Details

GBE is a social enterprise founded in 2011, to innovate, produce and distribute eco-friendly cooking goods and services that mitigate climate change and poverty, while offering employment opportunities to local communities. GBE currently produces and sells an average of 60tons of briquettes per month. As part of its endeavor to promote the use of energy efficient solutions and renewable energy, GBE also offers a **wide range of training and consultancy services** as well as providing machinery for all production levels. GBE has developed for years an expertise in implementing briquettes production plant and training briquettes entrepreneurs. Both activities are complementary, and GBE proposes to work not only on the theory but also in the practice. Indeed, GBE has developed trainings in production and management that have already be proven efficient with other entrepreneurs. It is based on GBE’s experience that GBE was identified to deliver the PROSPERS briquettes. PROSPERS briquettes training project was divided into two phases, the first phase being the **assessment and validation of the problem** and the second phase being the **delivery of a customized training program adapted to the challenges identified**.

The training project was organized into (2) phases, which included;

2.1.Phase 1: Problem assessment and surveys;

2.2.Phase 2: Implementation of the training;

In the next sections we provide details of the two phases.

TRAINING PROJECT WORKPLAN

ACTIVITIES	OWNER	VERIFICATION	# OF DAYS
Project component (1)			5 DAYS
1.1 Contract agreement and signing	GBE/KRC	contract	
1.2 Inception call for project review	GBE/KRC	calendar invite	
1.3 Inception report	GBE/KRC	report	
Project component (2)			10 DAYS
2.1 Project planning meeting	GBE/KRC	participant list	
2.2 Inspection and survey			
Raw material survey	GBE	data report / pics	
Machinery survey	GBE	data report / pics	
Inspect & test ACE stove	GBE	test report /pics	
Inspect Briquettes Stock	GBE	data report / pics	
Inspect dryers	GBE	data report / pics	
Inspect land for sites	GBE	data report / pics / google map pin	
Asses groups structure/ profile	GBE	data report / pics	
Survey charcoal market	GBE	data report / pics	
2.3 Training	GBE / Beneficiaries		
2.4 Training Report			
Development	GBE	report/pics	
Submission	GBE	report/pics	
Review and agreement	GBE/KRC	report/pics	
Component (3) - Annex			2 DAYS
3.1 Travel to Kyangwaali	GBE	n/a	1 DAY
3.2 Travel from Kyangwaali	GBE	n/a	1 DAY
3.3 KRC project payment 1	KRC	receipt	n/a
3.4 KRC project payment 2	KRC	receipt	n/a

2.1.Phase 1: Problem assessment and surveys

This phase started with an inception call held on 6th/12/2021 attended by Ms. Deborah K. of KRC, and the GBE team including Ziwa H. and Nakitende D. and the main outcome was introduction to the PROSPERS project and sharing of the project documents. The next task was the signing of the project contract shared by Mr. David M. of KRC on the 3rd/12/2021 and counter signed by Ziwa H. of GBE on the 7th/12/2021. Then the GBE team travelled to Kyangwaali on 6th/12/2021 and began the onsite assessments and surveys on the 7th/12/2021. The first days of the assessments and surveys were supported by Mr. Okeng Alfred and the community leaders of KRC. Apart from the field assessments and surveys, GBE also engaged in a briquettes groups review visit conducted by Mr. Alfred K. from CARE and Mr. Alfred O. Additionally there was also a joint meeting attended by the (3) service providers for the briquettes program, as well as the CARE and KRC team.

For the assessments and surveys, the GBE team focused on, developing the data on the baseline briquettes production and sales volumes, carried out scientific tests on the existing briquettes types, other fuels, agricultural waste, identified the raw materials available for briquettes production, assessed other briquettes program eco-system drivers such as stoves adapted for the briquettes fuel, production and sales models, the KRC briquettes implementation framework. And in the next sections we provide our analysis on the current briquettes activities and other relevant findings.

Activity	Verification	Owner	Outcome
Inception zoom call (6 th /12/2021)	<ul style="list-style-type: none"> - Inception report - Email exchange - Calendar invite 	GBE	<ul style="list-style-type: none"> - Inception report
Inspection of 10 briquettes production groups (6 th to 13 th /12/2021)	<ul style="list-style-type: none"> - Photos - Briquettes test report - Phone call record 	GBE	<ul style="list-style-type: none"> - Adapted training model - Baseline Data on briquettes quality - Briquettes quality tests - Machinery review - Production shelter review - Agreement on training days
Briquettes program review meeting	<ul style="list-style-type: none"> - Photos - Participants lists 	GBE, Adapt Plus, CARE, KRC	<ul style="list-style-type: none"> - Agreement on aligning the production shelter and dryer shelter
Briquettes Tests (12 th /13 th /17 th)	<ul style="list-style-type: none"> - Photos - Briquettes test report 	GBE	<ul style="list-style-type: none"> - Briquettes test report - Adapted training on ACE one stove and briquettes usage

2.1.Phase 1: Problem assessment and surveys

Project Driver

Baseline assessment

KRC briquettes program model

- The decentralized production and sales model being tested
- The refugee and host communities farmers are the common beneficiaries
- It is anticipated that the briquettes produced will be marketed along the ACE one stove
- To set up the briquettes production units, KRC has contracted separate contractors each for the three activities including briquette quality training, dryer shelter, and production shelter set up
- Small scale but automated machinery have been provided per group
- No financial projection in place
- No business model canvas in place
- The current model is mostly a skilling model and has not yet been consolidated to business model
- No consolidate market plan adapted to the scale of the briquettes units setup

2.1.Phase 1: Problem assessment and surveys

Project driver	Baseline assessment
Briquettes shape	<ul style="list-style-type: none">- The briquettes are hollow shaped- The briquettes are approximately 6 inches long or can be less
Briquettes stock volumes	<ul style="list-style-type: none">- Avg. no. of bags # of briquettes bags per each group that had bags: about 2 bags, with an average weight of 50kgs
Briquettes raw materials	<ul style="list-style-type: none">- Commonly bean husks , maize cobs, this bonded by anthill soil, clay soil, cassava flour, other alternatives but not commonly used include the saw dust
Briquettes raw material component ratios	<ul style="list-style-type: none">- Ratio 1 - 1 : 7 (7 basins of char into 1 basin of anthill soil)- Ratio 2 – 1:8 (8 basins of char into 1 basin of anthill soil)- Ratio 3 – 1:6 (6 basins of char into 1 basin of anthill soil)- The soil content in the briquettes is too high- Soil is mostly a filler and not a binder

2.1.Phase 1: Problem assessment and surveys

Production driver	Baseline assessment
Land	<ul style="list-style-type: none">- Land for a production of at least 1 ton per month exists- Most of the land is based at group members' homes
Machinery	<ul style="list-style-type: none">- Automated extruder, and combined mixer and crusher provided- The extrusion process is effective- No user maintenance available- The machines have not been run for a while to actualize the production capacity- No machinery management plan- The combined mixer and crusher is not feasible because there is incomplete mixing<ul style="list-style-type: none">- The engine often stops working and is run on petrol- No welding machine, it is hard to fix breakages- No specific support tools and equipment identifies
Briquettes store and packaging	<ul style="list-style-type: none">- The briquettes are commonly kept inside the house or kitchen, about 1 to 3 bags- The briquettes are kept in sacks- The temperatures are favorable as the locations are not so humid- KRC has built new production shelters, and these are an option to store the briquettes
Production shelter	<ul style="list-style-type: none">- The components of the recently built production shelter are wooden poles, a tarpaulin, and iron sheets- Not enough aeration on production shelter- No specific design plan adapted to the planned components
Raw materials store	<ul style="list-style-type: none">- No specific raw materials store- Materials kept in the house or kitchen
Briquettes dryers	<ul style="list-style-type: none">- The briquettes dryer is made of a UV treated tarpaulin, plastic mesh, and wooden poles- The UV tarpaulin is the most convenient and affordable tool for drying by most briquettes businesses in Uganda
Production unit and workstation design (blue print plan)	<ul style="list-style-type: none">- No specific blue prints for the workstations- No work schedule in place- The work station designs would inform the design and size of the production shelters

