

WEBINAR SERIES HUMANITARIAN ENERGY INSIGHTS

Presenting Recent Humanitarian Energy Assessments from
Uganda, Rwanda, Niger and Somalia

Webinar 1: Uganda & Rwanda Thursday, 8 December 2022

15:00-16:00 CET / 17:00-18:00 EAT

Webinar 2: Somalia & Niger Tuesday, 13 December 2022

15:00-16:00 CET / 17:00-18:00 EAT



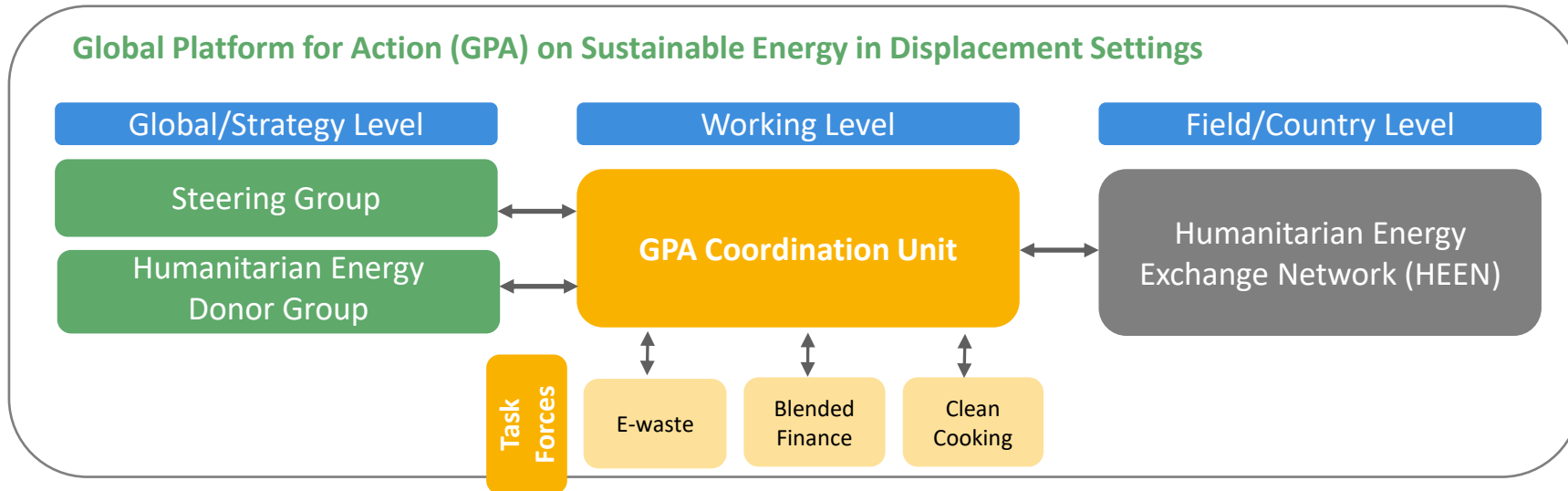
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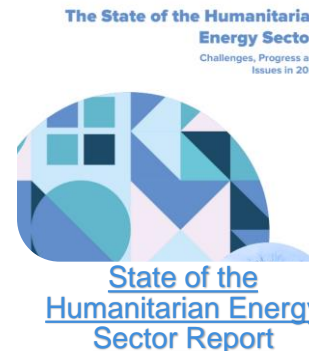
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Key working areas

- Planning and Coordination
- Innovative Finance and Funding

- Data, Research and Evidence
- Policy, Advocacy, and Host Community Resilience
- Technical Expertise and Capacity Building

Recent Publications & Webinars



Contents

Time (CET)	Agenda Item	Speaker
15:00-15:05	Introduction and study objectives	Emmanuel Aziebor, Mercy Corps
15:05-15:25	Key findings from Uganda	Laura Patel, Energy 4 Impact
15:25-15:45	Key findings from Rwanda	Laura Patel, Energy 4 Impact
15:45-16:00	Q&A session	Rebecca Gunning, Energy 4 Impact
16:00-16:30	Informal discussion	Rebecca Gunning, Energy 4 Impact Laura Patel, Energy 4 Impact

