

InnovateUK Energy Catalyst Round 7 Project 105908

"Integrated Minigrids and Integral Anchor Load Model for Rural Energy Access in Uganda"

Impact Data Analysis

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Summary

This document provides an overview of the impact data obtained from our Farmers' Enterprise Centre sites across Uganda. Because of the delays in the project and changes caused by the GCRF funding issues, this impact data is less detailed than the full follow-up of the baseline survey, that was originally planned. This abbreviated impact process is as approved under scope variation of the project, approved by Innovate UK in April 2022.

SVRG has carried out this project jointly with our partners in Uganda, social enterprise EcoLife Foods, and community NGO Kiima Foods.

FECs in Central and Western Regions have been operating (for research purposes) on different models – in the West, the Centres are more community-focussed and operating, typically through a village agricultural cooperative. In Central, they are more entrepreneurial business-focussed, and operated by EcoLife (in the absence of local community cooperatives and farmer organisations). Thus the impact interview/survey process has been different across the two regions.

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<u>Mbaata</u>

Methodology

For gathering qualitative impact data in our sites, we conducted semi-structured interviews with 17 participants. The first round of interviews were led by Kiima Foods (MB01-MB10) and the second round of interviews were led by SVRG, with members of the Kiima Foods team translating. For the purposes of triangulation, we also conducted in-depth interviews with three members of the Kiima Foods team (KF01-03) following the completion of their impact surveys in Mbaata. These interviews also provided quantitative data (e.g. reductions in distance travelled, reductions in costs of services), which were then cross-checked with other information sources to ensure accuracy and validity.

Using multiple methods of data collection and sources of information have ensured that there is sufficient understanding of the impact of the FEC in this context.

Participant list

Participant number	AGE	SEX	Connection to the FEC	
MB01	48	М		
MB02	28	М		
MB03	40	М		
MB04	45	М		
MB05	33	F	Community members in Mbaata: Connection to FEC/	
MB06	51	F	occupation not specified	
MB07	36	F		
MB08	43	m		
MB09	37	M		
MB10	40	М		
MB11	42	М	Co-operative member & security guard	
MB12	38	F	Executive member of the FEC/ Nursery teacher	
MB13		M	General Secretary of the FEC	
MB14		F	Member of the co-operative	
MB15		М		
MB16		М		
MB17		F	Entrepreneur at the FEC	
KF01		M		
KF02		M	Members of Kiima Foods team	
KF03		M		

Analysis

For the purposes of this analysis, we measured impact in relation to the positive benefits that the Farmers' Enterprise Centre has had on the lives of end-users. We have analysed these benefits in relation to the following **impact indicators**:

- 1. Access to useful services
- 2. Time saved
- 3. Income generated
- 4. Convenience and ease gained
- 5. Relationships
- 6. Health
- 7. Education
- 8. Perceived sense of wellbeing

Data gained from the surveys were transcribed and coded, with emerging themes being grouped together under the relevant impact indicators (stated above) in terms of changes attributed to project-linked activities.

Specific impact indicators that emerged from the interviews were then linked to quotes from participants, which provided evidence of a causal link between the activities of the project and changes identified by participants from the communities. Participants that gave answers which aligned with the same themes, were also identified and stated in the analysis in order to show the number of the participants that provided evidence of the same changes.

1. Access to useful services

Definition: Access to systems which can be used for a practical purpose and specifically

meet community needs.

Theory of change: The FEC has enabled access to useful services for the community in Mbaata.

Key quote	Impact analysis	Participants
'The FEC is a good facility with electricity and other businesses to support development around Mbaata'	Access to services that were not available	
'The community uses the facility often'	previously All participants interviewed reported using services	
Before the FEC was constructed, I was used to taking hot soft drinks and at times not eating cassava flour since diesel machines would lack fuel.	at the FEC that were not previously available. Services named included:	MB1-17
'My phone is being charged from [the FEC], my phone is always on and with enough power. If it is ever not working, it is because of the network.'		

