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A report on end-user finance and payment systems to improve access to reliable, Sustainable, and modern energy Products in displacement settings (Uganda)

Published by

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für Internationale
Zusammenarbeit (GIZ) GmbH

As a federally owned enterprise, GIZ supports the German Government in achieving its objectives in the field of international cooperation for sustainable development.

Published by:

Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

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Photo credits:

Smart Farmers Guide 2019

Location:

Kampala, November 2021

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List of abbreviations

BMZ	German Federal Ministry for Economic Cooperation and Development
DCA	Dan Church Aid
EnDev	Energising Development
ESDS	Energy Solutions for Displacement Settings
EUF	End User Finance
FGDs	Focused Group Discussions
FSP	Financial Service Provider
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
MFIs	Micro Finance Institutions
MSMEs	Micro, Small and Medium Enterprises
OGS	Off Grid Solar
OPM	Office of the Prime Minister
PUE	Productive Use of Energy
SDCs	Savings Development Clusters
STRENPO	Strengthening Resilience and promoting inclusive governance program
SUN	Support to UNHCR in the Implementation of the Global Compact on Refugees in the Humanitarian-Development-Peace Nexus
ToR	Terms of Reference
WVU	World Vision Uganda
VSLAs	Village Savings and Loan Associations
CRRF	Comprehensive Refugee Response Framework
RIL	Response Innovation Lab

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Executive Summary

Uganda is one of the largest refugee hosting countries worldwide currently hosting 1,549,181 million¹ refugees. The lack of sufficient quality energy products and services for cooking and lighting, communication (phone charging), and productive use grossly limits opportunities to meet basic needs, ensure protection, and strive for self-reliance. Limited income generating opportunities restrict ability to acquire energy solutions. On the other hand, limited access to affordable energy options is a barrier to employment creation, business opportunities, innovation, and market development and thus to economic development. Despite the efforts of various humanitarian and development partners, significant barriers to the access to modern energy products and services remain. This report examines how End User Finance and Payment systems improve access to energy solutions and in particular Productive Use of Energy solutions.

Setting and context

The study was conducted in Rhino Camp and Imvepi settlements located in the districts of Madi Okollo/Terego and Terego respectively. Rhino Camp has a population of 125,648 comprising 96.65% South Sudanese, 2.66% Congolese, 0.66% Sudanese and 0.077% others while Imvepi has a population of 70,200 comprising 97.9% South Sudanese, 2.02% Congolese, 0.032% Sudanese and 0.005% others. In Rhino Camp, females make up 50% and youths make up 27% while in Imvepi settlement, females make up 52% and youths 23%. The main economic activity in both settlements is farming followed by manpower services and tailoring in Rhino Camp and housekeeping, labourers and small business owners in Imvepi settlement.

Productive Use of Energy needs

There are a number of livelihood programs that have been implemented in the refugee and host community settlements of Rhino Camp and Imvepi. The study focused on a few, such as the "Step-up livelihood program" which focused on the vegetable value chain, Strengthening Resilience and Promoting Inclusive Governance (STRENPO) European Trust Fund Program (EUTF) program, focused on among others the seed oil value chain. The fruit nexus: Sustainable Livelihoods for Refugee and Host Farmers in Northern Uganda. The Supreme livelihoods program that focuses on among other the vegetable value chain. Although a few programs are

¹ Office of the Prime Minister (2021). Population Summary by Settlement/Sex. Uganda Refugees & Asylum seekers as of 31/October/2021. [Document - Uganda Active Population by settlement: October 2021 \(unhcr.org\)](#)

implementing PUE solutions, it's on one stage of the value chain i.e., either planting (solar irrigation) or processing (milling machines). Interviews with refugee and host community beneficiaries established the need for PUE solutions along the different phases of the different value chains that they are involved in. However, due to the high cost of PUE solutions and low incomes of farmers, they are unable to afford the solutions.

The study established that savings groups are prevalent in both refugee and host communities. Banks and MFIs have no presence except for RUFU a microfinance institution which has an office in Ofua III Rhino Camp as well as Vision Fund and BRAC that utilize credit officers. Due to the limited capital and short repayment periods of savings groups, members rely on them to finance short term inexpensive needs. A few groups have accounts in Banks like Post Bank, Housing Finance Bank, DFCU and microfinance institutions like RUFU and Vision Fund. Through these linkages they can borrow bigger amounts (UGX300,000 to UGX4,000,000) which they can repay in 10 months to a year.

Existing and planned End User Finance (EUF) and payment systems

The pre-dominant EUF options are PAYGo, Village Savings and Lending Associations and Financial Service Providers. A number of factors enable and hinder their usage;

PAYG via mobile money: Enabling factors such as phone ownership, lack of collateral makes it an ideal EUF option. However, hindering factors such as unreliable connectivity, low literacy hinders its uptake.

FSPs: access to subsidized loans from Uganda Energy Credit Capitalization Company (UECCC), awareness programs on solar solutions, convenient offsetting models enable their usage. Conversely, limited reach, unclear KYC policy, lack of physical collateral hinders their uptake.

VSLAs: being locally owned and managed by the members as well as easy access makes them the most ideal savings and borrowing mechanism for refugees and hosts. However, they have short repayment periods (1 month-3 months) and disburse low amounts that aren't sufficient to acquire PUE solutions.

Policies and framework conditions for access to finance for refugees

The Bank of Uganda (BOU) has the mandate to supervise and regulate the operations of financial institutions in the country. These include commercial banks, credit institutions, microfinance deposit-taking institutions (MDIs), and forex bureaus. A number of acts and regulations govern this mandate and the supervision of financial institutions. However, they are designed for the local population with no mention being made of refugees. As a result, they impact the supply of

and demand for financial services. Uganda’s financial policies and regulations are specific to nationals and not refugees when it comes to Know Your Customer (KYC) requirements for account opening collateral and financial card requirements for credit access. The policies don’t regulate interest rates charged by FSPs leaving them to go high when the Bank of Uganda lowers its Central Bank Rate (CBR), Bank agents who ideally bridge the distance between banks and rural populace offer limited services of which loan processing is not apart of.

EUF concept

EU options were ranked based on their abilities to address financial challenges and needs of end users. The factors considered were interest rates, loan duration, loan size, account opening and credit requirements, access, Turnaround time, proximity, initial deposit requirements. Based on the factors, VSLAs, FSPs and PAYGo ranked highly. Separately however, they are unable to address EUF need. Bundled together in pairs, they can leverage on each other strengths and address their weaknesses. Based on refugee and host community feedback that advised ranking above, the EUF concepts below are most appropriate.

- Linking VSLAs to FSPs for acquisition of more costly PUE solutions
 - VSLA formally registers at the sub-county, opens an account in the bank and starts depositing group savings to qualify for bigger loans
- VSLA and PAY Go for acquisition on less costly PUE solutions and SHSs
 - Borrow from VSLA to cover the initial deposit that is usually 15%-20% of the equipment cost and covers the remaining balance using PAYG

1. Study Background

Currently, Uganda hosts 1,549,181 million² refugees with most of them under the age of 18 – 35 years and coming from South Sudan, the Democratic Republic of Congo (DRC), Burundi, Rwanda, and Somalia. Uganda is one of the largest refugee hosting countries worldwide. Refugees live mostly in settlements along with rural host communities across 13 out of 134 districts which are among the poorest and least developed in the country.

The lack of sufficient quality energy products and services for cooking and lighting, communication (phone charging), and productive uses grossly limits opportunities to meet basic needs, ensure protection, and strive for self-reliance. Low quality energy products on the market

² Office of the Prime Minister (2021). Population Summary by Settlement/Sex. Uganda Refugees & Asylum seekers as of 31/October/2021. [Document - Uganda Active Population by settlement: October 2021 \(unhcr.org\)](https://www.unhcr.org/)

undermine consumer confidence and value for money.

Free hand outs to people in displacement settings have resulted in low willingness to pay for products, while limited income generating opportunities restrict ability to pay for energy goods and services. And on the other hand, limited access to affordable energy options is a barrier to employment creation, business opportunities, innovation, and market development and thus to economic development.

Despite the efforts from various humanitarian and development partners, significant barriers to the access to modern energy products and services remain. These include lack of organizational structure in energy markets, weak energy business skills among local entrepreneurs, lack of access to key products and services such as spare parts or credit, weak business advisory for the energy sector, and an unstable refugee business environment (EnDev Energy Analysis Report for Arua refugee setting, 2018).

1.1 Purpose of the study

To take stock of, describe and analyze existing finance and payment systems provided by humanitarian actors and other partners in the Northern region of Uganda, specifically Rhino Camp and Imvepi Refugee Settlements, and recommend specific viable end-user finance or payment systems' opportunities that will allow ESDS Uganda to contribute towards improved access to sustainable energy products or services for households or SMEs in displacement settings.

1.2 Objective of the Study

The study was designed to take stock of, describe and analyse existing finance and payment systems provided by humanitarian actors and other partners in Rhino Camp and Imvepi refugee settlements, as well as recommend specific viable end-user finance or payment system opportunities that will allow ESDS Uganda to contribute towards improved access to sustainable energy products or services for households or MSMEs in displacement settings. To achieve this goal, the specific objectives of this assignment are two-fold.

1. To examine the current status or context in Uganda regarding the conditions of refugee and host community households and the existence of end-user finance and payment systems for sustainable energy products and services.
2. To collaborate with global studies to develop concrete recommendations on how the existing solutions can be transferred to or scaled in refugee settings to increase access to sustainable energy for refugees and host communities and support development of ready-to implement market-based concept.

1.3 Approach and Report Structure

The approach aimed at assessing livelihoods through a small business and value chain lens to explore what PUE is currently in use or plans to be used. This will then be followed by identifying the available and planned end user finance schemes that will finance the acquisition of the PUE technologies for hosts and refugees. It will then analyse the impact of framework conditions on EUF. Lastly the information will be analysed to advise the development of an end user finance concept for productive use of energy technologies. This will be done by reviewing available literature on PUE, refugee income, expenditure, savings and borrowing mechanisms, EUF policies and frameworks on refugee engagement with the private sector-including their impact on the design of end user schemes. This will be validated by individual interviews and focus group discussions. To that end, the report has been structured into the four phases below.

Phase 1: Description of key livelihoods programs and interventions that require access to energy and to end user finance in the Northern region (especially Rhino Camp and Imvepi Refugee Settlements)

Phase 2: Assessment of existing and planned end user finance or payment solutions for low-income customers for sustainable energy products in Uganda.

Phase 3: Description of context-specific obstacles and/or facilitators for the private sector, financial institutions, or civil society to engage in end-user finance and payment systems for sustainable energy products

Phase 4: Market-based ready-to implement concept for end user financing

2. PHASE ONE: Status of key livelihood programs and interventions that require access to energy and to end user finance in the Northern Region

In Rhino Camp and Imvepi refugee settlements, 24% of the refugees are engaged in farming activities while 75% of the host communities depend on agriculture³. PUE in agriculture could increase individual monthly incomes by 30%⁴ while processing and milling grains can more than triple the crops' value by weight

Although PUE has the potential to increase productivity which can result into higher incomes, the acquisition of PUE technologies remains a challenge for refugees and hosts owing to the high cost of the equipment relative to their income. As a result, it puts the PUE technologies well beyond their reach. It is for this reason that tailored EUF is critical to bridge the affordability and access gap that could enable the acquisition of PUE technologies.

2.1 Key livelihood programs with a component of Productive Use of Energy and EUF

Productive Use of Energy (PUE) is the use of energy services as a direct input in the transformation of goods and services within agricultural, commercial and industrial activities that enable value addition and the enhancement of incomes/revenues⁵.

Interviews were conducted with refugee and host beneficiaries of 7 livelihood programs as shown below.

Livelihood Program and location	Achievements & success drivers	Challenges	Value chain for financing
STRENPO livelihood program implemented by RICE in Rhino (2018 – 2021)	<ul style="list-style-type: none"> 1,200 farmers from refugee and host community areas received training on hibiscus, cassava, soy and potato farming Value chains 	<ul style="list-style-type: none"> Longer drought spells continuously lead to a low yield of agricultural output. 	<p><u>Cassava.</u></p> <ul style="list-style-type: none"> Groups rely on their savings to borrow money e.g., one of the groups secured a loan of UGX

³ Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements - Arua District, Northern Uganda 2017

⁴ Promoting Productive Uses of Energy in Uganda Status and Potential for Growth 2017

⁵ The Productive Use of Renewable Energy in Africa

	<ul style="list-style-type: none"> • 4 groups consisting of 125 refugees and hosts received training on the development of clean energy cook stoves and plastics recycling to make pavers and house ventilators • A key success factor of the program is that farmers are organized into savings groups where they make weekly savings of about UGX1,000 – UGX 5,000 	<ul style="list-style-type: none"> • Lack of value addition technology like hibiscus processors, cassava driers, irrigation, grinders attract low market prices. • Difficulty in access to a clean water source (nearest water source is 3 miles away) 	<p>4,000,000 (repayable in 10 months) from Vision Fund to buy farm inputs. Once the first loan is repaid, groups can take second loan facilities to enable them to increase their production capacities i.e., procure a; chipping and drying machine that cuts the cassava into small pieces and a separate machine that dries them</p> <ul style="list-style-type: none"> • Milling machine to grind the dried cassava chips into flour <p><u>Hibiscus</u> The available savings and borrowing option is VSLA's. One group of interviewees has an account with DFCU and has managed to save UGX3,000,000 to date. In the future it intends to borrow money to finance the following:</p>
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			<ul style="list-style-type: none"> • irrigation kits for plant growth and development • Solar powered drier/grinder for drying and grinding • Processor to make hibiscus tea, wine and juice • Packing and Refrigeration – energy powered packing machine and fridge to pack and preserve the wine/juice
European Trust Fund (EUTF) Program implemented by ZOA in Rhino and Imvepi Resettlement camps (2017 – 2020)	<ul style="list-style-type: none"> • 5,000 farmers from refugee and host communities received training on sesame, ground nuts, vegetables and cassava value chain • The focus is on value chain crops that have a quick turnaround time between planting and harvesting so that farmers plant 2 to 3 times a year 	<ul style="list-style-type: none"> • Lack of value addition means that refugee get low prices for their harvest • Prolonged dry spells result in plant yield losses 	<p><u>Oil seed (groundnuts and sesame</u></p> <p>Members of the interviewed group stated that they borrow from their savings group which has challenges such as limited funds to lend out and has a maximum repayment period of 3 months. The group would therefore benefit from opening an account with a FSP so that members they can access bigger loans to purchase the following:</p>