2.1.Phase 1: Problem assessment and surveys

Parameter	Experiment 6	Experiment 5	Experiment 4	Experiment 3	Experiment 2	Experiment 1
Testing Date	17th/12/2021	17/12/2021	13/12/2021	12/12/2021	12/12/2021	12/12/2021
Location	a farmers assorciation	Wekakiba	mers organisation	KRC office	KRC office	KRC office
Fuel	Briquettes	Briquettes	maize cobs	maize cobs	wood pellets	wood pellets
Stove used	Charcoal stove	Charcoal stove	Ace one stove	ACE one stove	Ace one stove	Ace one stove
Item prepared	Water	Water	Beans	Water	Beans	water
Type of test	Water boiling test	Water boiling test	food boiling test	water boiling test	food boiling test	water boiling test
Fuel label	s6	s5	s4	s3	s2	s1
Fuel size (cm)	5	5	7	7	5	5
Fuel moisture content(%)	15	15	15	15	14	14
<u>Test results</u>						
Pot label	P1	P1	p1	p1	p1	p1
Pot weight when empty (gm)	350	350	400	400	400	400
Weight of fuel initially (gm)	1,050	1,358	3,000	1,000	2,000	1,000
Weight of water initially(gm)	5,000	5,000	1,000	5,000	1,000	5,000
Weight of pot with water initially (gm)	5,350					5,400
Start cooking time	1:00pm	9:15am	9:47am	5:46pm	12:10pm	12:31pm
Weight of fuel final(gm)	375	366	-	-	390	225
Weight of water final(gm)	4,350	4,450	-	-	-	
End cooking time	2:10pm	10:55am	11:50am	6:10pm	2:06pm	12:52pm
Burning time	1hr & 10 mins	1hr & 40 mins	2hr & 3 mins	24mins	2hrs & 4 mins	21mins

While burning pellets and maize cobs in the ACE one stove, the ash content left was negligible. And this means for both pellets and maize cobs there is complete combustions, because they are densified. Therefore a suitable fuel or biomass to use in the ACE one stove has to be densified.

While burning the briquettes from the groups in the ACE one stove, there was barely no result, because there was no complete combustion of the briquettes, mainly because of low densification, and also using a lot soil filler.

While burning briquettes from the groups on an ordinary charcoal stove, there was significant amount of ash approximating to about 41%, indicating slow burning this possibly resulting from effect of the binder and the raw materials used, for example the groups commonly use bean husks, then soil as a binder, which commonly result in incomplete combustion.

2.1.Phase 1: Problem assessment and surveys



Pellets test in an ACE one stove



Maize cobs test in an ACE one stove



2.2.Phase 2: Implementation of the training

Activity	Verification	Owner	Outcome
Inception zoom call (6 th /12/2021)	<ul style="list-style-type: none"> - Inception report - Email exchange - Calendar invite 	GBE	<ul style="list-style-type: none"> - Inception report
Inspection of 10 briquettes production groups (6 th to 13 th /12/2021)	<ul style="list-style-type: none"> - Photos - Briquettes test report - Phone call record 	GBE	<ul style="list-style-type: none"> - Adapted training model - Baseline Data on briquettes quality - Briquettes quality tests - Machinery review - Production shelter review - Agreement on training days
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2.2.Phase 2: Implementation of the training

In this phase we explain the key components of the training;

a) Training organization and methodology

The training happened from the 13th/12/2021 until the 18th/12/2021. About 152 trainees from 10 groups were trained. The 10 groups included; (*Kyangwaali Farmers' Association, Kagoma Farmers' Organisation , Musinsa B group , Weka Kiba group ,Twendeleye namani group ,Twisingane Saving group ,Nguwe group, Kony / Paco ,Unity is Power group ,Twisungo group , Kitoke group, Kasifa*)

The (3) onsite trainers from GBE included Ziwa Hillington, a business management professional with about 10 years in sales, project management, business management in both the social business and Non Government Organizations sectors and currently the Managing Director at GBE. Then Danson Nkwasiwwe and Niwasima Evaristo, who are both biomass engineers, with about 5 years experience in industrial biomass project management. Additionally GBE included its photography and business story telling personnel, who captured all the training events.

The training was based on a strong interaction between the trainees and the trainers. The personal experience, successes and challenges faced by the trainees were used extensively to illustrate the points made during the trainings.

The production and business aspects of the briquetting industry both had a central role in the training. We have realized that most of the time, small and medium scale producers focus on the production aspects and tend to assume that they are powerless when it comes to the marketing aspects of their activity. It was one central goal of the training to make all the producers aware of the importance of proper marketing for the success of their briquettes activity. The training was done using a vocabulary easily understandable by anyone so that no prior business or marketing knowledge was required.

The training was organized around four pillars for production techniques (drying feedstock and carbonization; from char to briquettes; optimizing production output; quality, health and security control) and four pillars for business.

Both the production and sales sessions were at most carried out in 3hours. The training was both in theory and in practice.

<u>Training day schedule</u>	<u>start time</u>	<u>end time</u>
<i>Trainer move from hostle</i>	6:00 am	7:00am
<i>Trainers pick training items at KRC</i>	7:00am	7:30 am
<i>Trainer do breakfast</i>	7:00am	7:30am
<i>Trainers move to groups</i>	7:30am	8:00am
<i>Trainers set training ground</i>	8:00am	8:30am
<i>Participants list</i>	x	x
<i>Light the briquettes test stove</i>	x	x
<i>Sitting arrangement</i>	x	x
<i>Trainees breakfast prep</i>	x	x
<i>Manilla charts hanging</i>	x	x
<i>Machinery test</i>	x	x
<i>Trainees arrival</i>	7:00am	8:00am
<i>Trainees registration</i>	7:00am	8:00am
<i>Breakfast for trainees</i>	8:00am	9:00am
<i>Training</i>	9:00am	11:00am
<i>Work station design</i>	x	x
<i>Briquettes production & sales</i>	x	x
<i>Briquettes test</i>	x	x
<i>Trainees imitate training</i>	11:00am	12:00pm

2.2.Phase 2: Implementation of the training

c) Training pictorial



2.2.Phase 2: Implementation of the training

b) Training content

Conversion of organic waste to char

- All solid organic waste can produce briquettes but the quality of the briquettes and the process of converting waste to briquettes are different.
- Good char is produced from dry dense waste.
- Drying is important because not all organic wastes have the same moisture content.

Waste Identification:

- Type of waste
- Quantity available
- Cost of the waste
- Ranking by quality:

Maize cobs

Cassava, sweet potato, banana peelings

Nut shells (ex: ground nuts)

Bean residues, millet straw, grass, sorghum straw, tree leaves

Waste drying:

- The major factors for drying include heat and air circulation
- Different kinds of waste take different number of hours to dry, 2, 3,4 days, or even weeks.
- Drying can be improved by threshing the waste to reduce particle size.
- Different ways of drying include: reed table, wire mesh, plastic sheet, etc.

NB: Green Bio Energy offers customized dryers based on production size.