<u>Key quote</u>	<u>Impact analysis</u>	Participants
'With the crops that we are planting ourselves, we are able to make juice from them. We thought it would only be possible to make juice somewhere very far away from here, so I am really happy for the change that has occurred in this community.' 'The main change is the continuous service provision, mostly with the milling since the machine is run by electricity.'	Access to value-adding agricultural services 16/17 participants interviewed from Mbaata reported using: - The cassava milling - Juicing machine - Workshop	MB1-17
'I use the salon to shave my hair, I bring cassava for milling, and I also use it as a spot for a quiet phone call' 'The main changes are having finished goods like juice and a metalic door being made from within Mbaata'	Using the FEC for multiple services - All participants interviewed reported using multiple services at the FEC.	MB1-17
'All services are useful and none should be removed. If any of them would be removed it would be a great loss, because the community is using all of them. We only need addition to what is here already'	FEC services valued by community When asked about which services were most valuable, respondents reported that all services were valuable, and there should only be additions.	MB11, MB13, MB14
'The FEC has attracted more visitors from different areas and organisations which gives me hope for other development programs.'	Utility of services has attracted customers from outside Mbaata Expanding market to outside of the community.	MB01, MB04

Quantitative analysis

'The community uses the facility often'

Regularity of FEC usage	Frequency
Daily	5
Multiple times weekly	3
Weekly	2
Often (unspecified)	3

Services used	Participants reported using service	Gender balance
Cassava milling	17 (100%)	M/F
Juicing service	14 (82%)	M/F
Salon	12 (71%)	M/F
Entertainment centre (cinema)	11 (65%)	М
Workshop facilities	15 (88%)	Mostly M



Metal fabrication and welding service in Mbata

2. Convenience Gained

Definition: The ability to complete a task with ease/ without difficulty.

Theory of change: The FEC has enabled the community to complete tasks with ease, which were

previously difficult to complete.

Key quote	Impact analysis	Participants
'Before, we used to use diesel machines to run cassava milling machines'	Reduced reliance on diesel	MB1-15
'People living here used to use the diesel milling machine, and they had to sit in the line for so long [to wait for their produce to be milled], but now it takes much less time, because they can get their food milled much quicker than before due to the support that has been given through this project'	Reduced waiting time for the milling service - Machines operating more efficiently in the FEC - Milling service conveniently located - Better repair support from Kiima team	MB1-15
'We used to walk around 10 km for charging and for repairs' 'I used to suffer when I wanted to mill, but now it is very easy. Before, there was sometimes a diesel machine around, but often it didn't work and it broke so you then had to move your cassava to another far away mill, so we would suffer.' 'We previously had to travel to Kabatunda for similar services' [Community members] would go around 10 to 15km, where they will find a machine that uses diesel to mill their cassava'	Reduced journey time to access services Community members previously had to travel: - Around 10km for charging and repairs - 10-15 km for cassava milling These services would be run from diesel and would often be unreliable.	15/17 participants Also mentioned by KF1-3

Key quote	Impact analysis	Participants
Diesel Price of milling: 200 USH/kg	Money saved from milling	
FEC Price of milling 150 USH/ kg 100 USH/ kg over 100kg	Price breakdown from Kiima Foods of the change in milling prices.	KF01



Cassava milling service at Mbata



Haircutting salon at Mbata

3. Improved sense of subjective wellbeing

Definition: How individuals evaluate their happiness and satisfaction with life.

Theory of change: An improved sense of subjective wellbeing for community members can be

attributed to the construction of the FEC.