December 22



Introduction and study objective

- Enter Energy is Shell's social investment initiative to develop sustainable ways of delivering energy access for displaced people and host communities.
- Through Enter Energy Ethiopia, Mercy Corps and Shell are working together to deploy and operate clean and commercially viable energy infrastructure for displacement settings in the Somali region in Ethiopia.
- As part of Enter Energy's commitment to increase energy access, Mercy Corps, funded by Shell, collated data on the energy access needs of displaced people.
- Mercy Corps - Energy 4 Impact completed energy assessments across four countries: Uganda, Rwanda, Somalia and Niger. Their aim is to understand the current and projected need for energy access, spanning from lighting, powering, productive uses and clean cooking.

Key research areas

Regulatory framework relating to energy access and displaced people

Key stakeholders operating in the humanitarian and energy access space

Other relevant interventions at national and site level

Current income sources and levels

Current and future energy use, needs and priorities

The webinar today will present key findings from the assessment in Uganda and Rwanda.

Enter Energy Assessments

Uganda and Rwanda – Key Findings



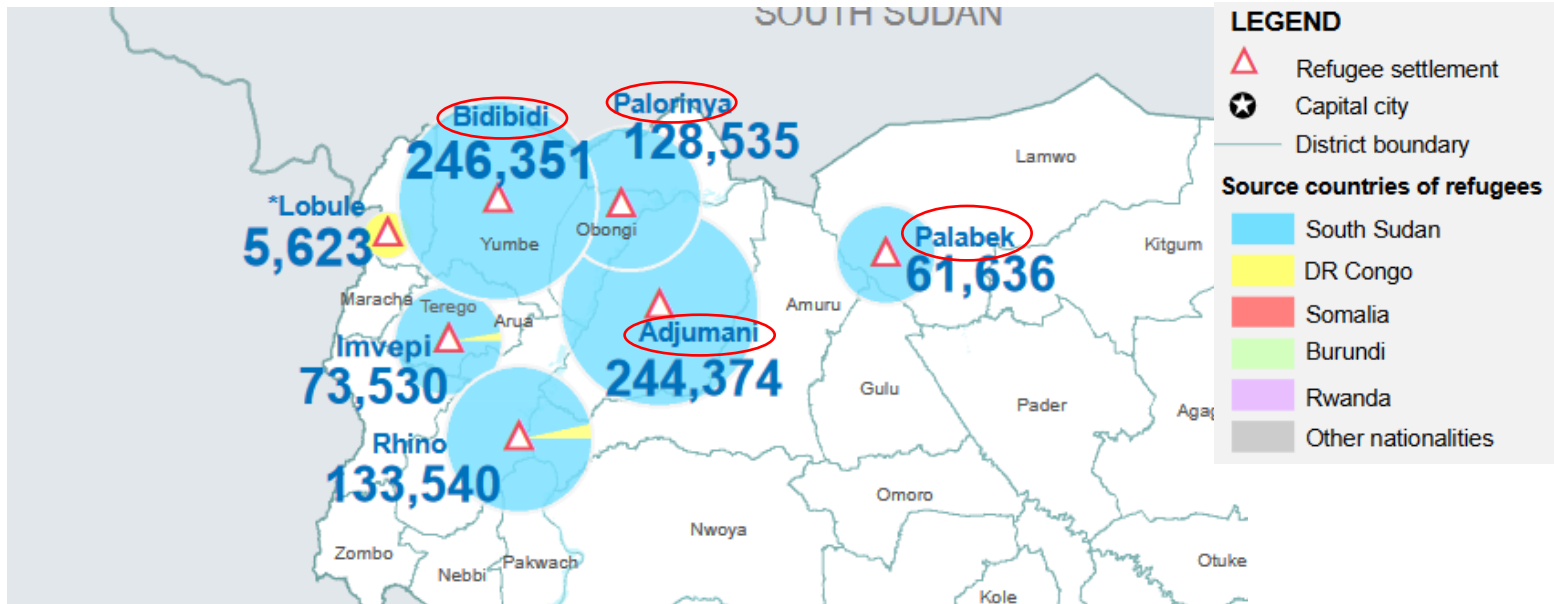
Enter Energy Assessments

Uganda



Methodology