Waste cleaning and carbonization:

- In most cases, waste dried on open ground cases has dust, stones, pieces of metal, etc. All inorganic matter should be removed for the carbonization process to operate safely and smoothly.
- Different organic wastes carbonize differently so it is important to only put in the similar types of waste at once in the carbonizer.

NB: Soil reduces the rate of burning because it extinguishes the fire.

Conversion of Char to Briquettes

Binder selection and preparation

- Examples of binders include:
 - Molasses and starch binders
 - Research approves cassava binder to be the best

Using cassava Binder

- Boil water, mix flour with cold water to make paste, mix paste with hot water with some heating. Water to cassava ratio is approximately 7liters:1kg

NB: Molasses is very expensive, smells and produces smoke

Mixing

- Measure fine dust, add appropriate quantity of binder, and mix until a uniform color is achieved. Fine dust is harmful to your respiratory system so take necessary precautions. The quantity of cassava is approximately 4 to 7% of the dry weight of the briquettes thus 1kg of cassava can mix about 20kg of dry dust

NB: Exceeding 7%, briquettes will produce smoke, below 4% they will be weak and break as they dry

Pressing

- This allows hardening the mixture.
- Different types of machines and mechanism can be used

NB: The chemical composition and the compaction pressure affect the quality of the briquette

Drying

- Same drying methods as for drying waste.
- Drying time of a briquette in appropriate conditions is around 6 days (depending en weather and season)

2.2.Phase 2: Implementation of the training

b) Training content

Conversion of Char to Briquettes

Char grading and quality control basics

- The quality of the char you get will directly impact the quality of the briquettes you produce.
- Quality comes from:
 - Selecting the waste you work with.
 - Drying the waste properly
 - Carbonising the waste carefully, (carbonization time is important!)
 - Too long -> too much ashes,
 - Too short -> too much un-carbonised material

Safety, Health and Security

- Charcoal dust very volatile, is dangerous for your lungs if inhaled. Always wear a respiratory protection mask.
- Temperature of the carbonising drum is very high, be cautious, especially with young children. Better to use gloves.
- Smoke from the carbonisation process is dangerous, therefore carbonise outdoors and hold your breath while in high concentration.
- Organic waste may contain germs and other organisms causing infection organism therefore protective gloves are recommended.

Crushing and screening

- Big particles make it difficult to press thus producing weak briquettes that do not burn well.
- Different methods of crushing: machinery, simple tools (e.g. motor and pestle, sticks, etc.)
- A local means of sieving should be used to simplify crushing in cases where machinery is no appropriate as it is the case with small scale production

NB: Crushing helps to break down the big particles hence creating fine char and hence improves the compaction of the briquettes

Recommendations

- Store free wastes during pick season of good quality waste such as December and then use the available free waste when the good quality waste is not available.
- Regular but simple experiments for testing quality such as comparing to charcoal can improve the standard of your briquettes.
- Remember that someone else may know what you don't know so let's work together by asking and advising each other.

Conversion of Char to Briquettes

Binder selection and preparation

- Examples of binders include:
 - Molasses and starch binders
 - Research approves cassava binder to be the best

Using cassava Binder

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Pressing

- This allows hardening the mixture.
- Different types of machines and mechanism can be used

NB: The chemical composition and the compaction pressure affect the quality of the briquette

Drying

- Same drying methods as for drying waste.
- Drying time of a briquette in appropriate conditions is around 6 days (depending on weather and season)

NB If exposed to water, the binder will be washed away.

Maintaining tools

- Metals should be cleaned with water, wiped dry with a piece of cloth and oiled if possible.

Quality control

- There must be some quality control at every stage of the process.
- What makes a good Briquette: If it burns well and doesn't crumble, wear out or collapse before reaching the end user (this is influenced by the type of raw material used during the production process).

NB: briquettes will not light very well if they are not completely dry.

2.2.Phase 2: Implementation of the training

b) Training content

Marketing training

As a future distributor of briquettes, it is very important to know about the activity and the advantages of using briquettes. Many customers will have to be convinced about the product, thus having clear and precise selling arguments is essential.

Rationale behind briquettes production

- Deforestation and Soil Degradation
- Urban Pollution and Sanitation

Charcoal briquetting can help to reduce both these rural and urban problems while generating some profits.

What is charcoal briquetting?

The transformation of organic waste (coffee husks, rice husks, banana peels) in carbonised briquettes.

The briquette-selling message

- Save your family, save money and save Ugandan forest with little change.
- Better product for a better future (general)
- Burns longer, cooks better; the new generation of charcoal.
- Enjoy a new cooking experience.
- Cleaner and cheaper

Marketing training

Selling opportunities: not only households can buy briquettes

- Hotels
- Restaurants
- Catering Companies
- Poultry farm (brooders)
- Tourist camps
- Industries using boilers

Customer relation

- What are the usual questions from buyers? Some convincing and positive answers must be known for those common questions.

What is made of? Do you use chemicals?

What kind of stove can I use?

Can I cook my beans?

How many briquettes fit in my stove?

How do I stop the fire?

Does it produce ash?

Create visibility for your product

- Light a stove => demonstration
- Use CBO and Communities leaders to spread the word
- Small signage to direct walkers to your selling point
- Create curiosity by using music or promotional song.
- Local markets

3. Recommendation

Project Driver	Baseline assessment	Recommendations/comments
KRC briquettes program model	<ul style="list-style-type: none"> - The decentralized production and sales model being tested - The refugee and host communities farmers are the common beneficiaries - It is anticipated that the briquettes produced will be marketed along the ACE one stove - To set up the briquettes production units, KRC has contracted separate contractors each for the three activities including briquette quality training, dryer shelter, and production shelter set up - Small scale but automated machinery have been provided per group - No financial projection in place - No business model canvas in place - The current model is mostly a skilling model and has not yet been consolidated to business model - No consolidate market plan adapted to the scale of the briquettes units setup 	<ul style="list-style-type: none"> - The new ratios have been provided to improve the quality of the existing carbonized briquettes - The current carbonized briquettes are not the best option to burn in the ACE one stove because of its small chamber and also because materials such as bean husks have high ash content - Maize cobs completely burn in the ACE one stove leaving negligible ash, therefore they are a compatible biomass to use in the ACE one stove - Pellets completely burn in the ACE one stove leaving negligible ash, there they are compatible briquettes fuel to use in the ACE one stove - KRC to explore the possibility of running a parallel non carbonized / pellet production facility specifically dedicated to the ACE one stove - Study the possibility of running a one commercial briquettes facility (centralized briquettes production facility) and decentralized sales model - Study the possibility of the running a consolidated market study to inform the stove and briquettes types, production and sales model - Study the possibility of KRC directly investing and managing the briquettes facility and providing employment to the refugees or KRC can subcontract a private sector partners to incubate production plants that provide employment to refugees for both production and sales