Key quote	Impact analysis	Participants
'The FEC is a blessing and eye opener to development in Mbata'		
'The FEC has made an impression on the community and is hope of development to me as a member of the community' 'I am so thankful to Kiima Foods for starting this project, and for helping us envisage how this project is going to bring about change in the community.'	Motivation for change The community have reported being satisfied with the project, as well as feeling optimistic about the future of the project.	MB08, MB09, MB13, MB11
'This project has helped us to gather the children around the Farmers' Enterprise Centre, as they had previously been loitering around, but nowadays some of them are working in the salons and other services. They are no longer loitering around in town and are instead concentrating on their businesses.' 'My son was working in the salon before. He liked his job, but he did not have opportunities. So, after getting the electricity, my son was able to explore his talents more.'	Youth engagement The FEC has provided opportunities and a sense of purpose for the youth in the community, through providing new job opportunities.	MB11, MB13

4. Income generated

Definition: Changes in income within the community as a result of the FEC.

Theory of change: The FEC has increased the incomes of community members in Mbaata.

Impact summary: Our impact analysis demonstrated that the FEC has increased employment

opportunities for the community in Mbaata, which has in turn provided more

income-generating opportunities for members of the community.

Key quote	Impact analysis	Participants
'I know that a lot of people now have jobs. Some are doing welding. Youths that were previously loitering around at home with their parents are now using the welding machine. Most of them have got jobs.'	Increase in employment rates The FEC has provided opportunities for community members to find a form of employment	MB11, MB14, MB15
In the past, people charged very low prices for their produce because they didn't know. I expect to see more produce being sold at a high price.	Predicted improvement of market knowledge Community members still require additional business training, however this is currently being conducted in the communities by Kiima Foods.	MB11, MB14-16



Farm-input shop at Mbata

5. Relationships

Definition: The impact that the FEC has had on relationships between community members

and members of the co-operative.

Theory of change: The FEC has improved relationships within the community in Mbaata.

<u>Key quote</u>	Impact analysis	Participants
'We have developed social bond among the cooperative members' 'The members of the cooperative are the friends of the cooperative, especially those that managed to gather them together and be able to bring friends together'	Improved community relations The co-operative has fostered good relations between co-operative members.	MB06, MB08



Information, training and entertainment services at Mbata

6. Education ¹

Definition: The purposeful act of gaining knowledge and developing skills, which in-turn

enable the achievement of certain aims.

Theory of change: The FEC has increased educational opportunities available in Mbaata.

Impact analysis: Kiima Foods have delivered a number of training sessions for members of the

community, such as brick making, improved agronomic practice, post-harvest

crop handling, data handling and record keeping, crop marketing and

FEC/productive-use equipment operation and maintenance.

<u>Key quote</u>	Summary/ keywords	Participants
'There has been Increased information available to the people in the community since a number of trainings have been conducted by Kiima Foods'	Increase in information available to the community Many training opportunities have been made available to the community by Kiima Foods.	MB08, MB11, MB14
'The community has learnt that solar energy can be used to electric machines'	Project has demonstrated the capacity of solar to the communities.	MB10, KF01
'I would like more training on farming business and how to develop ourselves, so we are able to educate our children.'		
'In 10 years I expect that the education rate in this area will have increased. I hope that businesses will be successful enough that we will be able to afford the fees for our children'	Increased desire for education The training made available to the community has generated motivation for additional training.	MB15, MB16, MB17

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¹ NB at the time of the impact interviews, the village primary school had not yet been connected to the FEC power supply, which is why none of the responses deal with education of children.

Key quote	Summary/ keywords	Participants	
'I believe that the skills we have learned can be transferred to other people, and those other people will be able to have jobs as well from their homes and other surrounding communities'	Transferable skills gained Skills learned from training have been used for other purposes in the community, as well as transferred to other people in the community.	MB11, MB13	
"We came together as a team and made the bricks. Houses like this [referring to the FEC] can be seen throughout the community now."	Skills from the brick building training have been used to make bricks for other buildings in the area.		



Transmission line to supply power to Mbata Primary School from the FEC

7. Health

Definition: The enhancement of the health status of the population in Mbaata.

Theory of change: The FEC has improved community health in Mbaata.

Impact summary: Whilst the FEC has brought about many benefits for the community, results from the

community survey demonstrated that the community in Mbaata are still without basic

health services, such as an operational health centre and access to clean water.