			<ul style="list-style-type: none"> • A ground nut shelling machine and a grinder which will process groundnuts and sesame into a paste called “odi”.
<p>Sustainable use of natural resources & energy in the refugee context⁶</p> <p>Market-based Energy Access in Refugee Settlements and Host Communities via solar-powered energy kiosks In Rhino camp</p> <p>Implemented by GIZ and ICRAF</p>	<ul style="list-style-type: none"> • Set up of 2 solar-powered energy kiosks that sell quality solar products, improved cook stoves, cold drinks etc • The kiosks management teams were provided with specialized training. • One of the kiosks is managed by a South Sudanese youth group, generating income for 8-10 people • The awareness-raising activities proved successful to increase their confidence in these products • Utilization of 2 different management modes allowed for a comparative analysis • Energy services (such as internet cafe, printing, photo shops, up-to 400 phones charged per day, etc.), do not need any kind of awareness raising • Conscious selection of refugee settlements 	<ul style="list-style-type: none"> • Short implementation timelines • Continuous support for kiosk managers • Poor infrastructure i.e., bad roads • Lack of formal FSPs to avail credit • Low purchasing power and willingness to pay for energy products 	<ul style="list-style-type: none"> • The group managing the solar kiosk at Siripi in Rhino has a savings group. To purchase a new fridge, It hopes to borrow from Vision Fund which can lend between UGX300,000 and UGX4,000,000.
<p>RISE program</p> <p>Implemented by AFC in West Nile</p>	<ul style="list-style-type: none"> • Training on market-oriented agriculture (rice, cassava, horticulture, pigs, 	<ul style="list-style-type: none"> • The refugees and hosts are remotely 	<p><u>Vegetables</u></p> <p>Members of 2 farmer groups</p>

⁶ Humanitarian Energy: Energy for micro-enterprises in displacement settings

	<p>goats, bees, groundnuts, poultry, sunflower etc.)</p> <ul style="list-style-type: none"> • Supporting 260 farmer groups (6,500 beneficiaries-50% host community and 50% refugees) • Supporting 197 VSLAs (4,850 members saved UGX. 892 million in the first business cycle lasting one year made of 52 weeks with a contribution of an average of UGX 3,500 per member per week) • Training VSLAs members on saving for agro-business investments • Assisting VSLAs to register with the commercial office of the sub county • Providing VSLA kits (stamp, book, etc.) • Assisting groups with record keeping, share outs and constitution set up 	<p>located and as a result have limited access to Off Grid Solar (OGS) and financing</p> <ul style="list-style-type: none"> • VSLAs are very informal and lack structures. Due to that they can't access funding from FSPs 	<p>(comprising hosts and refugees) revealed that they rely entirely on savings groups to borrow money. The groups have cash constraints and are unable to finance the purchase of costly PUE equipment. Farmers would therefore require access to funding from FSPs such as Banks and MFIs, so they can purchase:</p> <ul style="list-style-type: none"> • Solar irrigation pumps which will enable them grow tomatoes all year round. <p><u>Cassava</u> 1 group of farmers in Ofua III Rhino camp was able to save UGX5,100,000 and purchase a Diesel-powered Milling machine</p>
<p>Step up livelihood project-tomato farming by youth for income generation Implemented in Rhino camp by Palm corps (2020 – 2021)</p>	<ul style="list-style-type: none"> • 5 groups comprising 75 youth received training on tomato farming from East and West seed company. There is available market for tomatoes in Arua and Yumbe • Staggering of tomato growing to ensure constant supply 	<ul style="list-style-type: none"> • Limited project funding which lasted for four months • Market penetration challenge • High cost of inputs 	<p>The project availed solar irrigation kits to all farmer groups.</p> <p>Groups rely on VSLAs for savings and borrowing needs. To access bigger loans, they</p>

	<ul style="list-style-type: none"> • Saving for inputs 	<ul style="list-style-type: none"> • Limited availability of land 	<p>plan to open an account in a Bank, so they can borrow money to acquire:</p> <ul style="list-style-type: none"> • Solar drier to extend the shelf life for surplus tomatoes so they can be sold in the dry season • Solar processor to make tomato sauce for sell in Arua
<p>Supreme livelihood program; implemented in Rhino by WVI Vegetable growing (2020 – 2023)</p>	<ul style="list-style-type: none"> • In Rhino (Omugo) WVI supports 84 Savings Development Clusters (SDCs) that consist entirely of savings groups or savings and farmer groups (42 are in the host community and 42 in the settlement) • Farmer groups receive training on the SDC model i.e., on Agro-Rural Innovation • The program supports farmers with formal registration which enables them to receive support from development partners 	<ul style="list-style-type: none"> • PUE technologies are not being implemented. • Host and refugee farmers are entirely dependent on savings groups for their savings and borrowing needs. 	<p>Groups are formally registered with the sub county and have an opportunity to open accounts with FSPs. This will enable them to borrow so they can purchase:</p> <ul style="list-style-type: none"> • Solar irrigation pumps
<p>Fresh Fruit Nexus- growing and exporting oranges, sweet potatoes, Turmeric and Ginger</p>	<ul style="list-style-type: none"> • Targeting 530 small holders from refugee and host communities • Building strong cooperatives based on organic fruits 	<ul style="list-style-type: none"> • Farmer's income isn't sufficient to purchase organic pesticides and 	<p><u>Sweet potatoes</u> Farmers groups are being linked to MFIs so that they may borrow money to purchase:</p>

<p>Implemented by DCA in Arua and Terego (2018-2020)</p>	<ul style="list-style-type: none"> • Linking farmer cooperatives to MFIs • Training savings groups to transform from saving for consumption to saving for investment 	<p>solar irrigation pumps</p> <ul style="list-style-type: none"> • Saving Groups save to postpone consumption 	<ul style="list-style-type: none"> • Drying for surplus potatoes that can't be sold as fresh tubers • Irrigation
<p>Creative Capacity Building Program implemented by Kulika</p>	<ul style="list-style-type: none"> • Training youth that are organized in groups to fabricate baking ovens, cassava manual graters, groundnut manual pulverisers, charging stations etc 	<ul style="list-style-type: none"> • Lack of financing to scale. The savings group interviewed is still young and doesn't have enough savings to lend out to members 	<p><u>Cassava Grater</u> The group is currently made up of 5 members. As a result, it has insufficient savings. It could benefit from increased membership as well as opening an account with a FSP so members can access bigger longer-term loans to acquire:</p> <ul style="list-style-type: none"> • An energy powered grater that can grate more cassava in a shorter period <p><u>Bakery</u> The same group has an oven that can bake 90 bans in one go. Access to financing would enable them:</p> <ul style="list-style-type: none"> • Fabricate an oven with a capacity of 150 bans. The ovens are powered using charcoal or briquette

2.1.1 Productive Use of Energy - Micro Enterprises

Findings from a 2019 study conducted in Rhino Camp and Imvepi⁷ as well as research findings established that;

- a. Very few stalls offered energy services with micro-enterprises such as phone charging, printing and photocopying, and salon and hairdressing while using rooftop solar technologies. The provision of these services was however limited by battery output (low system sizing).
- b. There were no vendor shops/stalls offering internet café services, computer, and solar lantern rental, as well as no sale of improved cooking stoves in both Imvepi and Rhino Camp refugee settlements. A field study established that poor internet connectivity and low demand for improved cook stoves as the reason for their unavailability.

However, interviews that were conducted established PUE livelihood programs in Rhino Camp and Imvepi;

- Solar Aid sells Tier 1 solar products used for productive uses like phone charging, hair dressing saloon and school lighting kits in West Nile (including Rhino Camp and Imvepi)
- WVU set up a solar powered saloon and charging station in Imvepi and Rhino Camp-Omugo respectively. Each is run by a group of youths comprising 25 refugees and hosts.
- Save the Children together with Raising Gabdho Foundation and Enventure established energy kiosks in Kiryandongo and Yumbe run by VSLA members that come together to form cooperatives. The groups are comprised of 70% women and 30% youth from refugee and host communities.
- Kulika through its creative capacity building program is training youths in Rhino Camp to among others build ovens for baking and manual graters for chipping cassava. Although the grater is manual the oven is powered by charcoal and briquette.
- Several small entrepreneurs in Rhino Camp have small businesses that provide food and cold drinks, phone repair, phone charging, hair dressing, and cinemas. These businesses are all powered by solar.
- GIZ through Energising Development (EnDev) and Energy Solutions for Displacement Settings (ESDS) set up four solar powered energy kiosks in Ofua III, Siripi ,Ocea and Imvepi in Rhino Camp and Imvepi refugee settlements .These energy kiosks offer computer trainings, internet services, phone charging, photocopying ,printing and secretarial services

⁷ The State of Sustainable Household Energy Access in Refugee Settings in Uganda Survey Findings in Rhino Camp Settlement and Imvepi Settlement, Arua District, West Nile Region 2019

as well as sale of cold drinks all powered by solar. The energy kiosks are run by a group of youths from both refugees and nationals.

From the interviews conducted, it was established that most small businesses powered by solar depend on savings groups to finance their activities which range from purchasing solar systems, re-stocking, conducting repairs and purchasing new items. The savings groups however have limitations as to how much they can lend out and for how long they can lend for leaving businesses that require costly investments to start seeking alternative sources of financing e.g., MFIs and banks.

A 2019 UOMA report⁸ established that initiatives are in place to create more adequate regular power supply.

- BMZ is providing support to the government and private sector to set up of mini grids. This will promote productive use and increase incomes. 25 mini grid sites are currently being supported by REA and GIZ
- Once complete, 2 of these mini grids will be established in Palabek refugee settlement. In the long term, increased energy access stimulates economic activity in communities, which in turn increases income and proportion of income spent on energy, creating a continuous virtuous cycle

Residential demand and growth are often insufficient to make the business case for high-capacity systems. Productive use however has the potential to supplement demand, lower costs & drive growth

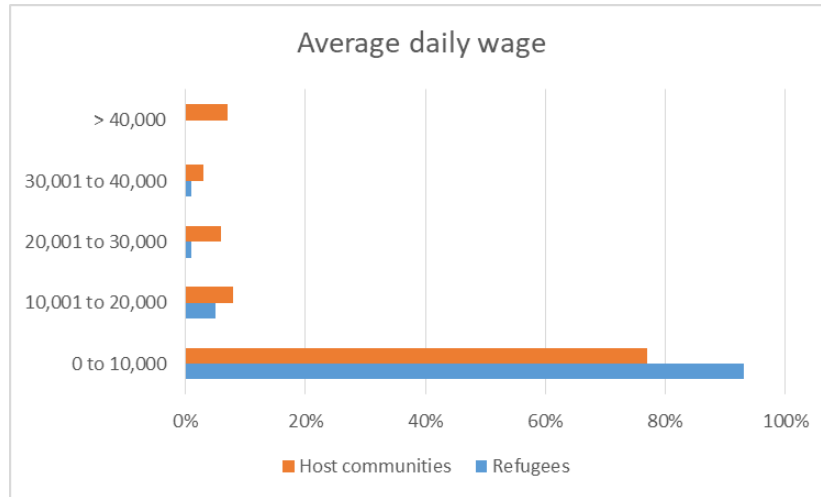
2.2 Income, expenditure, savings and borrowing mechanisms of refugees and hosts.

2.2.1 Household Income - refugee and host communities

According to a 2017 livelihoods assessment report⁹, 93% of refugees and 77% of host community members earned an average of UGX7,317 per day which is equivalent to UGX60,000 per month.

⁸ UOMA: Mapping the Ugandan off-grid energy market 2019

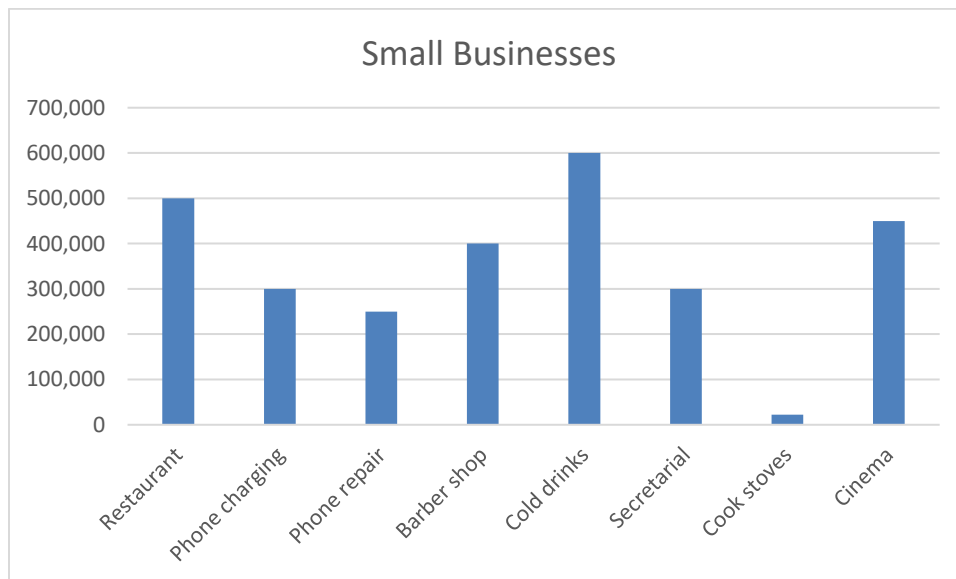
⁹ Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements Arua District, Northern Uganda 2017



Interviews conducted with livelihood beneficiaries and micro enterprise owners established that there hasn't been much change in the refugee and host community incomes. Incomes from agriculture were established to be in the range of UGX 50,000 to UGX120,000. Farmers that utilize irrigation and can hire extra plots of land e.g., tomato farmers can stagger planting and harvest every month. This enables them to plant in the dry season and earn gross revenue of up to UGX1,200,000 per harvest.