3. Recommendation

Project driver	Baseline assessment	Recommendation / comments
Briquettes shape	<ul style="list-style-type: none"> - The briquettes are hollow shaped - The briquettes are approximately 6 inches long or can be less 	<ul style="list-style-type: none"> - The briquettes shape is adaptable to the common stoves existing on the market
Briquettes stock volumes	<ul style="list-style-type: none"> - Avg. no. of bags # of briquettes bags per each group that had bags: about 2 bags, with an average weight of 50kgs 	
Briquettes raw materials	<ul style="list-style-type: none"> - Commonly bean husks , maize cobs, this bonded by anthill soil, clay soil, cassava flour, other alternatives but not commonly used include the saw dust 	<ul style="list-style-type: none"> - Maize cobs are the best option, because their char can produce dense briquettes competitive to wood charcoal - For the binder we recommend starch binder from cassava flour
Briquettes raw material component ratios	<ul style="list-style-type: none"> - Ratio 1 - 1 : 7 (7 basins of char into 1 basin of anthill soil) - Ratio 2 – 1:8 (8 basins of char into 1 basin of anthill soil) - Ratio 3 – 1:6 (6 basins of char into 1 basin of anthill soil) - The soil content in the briquettes is too high - Soil is mostly a filler and not a binder 	<ul style="list-style-type: none"> - 2kgs of cassava flour into 60kgs of char (Priority 1 ratio) - 10kg of anthill soil plus 1kg of cassava flour into 60kgs of char (Priority 2 ratio) - 20kg of soil into 30kg of char (Priority 3 ratio)

3. Recommendation

Production driver	Baseline assessment	Recommendation/ Comments
Land	<ul style="list-style-type: none"> - Land for a production of at least 1 ton per month exists - Most of the land is based at group members' homes 	<ul style="list-style-type: none"> - Study the risks of the briquettes production facility being hosted at the group member's homes
Machinery	<ul style="list-style-type: none"> - Automated extruder, and combined mixer and crusher provided - The extrusion process is effective - No user maintenance available - The machines have not been run for a while to actualize the production capacity - No machinery management plan - The combined mixer and crusher is not feasible because there is incomplete mixing - The engine often stops working and is run on petrol - No welding machine, it is hard to fix breakages - No specific support tools and equipment identifies 	<ul style="list-style-type: none"> - Separate the mixer and crusher - Study the possibility of running the extruder, mixer and crusher on motors - Study the possibility of including a welding generator as a power generator and for welding purposes - Hire some one for 12 months to manage and maintain the machinery and train groups on how to use the machinery - Study the possibility of providing tools and equipment to support the briquettes production process
Briquettes store and packaging	<ul style="list-style-type: none"> - The briquettes are commonly kept inside the house or kitchen, about 1 to 3 bags - The briquettes are kept in sacks - The temperatures are favorable as the locations are not so humid - KRC has built new production shelters, and these are an option to store the briquettes 	<ul style="list-style-type: none"> - Make a briquettes storage plan, while referring to the production shelter design
Production shelter	<ul style="list-style-type: none"> - The components of the recently built production shelter are wooden poles, a tarpaulin, and iron sheets - Not enough aeration on production shelter - No specific design plan adapted to the planned components 	<ul style="list-style-type: none"> - Study the possibility of making a production shelter design while referring to the anticipated components - Increase the aeration on the production shelter
Raw materials store	<ul style="list-style-type: none"> - No specific raw materials store - Materials kept in the house or kitchen 	<ul style="list-style-type: none"> - The materials store can be an integral part of the production shelter
Briquettes dryers	<ul style="list-style-type: none"> - The briquettes dryer is made of a UV treated tarpaulin, plastic mesh, and wooden poles - The UV tarpaulin is the most convenient and affordable tool for drying by most briquettes businesses in Uganda 	<ul style="list-style-type: none"> - The plastic mesh where briquettes are laid is not durable, a metallic mesh would be better - Study the possibility of using metal instead of wood considering the high possibilities of termites eating up the wooden poles
Production unit and workstation design (blue print plan)	<ul style="list-style-type: none"> - No specific blue prints for the workstations - No work schedule in place - The work station designs would inform the design and size of the production shelters 	<ul style="list-style-type: none"> - Study the possibility of developing of a workstation design

4. Bibliography

- KRC briquettes quality training T.O.R
- PROSPERS BASELINE REPORT
- DRA innovation fund Uganda call

5. Annex 1: Terms of Reference



TERMS OF REFERENCE TO TRAIN PROSPERS PROJECT BENEFICIARIES IN QUALITY BRIQUETTE MAKING AND MARKETING

Area of focus: Training of PROSPERS project beneficiaries in Quality briquette making and marketing in Kyangwali Refugee settlement, Kyangwali Sub County and Kabwoya Sub County in Kikuube District

Background

Kabarole Research and Resource Centre in partnership with Care International and African Clean Energy with funding from the Dutch Relief Alliance are promoting Solar Powered Energy Efficient Stoves in Kyangwali Refugee Settlement (PROSPERS) and the host communities.

The main objective of the project is to promote accessibility to quality and affordable clean energy solutions to refugees and host communities with special attention to women and girls.

PROSPERS project targets a total of 700 households, 70% refugees and 30% from the host community of Kyangwali and Kabwoya Sub Counties in Kikuube District, Bunyoro Sub Region, mid-western Uganda.

The PROSPERS project promotes energy innovations which include; access to ACE One stove manufactured and distributed by African Clean Energy through a credit model with installments payable in 18 months. The ACE innovation package includes the ACE One stove, 4G Android smartphone with a pre-installed ACE Connect app which enables customers to manage their loan repayments, and contact customer services directly; solar panel and lamp. The ACE one stove innovation is promoted alongside the briquette model enriched with action research and gender inclusion

Through the project's User Referral Bonus (URB) approach; clients' payable amounts reduce per month for up to 9 months/installments which is a motivation to recruit more clients through referrals.

Under the briquette model the project is supporting 10 groups in briquette production in Kyangwali Refugee settlement and the host communities this is based on the fact that Energy production from

waste is gaining popularity as a feasible solution through effective briquettes production from waste materials.

Based on interactions with different energy actors and stakeholders, briquette users and groups in briquette making, it has been noted that quality of the briquettes produced by existing groups is poor and this has greatly affected their marketability and usability as an alternative energy source.

Under the PROSPERS project, capacity building in quality briquette production is given special attention to ensure quality briquette production among selected groups. Therefore, Kabarole Research and Resource Centre (KRC) is looking for individuals or companies to conduct training of 10 groups in Quality briquette making in Kyangwali Refugee settlement and its host community in Kyangwali and Kabwoya Sub Counties in Kikuube District

Objectives

1. To train 10 groups in quality briquette production
2. To train 10 groups in quality briquette drying, packaging and storage
3. To produce an inventory of raw materials for quality briquette
4. To produce a training manual (pictorial with few narrations) for quality briquette production quality

Trainer's expertise and experience

1. The trainer or company should have proven hands on practical experience in quality briquette production for 3 years and above
2. The trainer should possess knowledge of quality briquette production materials, alternatives, measures and standards
3. Knowledge of local languages Swahili, Luo, Kinyabwisha, Kigege, Runyakitara will be an added advantage

Key areas of focus

- 1) Interact with groups and review the current briquette production methods, materials used, quantities used and quality produced
- 2) Identify key challenges in the current briquette production methods, materials used and quantities used that affect quality of produced briquettes

- 3) Train group members in quality briquette production, paying attention to materials used and available alternatives, production mixtures and methods, standards, handling and quality management.

Expected output

1. 300 members of 10 briquette manufacturing groups trained in quality briquette production
2. A Detailed training materials and content submitted to KRC
3. An inventory of materials for quality briquette production produced
4. A training Manual (Pictorial with few narratives) produced and shared with KRC
5. Training report and attendance lists submitted to KRC after the training

Time frame for the assignment

20th - 30th October 2021

Technical and Financial Proposal that lays out: detailed costs for the period of the contract broken down by deliverables should be submitted by the trainer. This should include all costs associated with the training such as professional fees for technical team, training material, communication and any other relevant costs, Value Added Tax (VAT) inclusive. Attach copies of relevant legal documents like license, VAT registration, etc.