<u>Key quote</u>	Summary/ keywords	Participants
'We are still lacking sanitisation. We still don't have clean water, we are still using dirty water'	Lack of access to clean water ²	MB10, 15, 16
	Desire for an operational health centre There is a health centre in Mbaata, but currently there are not the personnel available to make it functional for the community. ³	MB05, MB11, MB14





Water supply installed at the FEC



Mbata health centre – neighbouring the FEC

² The FEC does now have a (powered) water supply, and we are investigating how a UV filter could provide clean water as a service to the community.

³ The Health Centre in the community has been connected to power from the FEC, but still lacks trained health professionals to deliver full community health services. Having electricity available makes it more likely that this will be provided, however.

8. <u>Time saved</u>

Definition: Shortening the time taken to complete an operational activity or making an activity

happen faster.

Theory of change: The FEC in Mbaata has reduced the amount of time it takes for community members

to complete certain operational activities.

Impact summary: Members of the community in Mbaata reported saving time in completing activities,

due to increased efficiency of available services and reduced journey time to access

services.

<u>Key quote</u>	Summary/ keywords	Participants
People living here used to use the diesel milling machine, and they had to sit in the line for so long [to wait for their food to be milled], but now it takes much less time, because they can get their food milled much quicker than before due to the support that has been given through this project'	Reduced waiting time for services Increased efficiency and reliability of services at the FEC	MB10, MB11, MB13
'The FEC being here has made me reduce my expenses. Before, I used to have to do milling at the milling station, meaning that I had to travel a long way and transport the dry cassava to the milling station. So, this has helped me save money on transport, and also they charge the same amount for milling here as they do in other places, so it is still affordable. Also, the smell of diesel would often go into the flour. '	Money saved due to reduced transportation costs Improved convenience and quality of services	MB11, KF1-3



Mbata FEC – integrated into the community

9. Community Engagement

Definition: 'a dynamic relational process that facilitates communication, interaction, involvement,

and exchange between an organisation and a community for a range of social and

organisational outcomes'⁴.

Theory of change: The FEC has enhanced the process of community engagement, including 'the

interaction, involvement and exchange' between (and within) the community of Mbaata

and Kiima Foods/ SVRG, which has improved the wellbeing of those within the

community.

Impact summary: Evidence of community feeling engaged and playing an active part of this project.

<u>Key quote</u>	Summary/ keywords	Participants
'This project started in my hands as well, as I helped make the bricks. They trained 24 people here in brick building, which gave us the skills of how to make the	Community members feel a sense of ownership over the FEC	
bricks.'	Due to the training received by the community on brick making,	MB11, MB14-16
"We came together as a team and made the bricks.	participants reported feeling that	
Houses like this (referring to the FEC) can be seen	they felt ownership over the	
throughout the community now.'	project due to helping build it.	
'I would also like to encourage other communities to work with us, so we can collectively have success	Collectivist mindset	
together, because when people work together, good things happen'	Expressed desire for additional collaboration with other communities and demonstrated	
'I saw that if we came together to form a cooperative, it	understanding of the benefits of	
will be the only way to bring us development'	being part of the co-operative.	MB06, MB14-17
'The members of the co-operative are the friends of the	Identification of the causal link	
co-operative, especially those that managed to gather	between the co-operative and	
them together and be able to bring friends together'	community development for	
	collective success. E.g. the	
'I would encourage [all] community members to join the	community is the centre of rather than individuals.	
cooperative for general development in the community'		

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⁴ Johnston, K. A. (2018). Toward a theory of social engagement. In K. A. Johnston & M. Taylor (Eds.), The Handbook of Communication Engagement (pp. 19-32). Hoboken, NJ: Wiley.