It was not possible to survey all 13 refugee settlements in Uganda, so 4 were selected for site assessments. The selection of sites was based on secondary data on the current situation in each settlement and discussions with Mercy Corps country offices.

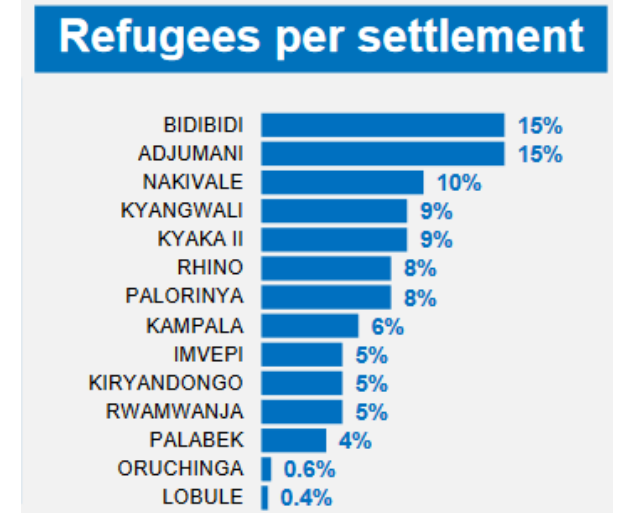
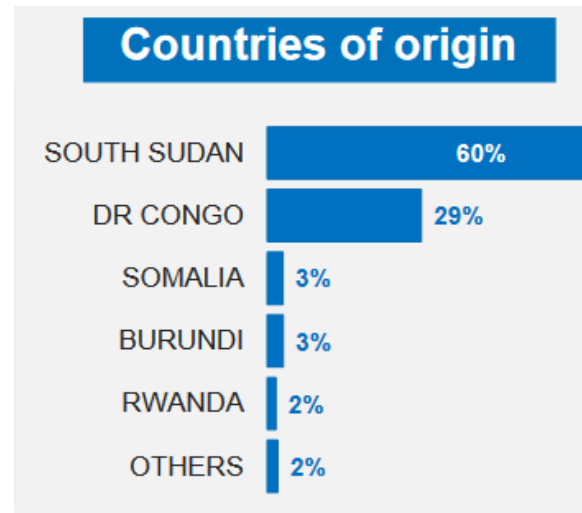


Surveys were conducted across these 3 sites to provide insights into incomes, current energy usage and willingness to pay for energy services. Surveys were not completed in Bidibidi as data from a recent Shell survey, completed in 2019, was available. KII's were conducted along with a market engagement workshop. Data was collected between Feb – May 2022.

Map taken directly from Uganda - Refugee Statistics Map - February 2022 available [here](#).

Humanitarian context

- Uganda hosts more than 1.5 million refugees in 13 refugee hosting districts. There are also 2.5 million host community members living close to the refugee settlements.
- Most refugees have arrived since 2016 from South Sudan and the DRC.
- Uganda has favourable refugee policies that promote self-reliance, giving refugees the right to work, move freely and access financial services.
- Uganda has developed the Sustainable Energy Response Plan for Refugees and Host Communities (SERP) which sets out the government's vision for energy access in refugee hosting areas, aims to improve coordination and resource mobilisation and acts as an entry point for partners to support these efforts.