These should be submitted to KRC-Uganda procurement committee not later than 20th October 2021 5:00pm. davidmugarra@gmail.com

5. Annex 2: Inception Report

Inception Report

Title: Inception Report – Training PROSPERS project beneficiaries in Quality briquette making and marketing in Kyangwali Sub county & Kabwoya Sub County in Kikuube District;

Client: Kabarole Research & Research Center;

Author: Green Bio Energy Ltd;

Date: 11/12/2021.



Content

- Introduction
- Work packages
- Project Team
- Workplan & training schedule
- Bibliography



Introduction

Green Bio Energy Ltd (GBE), contracted by KRC, will deliver a briquettes quality and marketing training to **10 groups in the** Refugee settlement, **Kyangwali** Sub County and **Kabwoya** Sub County in **Kikuube** District **(1.2210° N, 30.8183° E)**.

The proposed training project is an integral part of the “PROMOTING SOLAR POWERED ENERGY EFFICIENT STOVES IN KYANGWALI REFUGEE SETTLEMENT PROJECT (PROSPERS)”.

PROSPERS project promotes accessibility and affordable clean energy solutions to refugees and host communities with special attention to women and girls. The project targets a total of 700 households, 70% refugees and 30% from the host communities.

The affordable and clean energy solutions promoted by PROSPERS include the **ACE One Stove**, a product of African Clean Energy, which is distributed through a credit model with installments payable in 18 months. And the **briquettes fuel** promoted through action research and inclusion.

The briquettes model which advocates for briquettes as a cooking fuel alternative to be used in the ACE one stove, according to KRC is backed by the potential of generating energy from the **waste materials in the settlement and host communities**.

Work Packages:

With about 10 years experience in briquettes production, sales and distribution, GBE has identified the **primary briquettes quality and performance drivers**, including raw materials, the machinery, the drying process, personnel organization, storage, stove technology, market potential.

For each of the above quality drivers GBE will employ a frame work that will require firstly to draw a baseline research and then project new improvements which will then be implemented in the training program.

KRC’s research and feedback from the different energy actors and stakeholders, briquettes users, groups in briquettes making indicated that the current briquettes are not of good quality, which limits success of the briquettes marketing and usability. Therefore KRC with its PROSPERS project partners proposed to contract an individual or companies to train **10 groups in quality briquettes making in Kyangwali and kabwoya subcounties in Kikuube District**.

The contractor will assess and deliver the following objectives:

- Train 10 groups in quality briquette production
- Train 10 groups in quality briquette drying, packaging and storage
- Produce an inventory of raw materials for quality briquette
- Produce a training manual (pictorial with few narrations) for quality briquettes production

It is based on the above background that Green Bio Energy, has proposed to work not only in theory but in practice to deliver the assignment of the “**briquettes quality training project**” and therefore we provide the inception report describing in detail all the work activities that are foreseen in the briquettes quality and marketing training. The report builds on the relevant information in the ToR, and provides additional information and analysis of the scope/parameters of the evaluation, highlighting any changes or refinements as compared to the scope of the stated ToR.

Problem analysis: Inspection & survey

- Raw material survey
- Machinery survey
- Inspect & test ACE stove
- Inspect Briquettes Stock
- Inspect dryers
- Inspect production land and features
- Asses groups structure/ profile
- Survey charcoal market
- Survey stove market

Briquettes Production

- Raw materials sourcing
- Raw materials storage
- Raw materials sorting
- Carbonization
- Char sieving
- Binder material ratio
- Binder preparation
- Briquettes compression
- Drying and handling
- Packing
- Briquettes storage and handling
- Machinery and tools management
- Briquettes test

Work station design

- Work station layout
- Work flow design
- Work Schedule (production plan)
- Work station targets

5. Annex 2: Inception Report

Work Package 1: Inspection & survey

The goal of this work package is to analyze and understand briquettes business drivers, the underlying challenges of each briquettes production and sales drivers and how these affect the production and sales of quality briquettes.

Under each production and sales driver, we have anticipated a list of metrics to follow while we collect the data and information.

This work package will be used to indicate a process on how to handle challenges faced by the 10 groups.

In the ToR, KRC already indicates an overview of challenges and areas that can be put in consideration for the groups to improve, which include: drying, packaging, storage, raw materials, among others.

Parameter surveyed	Metrics and KPIs to check
Raw materials survey	Type and quantity available
Machinery survey	Type(automated or manual), production capacity,
Inspect & test ACE stove	Fuels compatibility, cooking process and local meals compatibility
Inspect briquettes stock	Briquettes kgs available per group, ratios used, burning characteristics, production schedule
Inspect dryers	Type of dryer, capacity of dryer
Inspect production land and features	Land dimensions, topography (suitable for briquettes drying, etc.)
Groups profile	Number of members, age groups, group cohesion, leadership, education levels
Survey charcoal market	Average price , quantities sold, locations
Survey stove market	Average market price, types of stoves

Work Package 2: Briquettes quality and sales training

With the results from work package 1, the GBE team will then deliver customized and adaptable solutions through work package 2.

The solutions delivered during this work package will not only answers questions on briquettes quality but also the organization of the briquettes business for good and consistent production and sales.

The main feature of this work package will be a training program delivering solutions to all challenges of the briquettes businesses.

The training will be based on a strong interaction between the trainees and the trainers. The personal experience, successes and challenges faced by the trainees will be used extensively to illustrate the points made during the trainings.

The production and business aspects of the briquetting industry will both have a central role in the training. We have realized that most of the time, small and medium scale producers focus on the production aspects and tend to assume that they are powerless when it comes to the marketing aspects of their activity. It will be one central goal of the training to make all the producers aware of the importance of proper marketing for the success of their business. The training will be done using a vocabulary easily understandable by anyone so that no prior business or marketing knowledge is required.

The training will be organized around four pillars for production techniques (drying feedstock and carbonization; from char to briquettes; optimizing production output; quality, health and security control) and four pillars for business and management technics (supply and value chain, drivers' cost valuation, market penetration and strategy, business development skills and negotiation).

Two groups will be trained per day, a total of 5 days for 10 groups, the training will in both theory and practical approaches, the trainers will emphasize a two hours periods a favorable attention span hours for trainees. A show case of the process will happen first and then trainees also be given an opportunity to imitate the training session.

Project Team

The onsite business sessions will be conducted by Ziwa Hillington, the Managing Director of GBE. Ziwa is business management expert with specialty in sales, project management and finance. He has been with GBE for 9 years, and is now responsible for the development and daily operations of the company. He will share his experience with the trainees and answer all relevant questions related to the briquette industry.

The onsite briquettes production training will be carried out by Danson Nkwasiwe, GBE's expert, with a technical biomass training from Nyabyeya forestry college. Danson has coordinated both stove and briquettes projects with small and medium scale briquettes production manufacturers. Danson also has expertise on engineering aspects of the briquettes testing gained through a training at Nyabyeya forestry college biomass lab.

The project administration will be conducted by Drucilla Nakitende who has been with GBE since 2015. Dru is a community psychology graduate and brings her wealth of data management and human capital development skills, as well as business development.