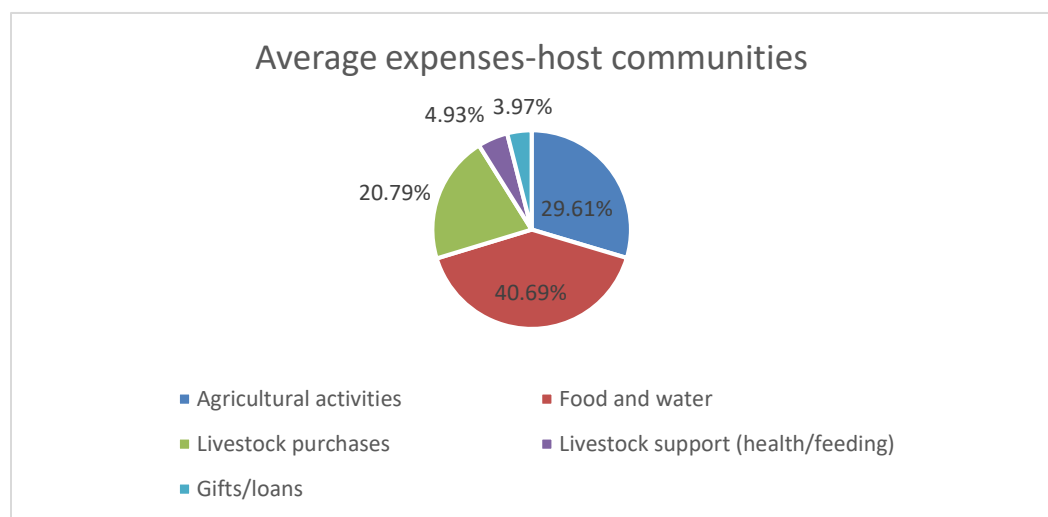
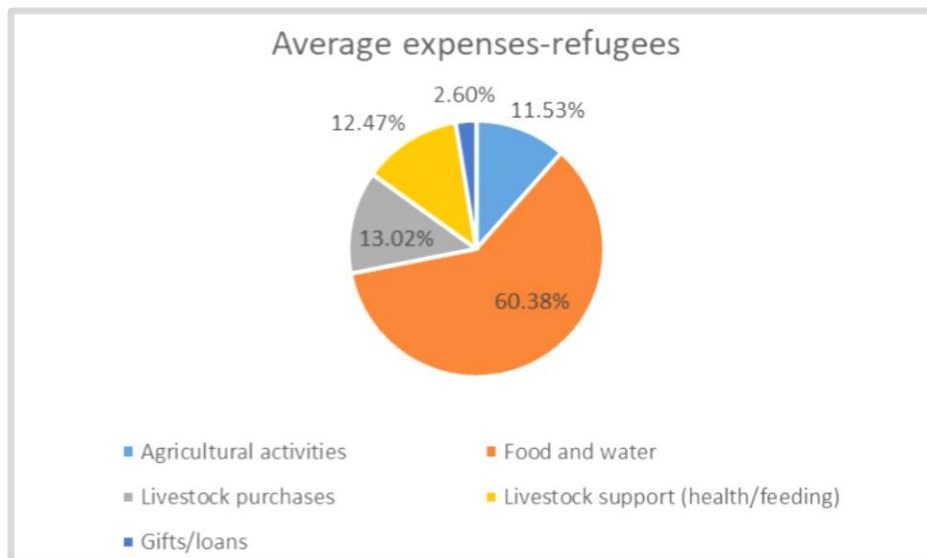
Small business owners involved in phone charging, restaurant, phone repair earn gross revenues as indicated below:

Average monthly gross income earned by refugee and hosts



2.2.2 Current expenditure for energy

Expenditure on food for household consumption remains the highest cost for households, taking 60% of refugee and 41% host community household total income. Income is therefore limited to meet other needs. This has been compounded by a drop-in income due to COVID-19 as well as a reduction in cash-based assistance from UGX 32,000 to UGX 21,000



Research findings indicated that energy is not prioritized compared to other activities. Of the 105 livelihood beneficiaries (refugees and host community members) interviewed, majority said that they utilize money borrowed from savings groups to invest in their businesses and farms, followed by buying food and then medical expenses. Only 25 claimed that they set aside money to purchase energy solutions for household use. Of these, 4 purchased SHS on credit via PAYGo but paid the initial deposit using money borrowed from savings groups. The rest paid cash which was topped up with money borrowed from savings groups.

The 25 micro entrepreneurs interviewed, utilize their income and money borrowed from savings groups to re-invest in their businesses (stock), purchasing solar panels, batteries and clean energy cook stoves. Due to the high cost of PUE solutions and to the fact that businesses generate returns, micro entrepreneurs prioritize energy needs compared to household energy users.

The Minimum Expenditure Basket (MEB)

In Uganda it was established to inform cash-based assistance for refugees by encompassing all their needs. The reference MEB value for refugees in Uganda was based on 11 components: food, water, energy and environment, education, communication, transport, hygiene, clothing, health, household items and livelihood. The reference MEB value and percentage contribution of each of the 11 components are shown below¹⁰

Sector	%	Sector	%
Food	60%	Communication	1%
Hygiene	4%	Clothing	1%
Water	1%	Health	1%
Education	8%	Other household items	2%
Energy & Environment	8%	Livelihood	11%
Transport	3%		

2.2.3 Savings and borrowing mechanisms and ability/willingness to pay for energy products

According to a Mercy Corps study conducted in 2019, OGS lights that cost from US\$20 to US\$140 can be purchased with down payments of US\$5 to US\$20 using PAYGo technologies (with cheaper options available on a cash purchase basis). Current monthly costs of PAYGo solar systems range from US\$4.86 to US\$15.27. At their current prices, refugee farmers in the West Nile would have difficulty affording PAYGo solar systems. The lowest cost PAYGo SHS, however,

¹⁰ Minimum Expenditure Basket in Uganda Joint Price Monitoring September 2019

is within reach for MSME owners.¹¹

A 2017 livelihood study¹² established that access to finance from financial institutions for refugees and host communities is very limited. A total of 26% of refugees and 25% of host community members rely on friends and families for credit. Savings groups also play a key role in providing financial services to 18% of these communities. Banks and micro-finance institutions lend to 9% while money lenders and non-Governmental organizations lend to 5%. A 2018 NPM study¹³ validated the popularity of savings groups in refugee and host communities of Uganda. Whilst the percentage was higher, it was established that 54% of refugees compared to 79% of locals borrow from informal groups such as VSLAs. PAYGo also enables OGS companies to sell their products on credit to customers who are unable to make the full payment and instead prefer to split the payments over a longer period.

FGDs conducted with 9 groups comprising both refugees and hosts in Rhino and Imvepi revealed that while savings groups are still popular, other options are not as popular as shown below;

Description	Savings groups	PAYGo	Banks/MFIs	Friend & relatives	Mobile money
Number that borrow	15 groups & 3 micro entrepreneurs	3 farmers	1 group & 2 micro-entrepreneurs	3 farmers	2 micro entrepreneurs
Number that save	15 groups & 3 micro entrepreneurs	-	3 groups & 1 micro-entrepreneur	-	-
Proximity	Near	Far	Far	Near	Near
Cost	Low	Low	High	Low	Low
Collateral	Non	Non	Collateral for individual loans and group guarantee for group loans	Non	Non
Repayment period	Short	Long	Long	Short	Short
Interest	High	Medium	Low	Low	High
Amount	Low	Medium	High	Low	Low

¹¹ Mercy Corps-paying for darkness; strengthening solar markets in Uganda 2019

¹² Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements Arua District, Northern Uganda Report Prepared for UNHCR and World Vision Uganda 2017

¹³ NPM diagnostic study-Uganda 2018

From the study, it was noted that the savings and borrowing mechanisms for refugees and hosts are similar. This is because they are both remote with no presence of FSPs and as such rely heavily on VSLAs. Also, because the groups interviewed were mixed i.e. both refugees and hosts, there is a similarity in savings and borrowing behaviour.

2.2.4 Ability and willingness to pay for energy products

On average, 93% of refugee HHs and 77% of host community HHs earn UGX 60,000 per month. Of that amount, 60% and 40% respectively covers food expenditure while 11% and 29% respectively covers agricultural expenses. This explains the low purchasing power and willingness to pay for energy products which must compete with other key necessities like health care, education and food. Generally, what is left of their disposable income might be insufficient to purchase energy solutions for household and productive use. Coupled with high cost of energy solutions, energy clients and in particular small holder farmers cannot afford the high upfront costs of solar systems. The difficulty of obtaining consumer financing as well as low repayment repayments for PAYGo products has led to the design of various interventions to help bridge the access and affordability gaps.¹⁴ Some of these include;

- In Rhino Camp, EnDev and ESDS have set up a total of 4 solar-powered energy kiosks. However, the lack of formal micro-financing schemes for end-user customers remains a challenge as instalment payment is in most cases limited to those only known to the Kiosk managers¹⁵. This limits the level of access of OGS.
- In Bidibidi Refugee Settlement where Mercy Corps, Foundation of Netherlands Volunteers (SNV) and Response Innovations Lab (RIL) sought to build evidence for quality and affordable market-driven energy access solutions, less than 5% of buyers could use mobile money accounts. Also, the mobile money agents were located quite far from the site which impacted their willingness to pay.¹⁶

The solutions below were identified to address the affordability challenge.

- Constraints which lead to higher operating costs, can be offset through partnerships with humanitarian actors.¹⁷ e.g. concessional funding and grant funding.¹⁸

¹⁴ Productive use of energy in Uganda: Learnings of the Uganda off grid energy market accelerator (UOMA) 2020

¹⁵ Humanitarian Energy: Energy for micro-enterprises in displacement settings 2021

¹⁶ Humanitarian Energy: Energy for micro-enterprises in displacement settings 2021

¹⁷ Humanitarian Energy: Energy for micro-enterprises in displacement settings 2021

¹⁸ Productive use of energy in Uganda learnings from the Uganda off-grid energy market accelerator (UOMA) 2020

- Piloting flexible payment plans to cater to the varying repayment habits of different customer segments e.g. PAYGo
- To ensure that consumer finance models succeed, companies must dedicate resources to pilots.

2.3 Energy products and services currently in use and expected to be used

Interviews were conducted with a sample of beneficiaries (refugee and host) and implementers of 7 different livelihood programs to establish whether they are currently using energy for productive use and whether they have futuristic productive use energy needs.

Livelihood program	Enterprise	Productive use of energy currently In use	Futuristic needs
GIZ Rise - Agro livelihoods program targeting 260 groups	Cassava, ground nuts	Non	<ul style="list-style-type: none"> • Solar Irrigation • Solar dryer and miller for Cassava • Solar grinder for groundnuts • Solar Sheller for ground nuts
World Vision – Supreme livelihoods program targeting 2,000 beneficiaries	Vegetables	Non	<ul style="list-style-type: none"> • Solar irrigation • Solar drier for vegetables that aren't sold
RICE – STRENPO livelihoods program targeting 40+ groups	Cassava, Soy, Hibiscus	Non	<ul style="list-style-type: none"> • Solar irrigation • Chipper to cut the cassava into smaller pieces • Drier for cassava • Miller to grind cassava into flour • Solar processor to make juice or wine from hibiscus • Solar fridge to preserve the hibiscus juice

RICE – STRENPO livelihoods program targeting 2 groups	Recycling plastics	Non	<ul style="list-style-type: none"> • Oven to melt the plastic
Palm Corps – Agro livelihood program targeting 6 youth groups	Tomatoes	Solar Irrigation pumps distributed in kind by the implementer	<ul style="list-style-type: none"> • Solar drier for tomatoes that aren't sold-provide nutrition during the dry spell
ZOA – EUTF livelihoods program targeting 200 beneficiaries	Sesame, groundnuts	Solar irrigation – for 2 out of 200 groups distributed in kind by the implementer	<ul style="list-style-type: none"> • Solar grinder to make paste out of groundnuts and sesame
DCA – Fresh Fruit Nexus livelihood program targeting 530 beneficiaries	Sweet potatoes	Solar irrigation for 4 demo sites bought by the project	<ul style="list-style-type: none"> • Drying for surplus potatoes that can't be sold as fresh tubers • Irrigation
Kulika – Creative Capacity Building (CCB)	Building innovations that simplify everyday tasks	Non	<ul style="list-style-type: none"> • Solar powered cassava grater

Respondents were asked whether the lack of access to support and spare parts for productive use technologies would influence their decision to adopt productive use of energy solutions. All said that it wouldn't if the spares are available in the country and the suppliers of the technologies can train them on how to repair the equipment.

2.3.1 Energy Cook Stoves

A study conducted by EnDev Uganda reported that refugee Households in Rhino camp use mainly firewood in the dry season and some charcoal in the wet season. According to the same study, the time spent collecting firewood averaged 3-4 hours to collect about (25-30 kgs). The average cost 25-35 kgs of firewood is UGX 2,500 and a bag of charcoal averaging 45-50kg cost UGX 20,000.¹⁹

In Rhino and Imvepi, the most predominant cooking technology is the traditional “3-stone fire”, followed by the inefficient metal fabricated stove which use firewood and charcoal respectively. Due to the challenges of the traditional cooking technology and efforts to popularize more efficient alternatives, there is high awareness (93%) among the population on improved stove technologies and the benefits that arise from their use e.g. fuel-saving, durability and health

¹⁹ A Rapid Assessment of Energy Needs and Practices in Refugee Settlements in West Nile 2017

benefits of reduced smoke. As a result, many are willing to acquire them.²⁰



Figure 1: ©GIZ 3 stone cookstove



Figure 2: ©GIZ Metallic cookstove

Adapted Energy cook stoves

Cooking habits such as use of open kitchens or cooking spaces where traditional three stone stoves are laid in series and several items cooked at once different pans influenced the type of stoves to be used by the households. Lorena stoves which are adapted to these cooking habits are constructed in kitchens or on the verandas of main houses.²¹

The International Lifeline Fund (ILF) stove was also introduced as a viable alternative to the traditional cook stoves but the opinions on the design were that they do not allow the use of multiple saucepans simultaneously and are not suitable for cooking with larger saucepans for large size households and that the fire extinguish quickly when still new. However, there is a general belief that the ILF can be used for multiple purpose like mingling, cooking traditional pasted foods in a pot, economic in energy saving and less expensive compared to other portable

²⁰ The State of Sustainable Household Energy Access in Refugee Settings in Uganda Survey Findings in Rhino Camp Settlement and Imvepi Settlement, Arua District, West Nile Region 2019

²¹ EnDev: A Rapid Assessment of Energy Needs and Practices in Refugee Settlements in West Nile 2017



Figure 3: ©GIZ Lorena cookstove



Figure 4: ©GIZ International

- Organizations like LWF, Save the Children, DCA, GIZ, ZOA, RICE and so forth have implemented clean energy cook stove projects in northern and West Nile Uganda. This has involved training artisans organized in groups to construct energy efficient stoves which they sell to refugee and host communities. It also involves setting up energy kiosks managed by groups comprising refugees and hosts. The kiosks sell among other item clean energy cook stoves. The demand however is low because the cook stoves are costly compared to the locally made 3 stone cook stoves. The low demand is also because the stoves are designed to use only charcoal or briquette which cost more than firewood

Awareness and training will enhance knowledge and improve perception and attitudes of clean energy practices in the refugee and host communities. There is therefore need to continue raising awareness on the benefits of improved cook stoves, involve community leaders and energy stove early adopters to help promote improved cook stoves.²²

There is also need to research refugee and host community cooking habits so that appropriate cooking stoves are designed. This will ensure that they are used rather than being set aside.