Source UNHCR, Feb 2022

Energy Market Context

- Uganda's electricity access rate was 41.3% in 2019 - 71% in urban areas and 32% in rural areas (WB, indicators).
- The energy market is well regulated with several policies in place relating to renewable energy technologies. Rural electrification efforts are being supported by several development partners.
- Uganda has a National Electrification Strategy, providing a blueprint to achieve universal electricity access - 88% on-grid connectivity and 12% through off-grid solutions.
- Uganda has a vibrant private sector energy market with several providers of solar home systems, productive use appliances and clean cooking products alongside mini-grid developers.
- The use of biomass fuels on basic stoves is still commonplace in Uganda. 95% of Ugandan households rely on charcoal, wood or other forms of biomass for their household cooking (UBOS, 2017).
- The Ugandan government introduced a “cooking tariff” in December 2021, to support the promotion of electric cooking.



Mini-grid site outside Palabek settlement.

This regulatory framework provides a good foundation for energy access interventions and the SERP provides an opportunity for programming to be part of a coordinated, national effort.

Key stakeholders

Displaced and host communities

- Need to be involved in programme design
- Need to understand desires, needs and WTP

Humanitarian actors

- UNHCR is a key partner due to its overarching protection mandate and coordinating role.
- WFP have a strong role in food and cash distribution and interest in clean cooking.
- Important to coordinate and align with individual stakeholders involved in energy programming at the settlement level, such as Lutheran World Federation, Dan Church Aid and AVSI.

Government

- Key government stakeholders to closely work with include OPM and MEMD in terms of feeding into the SERP and the national electrification plans.

Donors and development partners

- The World Bank is a key stakeholder with plans to implement a US \$71 million intervention focusing on energy in refugee hosting districts.
- Opportunities to learn from past market based interventions such as Mercy Corp's AMPERE and GIZ's ESDS program.

Finance provider

- Financial service providers, need to be involved in the provision of credit for both businesses and end users. Several MFIs are present in the West Nile region.

Private sector

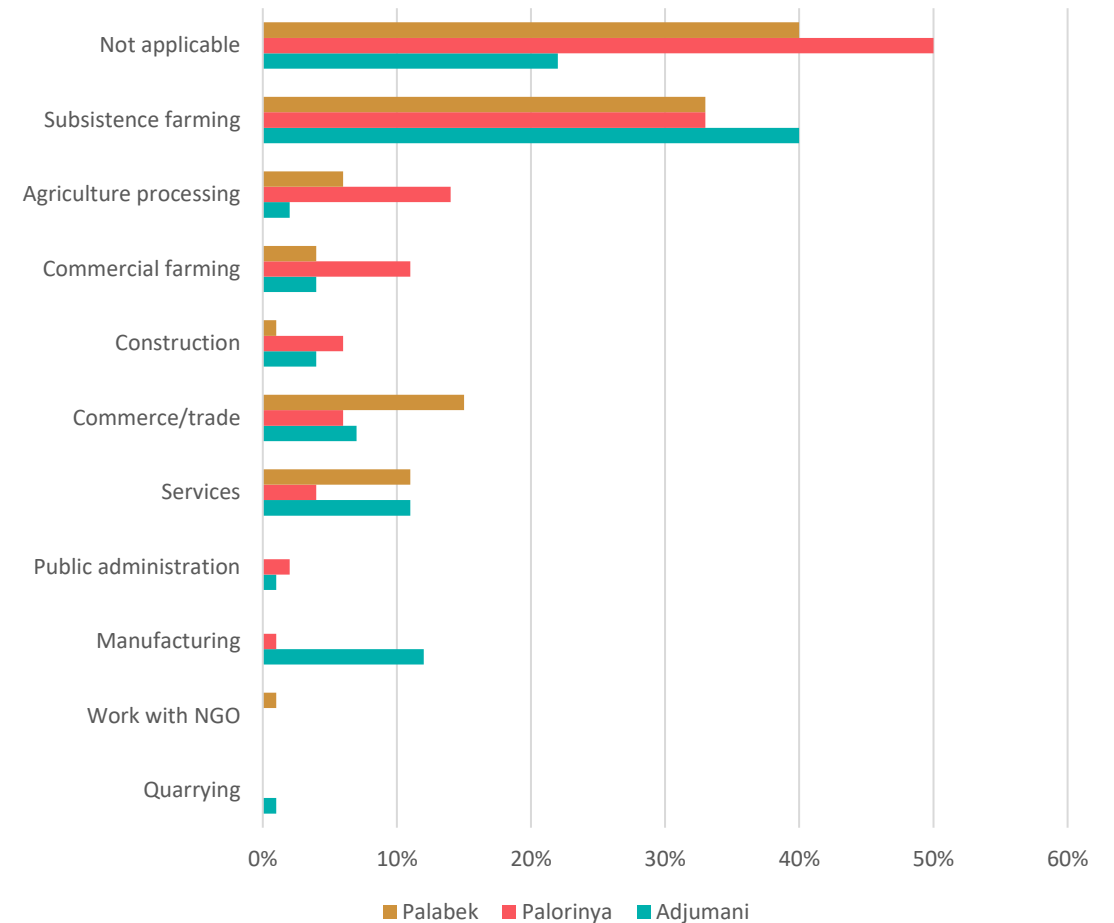
- Some providers of energy products have presence in the West Nile and Northern region but need support to make their products and post-sales services available closer to the settlements.
- Supporting retailers and energy businesses at the settlement level will also be important for cost-effective delivery and the sustainability of interventions.