Work Plan & Training Schedule

ACTIVITIES	OWNER	VERIFICATION	# OF DAYS	
PHASE 1				
1.1 Contract agreement and GBE/KRC		contract	5 DAYS	
1.2 Inception call for project GBE/KRC		calendar invite		
1.3 Inception report	GBE/KRC	report		
PHASE 2				
2.1 Project planning meeting GBE/KRC		participant list	10 DAYS	
2.2 Inspection and survey				
Raw material survey	GBE	data report / pics		
Machinery survey	GBE	data report / pics		
Inspect & test ACE stove	GBE	test report / pics		
Inspect Briquettes Stock	GBE	data report / pics		
Inspect dryers	GBE	data report / pics		
Inspect land for sites	GBE	data report / pics / google map pin		
Asses groups structure / pro	GBE	data report / pics		
Survey charcoal market	GBE	data report / pics		
2.3 Training				
2.4 Training Report				
Development	GBE	report/pics		
Submission	GBE	report/pics		
review and agreement	GBE/KRC	report/pics		
ANNEX				
ANNEX ACTIVITIES				
3.1 Travel to Kyangwaali	GBE	n/a	1 DAY	
3.2 Travel from Kyangwaali	GBE	n/a	1 DAY	
3.3 KRC project payment 1	KRC	receipt	n/a	
3.4 KRC project payment 2	KRC	receipt	n/a	

Training day schedule

	start time	end time
movement from hostel	6:00 am	7:00am
pick training items from KRC	7:00am	7:30 am
breakfast trainers	7:00am	7:30am
travel to groups	7:30am	8:00am
set up training ground	8:00am	8:30am
participants list	x	x
light the briquettes test stove	x	x
sitting arrangement	x	x
trainees breakfast prep	x	x
manilla charts hanging	x	x
machinery test	x	x
trainees arrival	7:00am	8:00am
trainees registration	7:00am	8:00am
breakfast for trainees	8:00am	9:00am
training	9:00am	11:00am
work station design	x	x
briquettes production & sales	x	x
briquettes test	x	x
training assimilation	11:00am	12:00am




5. Annex 2: Inception Report

Bibliography

- KRC ToR
- PROSPERS baseline report
- DRA Innovation Fund Uganda Call

Thank you!











5. Annex 3: Participants Lists








ATTENDANCE LIST FORM

Date: 16 / Month 12 / Year 2021 Unit: FAGRIB Project Name: PROSPERS

Activity: BRISQUELE TRAINING Group members Code:











S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
1	LADU HELEN		F		PRESIDENT		Nyamiso	
2	KRONO MMSRCS		F		CHAIRMAN		Nyamiso	
3	BUGON JOSEPH		M		MEMBER	0775457116	Nyamiso	
4	LAMUNO JULIANA		F		MEMBER		Nyamiso	
5	ANGWEC MARIAM		F		MEMBER		Nyamiso	
6	LAMON SAMBA		F		MEMBER		Nyamiso	
7	AZAZ BENKA		F		MEMBER		Nyamiso	
8	ACHATO HELEN		F		MEMBER		Nyamiso	
9	OMON JULIA		M		MEMBER		Nyamiso	
10	KASABA AGNES		F		MEMBER		Nyamiso	




ATTENDANCE LIST FORM

Date: 16 / Month 12 / Year 2021 Unit: FAGRIB Project Name: PROSPERS

Activity: BRISQUELE TRAINING Group members Code:

S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
1	AREDA ZELY		F		MEMBER		Nyamiso	
2	AMIA SUNDAY		F		MEMBER		Nyamiso	
3	ANGYE PASKA		F		MEMBER		Nyamiso	
4	ANGYE SAMIA		F		MEMBER		Nyamiso	
5	AMUNOY AGNES		F		MEMBER	0760503374	Nyamiso	
6	OMON ALEX		M		MEMBER		Nyamiso	
7	AKACH REGINA		F		MEMBER		Nyamiso	
8	OLINA DENIS		F		MEMBER		Nyamiso	
9	ADYE JOCKA		F		MEMBER		Nyamiso	
10	AMMO GRACE		F		MEMBER		Nyamiso	











Organized by: Verified by: OUMA MAX Sign: OMA Tel: 0774990691




ATTENDANCE LIST FORM

Date: / Month / Year Unit: FAGRIB Project Name: PROSPERS

Activity: Code:

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3	MUNYORUSANO FRANCIS		M				Kagoma	
4	NEBARUKO LUMILIA		F				Kagoma	
5	NASAKA MUKAWO		F				Kagoma	
6	BUSIET WAKA EOLA		M				Kagoma	
7	NIBAMUWE MACHILIA		F				Kagoma	
8	ABANI SUSA		M				Kagoma	
9	KENYAMUKANDA EVANSTE		M				Kagoma	
10	MWENZANGU ALPHRE		M				Kagoma	

Organized by: Verified by: Sign: Tel:














ATTENDANCE LIST FORM

Date: 16 / Month 12 / Year 2021 Unit: FAGRIB Project Name: PROSPERS

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Konyi / pau - Ngunu

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3	ABATA MARIKA		F		MEMBER		Nyamiso	
4	LAKOCHA CHRISTINE		F		MEMBER		Nyamiso	
5	AJANGO HELEN		F		MEMBER		Nyamiso	
6	ATONBO GRACE		F		MEMBER		Nyamiso	
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










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Activity: Code:

Tungu / pau / Mubisa B











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				Below 18	18-29	30-39	40-49	50+
1	NIHGINA JACKINI		F		MEMBER		Kagoma	
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3	NILRA MIRIAM BENONI		F				Kagoma	
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6	KWAMAHORO AGNES		F			0779266607	Kagoma	
7								
8								
9								
10								

ATTENDANCE LIST FORM

Date: / Month / Year Unit: FAGRIB Project Name: PROSPERS

Activity: Code:

S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
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4	UWINZA GORMAIN		F		V. Officer		Kagoma	
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6	CHRISTINA FLYE		F		Member		Kagoma	
7	JEANINE TUNUSIU		F		Treasurer		Kagoma	
8	KARANA HILDA		F		Member	0786352882	Kagoma	
9	DUSANOMIANA TAMOT		F		Member		Kagoma	
10	GORETHI KABUSA M.		F		Member		Kagoma	

Organized by: Verified by: Sign: Tel:

5. Annex 3: Participants Lists

TWISUNGANE - Group - MUKARANGA

care ACE

ATTENDANCE LIST FORM

Date: 15 / Month / 12 / Year 2011
Unit: FAGRIB
Project Name: PROSPERS
Activity: Code:

S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
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2	THEONESTE MUKYAMBAA	✓			MEMBER	076057626	MUKARANGA	[Signature]
3	HONIEA-ZAWADI			✓	Member	077897464	MUKARANGA	[Signature]
4	WIMANA-ANGELISUC	✓		✓	member	0774162848	MUKARANGA	[Signature]
5	MAOMBI-JUSTINE	✓		✓	member	0760245545	MUKARANGA	[Signature]
6	WIMANA-MADELINA	✓		✓	member		MUKARANGA	[Signature]
7	ELISA-DIRLIHANGE	✓		✓	MEMBER	077677777	MUKARANGA	[Signature]
8	ELHADA-MAOMBI	✓		✓	MEMBER		MUKARANGA	[Signature]
9	MURABAZUNGU-VENERANDA	✓		✓	MEMBER	077399027	MUKARANGA	[Signature]
10	KAYITESI-ANJERIKE	✓		✓	MEMBER	0750472252	MUKARANGA	[Signature]

care ACE

ATTENDANCE LIST FORM

Date: / Month / Year
Unit: FAGRIB
Project Name: PROSPERS
Activity: Code:

S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
1	NSIRAMATEE-JAKANE	✓			MEMBER		MUKARANGA	[Signature]
2	HAKUZIMANA-MAHARU	✓		✓	MEMBER		MUKARANGA	[Signature]
3	MUKAKABINGO-MAKURATA	✓		✓	MEMBER		MUKARANGA	[Signature]
4	UWINEZA-GERARINE	✓		✓	SO CLOSER	078772213	MUKARANGA	[Signature]
5	NSABIMANA-MARARANE	✓		✓	MEMBER	077337207	MUKARANGA	[Signature]
6	IDI-HARE RIMANA	✓		✓	MEMBER		MUKARANGA	[Signature]
7	KWITONDA-FINA	✓		✓	MEMBER		MUKARANGA	[Signature]
8								

care ACE

ATTENDANCE LIST FORM

Date: / Month / Year
Unit: FAGRIB
Project Name: PROSPERS
Activity: Code:

S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
1	MURATOMBA JAMES	✓			Student	0788192615	KASONGA	[Signature]
2	JOSEPHINE KIMANE	✓		✓	Peasant	0777235819	KASONGA	[Signature]
3	SIFA USABASHIRHO	✓		✓	Peasant	078551235	KYEBITWA	[Signature]
4	KOLUVE NANNALI	✓		✓	Peasant	077696140	KYEBITWA	[Signature]
5	KIMANA FLORENCE	✓		✓	Peasant		KYEBITWA	[Signature]
6	SURABA DEBARAKE	✓		✓	Peasant		KYEBITWA	[Signature]
7	CHIMPAHE JANINE	✓		✓	Peasant	078501880	KYEBITWA	[Signature]
8	ALPHONSINA MUYHANG	✓		✓	Peasant	0770567445	KYEBITWA	[Signature]
9								

care ACE

ATTENDANCE LIST FORM

Date: / Month / Year
Unit: FAGRIB
Project Name: PROSPERS
Activity: Code:

S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
1	NSIRAMATEE-JAKANE	✓			MEMBER		MUKARANGA	[Signature]
2	HAKUZIMANA-MAHARU	✓		✓	MEMBER		MUKARANGA	[Signature]
3	MUKAKABINGO-MAKURATA	✓		✓	MEMBER		MUKARANGA	[Signature]
4	UWINEZA-GERARINE	✓		✓	SO CLOSER	078772213	MUKARANGA	[Signature]
5	NSABIMANA-MARARANE	✓		✓	MEMBER	077337207	MUKARANGA	[Signature]
6	IDI-HARE RIMANA	✓		✓	MEMBER		MUKARANGA	[Signature]
7	KWITONDA-FINA	✓		✓	MEMBER		MUKARANGA	[Signature]
8								

Waka Kiba - Group

care ACE

ATTENDANCE LIST FORM

Date: 16 / Month / 12 / Year 2011
Unit: FAGRIB
Project Name: PROSPERS
Activity: Code:

S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
1	NEEMA ALIAGE	✓			Brigitee		Kyebitwa	[Signature]
2	CHIPAYE TANTANE	✓	✓		Brigitee		Kyebitwa	[Signature]
3	RIE DENIZE	✓	✓		Brigitee		Kyebitwa	[Signature]
4	NEEMA ESTHERA	✓	✓		Brigitee		Kyebitwa	[Signature]
5	TONO JANET	✓		✓	Brigitee	0775933986	Kyebitwa	[Signature]
6	MUKUNDA SEBAGENZI	✓	✓		Brigitee	0780420053	Kasongora	[Signature]
7	NERIAMWE SEBAGENZI	✓	✓		Brigitee		Kasongora	[Signature]
8	TASIAN TABAET	✓		✓	Brigitee	076082772	Kasongora	[Signature]
9								




care ACE

ATTENDANCE LIST FORM

Date: / Month / Year
Unit: FAGRIB
Project Name: PROSPERS
Activity: Code:




S/No	Name	M	F	AGE	Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+
1								
2	MARASI SHUSHUKU		F	31	CONGOLESE	076067486	KILIMA	[Signature]
3	KANDA RAINA N	✓		✓	SO	039262099	KILIMA	[Signature]
4	BZANA MATIOTI	✓		✓	CONGOLESE		KILIMA	[Signature]
5	SEKWA-NENGO	F		36	CONGOLESE	0775743847	KILIMA	[Signature]
6	MIRUNA MATISO	M		49	CONGOLESE		KILIMA	[Signature]
7	HAMBA-BANSO	M		57	CONGOLESE		KILIMA	[Signature]
8	ZANE - MIZEBEZE	F		26	CONGOLESE	0776300097	KILIMA	[Signature]
9	MWAMBE - TOBOTA	F		33	CONGOLESE	0773901593	KILIMA	[Signature]
10	MUKACHIMBA-ESICRANS	F		32	CONGOLESE	078194679	KILIMA	[Signature]

5. Annex 3: Participants Lists




Unity is Power - Group
ATTENDANCE LIST FORM
 Date: 17 / Month 12 / Year 2021. Unit: FAGRIB. Project Name: PROSPERS
 Activity: Code:

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	ATERO KAMELA								Chair leader	0779457922	Kasanga	
2	KOMAKECH MARK	✓			✓		✓		Member	0736588561	Kasanga	
3	OLAN JAMES	✓					✓		Member			
4	JOYCE TUMALO	✓				✓			member	0751075712		
5	EZEKIEL ONYALA	✓			✓				member			
6	Hellen Ayero	✓				✓			member			
7	MICHAEL ODERA	✓			✓				member	0783329307		odera
8	AGNES TIO	✓			✓				member	0778114866		
9	ARYEMO JOSKA	✓				✓			member			
10	AGNES AYOO	✓			✓				member			




Unity is Power - Group
ATTENDANCE LIST FORM
 Date: 17 / Month 12 / Year 2021. Unit: FAGRIB. Project Name: PROSPERS
 Activity: Code:

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	Betty lamoo	✓							member	0789586644	Kasanga	
2	AKELLO JANE	✓							CBS	0796446283	Kasanga	
3	Cecilia Auma	✓							member			
4	Celina Ceima	✓							member	077492509		
5	Ayaa Sarah	✓							member			
6	Abalo Beatrice	✓							member	0776649209		
7	keji vicky	✓							member			
8	Elizabeth Nyamaya	✓							member			
9	Elder Akello	✓							member			
10	Aryemo Joska	✓							Member	0760902873		Joska

Unity is Power - Group
ATTENDANCE LIST FORM
 Date: 17 / Month 12 / Year 2021. Unit: FAGRIB. Project Name: PROSPERS
 Activity: Code:


S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	Abalo Joyce	✓							Member	0786982295	Kasanga	
2	Paska Aalya	✓							Member	0760908291		
3	Okor Wilson	✓							Member			
4	Okey James ceaser	✓							member	0786692602		
5	Scavia Ameno	✓							Member			
6	Rose Ashan	✓							Member			
7	Okey Jackson	✓							Member			
8	Daniel Ladui	✓							Member			
9	Grace Amgo	✓							Member			
10	Ameno scavia	✓							Member			

ATTENDANCE LIST FORM
 Date: 17 / Month 12 / Year 2021. Unit: FAGRIB. Project Name: PROSPERS
 Activity: Code:

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	Alice Ayaa	✓							Member			
2												
3												
4												
5												
6												
7												








KAFPA - Group
ATTENDANCE LIST FORM
 Date: 14 / Month 12 / Year 2021. Unit: FAGRIB. Project Name: PROSPERS
 Activity: TRAINING ON BOUTIQUE PRODUCTION AND MARKETING. Code:

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	AKOLYERA KATUSEBE	✓								0778716680	Kasanga	
2	KABANDA GREGG	✓							Secretary	0775020500	Kabanga	
3	KABANDA OLIVER	✓							Member	0774050450	Kabanga	
4	MICHAEL TUM	✓							Member	0774497551	Kabanga	
5	KABANDA MOHAMED	✓							Member	0774050450	Kabanga	
6	KABANDA JONIA	✓							Member	0774497551	Kabanga	
7	KABANDA JULIUS	✓							Member	0775020500	Kabanga	
8	TUMU KUNDE WILLIAM	✓							Member	0772621950	Kabanga	
9	BIRANDA SCAVIA	✓							Member	0778217651	Kabanga	
10	KABANDA GABRIEL	✓							CBS	0794285469	Kabanga	