Use of firewood is still prevalent in settlements/host communities because it's free. There is therefore need to strengthen energy committees, to promote [SAFE](#) & to sensitize on conservation

²² EnDev: A Rapid Assessment of Energy Needs and Practices in Refugee Settlements in West Nile 2017

Improved cook stove specifications

Stove Type	Cost	Specifications
Lorena ^{23 24}	UGX 10,000 – 30,000	<ul style="list-style-type: none"> Built of an insulating clay mixture. Well binding mud mixed with organic material like chopped grass, sawdust or chopped dry banana leaves Large, user-built mud stove that comes in two- and three-pot versions. It uses a single combustion chamber and can heat several pots simultaneously as the hot gasses pass through internal heat distribution tunnels. It often incorporates a chimney. Rocket principle with shelf for firewood, high burning chamber, inserted pots and well-defined airflow. Saves up to 50 – 60% of the firewood that would be consumed using the three stone fire stoves
ILF OKello Cuk Stove ²⁵	UGX18,500-25,000	<ul style="list-style-type: none"> Dimensions-28/29/31 cms * 25/25/27 cms Weight-Between 11kgs and 15 kgs Efficiency-WBT: average 30% Average lifespan-3-5 years Warranty-1year
Shielded Eco Smart Wood Stove ²⁶	UGX 22,000-27,000	<ul style="list-style-type: none"> Dimensions-31cms*28cms Weight-about 20kgs Efficiency-WBT: average approximate 30% Fuel saving40%+ compared to 3 stone fire Average life span-3-5 years and warranty 1 year
IFL Eco smart stove ²⁷	UGX 16,000-21,000	<ul style="list-style-type: none"> Dimensions-31cms*28cms Weight-about 20kgs Efficiency-WBT: average approx. 30% Fuel savings-40%+compared to fire stone Average life span-2-3 years Warranty-none

²³ USAID: Fuel efficient stove programs in IDP settings – summary evaluation report, Uganda 2007

²⁴ https://energypedia.info/images/7774/Draft_rocket_lorena_uganda_stove_fact_sheet-lf-ed.pdf

²⁵ ILF: Considerations in the Selection and Use of Energy Saving Stoves 2018

²⁶ ILF: Considerations in the Selection and Use of Energy Saving Stoves 2018

²⁷ ILF: Considerations in the Selection and Use of Energy Saving Stoves 2018

2.4 Description of PUE technologies and costs

PUE type	Cost	Specs
Solar Now SF1 – solar irrigation pump	2,500,000 UGX for pump and 4 sprinklers to cover half an acre	<ul style="list-style-type: none"> Capacity-2,000L per hour at 1-meter lift, Power required-80W (solar and manual back up), Area <i>Note: costs and specifications are highly variable and need to be adapted to the specific needs</i>
Mkopa solar Fridge ²⁸	UGX2,999,000	<ul style="list-style-type: none"> Capacity 100L Battery keeps fridge on 24 hours a day Modern tube light with 2 brightness settings 3-year warranty with in home installation <i>Allows a small business to sell 30 more drinks a day,</i>
Solar Mill ²⁹	2,500 USDs	<ul style="list-style-type: none"> Driven by a solar PV system powered AC or DC motor Power rating-1.5-2.2kW Average throughput-32kg/hr. <i>Can help farmers cut down on milling costs by reducing reliance on diesel-powered mills which depend on fuels whose prices are high</i>
The static –bed-box solar drier ³⁰	UGX700,000-800,000	<ul style="list-style-type: none"> When sunlight falls on the drier the air inside heats up to a temperature of 50°C or more, and water evaporates from the fruit Can dry up to 5kgs of fruit/vegetables

2.4.1 Tier 1 SHS specifications

Product Specifications	Approx. PAYGo Prices	Cash Only
10W PAYGo Solar Home System	Deposit 70,000	UGX – 475,000
10W Solar Panel	Daily, UGX 2,500	
22Wh Battery	Weekly, 16,500	
2 Ultra Bright LED Lights	Monthly, UGX 65,000	

²⁸ <https://m-kopa.com/uganda/contact/>

²⁹ Efficiency for Access coalition: Solar milling: exploring market requirements to close the commercial viability gap 2020

³⁰ <https://www.monitor.co.ug/uganda/magazines/farming/solar-dryer-eases-farm-work-1791686>

Independent Switches	12 MONTHS=UGX 920,000	
Phone Charging Cable with multiple tips		
3-year warrant on battery and panel		
2-year warranty on accessories		
6W PAYGo Solar Home System	Deposit 20,000	UGX – 385,000 (saving 155,000)
6W Solar Panel	Daily, UGX 1,500 Weekly	
6W Solar Pane	UGX 10,000 Monthly	
A 3 ceiling-mounted fixed lamps with wall mount switches	UGX 40,000 12 MONTHS	
A Charging kit with USB cable and adapters	Total UGX 550,000	
A 2-year warranty on accessories		
220 LUMENS SOLAR LIGHT	Deposit – 8,000	UGX 80,000
LEDs with 220 lumens total flux	Monthly – 9,300	
A Three light modes	12 MONTHS TOTAL = 120,000	
A 360-degree ambient wide-angle spread		
A 2,200 mAh, 3.7-volt, Lithium-NMC battery		
A 2.35W solar panel A Device Charging capability and cables		
A 2-year warranty		
50 LUMENS SOLAR LAMP	Deposit – 5,000	UGX 35,000
LEDs with 50 lumens total flux	Monthly – 7,500	
A Three light modes	6 MONTHS TOTAL = 50,000	
A 360-degree ambient wide-angle spread		
A 425mAh, 3.3-volt, lithium ferro-phosphate (LiFePO4) battery		
A 0.35 watt integrated polycrystalline solar panel		
A 2-year warranty		

2.5 Technical infrastructure for mobile connectivity and internet access

Interviews conducted show that MNOs play a critical role in enabling payments for solar solutions in the Rhino and Imvepi. However, challenges persist.

- The internet and voice for MTN connectivity is very poor often adulating between being completely off and having the lowest signal. A few spots with 2G connection do exist but they are few and unstable. Airtel on the other hand has a slightly better connection than MTN but isn't popular with refugees and hosts since almost everyone is on MTN which makes the cost of calls and mobile money transfers cheaper if they are all on the same network.
- About 95% of hosts and refugees that were interviewed have access to mobile money. However, the connectivity is very unreliable leading to low satisfaction. This is like a mercy corps study conducted in 2019 in Bidibidi where 70% of potential customers interviewed had access to mobile money including host and refugee populations. Just like Rhino and Imvepi, the satisfaction with quality of service is low.³¹

Challenges; interviews also established the following challenges;

- PAYGo is not widely used in Rhino and Imvepi where only 4 out of 25 energy clients purchased using the option. However, those 4-use mobile money to make their periodic payments and mobile connectivity is poor and unreliable.
- Agent availability is relatively low with refugee and host communities being served by 2-4 agents max. A similar challenge was faced in Bidibidi where according to a GSMA report³², in 2018, agent availability remained a constraint to mobile money use with a reported 50 permanent agents available to serve over 250,000 refugees – approximately one agent per 5,400 individuals.
- Agents interviewed can facilitate transactions between UGX200,000 and UGX500,000. A few can facilitate a maximum of UGX1,000,000. Interviewees however reported that some few agents face liquidity challenges because of not being able to have insufficient cash/float. Rebalancing is also an issue as the only available option is agent to agent rebalancing. As a result, some agents are regarded as reliable and sought out for service while others are avoided.

Conclusion

- As established from the study, refugee and host community members who derive their livelihoods from agriculture or micro businesses earn income that is seasonal i.e. dependent on the wet season which is in March and September. When farmers have no income, small business

³¹ Mercy corps-paying for darkness; strengthening solar markets in Uganda 2019

³² GSMA: Connecting the Frontier: Last-Mile Distribution in Bidi Bidi Settlement, Uganda 2020

owners experience low sales hence low monthly income. When the rainy season start, farmers plant which results in bumper harvests that cause prices to drop. Also, because processes along the various value chains are still manual, lower yields are realized and much more time, effort and costs are incurred to add value which results into low prices.

- By utilizing PUE along different areas of the value chains, farmers will reverse the trend and benefit from increased efficiencies which will result in higher income. Small business owners will also be in position to generate more revenue if they have more reliable solar power supply that can be achieved from solar panels with stronger wattage and batteries with higher amps. However, due to the low seasonal income of farmers and small business owners, acquiring PUE technologies requires financing to bridge the gap.
- Currently there is over reliance on savings groups which are constrained by loan size and repayment duration. As a result, it's important to explore other financing options that currently exist or are in the pipeline. Access to tailored financing will ensure that refugees and hosts can get bigger loans at lower interest rates that can be repaid over longer periods of time and take into consideration the seasonality effect.
- Tailored financing will also look at leveraging mobile money technology for loan repayment. As such it's also imperative that that telecoms be brought to discussion table to talk about network optimization so that loan repayments are smooth and timely. The next chapter of this report will therefore explore the existing or planned energy end user finance options.

PHASE 2: Assessment of the existing and planned end user finance or payment solutions for low-income customers for sustainable energy products in Uganda.

- Due to the low incomes of refugees and hosts as well as the high cost of solar solutions, finance is a key ingredient to bridge the gap and scale up the acquisition of energy products for both house- hold and productive use.
- End users are the final consumers of a product or service (in this case energy) while finance refers to the credit and loan facilities available to them to facilitate the acquisition of energy solutions.³³

³³ End user finance: A guide for sustainable energy enterprises and NGOs (2009)

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FSP stakeholders providing financial services in refugee settings

Financial Service Provider	Areas of operation	EUFS Services	Loan details
RUFI	West Nile including Rhino and Imvepi	<ul style="list-style-type: none"> • Agro loans • Business loans for groups and individuals • Asset loans (energy product loans fall under this) • Remedy loans for the youth 	<ul style="list-style-type: none"> • Group members require attestation card, guarantor and Refugee Welfare Council recommendation • Average loan is 300k per member • Interest-4% per month declining • Provide group guaranteed loans • Individuals with land in conflict free areas of land in South Sudan can stake it as collateral • Portfolio at Risk is averaging 18% per month (high due to covid-19)
Nile MFI	West Nile (Madi Okollo,	<ul style="list-style-type: none"> • Agro loans 	<ul style="list-style-type: none"> • Loan Threshold is UGX100,000

³⁴ End user finance: A guide for sustainable energy enterprises and NGOs (2009)

	<p>Terego, Yumbe, Arua, Maracha)</p> <p>Has no presence in refugee settlements</p>	<ul style="list-style-type: none"> • Business loans for groups and individuals • Asset loans include clean energy loans • Do not disburse loans to refugees—although they intend to do so after getting data to design refugee specific loans 	<ul style="list-style-type: none"> • Loan range is UGX40,000-2million • Repayment period up to 6 months • Uganda Energy Credit Capitalization Company provides capital to market and finance the product • Interest 2.5%-3% per month • Average monthly PAR-15%
Vision Fund	West Nile (Arua, Moyo, Yumbe, Adjumani)	<ul style="list-style-type: none"> • Asset loans which can be used to purchase clean energy products 	<ul style="list-style-type: none"> • Groups are eligible after 2 year saving cycle • Between 2019 to date have disbursed to 775 VSLAs a total more than 500k USD • Maximum amount is UGX 15M • Interest is 5% per month declining • Client deposits 30% and borrows 70% • PAR for West Nile was 3% in May 2021
BRAC Bank	West Nile	<ul style="list-style-type: none"> • Provide group loans to hosts • Do not disburse loans to refugees-Using a graduation approach from savings to loans-as per the social performance management standards 	<ul style="list-style-type: none"> • Max for group loans is UGX 8 million at a rate of 4.5% for 10 months • After attending 2 group meeting, a member is eligible • Loan off setting model requires use of field credit officers • PAR 3.5% pre Covid-19 and 27% post

POST Bank	West Nile (Arua, Yumbe)	<ul style="list-style-type: none"> Partnership with Rural Electrification Agency (REA) and Uganda Energy Credit Capitalization Company (UECCC) to provide solar financing No loans tailored for refugees. because they are considered high risk due to low incomes However, if refugees meet the loan requirements they can borrow Services offered to refugees are payments and savings 	<ul style="list-style-type: none"> Designed for permanent residents Require good cash flows and movable collateral to qualify for loans Client deposits 20% of the cost Interest is 22% per year reducing balance UECCC covers 30% of the cost if client defaults Repayment period up to 36 months PAR post Covid is 7%
FINCA	West Nile (Arua)	<ul style="list-style-type: none"> Group loans and individual loans for business 	<ul style="list-style-type: none"> Host community group loan interest is 4.3% declining and refugee group loans are at 2% flat per month Refugee loans secured by cash flows and host community loans secured by physical collateral PAR post Covid is 0%
Centenary Bank	West Nile (Arua)	<ul style="list-style-type: none"> Cente Solar Loan Designed with the support of UECCC Not available for refugees because of the high risk i.e. have low incomes and can be repatriated or change location 	<ul style="list-style-type: none"> Minimum loan amount UGX 100,000 and maximum UGX 20 million Interest 25% per year reducing balance Minimum loan period of 6 months

			<p>and a maximum of 24months</p> <ul style="list-style-type: none"> • Loan amount shall not exceed 70% of the purchase/installation price of the solar equipment. • Interest charged on reducing balance basis • client requires a financial card and should be located near the branch
Finance Trust Bank	West Nile (Arua)	<ul style="list-style-type: none"> • Has solar Yange Loan but it was phased out because it didn't gain traction 	<p>Do not give group loans, only give out individual loans which require a;</p> <ul style="list-style-type: none"> • Finance trust account • Regular source of income • Enough collateral covers • Financial card • Legal running business
UGAFODE	South Western Uganda	<ul style="list-style-type: none"> • Individual loans and group loans (Trade and Agro) that are available to both refugees and hosts • Consumption loans e.g. school fees Asset loans for SHS, etc 	<ul style="list-style-type: none"> • Rely on good cash flows not collateral • Kiva guarantees refugee loans up to 15M. Client also provides a guarantor and may also provide movable collateral • Interest is 3% for a max period of 6 months

			<ul style="list-style-type: none"> • PAR post Covid is between 7%-9%
Pride Micro Finance	West Nile (Arua)	<ul style="list-style-type: none"> • Clean energy loan • Designed for both locals and refugees 	<ul style="list-style-type: none"> • Group loans were phased out only individual loans available • Deposit 20% of the total amount • Financial card • Interest 26% per annum reducing balance • Maximum repayment period 1 year • Accept refugee ID and attestation letter