The significant number of stakeholders involved in both the humanitarian, energy and financing sector in Uganda will require strong coordination and relationship management.

Current income levels and energy usage

- Household incomes vary across market segments but overall remain low.
- Most households engage in subsistence farming with smaller amounts of trade, agri-processing and manufacturing.
- The vast majority of households continue to use inadequate energy sources - dry cell batteries for lighting and firewood for cooking.
- Current spending on energy is low and slightly higher for fuels compared to lighting, although many households collect firewood for free.
- There is some product demand and WTP in all sites but this needs further investigation.
- Most businesses had a source of lighting with solar lanterns, SHS and rechargeable batteries being the most common.
- For humanitarian response, the main agency offices are located outside the settlements often with access to the grid or standalone solar systems.
- Energy for social institutions is still lacking, with firewood still the predominant fuel used in schools.

Main sector of occupation for households surveyed



Current income levels and energy usage – supporting survey data

Survey Data	Bidibidi	Palorinya	Adjumani	Palabek
Camp population	246,351	128,535	244,374	61,636
Population with no formal schooling	24%	38%	11%	20%
Average monthly incomes refugee community	\$34.10	\$20.57	\$69.36	\$23.45
Average monthly incomes host community	\$105.65	\$30.78	\$52.18	\$35.51
Average monthly expenditure on lighting (all hhs)	\$1.13	\$0.64	\$1.10	\$0.60
Average monthly spending on cooking fuel (all hhs)	\$2.46	\$2.19	\$2.53	\$5.55
% of hhs that want more energy for lighting		16%	39%	87%
% of hhs that want more energy for cooking		15%	31%	59%

Note Bidibidi data from a previous survey conducted by Shell in 2019.

Current income levels and energy usage – supporting survey data

Survey Data	Bidibidi	Palorinya	Adjumani	Palabek
Top source of lighting	HC - dry cell batteries (25%) RC -solar lantern (32%)	Dry cell batteries (31%)	Dry cell batteries (49%)	Solar home systems (25%)
% of hhs with no primary lighting source		24%	25%	19%
Mini-grid / grid extension	Some grid extension potential mini-grids	Feasibility study identified 3 potential sites	Grid extension plans	2 MG in host community and 2 in settlement in progress
% cooking with firewood	84%	76%	89%	91%
% cooking with charcoal	16%	27%	22%	25%
Three stone fire or traditional stove as primary cooking technology	54%	98%	94%	88%

RC = refugee community, HC = host community, hh = household, MG = mini grids
 Note Bidibidi survey data from 2019.