Organized by: _____ Verified by: _____ Sign: _____
 Staff Participant
 Checked by: BIRANDA SCAVIA Sign: _____
 HOU








ATTENDANCE LIST FORM
 Date: 14 / Month 12 / Year 2021. Unit: FAGRIB. Project Name: PROSPERS
 Activity: TRAINING ON BOUTIQUE PRODUCTION AND MARKETING. Code:

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	TUSHEMERUWE ADRIAN	✓							Member	0786806812	Kabanga	
2	NAMALA JOELINE	✓							Member	0773144481	Kabanga	
3	KABANDA SCAVIA	✓							Member	0774281839	Kabanga	
4	KABANDA FLORENCE	✓							Member	0774281839	Kabanga	
5	KABANDA ISABEL	✓							Member	0774281839	Kabanga	
6	NAMATI BRUNET	✓							Member	0781721918	BURUNDI	
7	KABANDA CHRISTINE	✓							Member	0778437114	Kabanga	
8	KABANDA LOZA	✓							Member	0772080730	Kabanga	
9	MUSIKWA MUSAEB	✓							Member	0780778879		
10	KABANDA BENEDETTA	✓							Member	0779851933	Kabanga	

Organized by: _____ Verified by: _____ Sign: _____
 Staff Participant
 Checked by: KABANDA GABRIEL Sign: _____
 HOU

5. Annex 3: Participants Lists

ATTENDANCE LIST FORM

Date: 14 /Month 12 /Year 2021 Unit: FAGRIB Project Name: PROSPERS
 Activity: TRAINING ON BRIQUETTE PRODUCTION AND MARKETING Code: _____

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	Akongera Katusabe	m						group member	0783300931	Kirekuli	<i>[Signature]</i>	
2	MUGISA Robert	m		✓	✓	✓		member	078747131	Kabaganda	<i>[Signature]</i>	
3	BUTUSIBA Robert	m				✓		member	078460908	Kabaganda	<i>[Signature]</i>	
4	Kasungwa AH		✓		✓			member	0782974327	Bubaga	<i>[Signature]</i>	
5	Biguma Lawrence	M			✓			Member	0781365746	Bubaga	<i>[Signature]</i>	
6	BALITWAHA JOHN	F					✓	Member	0784058851	KIHORO	<i>[Signature]</i>	
7	NYAKITO FELESTA	F				✓		MEMBER	077987381	KIHENDE	<i>[Signature]</i>	
8	DIWAHURWA EVERCE	F				✓		MEMBER	077320150	KIHENDE	<i>[Signature]</i>	
9	AGONDEZE EDWARDSON	M						MEMBER	0760007595	BUBAGA	<i>[Signature]</i>	
10	AINENIGISHA CLEVER	F			✓			Member	0782226527	Kabaganda	<i>[Signature]</i>	

Organized by: _____ Verified by: _____ Sign: _____ Tel: _____

KAFPA - Group








ATTENDANCE LIST FORM

Date: 14 /Month 12 /Year 2021 Unit: FAGRIB Project Name: PROSPERS
 Activity: TRAINING ON BRIQUETTE PRODUCTION AND MARKETING Code: _____

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	ALDYERA KATUSABE								0778916630	Kabaganda	<i>[Signature]</i>	
2	VAMUNZA GRACE					✓		Secretary	078080850	Kabaganda	<i>[Signature]</i>	
3	NYAKAISIKI OLIVER					✓		MEMBER	078005814	Kabaganda	<i>[Signature]</i>	
4	MIRAZI TOM		✓					CLERK	077449333	Kabaganda	<i>[Signature]</i>	
5	KYALIMBEGERE MORIN						✓	member	078600511	Kabaganda	<i>[Signature]</i>	
6	NYAMAHANGI JOHA					✓		CLERK	078143748	KIHENDE	<i>[Signature]</i>	
7	KORUKA JULIUS					✓		MEMBER	077500720	Kabaganda	<i>[Signature]</i>	
8	TUMUKUNDE WILLIAM		✓				✓	Member	078363833	Kabaganda	<i>[Signature]</i>	
9	BURUKI SCOWIA		✓			✓		Member	078821764	KIHENDE	<i>[Signature]</i>	
10	KAJUNDELI GABRIEL						✓	CBS	078254697	Kabaganda	<i>[Signature]</i>	

Organized by: _____ Verified by: _____ Sign: _____ Tel: _____

Kyagwali Farmers Association








ATTENDANCE LIST FORM

Date: 13 /Month 12 /Year 21 Unit: FAGRIB Project Name: PROSPERS
 Activity: _____ Code: _____

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	NYAMAHANGI HARRIET					✓		50+	077388298	Nyagali	<i>[Signature]</i>	
2	ISOKE PENNINA					✓	✓		MEMBER	077209351	KIHENDE	<i>[Signature]</i>
3	Kabasom Topstar		✓					✓	"	0722366656	"	<i>[Signature]</i>
4	MBABAZI GRACE		✓					✓	"	078920734	Ngogoli	<i>[Signature]</i>
5	Nalubawa		✓					✓	"	0724940802	"	<i>[Signature]</i>
6	Bahemuka Ronald		✓					✓	"	077269100	Ngogoli	<i>[Signature]</i>
7	Mubagi Harriet					✓			"	0720782657	Ngogoli	<i>[Signature]</i>
8	ALINAITWE MONICAH					✓			"	0779933251	"	<i>[Signature]</i>
9	Nyakaisiki Veronika					✓			"	877300825	Ngogoli	<i>[Signature]</i>
10	Kabere Lotum		✓						"	0789975521	Nyagali	<i>[Signature]</i>

Organized by: _____ Verified by: _____ Sign: _____ Tel: _____

ATTENDANCE LIST FORM

Date: _____ /Month _____ /Year _____ Unit: FAGRIB Project Name: PROSPERS
 Activity: _____ Code: _____

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	LUSIA ZUMBA		✓					member	-	Nyagali	<i>[Signature]</i>	
2	Byakatendo Beatrice		✓					member	-	Nyagali	<i>[Signature]</i>	
3	BURUNY ANTONIUS		✓					member	078288278	Nyagali	<i>[Signature]</i>	
4	Kesero ALAUNUS		✓					member	0787358346	Nyagali	<i>[Signature]</i>	
5	YOUSKIMU JAMBUR		✓					member	0785474301	Nyagali	<i>[Signature]</i>	
6												
7												
8												
9												
10												

Organized by: _____ Verified by: NYAMAHANGI HARRIET Sign: *[Signature]* Tel: 077388298

Twisungu Group





ATTENDANCE LIST FORM

Date: _____ /Month _____ /Year _____ Unit: FAGRIB Project Name: PROSPERS
 Activity: _____ Code: _____

S/No	Name	M	F	AGE					Designation	Tel. contact	Address	Sign
				Below 18	18-29	30-39	40-49	50+				
1	BATHI-BIRIHANZE		✓					CLP	078166564	Mukamba	<i>[Signature]</i>	
2	THEONESTE MUMYAMBAZA		✓		✓		✓	CLP	078166564	Mukamba	<i>[Signature]</i>	
3												
4												
5												
6												

Organized by: _____ Verified by: _____ Sign: _____ Tel: _____

Thank you!