In house financing for energy solutions- PAYGo

PAYGo allows Off Grid Solar companies to sell their products on credit to customers who are unable to make the full payment and instead prefer to split the payments over a longer period. Although the overall cost of the solution increases due to applied interest rates, the upfront expense is decreased by spreading payments over a period with an affordable deposit and flexible instalments. Through PAYGo, higher value, mobile enabled OGS products serve as their own collateral, which reduces the risk of offering financing to customers that do not have traditional credit histories. Also, when customers do not make their expected payments, PAYGo technology has software which stops the flow of energy from the battery.³⁵

There are different models of PAYGo and the key variation between the different PAYGo models is how repayments are collected from consumers³⁶;

³⁵ PAYING FOR DARKNESS Strengthening Solar Markets for Refugees in Uganda

³⁶ Access to Consumer Finance for Vulnerable Groups: One Size Doesn't Fit All

Model	Advantages	Disadvantages
<p>PayGo via mobile money</p> <ul style="list-style-type: none"> * Customers can make their regular repayments via mobile money, which will either automatically unlock the OGS system 	<ul style="list-style-type: none"> * Reduces the need for physical infrastructure * Investments into telecom infrastructure improve network coverage and thus increase mobile money access * Eliminate cash-based risks such as fraud and high collection costs * Contributes to the financial inclusion of previously underserved groups * Customer payment data can be used to build credit history for clients 	<ul style="list-style-type: none"> * Poor mobile networks and low mobile money penetration limit uptake * Low literacy may limit the ability to understand payment obligations * Inability to register for mobile money due to a lack of required documents * Poor agent network coverage in some areas may affect payments
<p>PayGo via Airtime</p> <ul style="list-style-type: none"> * Customers load airtime and then follow USSD prompts or send an SMS requesting to deduct part of their credit as payment for the OGS system 	<ul style="list-style-type: none"> * Eliminates barriers associated with the need for a mobile money account and access to an agent network 	<ul style="list-style-type: none"> * OGS companies require a much closer partnership with an MNO and is far more reliant on their support to enable and process payments
<p>PayGo via Cash</p> <ul style="list-style-type: none"> * Customers are visited by a field agent of the OGS Company to pay in cash to unlock their system for a set period. 	<ul style="list-style-type: none"> * Does not require the consumer to have access to any banking or mobile service. * Cash collection models in markets with lower levels of mobile money penetration may have higher repayment and lower default rates 	<ul style="list-style-type: none"> * Very labour-intensive than other models, requiring an extensive network of field agents to collect repayments * Consumers have limited payment options which can leave them without access to power for extended periods

PAYG loan structure;

- There is a general preference for PAYGo but also for different monthly instalments than what is currently offered by PAYGo providers and shorter overall payment periods. This is due to fears of inconsistent income to pay long-term loans, particularly for farmers or businesses dependent on farmers’ income due to seasonal harvest periods.

- However, interviews with livelihood program beneficiaries and small business owners who purchased solar solutions using PAYG established that for the more costly PUE equipment, longer periods of up to 2 years are favoured to enable flexible repayment. The fear over the longer repayment periods is that the interest accumulates so they suggested that the interest be reduced. However, for the smaller SHSs which are not as costly i.e. less than UGX400,000, repayment periods between 6 to 12 months are preferred. There was also a general preference for reduced initial deposit amounts e.g. from UGX49,000 to UGX29,000.
- The interviewees also highlighted the fact that repayments are made daily failure of which results in switching off the system and great inconvenience. The preference is that they make the deductions monthly. The challenge with that however is that the money will accumulate and be harder to pay putting the solar companies at risk of defaults.
- According to the 2019 Mercy Corps report, a loan structure that is favourable will look like this³⁷;

Loan Structure	Rational
Lead time to secure higher deposit of 3 months	This is the average time people need to plan and save for expenditures
Pay deposits in high income period	Timing of deposit should be designed to be paid in high-income periods
Maximum 9-12-month loan period	This would result in faster payback for lenders de-risking their investment but without compromising on interest.
Ability to pay monthly instalments even during lowest income periods	By timing the loan start at the right time of the year the supplier could 'reward' timely full payments to the loan with a subsidized payment/ incentive at low income periods (e.g., "get this month half price or free!")

Informal Financial Service Providers - VSLA Financing

- Community-based models leverage existing interests and social relationships to enable communities to save and access finance. They are comprised of between 10-30 members and offer self-managed savings that members use to lend to one another.
- Formal Service Providers (FSPs) are usually far from where refugees live and relatively hard to reach. As a result, most refugees intensively rely on VSLAs for their financing needs.
- Refugees purchasing PAYGo SHS are required to pay an initial deposit. Many have to save for 3 months while others borrow from VSLAs to cover that initial amount. In Bidibidi for

³⁷ PAYING FOR DARKNESS Strengthening Solar Markets for Refugees in Uganda

example, 8 out of 135 respondents said they relied upon VSLAs to fulfil the deposit for PAYGO.³⁸

- According to an NPM study³⁹, 35%-65% of refugees in Uganda save with VSLAs, savings groups and ROSCAs for asset acquisition (buy land, start a business, farming) and to grow the business. Still according to the same source, the source of credit for 38%-57% of refugees is VSLAs, ROSCAs and savings groups. Interviews established that refugee farmers can individually or as a group hire extra land for farming.
- While some households keep their savings in livestock which they can quickly sell off, most refugees save with VSLAs, saving groups or ROSCAs. According to an NPM study for financial inclusion, 54% of refugees compared to 79% of locals borrow from informal groups such as VSLAs.⁴⁰ As of 2018, 29,000 VSLAs and SACCOs were recorded across 13 refugee settlements of Uganda pointing to their popularity as a savings and lending mechanism.

A 2019 [Vision Fund assessment](#) of 13 VSLAs in Rhino and 26 VSLAs in Imvepi established that;

Rhino Findings ⁴¹ (assessment of 13 VSLAs)	Imvepi Findings ⁴² (assessment of 26 groups)
<ul style="list-style-type: none"> • Rhino does not have any banks or micro finance therefore any financial assistance apart from mobile money can only be accessed in Arua which is 63.4 km away • The network connectivity is okay, and they have seven mobile money points with the maximum withdrawal amount of UGX 5,000,000 on either MTN or Airtel. • Members save once a week between UGX 1,000 and UGX12,500 • They share out once a year and never share to zero balance since they leave a social fund to cater to emergencies 	<ul style="list-style-type: none"> • The groups have an average size of 28 members. The average share-out of those groups is UGX 3,000,000. • Once they share out, some groups will leave a small amount of money for management of the groups and will then begin the next saving cycle immediately • The minimum saving is UGX1,000 and maximum saving is UGX 10,000. It is also important to note that all the groups have 90% women who are very active and with high levels of integrity • The maximum loan amount differs with different groups, some lend three times the saving while others lend an amount equivalent to half the member's savings as a mitigation measure in case of default. The maximum period given to borrowers is three months at a monthly interest rate of 10%.

³⁸ EmPower Bidibidi, Assessing the scalability of the Pay-As-You-Go, model in refugee settlements, Columbia

³⁹ Expanding Financial Inclusion of Refugees in Uganda Diagnostic Study August 2018

⁴⁰ NPM diagnostic study-Uganda

⁴¹ Contextual and financial assessment of savings groups in West Nile

⁴² Contextual and financial assessment of savings groups in west Nile

<ul style="list-style-type: none"> • While some lend out half the savings, others lend 100% savings and others lend out three times the savings one has in the box • Interest charged depends on the group, the majority charge 10%. The repayment period is between one to three months 	
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3.1 Impact of framework conditions on refugees' access to financial services and products, and the engagement of private sector and financial institutions in refugee settlements

Effect of frameworks on engagement of the private sector with refugees

- In 2016, OPM & UNHCR adopted Comprehensive Refugee Response Framework in recognition of need to expand opportunities for solutions in refugee settings⁴³. The framework provides an opportunity for more private sector engagement with refugees, markets and humanitarian agencies in a coordinated way. Some recent examples include;
 - Partnerships to enable development of refugee markets e.g. Smart Communities Coalition collaborative model to drive more private sector engagement in the refugee sector
 - Existing interventions focused on integrating sustainable off-grid energy solutions in situations of displacement i.e. via de-risking private sector investment in target markets.
- A conducive framework is critical if private organizations are to operate without hindrance in the settlements. However, the administrative processes and protocols can tend to delay the start of operations or impact business operations;
 - Smaller organizations like Tulima solar, Solar Aid, Enventure rode on the backs of partner organizations that were already operating in the settlements.
 - Vision Fund rode on the back of its affiliate World Vision that already had presence in the settlements

A few organizations however highlighted the importance of frameworks towards creating an enabling environment for them.

⁴³ Reaching unserved refugee markets in Uganda February 2020 Insights from case studies on energy access

- BRAC Ngo noted that it receives all the necessary support only because the CRRF advocates for resilience and self-reliance.
- RUFU believes that the framework is conducive and registration necessary to avoid instances of fraud being committed on refugees and host community member.

According to some organizations, a few hindrances do exist;

- It takes long to develop partnerships which are crucial for any company wishing to work in a settlement
- Smaller companies are at a loss due to the administrative processes that are difficult to navigate
- Engagement protocols; such as not conducting business beyond 6pm. This issue was reported by solar firms operating in Kiryandongo and Rwamwanja

Rules and regulations governing refugee operations in Uganda ⁴⁴

- Permits for NGOs to operate in Uganda or certificate of registration and trading licenses for Private sector.
- A signed Implementation MoU with OPM, The MoU stipulates:
 - Reporting requirements to OPM (Quarterly, half yearly and yearly)
 - Approved projects/activities (attachments on MoU)
 - Location (project specific)

Concerns raised by OPM regarding noncompliance of some partners ⁴⁵

Some Refugee Partners are operating within the refugee settlements illegally without:

- Permits to operate in Uganda
- Valid MoUs with OPM
- Implement activities outside the MoU and therefore are unauthorized
- Some simply cross from one settlement to another without authorization
- Not updating Government of their activities, investments and results (Reporting to OPM).

3.2 Preconditions regarding account, identification, residency and credit history

Activity	Pre-conditions	Challenges
Account Opening	<ul style="list-style-type: none"> ● Refugee ID or attestation letter ● Passport photo 	<ul style="list-style-type: none"> ● The Anti-Money Laundering act of 2013 & The National Financial

⁴⁴ Strengthening co-ordination and management of Refugee-Response in Uganda by GoU, through OPM

⁴⁵ Strengthening co-ordination and management of Refugee-Response in Uganda by GoU, through OPM

	<ul style="list-style-type: none"> • References • Proof of residence i.e. utility bill or letter from LC1/RWC • Account opening fee individuals UGX10,000 • Tax Identification for businesses • Trading licence for businesses • Account opening fee business UGX100,000 	<p>Inclusion strategy do not specify requirements for financial service providers when on boarding refugees, leaving it to the FSPs to decide</p>
Identification	<ul style="list-style-type: none"> • Updated refugee ID/attestation letter • A black and white passport photo that captures all facial features clearly 	<ul style="list-style-type: none"> • Expired IDs • Passport photos cost about UGX2,000. • Few photo studios in settlements.
Residency	<ul style="list-style-type: none"> • Permanent residence • Rental agreement signed by the landlord • Utility bill in the landlord's names <p>Or</p> <ul style="list-style-type: none"> • Provide allowable introduction, e.g. from LC-1 officials, Refugee Welfare Committees (RWC), or Block Leaders in settlements • Residence could be physically verified by FSP staff 	<ul style="list-style-type: none"> • Only self-settled refugees may be able to provide a rental agreement signed by a landlord and a utility bill in the landlord's names
Credit history	<ul style="list-style-type: none"> • A financial card that is processed if a client has an active bank account and National ID. Payment is UGX30,000 • Credit reports that include both positive and negative information to help build reputation collateral 	<ul style="list-style-type: none"> • The financial institutions credit reference Bureaus regulation of 2005 do not specify if refugee IDs/attestation letters can be used for refugees • The cost of the financial card is high

Loans	<ul style="list-style-type: none"> • Active account • Physical collateral for individual loans • Financial Card • Credit history • Address verification • Guarantor • Cash flow statement for businesses 	<ul style="list-style-type: none"> • The financial act of 2004 requires all loans to be back up by collateral which refugees lack • Getting guarantors is not an easy task • Businesses owners do not bank so they have not statements.
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Compared to most other markets, the pre-conditions as determined by the regulatory and FSP policy related environment do create a conducive yet challenging environment for refugee to access to financial services. In that regard, regulators and FSPs need to adjust their requirements to be able to service refugees.⁴⁶

The impact of frameworks has on demand and supply of financial services will be explored in greater detail in the next chapter

3.3 Payment modalities for energy products with potential relevance for the energy sector and the financing model.

- **OGS solutions;** the tipping point on payment options (between cash up front and loans/PAYGo) and product choice (between higher and lower priced OGS) will be when a three-month saving period cannot generate enough upfront cash payment or deposit down payment.⁴⁷

OGS solutions	Price range	Consumer segment	Payment option
Single Solar Pump (50 lumen)	UGX 25,000-35,000	Vulnerable households	Full Cash
Single solar lamp with mobile charging (220 lumen)	UGX 70,000-210,000	Farmers SMEs (male and female owned)	Full Cash/PAYGo/Loan
6W solar home system	UGX 350,000-700,000	SMEs (male and female owned)	Full Cash/PAYGo/Loan

⁴⁶ NPM diagnostic study Uganda

⁴⁷ Mercy corps; Paying for darkness

- **Improved cook stoves;** are relatively low priced. However, to ensure increased uptake by refugees and host communities, most of the vulnerable households should be able to afford the cook stove hence pointing to the needs to develop and promote financing schemes

Energy Stoves	Price range	Consumer segment	Payment option
Lorena Stove	UGX 10,000-25,000	Vulnerable households	Full Cash/Instalment payments
BDS stove	UGX 70,000-95,000	Farmers/SMEs	Cash/Loan/instalment payments
ILF Stove	UGX 15,000-25,000	Vulnerable households	Cash/Loan/instalment payment

- **Productive use technologies;** are costly and can only be afforded on loan or instalment payments

PUE solutions	Price range	Consumer segment	Payment option
Solar Irrigation pumps	>UGX 2,500,000	Farmers	Loan/instalment payments
Solar fridges	>UGX 450,000	Farmers/SMEs	Loan/instalment payments
Solar processing	>UGX 9,000	Farmers	Loan

3.4 Role of stakeholders in the provision of EUF solutions

Organization	Support offered
GIZ Rise	<p>Supports VSLAs to build formal structures so they may be effective tools to foster member savings and lending;</p> <ul style="list-style-type: none"> • Trains field staff and group members on the VSLA methodology with special emphasis on saving for agricultural investments • Assist them to register with the commercial office at the sub-counties • Provide them with a complete VSLA kit that comprises, books, pens, stamps, calculators etc.