Market ecosystem

- For the settlements with bigger total population, hhs are spread out over a bigger distance so density is still similar.
- Most marketplaces within the settlements are small and fragmented and there are opportunities to support business growth.
- Ecosystem conditions are favorable with good security and relations with the host community.
- Mobile money usage is high and there is experience of informal credit and finance (highest in Bidibidi and Adjumani). MFI's are present in all of the main towns next to the settlements.
- Potential private sector partners are present. There are quality product suppliers already in the region although focused on major towns.
- All sites have experienced some level of free distribution of energy products with this higher in particularly sites.
- Transport networks vary. Apart from Bidibidi other sites have local airports. Palabek has good proximity to Gulu and Kitgum and better roads than other locations.



Pictures: UpEnergy's Smart Home charcoal stove being distributed in Adjumani area (bottom) and a traditional improved stove at a household in Adjumani (top).

Market ecosystem – supporting data

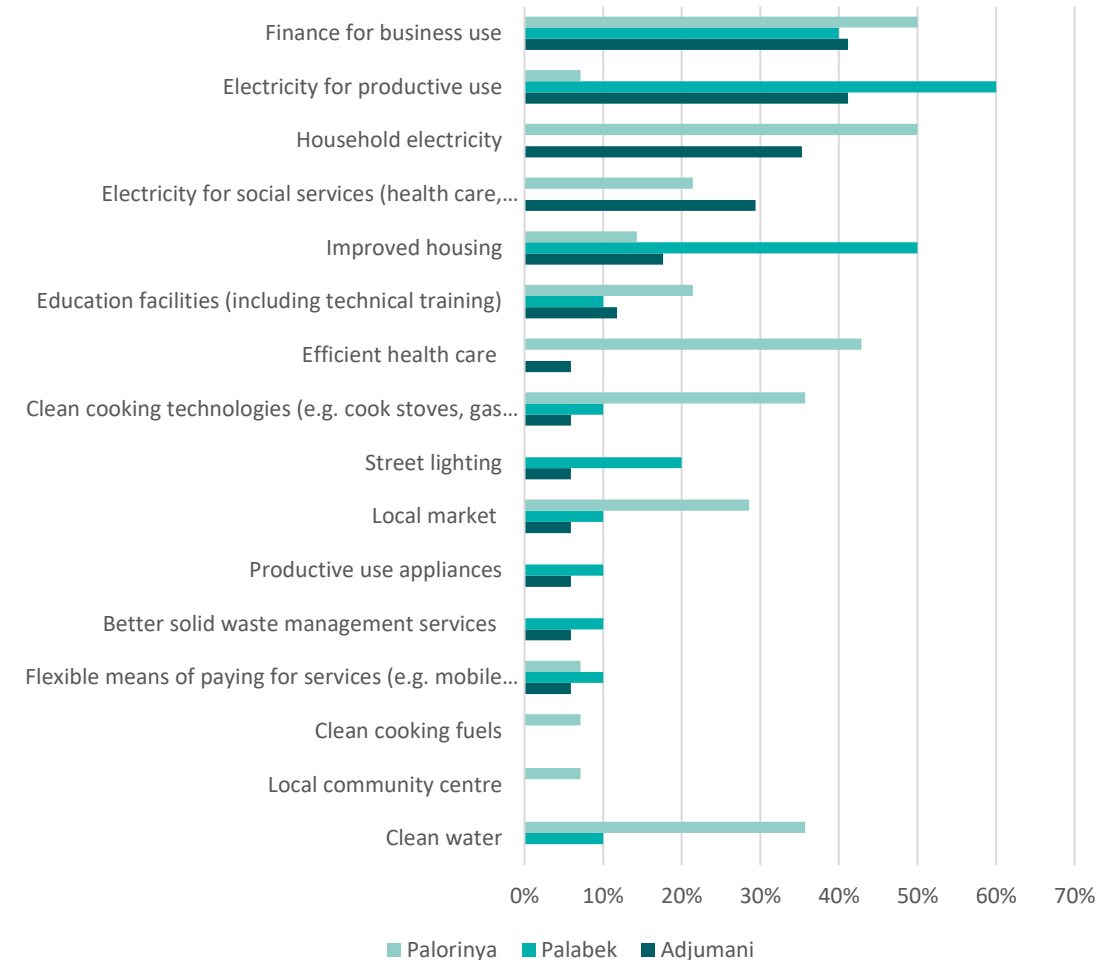
Survey Data	Bidibidi	Palorinya	Adjumani	Palabek
% of hh with access to formal banking services RC	10%	2%	7%	6%
% of hh with access to formal banking services HC	13%	22%	10%	9%
% of hh with access to semi-formal or informal banking RC	62%	28%	52%	44%
% of hh with access to semi-formal or informal banking HC	90%	50%	77%	37%
% of hh with access to mobile money RC	61%	66%	80%	83%
% of hh with access to mobile money HC	68%	84%	85%	74%
Mobile phone ownership (overall)	77%	94%	82%	86%