10. Challenges

This section contains a summary of the different challenges faced by community members. These can be summarised as:

- Security
- Road access
- Agricultural knowledge and skills
- Market knowledge
- Poor phone signal

Voy quoto	Summary/ keywords	Participants
Key quote	<u>Summary/ Reywords</u>	Participants
Maintaining security is difficult. It is hard to know who is coming to use it or who is coming	Security challenges	MB11
to attack it.	Security challenges	IAIDIT
We don't have much knowledge on how much to	Lack of market knowledge	
charge for our produce, because we don't have	Edek of Market knowledge	MB13
much knowledge of the market.		
'Bad roads are one of the biggest challenges we		
are facing. Communication is also difficult	Access difficulties & poor network coverage	
because the phone signal is poor.'	·	MB13
'The network is still an issue, it could be much		
better'		
We are still lacking agricultural skills, and don't	Lack of agricultural skills in the community	MB13
know how to do agriculture very well.'	Lack of agricultural skins in the community	IAIDT2
'An issue is that it gets busy at the milling		
machine at nighttime, as other milling machines		
in surrounding villages that use diesel can break,		
which means that people come here. So it means that we are often still milling at 9 or 10pm.'		
that we are often still milling at 5 or 10pm.		
'There should be an additional machine for	High domand doloring comics	MB14
cassava milling because many people come here	High demand delaying service	IVID14
to mill, and they delay the milling time. At 9pm		
people are still milling.'		
'the facility is strongly used by the community		
and too competitive when it comes to cassava		
milling and cinema services'		

Mukorokumi

Due to issues with access and the weather, this site is still under construction. The community has been very positive (and indeed are working on the construction themselves) so we anticipate a similar impact situation in Mukurokumi as in Mbata.



Mukurokumi FEC under construction



...still hampered by weather and mudslides!



<u>Kitula</u>

This section includes responses from the some of the members of Kijuna village in Kyanuuna ward.

Methodology

These responses were obtained from members of the EcoLife Foods team asking open-ended questions and other probing questions. During the exercise, listening to the community members was key and the responses were all written down as mentioned by the respondents. Follow-up discussions were conducted between EcoLife and SVRG after the community interviews to fill information gaps

The objectives of the exercise are outlined below:

- To gather information about how individuals' lives have changed since the establishment of the FEC in Kijuuna village.
- Understand the impacts of service delivery in relation to specific impact metric
- Understand additional support required by the community members.
- Align the impact with the project objectives.

The respondents were selected randomly and others were targeted especially those working at the FEC and common service users. The report is presented as per individual responses and groups and below.

Individual/ Group	Responses
	What changes have you experienced since the establishment of the FEC in this place?
Mr Payinato Land owner and treasurer of the FEC	 Before the establishment of the store, the survey was conducted for women, youth, men and all people asked for two major things; store and market access. We used to see this project as a joke but now I know it will be more beneficial. The first change I have seen is that we have moved from the old life where services were far from us to the life where we now access what we want at the centre examples include, tank water, electricity and posho milling. We are experiencing growth in the area. Some people have been employed at the FEC. We now have stores to put our produce. We hold community meetings at the FEC as a central place. Security has improved because people fear that cameras will capture them within the vicinity of the store. Our girls are now learning tailoring. Now I have power in my home at all times.
	What does the community say about the FEC?
	 The community appreciates the FEC though they are not able to do what they want due to [a lack of access to] capital. Farmers are asking for seeds to plant and sell the produce back to Ecolife. People are still thinking of what businesses they can do at the FEC. New Requests
	 If Ecolife can support people who don't have capital by giving them loans to do work at the centre.

Background information

This group of interviewees are the women attending the tailoring school at the FEC in Kitula. EcoLife has paid for the trainer to come to run free tailoring classes at the FEC for women in the community, specifically those who are out of education as a result of the closure of schools during COVID-19. Providing skills for women provides a renewed chance of livelihood generation, with this

These classes will end at the end of October, with the hope that some women will be able to use their new skills to start up their own sewing business at the FEC, using the space and electricity services available on site.