	<ul style="list-style-type: none"> • Accompany the group for at least 2 years during their weekly savings/record keeping, developing a constitution and during their annual share outs
BRAC Ngo	<ul style="list-style-type: none"> • Supports the formal registration of VSLAs at the refugee welfare council (RWC), Sub County and then district • Supports each VSLAs group within its catchment with a 4 million UGX grant • Links the VSLAs to BRAC bank so that they may deposit their savings and access group loans
ZOA	<ul style="list-style-type: none"> • Links groups to MFIs like RUFU and Vision Fund so they may save with them as well as access agro loans and asset loans that can be used to acquire solar solutions for productive use. • Mix grants and EUF for costly solar irrigation pumps. Known as creative finance, it entails splitting the cost 50%-50% or 60%-40%. • Digitize savings groups and provide block grants of 500 Eur per group per cycle
Save the Children/Enventure/Raising Gabdho	<ul style="list-style-type: none"> • Partnership with Enventure and Raising Gabdho to provide financial literacy training to VSLA members so that they may build their capacity to save and borrow money • Provide USD 2,000 loans to stock up the energy kiosks
UNCDF	<ul style="list-style-type: none"> • Link solar companies to agricultural cooperatives and NGOs in the agro value chain space • Support linkages with financial institutions; plan to host an investor forum after the Covid-19 lock down that links partners to financiers • Providing technical support; investment readiness, supporting partners to improve on delivery through research, market plans etc.
Dan Church Aid (DCA)	<ul style="list-style-type: none"> • Training VSLAs to graduate from saving to consume to saving to invest • Linking farmer cooperatives to MFIs e.g. RUFU and Vision Fund

<p>Lutheran World Federation (LWF)</p>	<ul style="list-style-type: none"> • Invited companies to showcase payment modalities e.g. Fenix PAYGo SHS. • Also conducted awareness campaign to deal with negative propaganda brought about by competitors who spread rumours that PAYGo doesn't switch you back on even after you pay.
<p>Telcom Companies (MTN & Airtel)</p>	<ul style="list-style-type: none"> • Telecom platforms have been integrated with PAYGo platforms to enable easy repayment of energy loans • Set up network towers to improve network connectivity for voice and mobile money usage. In west Nile for example the signal is 2G to 3G • Set up of mobile money infrastructure eg mobile money agents to facilitate transactions for mobile users intending to make energy re-payments
<p>Energy Companies (Solar Now...)</p>	<ul style="list-style-type: none"> • Energy companies like Solar Now developed PAYGo technology to be able to bridge the affordability gap by giving out energy solutions on credit. • They also partner with financial institutions eg BRAC, Nile micro finance to distribute energy solutions on credit
<p>Financial Service Providers (RUFU, Vision Fund, Nile Micro Finance...)</p>	<ul style="list-style-type: none"> • They are responsible for designing end user finance products for individuals and or groups e.g. RUFU, Vision Fund • Introduction of alternative collateral for refugees and hosts who might not have physical collateral e.g. the use of cash flow statements, guarantors, and Chattels
<p>Government (OPM)</p>	<ul style="list-style-type: none"> • Set up of electronic registration portal Uganda Refugee Registration Management that speed up the registration process for companies intending to engage with refugees • Development of refugee frameworks that create a conducive environment for private companies wishing to do business in settlements • Issuance of refugee IDs and attestation letters which are critical in as far as accessing financial services is concerned

Village savings and loans associations	<ul style="list-style-type: none"> • Most prevalent savings and borrowing mechanism for refugees and hosts with membership that ranges from 10 to 30. • Members save on a weekly basis and borrow from them to finance energy and other household needs • Most of them operate informally and are not formally registered at the district • Because of not being registered they can't open accounts in the banks and save/borrow from them
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- *Potential challenge and solutions: organizations are supporting multiple programs either individually or as consortiums thereby creating coordination challenges and role overlaps.*
 - *Strengthening the humanitarian development nexus is critical if alignment and coordination is to be achieved*
- *VSLAs lack the capacity to disburse big loans (above UGX300,000). As such they are unable to finance the costly PUE solutions.*
 - *A big number of VSLAs are not formally registered. As a result, they can't open accounts with FSPs and benefit from bigger group loans payable over longer periods of time*
- *The private sector including solar companies and FSPs have limited presence in the settlements. This is due to unattractiveness of the market (low income, limited financing options, cheaper poor-quality products on the market)*
 - *De-risking their operations through result-based financing will attract them into the settlements*
- *The distribution of free energy by some development partners fosters a culture of laziness and stifles private enterprise. This was noted in interviewee responses which tended to be negative in the hope that they will be given for free what they lack e.g. mobile phones and solar home systems.*

3.5 Factors for success or failure of payment options

PAYGO	
Factors for Success	Factors for Failure
<ul style="list-style-type: none"> • Tier 2/3 solar solutions that cost \$8-\$20, have a strong business case for small businesses since they generate income and can repay. Solar Now 	<ul style="list-style-type: none"> * Targeting the wrong customers; customers that use the costly PAYGo SHS for household

<p>targets businesses with PUE solutions like solar pumps and solar fridges and spreads the cost over 2-3 years.</p> <ul style="list-style-type: none"> • Conversely Tier 1 SHS are more affordable and appropriate for households. Fenix International (now Engie) has had success selling low cost SHS that require a client to pay UGX 38,000 deposit and UGX 600 per day • No need for collateral or credit history; Through PAYGo, higher value, mobile enabled OGS products serve as their own collateral.⁴⁸ • GSMA and UNHCR advocated for improving access to mobile money services which resulted in the Government of Uganda accepting the use of attestation letters for refugees to register sim cards • At Engie, when clients have good daily repayment rates, they qualify for cook stoves and school fees loans. • Engie partners with organized groups (SACCOs, savings groups). Groups that have a good repayment history earn cash back rewards • Subsidies; These make the solar solutions affordable. The ampere project subsidized SHS by 50-60% which generated sales traction. The 	<p>purposes are more likely to default on payment⁴⁹</p> <ul style="list-style-type: none"> * The Covid-19 lockdown resulted in loss of income due to travel and market restrictions. On top of that UNHCR has reduced its cash stipend by more than 25%. This means that the credit portfolios are at risk.⁵⁰ * During the PAYGo SHS de-risking project in Rwamwanja and Kiryandongo, the 3 solar companies selling PAYGo solutions experienced an increase in defaults after the lock down was imposed. * Network gaps impact repayment for PAYGo customers * Agent’s quality and reliability; For the AMPERE pilot in Bidibidi, unreliable agents were avoided which had an impact on payments.⁵¹ * The initial deposit may sometimes be prohibitive. As a result, customers require about 3 months to raise the minimum deposit. * Unintended consequences of PAYGO lockout technology e.g. turning to kerosene and failing to repay the loan as well as affecting the clients social standing in the community because of his perceived failure to repay the loan * Low mobile phone ownership will affect PAYGo payments via mobile money or Airtime since they require mobile handsets.
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⁴⁸ EmPower Bidibidi Assessing the scalability of the Pay-As-You-Go model in refugee settlements | MAY 2020

⁴⁹ De-risking pay-as-you-go solar home systems in Uganda refugee settlements project

⁵⁰ De-risking pay-as-you-go solar home systems in Uganda refugee settlements project

⁵¹ PAYING FOR DARKNESS Strengthening Solar Markets for Refugees in Uganda

Dutch government subsidizes 35% of Solar Now PUE solutions	
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Formal FSPs (Banks and MFIs)	
Factors for success	Factors for failure
<p>* Partnership with organizations that provide working capital and linkages and training.</p> <ul style="list-style-type: none"> ○ BRAC Banks’ partnership with UECCC enabled it access capital for lending out as well as linkages with Dlight and Green light solar for which it distributes SHSs. ○ BRACs partnership with Gramean Agricole and Sida provided funds for financial literacy training and branch expansion ○ RUFU partnered with the Association of Micro Finance Institutions of Uganda (AMFIU) to design a financial literacy program which it has already embedded in refugee and host community loans. ○ Nile Micro Finance partnered with International Lifeline Fund to distribute its eco stoves. It also partnered with UECCC which provided capital to create awareness for SHS and improved cook stoves as well as providing funds for lending to clients. <ul style="list-style-type: none"> ● RUFU lends money to individuals that are refugees as long as they have land in Sudan that is assessable and not in conflict areas. ● Nile Micro Finance has adapted to its Muslim client by allowing them to pay for OGS solutions in instalments and take them when they complete payment. 	<ul style="list-style-type: none"> ● Covid-19 has led to increased default rates as evidenced by the rising PAR indicator for MFIs operating in West Nile i.e. RUFU, Vision Fund and Nile micro finance ● Central Bank policy around acceptable refugee KYC is vague leaving it to financial institutions to decide for themselves. RUFU, Vision Fund and Nile MFI accept refugee IDs or attestation letters ● RUFU reported a lack of financial literacy skills by refugee clients. As a result, making informed financial decisions is difficult ● Refugee land ownership policies: since refugees do not own land, they do not qualify for individual loans. As a result, FSP can only lend to refugees that are part of groups. Host community members however can get individual loans since they have assets to stake as collateral. ● Nile Micro Finance has reported not being able to lend money to Moslem women in Arua because they believe that charging interest is against sharia. ● Proximity creates access; Satellite branches bring services closer to the clients in refugee and host communities eg RUFU has offices in Rhino and Imvepi. Nile on the other hand utilized a point of sale model which the field officers move with. ● In Nakivale lock down has led to an overall drop in demand which has caused prices to slump and impacted refugees and host community members ability to repay loans. As such UGAFODEs PAR has increased from about 5% pre Covid-19 to 9% post Covid-19. Because of that UGAFODE has stopped lending and is now focused on collections. It however continues to

<ul style="list-style-type: none"> • Offsetting Model; BRAC utilizes credit officers to collect payment and conduct financial literacy training • Proximity creates access; Satellite branches bring services closer to the clients in refugee and host communities e.g. RUFU has offices in Rhino and Imvepi. Nile on the other hand utilized a point of sale model which the field officers move with. • UGAFODE relies on cash flows for businesses to give out asset loans (that include solar products) in Nakivale. The borrower is also required to present a guarantor. Also, KIVA guarantees the loans albeit without the borrowers' knowledge • FINCA is integrated with centenary bank and as such customers can receive loans and cash out at cente agents. They can also use their mobile banking USSD to send to mobile money and cash out 	<p>lend to businesses like food vendors whose operations weren't halted</p> <ul style="list-style-type: none"> • FINCA refugee loans are capped at UGX 2,500,000
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Village Savings and Lending Associations (VSLAs)	
Advantages	Disadvantages
<ul style="list-style-type: none"> • They serve vulnerable groups like refugees, women, and other members of the society excluded from formal financial systems. 	<ul style="list-style-type: none"> • Loans to purchase an OGS device may require a larger amount or longer repayment period than is generally typical for VSLA loans

<ul style="list-style-type: none"> • They have low administrative costs and high repayment rates since they are managed by the group members and have social structures 	<ul style="list-style-type: none"> • They are generally informal, unregulated, and are typically managed by the group members themselves
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Potential solutions:

- *There is need to optimize the network connectivity so that payments via mobile money are easier to make*
- *Build the capacity of VSLAs to be able to finance members e.g. those borrowing to make the initial deposit required by PAYG companies. This capacity will be strengthened by supporting them with formal registration, constitution development, financial literacy and digitization of their ledgers. By doing so, they will also be able to open accounts, save and borrow from FSPs like banks and micro finance institutions*
- *In Nakivale UGAFODE is flexible when it comes to collateral for individual loans for business owners. It accepts movable collateral e.g. refrigerators, tables and chairs as well as cash flow collateral. FSPs that provide savings and loans services in Rhino and Imvepi should consider doing the same.*

3.6 Potential needs for adaptation of the end user finance solutions for energy products in Rhino Camp and Imvepi Refugee Settlements

Interviews with refugees and hosts in rhino camp established that although VSLAs are the most widespread form of savings and borrowing, they have limitations which can be addressed through linkages with FSPs like Banks and Micro Finance Institutions. The linkages however have to take into consideration their needs and challenges so that appropriate financing schemes can be developed. The challenges and solutions for adaption were suggested by refugee and host interviewees comprising agro livelihood beneficiaries and small business owners.

EUF mechanism	Challenges	Needs for adaptation
FSP	Loan repayment during the planting season when farmers are not earning.	<ul style="list-style-type: none"> • Schedule repayment of the loan according to the production pattern eg higher payment during the harvest season and smaller payments during the dry season when there is no planting
FSP	Lack of physical collateral e.g. land makes it difficult to acquire individual loans	<ul style="list-style-type: none"> • Implementation of cash flow collateral and movable

		assets/chattels for small business owners
FSP	Low income situation (majority farmers earn less than UGX120,000)	<ul style="list-style-type: none"> • Reduce interest rates especially for longer term loans (<2% per month) • Extend the repayment period to 2 years for costly solar
PAYG	Few people earn a daily income.	<ul style="list-style-type: none"> • Shift the PAYG payments from a daily to monthly basis
PAYG	Minimum deposit required is high	<ul style="list-style-type: none"> • Reduce the minimum deposit especially for SHS. (if the minimum deposit is UGX40,000, reduce it to UGX25,000)
FSP	Uganda Development Bank (UDB) has an agro loan but the limit is >UGX100M	<ul style="list-style-type: none"> • Groups do not have needs that require UGX100million. Smaller more manageable loans below UGX10,000,000 should be structured for refugee and host groups
FSP	Agriculture business is viewed as a risky venture by FSPs	<ul style="list-style-type: none"> • Agro Insurance (premium to be paid by farmer) • FSPs partner with farmers that adhere to farming practices that are known to ensure high yields and minimise risk
FSP	Delays to issue refugee IDs	<ul style="list-style-type: none"> • Attestation letters are the more common form of identification pending issuance of refugee IDs. Although FSPs accept them, there is need to formally recognize them as an account opening requirement
FSP	Accessing banks which are in Arua town is costly (up to UGX40,000)	<ul style="list-style-type: none"> • Agent banking brings banks closer to the community • Increase the number of services provided by agents to include loan processing • Utilization of field banking officers to mobilize savings and loan repayments
FSP	VSLA members save between UGX1,000 and UGX5,000 per week. A group consisting 25 members will not be able to generate high enough savings which will limit access to big loans.	<ul style="list-style-type: none"> • Include other forms of collateral e.g. movable collateral/chattels. Some groups have milling machines which can be collateralized if the savings are high enough to secure the preferred loan amount.

FSP	Many VSLAs are informal and members lack financial literacy skills which are critical for making sound financial decisions	<ul style="list-style-type: none"> Financial literacy training should be packaged with loans
FSP	For address verification, some refugees may not be able to provide a rental agreement signed by a landlord and a utility bill in the landlord's names.	<ul style="list-style-type: none"> Acceptance of alternative verification e.g. from LC-1 officials, Refugee Welfare Committees (RWC), or Block Leaders in settlements, Residence could be physically verified by FSP staff
FSP	Lack of credit history	<ul style="list-style-type: none"> Accept movable collateral e.g. tables, fridges etc. Cash flow collateral for businesses
FSP	Financial card requirement	<ul style="list-style-type: none"> Reduce the cost of a financial card Accept the use of refugee ID/attestation letters to process financial cards

4. PHASE 3: Context-specific obstacles and/or facilitators for the private sector, financial institutions or civil society to engage in end-user finance and payment systems for sustainable energy products

4.1 Policies and the framework conditions for access to finance for refugees and nationals

Uganda’s favourable protection environment for refugees is grounded in the 2006 Refugee Act and the 2010 Refugee Regulations. These provide refugees access to basic and social services equal to Ugandan nationals: the right to work, establish business and freedom of movement.

The CRRF is a multi-stakeholder coordination model on refugee matters focusing on humanitarian and development needs of both refugees and host communities⁵². It provides an opportunity for more private sector engagement with refugees, markets and humanitarian agencies in a coordinated way.

The table below shows the impact refugee policies have on the demand and supply side

Refugee Frameworks	Supply side		Demand side	
	As a facilitator	As an obstacle (Gaps)	As a facilitator	As an obstacle (Gaps)
The 2006 Refugee Act and 2010 Refugee Regulations ⁵³⁵⁴	<ul style="list-style-type: none"> The right to employ refugees, allow them register and operate businesses and provide them farmland for their livelihoods. 	<ul style="list-style-type: none"> Private sector and development partners run the risk of failing to roll out programs because they lack skilled personnel. Refugees have skills they 	<ul style="list-style-type: none"> The right to engage in agriculture, industry, and business; to practice one’s profession; and to access formal and informal employment opportunities; 	<ul style="list-style-type: none"> The act does not specify whether refugees can partake in profit-oriented associations. This has the ability to affect their participation in markets

⁵² Comprehensive Refugee Response Framework: The Uganda model

⁵³ The Uganda Refugee Act of 2006

⁵⁴ Refugee Regulations 2010

	<p>Organizations like ZOA, Palm Corps, RICE, DCA, WVI, GIZ and so forth have been able to support farmers develop their livelihoods because of this provision</p> <ul style="list-style-type: none"> Refugees are registered and provided identification and travel documents by OPM. This enables NGOs and development identify refugees from host community members for participation in their livelihood programmes. 	<p>acquired in their home countries, but they might not be able to validate their credentials.</p> <p><u>Recommendation</u></p> <p><i>A thorough interview process will identify the best candidate for the job.</i></p> <p><i>Where there is doubt about academic credentials, place the employees on 6-month probation to see if they can deliver or not.</i></p>	<ul style="list-style-type: none"> Identification in the form of refugee IDs and attestation letters enables the refugees to open accounts, register for mobile money, participate in livelihood programs The right of freedom of association, although this is limited to non-political associations, non-profit associations, and trade unions. 	<ul style="list-style-type: none"> Although refugees are free to move in and out of the settlement, section 44(2) requires that any refugee who wishes to reside outside designated areas must apply to the commissioner for a movement permit valid for up to 90 days Regarding formal employment, refugees might be required to validate their academic credentials which is difficult to do especially when one has fled a war. The act doesn't state clearly whether refugees are exempt from payment of work permit fees.
Comprehensive Refugee	<ul style="list-style-type: none"> Promotes partnerships that enable 	<ul style="list-style-type: none"> Partnerships are key for any organization 	<ul style="list-style-type: none"> Once the private sector can 	The solutions that are available are

<p>Response Framework⁵⁵</p>	<p>development of refugee markets e.g. SCC collaborative model to drive more private sector engagement in the refugee sector e.g. de-risking private sector investment in target markets</p> <ul style="list-style-type: none"> • A conducive framework creates an enabling environment for private organizations to engage with refugee and host communities. They are required to register with the Office of the Prime Minister (OPM). 	<p>that wishes to navigate the refugee and host community landscape. It however takes long to develop partnerships which can delay the start of operations or result in failure to achieve objectives.</p> <ul style="list-style-type: none"> • In 2020, OPM suspended 208 aid agencies from operating in the settlement due over non-compliance with Ugandan regulations. Only 69 aid agencies are now authorised to assist Uganda's 1.4 million refugees.⁵⁶ • Smaller companies are at a loss due to the administrative processes that are difficult to 	<p>participate in refugee and host markets, they create access to products and services that were previously unavailable.</p>	<p>unfordable due to the low-income situation of both refugees and hosts.</p> <p><u>Recommendations</u></p> <p><i>Amend the act to provide for refugees not paying work permit fees and to be a part of for profit associations</i></p> <p><i>Design End User Finance options to bridge the gaps between the low income and high cost products/services. Seeing as VSLAs are the major source of saving and loans, create a linkage with FSPs so that the formally registered and mature groups with a good savings history may be able to access bigger loans payable over longer periods of time e.g. 1 year.</i></p>
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⁵⁵ Comprehensive Refugee Response Framework: The Uganda model

⁵⁶ <https://sun-connect-ea.org/why-uganda-has-suspended-hundreds-of-refugee-aid-agencies/>

		<p>navigate e.g. Tulima solar, Solar aid Enventure which opted to ride on the backs of bigger organizations already established in the settlements</p> <ul style="list-style-type: none"> • Engagement protocols; such as not conducting business beyond 6pm. This issue was reported by solar firms operating in Kiryandongo and Rwamwanja. <p><u>Recommendations</u> <i>The process of registration is done online which simplifies the process of registration. After sometimes which isn't defined, the organizations representative is invited to OPM Kampala and this might take a while to happen. It's therefore important to define the period</i></p>		
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		<p><i>and to keep it short to say 30 days.</i></p> <p><i>The humanitarian development nexus will ensure that there are no overlaps or coordination issues.</i></p> <p><i>Organizations will also benefit from the partnerships which will help them navigate the refugee and host community landscape</i></p>		
<p>Social Performance Management (SPM)</p> <p>Systems that organizations use to achieve their stated social goals. Accordingly, social financial service providers need to define and monitor a set of social goals, develop client-centric products and services, treat clients and staff responsibly, and pursue</p>	<ul style="list-style-type: none"> • While Financial Institutions that serve marginalized national client segments might want to expand services to refugees, there will likely be many questions related to market size, viability of business, credit risk, profitability, and reputation, for which 	<ul style="list-style-type: none"> • Formal financial service providers (FSPs) that adhere to these standards roll out solutions based on the available demand and market information. Because of the perceived risk of refugees some might be hesitant to develop end user finance products e.g. BRAC only provides savings and 	<ul style="list-style-type: none"> • SPM ensures that refugees and hosts are treated fairly. This in turn builds goodwill towards the FSPs. From Interviews conducted with hosts and refugees it was established that there is a fear FSPs are out to exploit them. SPM is thus a good way to alleviate those fears. • Developing client centric 	<ul style="list-style-type: none"> • When FSPs roll out products in phases, the range of financial services available to refugees is small. As a result, they are not able to finance immediate household and business needs

<p>balanced financial⁵⁷.</p>	<p>answers are not readily available.⁵⁸ As a result financial institution will opt to roll out their services in phases. Case in point BRAC Bank offers savings products to refugees but does not offer loans. The idea is that savings will serve as an anchor to roll out other products like loans.</p>	<p>funds transfer for refugees.</p> <ul style="list-style-type: none"> • According to the Vision Fund West Nile regional manager, the standards require the fair treatment of refugee clients. As a result, if they default, the FSP will endeavour to recover the owed amount whilst ensuring not to inconvenience the debtor. <p><u>Recommendations</u> <i>A needs assessment study will establish what services are urgently needed. Using this information that should include potential challenges and opportunities, FSPs will be in position to structure products that meet the needs of the end users but also</i></p>	<p>products for refugees and hosts, enables them to address their financial needs.</p>	
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⁵⁷ <https://sptf.info/get-started/what-is-spm>

⁵⁸ SERVING REFUGEE POPULATIONS: The Next Financial Inclusion Frontier Guidelines for Financial Service Providers March 2017

		<i>ensure profitability for them.</i>		
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Impact of financial service frameworks and on the demand and supply side

Financial Framework	Supply side		Demand side	
	As a facilitator	As an obstacle	As a facilitator	As an obstacle
The financial institutions act of 2004	<ul style="list-style-type: none"> Permits financial institutions to provide financial services like savings and lending business in Uganda. 	<ul style="list-style-type: none"> Limited presence in the settlements and host community areas. Only RUFU has an office in Rhino and Imvepi which it operates on once a fortnight. VF utilizes credit officers who travel to the settlements on specific days <p><u>Recommendations</u> i</p> <p><i>There is need for FSPs to create access, through integration with mobile money technology. This will allow easy access using USSD or app to transact</i></p>	<ul style="list-style-type: none"> The act permits provision of financial services. As a result, refugees and hosts have access to bigger loans that they would otherwise not be able to access from VSLAs 	<ul style="list-style-type: none"> Despite BOU cutting its Central Bank Rate to an all-time low of 7% between April and June 2021, to try to help jumpstart an economy battered by the impact of the coronavirus, commercial banks didn't follow suit and reduce their interest rates.⁵⁹The high cost of borrowing keeps borrowers away. <p><u>Recommendation</u> si</p> <p><i>The central bank is considering</i></p>

⁵⁹ Bank of Uganda: Monetary Policy Report 2021

		<i>banking services, disburse and repay loans</i>		<i>invoking a law that will allow it to determine maximum and minimum rates that “financial institutions may impose on credit extended in any form.”</i>
The financial institutions credit reference bureau regulation of 2005	<ul style="list-style-type: none"> Provides timely and accurate information to FSPs on borrowers’ debt profile and repayment history.⁶⁰ This enables them disburse loans to clients with a good credit profile 	<ul style="list-style-type: none"> The credit reference bureau regulations do not specify whether refugees can apply for a card. As a result, it’s at the discretion of the financial institution which is likely to miss out on potential business from refugees. <p><u>Recommendation:</u></p> <p><i>The act was amended in 2016 to provide for the use of NID for nationals. The ID for refugees hasn’t been defined but seeing as they all have attestation</i></p>	<ul style="list-style-type: none"> Access to bigger loans from customers that have a good credit profile. These loans will support the acquisition of business/farm inputs, expanding existing businesses and starting new ones, etc. 	<ul style="list-style-type: none"> The financial card costs UGX 30,000 and the requirements one is; an account in the financial institution and a National Identity card (NIDs). These might be hard to attain by refugees who do not have NIDs <p><u>Recommendation</u></p> <p><i>The Act was amended in 2016 to provide biometric registration. This will ensure that client data is available accessed using fingerprints.</i></p>

⁶⁰ THE FINANCIAL INSTITUTIONS (CREDIT REFERENCE BUREAUS) REGULATIONS, 2005

		<i>cards, they should consider it.</i>		<i>The cost of a financial card should be reduced prior to implementing the biometric registration and ID integration</i>
The Financial Institutions Anti-Money Laundering Regulations of 2010	<ul style="list-style-type: none"> • Ensure that financial institutions establish their own policies and procedures to guard against money laundering⁶¹. This protects them from potential launderers. 	<ul style="list-style-type: none"> • Some refugees do not have permanent residential addresses and very few are employed. Lacking this due diligence requirement might dissuade some FSPs from serving refugees. <p><u>Recommendations</u></p> <p><i>Positive identification should be obtained from documents issued by official or other reputable sources such as attestation letters, passports or identity cards, driver's license, or a voter's roll card</i></p> <p><i>Their residence could be physically</i></p>	<ul style="list-style-type: none"> • Promotes financial sector integrity which provides assurance to the end users that their deposits are safe and encourages them to use FSP services. 	<ul style="list-style-type: none"> • They do not specify requirements for financial service providers when on boarding refugees, creating confusion on which rules to apply. This is likely to keep away potential users of financial services. <p><u>Recommendation</u></p> <p><u>§</u></p> <p><i>Self-settled refugees may be able to provide a rental agreement signed by a landlord and a utility bill in the landlord's names. Alternatively, a provision could be made for introductions from Local Council-1</i></p>

⁶¹ Covid-19 and refugees' economic opportunities, financial services and digital inclusion

		<i>verified by FSP staff⁶²</i>		<i>officials, Refugee Welfare Committees (RWC), or Block Leaders in settlements</i>
Bank of Uganda Mobile Money Guidelines of 2013	<ul style="list-style-type: none"> They require adherence to Know Your Customer (KYC) standards at account opening⁶³. This encourages MNOs to invest in infrastructure development since they have users who are also identifiable. 	<ul style="list-style-type: none"> The guidelines are not clear on the use of refugee IDs and attestation letters. A ban by the Uganda Communications Commission was placed and lifted but misinformation about the changing policy continues to hinder access. Because of having a few users' MNOs are not driven to invest in network upgrades. <p><u>Recommendations</u></p> <p><i>There is need to amend use of refugee IDs and attestation letters in the mobile money guidelines</i></p>	<ul style="list-style-type: none"> Promotes mobile money integrity which provides assurance to end users that their mobile money savings and transactions are safe thereby encouraging its use. 	<ul style="list-style-type: none"> Refugees are not able to register for mobile money and use it. They are forced to rely on agents, friends/loved ones to transact on their behalf which increases the cost of transacting. <p><u>Recommendations</u></p> <p><u>§</u></p> <p><i>Refugees can currently use attestation letters to open accounts. However due to the uncertainty some are not aware that it's possible. It's therefore important for the telecoms to develop a sensitization</i></p>

⁶² NPM diagnostic study Uganda

⁶³ Proportionate regulation in Uganda: A gateway for refugees accessing mobile services in their own name. 2020

				<i>campaign on the issue.</i>
Financial institutions (amendment) Act of 2016	<ul style="list-style-type: none"> Amended to provide for agency, Islamic banking, credit reference bureau and Bancassurance 	<ul style="list-style-type: none"> Agents can only provide a limited number of services. For example, they are not permitted to process transfers, loans on behalf of the bank. <p><u>Recommendations</u></p> <p><i>The services are being slowly phased and will be added albeit at the risk of being delayed. The delays will however allow the FSPs to plan the effective delivery of these services by agents.</i></p>	<ul style="list-style-type: none"> BOU is considering adopting the use of national IDs for nationals and for aliens (ID to be determined) so they can access their credit information. Easing the process will make it possible for the different segments to apply for loans from FSPs 	<ul style="list-style-type: none"> The act wasn't amended to provide for refugee ID or attestation letters when opening an account. Leaving it at the discretion of the FSPs means some of them are likely to be turned away for lacking a specific requirement. The act does not specify whether refugees can become agents. <p><u>Recommendations</u></p> <p><u>S</u></p> <p><i>Despite BOU writing letters permitting FSPs to accept refugee IDs/attestation letters for account opening, the fact that it is not provided for in the policies creates vagueness on what is allowed or not allowed. It's</i></p>

				<i>therefore important that an amendment be made to the act/regulations.</i>
National Financial Inclusion Strategy	<ul style="list-style-type: none"> Uganda’s holistic strategy for promoting financial inclusion. Developed to ensure every Ugandan has access to financial services. This therefore encourages FSPs to expand their reach to areas where they have no presence. 	<ul style="list-style-type: none"> Customer due diligence requirements e.g. what ID to accept for account opening are not provided for? As a result, some FSPs may be hesitant to serve refugees. Fortunately, FSPs that were engaged (FINCA, Vision Fund, POST Bank, RUFU, BRAC, UGAFODE, Centenary Bank, Finance Trust Bank, Pride MFI) accept refugee IDs or attestation letters for account opening. <p><u>Recommendations</u></p> <p><i>Although FSPs are informally accepting refugee IDs/attestation</i></p>	<ul style="list-style-type: none"> The acceptance of refugee IDs and attestation letters has encouraged groups to open accounts and borrow money from Banks/MFIs. 	<ul style="list-style-type: none"> The strategy doesn’t include specific regulations related to refugees as customers of financial services. As a result, refugees feel left out and although this has since changed, the seed of doubt has already been sowed.