Individual/ Group	Responses
Tailoring Team Lydia Esther Nyaniti Mary	 What changes have you experienced since the establishment of the FEC in this place. We did not know how to sew clothes, but now we know Now we know how to do measurement and cut the cloth to make both shirts, trousers, skirts and dresses. We used to take our clothes to other tailors in Namayumba and Kyanuuna but now we don't. Learning tailoring has helped us to save money which would go to another person. We have started getting money by sawing people's clothes.
	 We now repair and mend our own clothes when they tear instead of looking for another tailor. We used to buy materials and take to other tailors which was expensive.
BabraMama Jimmy	Other services.
• Mana Jinniny	 We used to take maize to Busunju or Namayumba which was far away but now we grind from the FEC.
	 We now access cold drinks from the FEC which was not there before. Our hair is now cut from within here instead of travelling to far trading centres.
	 Now we have local radio for preaching and mobilising people in the community.
	 During the rainy season, we access tank water from the FEC. This has saved our time for moving to the borehole.



Women's sewing group at Kitula



First version of snack and cold drink shop at Kitula...

(Subsequently, walls have been built around it, and shelves installed to stock a wide range of foods)

Individual/ Group	Responses
	What changes have you experienced since the establishment of the FEC in Kitula?
Kalenzi Steven He has a fridge at the centre and sells soft drinks	 I used to work in Namayumba, which was far away but now I work within my home town. I have been able to own a fridge which I thought I could never. I have got new friends who are working with me. I am now employed at the grinding machines and able to earn money for my family.
	What are you doing?
	 I sell water, ice and passion juice. Now I am learning to shave my hair.
	What changes have you experienced since the establishment of the FEC in Kitula?
Nantumbwe Sarah Shop owner	 Now I own a business from home. Rent for my shop is affordable I get some money in my business for the family. I am able to access water at the tank. The light at the FEC has provided security for us. We can now grind our maize from within. I shave my children's hair at the FEC instead of going up to Namayumba or Kyanuuna. I lead prayers on the local radio which has simplified the preaching of the gospel in our area.
Group of 16 men	What changes have you experienced since the establishment of the FEC in this place? The project is good for the community Now we get posho as fast as we want. We access water nearby Shops are near We expect much more from the project.



Lukowe

Methodology

These responses were obtained from members of the EcoLife Foods team asking open-ended questions and other probing questions. During the exercise, listening to the community members was key and the responses were all written down as mentioned by the respondents. Follow-up discussions were conducted between EcoLife and SVRG after the community interviews to fill information gaps and

- To gather information about how individuals' lives have changed since the establishment of the FEC in Lukowe village.
- Understand the impact and service delivery.
- Understand additional support required by the community members.
- Align the impact with the project objectives.

The respondents were selected randomly and others were targeted especially those working at the FEC and common service users. The report is presented as per individual responses and groups and below.⁵

⁵ This site was only commissioned in late June, so impact is less widespread than the other sites surveyed. So far the only service commissioned in the centre is maize milling (the highest priority service, and most energy intensive). We continue discussions with the local farming community for the services they would like to see

Individual/Group	Responses
	What changes have you experienced since the establishment of the FEC in this place?
	 I have a better store where pests cannot easily invade my maize Centre has good security It is a nice place
Mr Kaye maize entrepreneur	What does the community say about the FEC?
maize entrepreneur	 They are happy about the centre The flour they get does not smell fuel
	New Requests
	 If Ecolife can provide a huller for maize milling We need a coffee huller to de-husk coffee at the centre
	What changes have you experienced since the establishment of the FEC in this place?
Ma Nanyania Patrisia	 It has provided light in the night for the area where the centre is I don't use any service so far but I will get service in future when you provide other machines
Ms Nanyonjo Patricia Prospective	What did you do before?
entrepreneur	We used diesel milling machines
	In what ways has access to this service helped you in your life?
	We hope we will work with other organisations and partners to sell our produce through the FEC
Neighbour to the FEC	What changes have you experienced since the establishment of the FEC in this place?
	 The place is well lit at night! Even my home We get our maize milled at the machine