		<i>letters, it's informal. It's therefore important to amend the strategy to include refugee IDs and attestation letters as a form of identification for refugees.</i>		
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Conclusion

- The financial frameworks and regulations put in place by Bank of Uganda though vital for regulating the financial sector are generally vague when it comes to refugees. As a result, financial institutions have been left to decide on their own what KYC to accept. This tends to cause confusion as Know Your Customer requirements vary by bank.
- Financial service providers are attracted to set up and serve a specific user segment when they are certain that the financial solutions they develop can be absorbed by the market for which they have been developed. That therefore calls for the regulator to address the gaps so that FSPs are attracted to develop financial solutions for the refugee market.
- Indeed, End User Finance is a critical component of energy access for both household and productive use. Unfortunately, VSLAs have limitations on how much and how long they can lend out money for. This presents an opportunity for financial institutions who are more flexible in terms of repayment period and loan amounts. If only the regulators can adapt the financial frameworks to include refugees



5. PHASE 4: EUF Concept

Context

Refugees and hosts in Rhino and Imvepi derive their livelihoods through several ways including farming, small businesses and for others employment. From the interviews conducted, it was established that only the STEP-UP livelihood program is currently deploying PUE in the form of solar irrigation while EUTF and the Fresh Fruit Nexus programs have utilized solar irrigation albeit on a pilot basis at 2 and 4 sites respectively. Seeing as a value chain approach requires the use of PUE along the different stages to be able to benefit from the efficiencies i.e. reduced time, energy and cost, interviews with beneficiaries and implementers were conducted to establish the PUE future plans and needs.

As documented in chapter 2, there are a few needs which are similar across the different enterprises. They are; solar irrigation pumps for all, solar powered drying machines for tomatoes, solar powered graters for cassava, solar shelling and grinding machines for oil seeds, solar processing and packaging machines for hibiscus and solar powered machines to melt plastics. Small businesses on the other hand, are entirely powered by solar and diesel/petrol. The biggest challenge solar powered businesses face is limited power supply from the panels/batteries. As such they have a need to upgrade to bigger panels (> 300 watts) and stronger batteries (>120 amps) Diesel/petrol powered businesses on the other hand are affected by the high cost of fuel which they purchase frequently. They expressed a need to adapt solar technology which does not, “require refueling”.

Due to the low incomes and high cost of PUE technology, farmers and business owners seek to borrow money to bridge the gap. However, the available option is VSLA financing which has its limitations as pointed out in chapter 2. That said, this chapter will rank the EUF options based on feedback from farmers and small business owners.

Challenges to address

Interviews with farmers and small business owners established the following EUF challenges that the EUF concept will have to address;

1. High cost of borrowing e.g. 10% for VSLAs and 2%-3% for FSPs
2. Short repayment periods i.e. 1 to 3 months for VSLAs
3. Need for physical collateral from FSPs
4. Need for cash flow collateral i.e. savings amount and period
5. Accessibility issues-only VSLAs are accessible. Most FSPs are in Arua which is 60+kms away and costs up to UGX40,000 in transport
6. Limited funds to lend out by VSLAs which most times do not lend out more than UGX300,000

7. High loan threshold e.g. Uganda Development bank disburses above UGX100,0000,000 for agro based initiatives.
8. Income seasonality-creditors such as PAYG do not take into consideration the income seasonality effect which negatively affects repayments
9. High initial deposit requirement-PAYG companies require an initial deposit before giving out the SHS. Often, clients must borrow from VSLAs to be able to make that payment
10. Poor connectivity-the signal strength in Rhino and Imvepi is very poor ranging from being completely off to having the smallest signal-edge
11. High requirements-FSPs require borrowers to have accounts, financial cards, address verification, guarantors, references, mature groups, savings, and credit history. Also, PAYG requires payment via mobile money which is dependent on a good connection

Ranking the EUF options

The tables below will rank EUF options ability to address the challenges. They will be ranked from 1 to 3 and the ones with the highest score will be selected.

EU system	Access	KYC	Loan duration	Interest	Initial deposit	Collateral requirement	TOTAL
FSP	3	1	3	3	2	1	13
PAYGo	3	2	2	2	2	3	14
VSLA	1	3	1	1	3	3	12
Mobile Money	2	3	1	1	3	3	13

EU system	Loan size	Proximity	Affected by poor connectivity	Turnaround time	Group loans	TOTAL
FSP	3	1	2	1	3	10
PAYG	2	1	2	2	1	08
VSLA	1	3	3	3	2	12
Mobile Money	1	2	1	3	1	08

Based on the above, VSLAs, FSPs, and PAYG have the highest scores and are therefore the most appropriate. Basing on the strength of each concept and their ability to complement each other, the EUF options have been paired. The EUF concepts have been designed to address the needs below;

- Low value loans for low cost SHS/PUE
- Medium value loans for medium cost PUE solutions
- High value loans for high cost PUE solutions

Loan size	Appropriate EUF	Terms
<p>High value >UGX1,000,000 & Medium value UGX300,000- UGX1,000,000</p>	<p>VSLA & FSP (RUFU)</p>	<p><u>Ideal for PUE solutions – Groups</u></p> <ul style="list-style-type: none"> i. FSPs will disburse loans relative to the savings of the VSLA i.e. higher savings will attract bigger loans and vice versa ii. 20%-30% of the cost will be borrowed from the VSLA savings. iii. Maximum re-payment period is 10 months which offers flexibility to the payees iv. Interest rate is at 4% per month reducing balance v. Repayment will be made biweekly. If honoured, they will be made monthly albeit on the 3rd loan. vi. Integration with mobile money will enable smooth repayment and disbursement. This will resolve the accessibility challenge vii. Groups won't require physical collateral. Members will guarantee each other and ensure full repayment within the required period <p><u>Individuals/Businesses</u></p> <ul style="list-style-type: none"> viii. Small business owners that wish to borrow individually could borrow based on movable collateral and cash flows e.g. what UGAFODE does in Nakivale. Those with land in South Sudan can stake it as collateral. ix. Individual borrowers/small businesses could acquire financial cards using refugee IDs or attestation cards x. Address verification will be done by way of a banking officer coming onsite to confirm the address and a letter of recommendation from the LC1 or RWC
<p>Low value <UGX300,000</p>	<p>VSLA & PAYG (Ready Pay)</p>	<p><u>Ideal for SHS for household use – Individuals/small businesses</u></p> <ul style="list-style-type: none"> i. The groups will borrow the initial deposit (15%-20%) from the VSLA

		<ul style="list-style-type: none"> ii. The rest of the financing will be provided by the ESP iii. Payments will be made in 6 or less months. This will offer both flexibility for the payee but also ensure he/she doesn't pay much more in interest. iv. Interest will be 4% per month on reducing balance v. Repayments will take into consideration the seasonality effect. Disbursing loans during the harvest season to ensure repayment.
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Pilot implementation plan

Objective:

- The objective of the EUF concept is to facilitate the acquisition of PUE technologies and enable access to the full scope of financial services for refugees and host communities' members in Rhino camp and Imvepi settlement.

Potential Impact:

- By having access to appropriate finance for PUE and other needs, refugees and hosts will benefit from the efficiencies associated with the equipment. This will result into increased income levels and promote the development partners agenda of self-sustainability. Also, because of the increased incomes, private sector actors like ESPs will be driven to establish presence in the host and refugee areas.

To ensure that concept is on track to create impact, the key activities below will be monitored on a quarterly basis;

- Number of VSLAs linked to a FSP (actively saving and receiving loans)
- Number of PU Energy solutions sold
- FSP access points eg agents, mobile banking etc.
- Loan repayment rates for farmers and SME business owners.

Stakeholders:

- VSLAs and FSPs will be the main actors of the design and implementation phases.

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- NGOs will support VSLAs to formalize their activities eg registration, ledger digitization
 - ESPs will support the development of business opportunities and link with the local communities to provide adapted services
 - UNHCR and OPM will ensure a conducive environment for all actors in line with their mission and projects

Annex 1: Literature Sources

1. Humanitarian Energy: Energy for micro-enterprises in displacement settings-ENDEV
2. The State of Sustainable Household Energy Access in Refugee Settings in Uganda Survey Findings in Rhino Camp Settlement and Imvepi Settlement, Arua District, West Nile Region 2019
3. UOMA: Mapping the Ugandan off-grid energy market 2019
4. Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements Arua District, Northern Uganda 2017
5. Minimum Expenditure Basket in Uganda Joint Price Monitoring September 2019
6. Mercy corps-paying for darkness; strengthening solar markets in Uganda 2019
7. Inter-Agency Livelihood Assessment Targeting Refugees and Host Communities in IMVEPI and Rhino Camp Settlements Arua District, Northern Uganda Report Prepared for UNHCR and World Vision Uganda 2017
8. NPM diagnostic study-Uganda 2018
9. Productive use of energy in Uganda learnings from the Uganda off-grid energy market accelerator (UOMA) 2020
10. Humanitarian Energy: Energy for micro-enterprises in displacement settings 2021
11. Humanitarian Energy: Energy for micro-enterprises in displacement settings 2021
12. Productive use of energy in Uganda learnings from the Uganda off-grid energy market accelerator (UOMA) 2020
13. A Rapid Assessment of Energy Needs and Practices in Refugee Settlements in West Nile 2017
14. The State of Sustainable Household Energy Access in Refugee Settings in Uganda Survey Findings in Rhino Camp Settlement and Imvepi Settlement, Arua District, West Nile Region 2019
15. EnDev: A Rapid Assessment of Energy Needs and Practices in Refugee Settlements in West Nile 2017
16. USAID: Fuel efficient stove programs in IDP settings – summary evaluation report, Uganda 2007
17. https://energypedia.info/images/7/74/Draft_rocket_lorena_uganda_stove_fact_sheet-If-ed.pdf
18. ILF: Considerations in the Selection and Use of Energy Saving Stoves 2018
19. PAYG Solar powered fridge Developing a “first time” product for low income customers 2019
20. Efficiency for Access coalition: Solar milling: exploring market requirements to close the commercial viability gap 2020
21. <https://www.monitor.co.ug/uganda/magazines/farming/solar-dryer-eases-farm-work-1791686>
22. Mercy corps-paying for darkness; strengthening solar markets in Uganda 2019

-
23. GSMA: Connecting the Frontier: Last-Mile Distribution in Bidi Bidi Settlement, Uganda 2020
 24. Access to Consumer Finance for Vulnerable Groups: One Size Doesn't Fit All
 25. Expanding Financial Inclusion of Refugees in Uganda Diagnostic Study August 2018
 26. NPM diagnostic study-Uganda
 27. Contextual and financial assessment of savings groups in West Nile
 28. Reaching unserved refugee markets in Uganda February 2020 Insights from case studies on energy access
 29. Strengthening co-ordination and management of Refugee-Response in Uganda by GoU, through OPM
 30. EmPower Bidibidi Assessing the scalability of the Pay-As-You-Go model in refugee settlements | MAY 2020
 31. De-risking pay-as-you-go solar home systems in Uganda refugee settlements project
 32. Comprehensive Refugee Response Framework: The Uganda model
 33. The Uganda Refugee Act of 2006
 34. Refugee Regulations 2010
 35. <https://sun-connect-ea.org/why-uganda-has-suspended-hundreds-of-refugee-aid-agencies/>
 36. <https://sptf.info/get-started/what-is-spm>
 37. SERVING REFUGEE POPULATIONS: The Next Financial Inclusion Frontier Guidelines for Financial Service Providers March 2017
 38. Bank of Uganda: Monetary Policy Report 2021
 39. The Financial Institutions (credit reference bureaus) Regulations, 2005
 40. Covid-19 and refugees' economic opportunities, financial services and digital inclusion
 41. Proportionate regulation in Uganda: A gateway for refugees accessing mobile services in their own name. 2020

Annex 2: Interviewees

Focus group discussions with refugees and hosts

Livelihood program	Enterprise	Men	Women	Refugees	Hosts
EUTF	Oil seed	7	18	20	5
GIZ RISE		8	12	20	-
STRENPO	Cook stoves	10	15	25	-
STRENPO	Cassava, Soy	06	-	-	06
STRENPO		-	08	08	-
GIZ RISE	Oil seed	8	10	15	3
STEP UP	Vegetables	12	01	5	8
SUPREME	Vegetables	05	01	06	
SUPREME	Vegetables	06	02		06
CREATIVE CAPACITY BUILDING	Innovations	01	01	02	

Individual interviews with refugees

Small Business	Men	Women
Solar kiosk	-	01
Restaurant	-	02
Drug shop	01	-
	06	-
Cinema	02	-
Phone repair	02	-
Milling	01	-
Baking	-	01
Barber shop	02	-
Hair Salon	-	01
Cassava grater	01	-
Baking	-	01
Briquette making	01	-





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