RC = refugee community, HC = host community, hh = household
 Note Bidibidi survey data from 2019.

Alignment and priorities

- Energy interventions can align well with government priorities to promote rural electrification and clean cooking.
- Uganda has a refugee response plan specific to energy that future interventions can support.
- Further alignment with grid extension plans and the World Bank EASP project are needed.
- Other priorities such as education and healthcare were often prioritised by hhs ahead of energy.
- Household energy is important for the communities across all locations, in particular household lighting.
- Access to electricity and finance was a strong priority for local businesses.
- Most sites have some level of livelihood programming that energy interventions could support.
- More existing energy programming in Bidibidi and Palabek but this can be aligned with.

Challenges to be addressed to support businesses



Alignment and priorities - supporting data

Survey Data	Bidibidi	Palorinya	Adjumani	Palabek
Top 3 services/ infrastructure in the community that you would like made easier to access		Education facilities (63%), health care (51%), cooking technologies (41%)	Finance for businesses (43%), health care (37%), education facilities (34%)	Local market (36%), health care (35%), clean water (35%)
% of community that would like clean cooking made easier to access		Technologies (41%) Fuel (29%)	Technologies (29%) Fuels (10%)	Technologies (5%) Fuels (5%)
% of community that would like household lighting made easier to access		5%	16%	21%
Areas for action (from FGD)	HH lighting, HH cooking, HH comms and entertainment	HH cooking, energy for SMEs, HH lighting	HH lighting, HH cooking, HH comms and entertainment	HH lighting, HH space heating
Top 3 businesses challenges to be addressed		Finance for business use, household electricity, efficient health care	Finance for business use, electricity for productive use, household electricity	Electricity for productive use, improved housing, finance for business use

Potential Opportunities

- Energy for households and businesses appears to be a need and priority.
- Standalone solar energy appears viable for increasing household and business energy access in locations that will not be covered by grid extension.
- Where grid extension will occur there is scope to support market-based access to energy appliances.
- There are opportunities to further scale current market-based approaches.
- It is likely that subsidies will still be needed to bridge the affordability gap and reach various segments of the market
- Given the low-income levels, energy interventions that can support livelihoods will be welcomed by many stakeholders.
- There is an opportunity to develop credit products tailored to the incomes and vulnerabilities of these communities.
- Future interventions will need to be coupled with awareness raising and demand stimulation for energy appliances.
- Interventions can address barriers to support private sector involvement, including streamlining access to the settlements, awareness raising within communities and designing models to support end user purchasing power.



Stakeholders engaged in discussion at the market engagement workshop.

Poll Question 1

What activities/actions do you think should be prioritised to support increased access to energy in displacement settings in Uganda (select up to 3)?

- De-risking grants for private sector energy companies
- Access to flexible commercial funding for energy companies
- Access to end user financing for energy appliances and services
- Access to finance for local businesses to purchase energy appliances
- Subsidising the price of energy appliances and services
- Awareness and marketing campaigns on energy products and services
- Supporting government policies and access to settlements
- Increased community engagement in designing and implementing energy interventions
- Other (please add in the chat)
- Don't know

Enter Energy Assessments

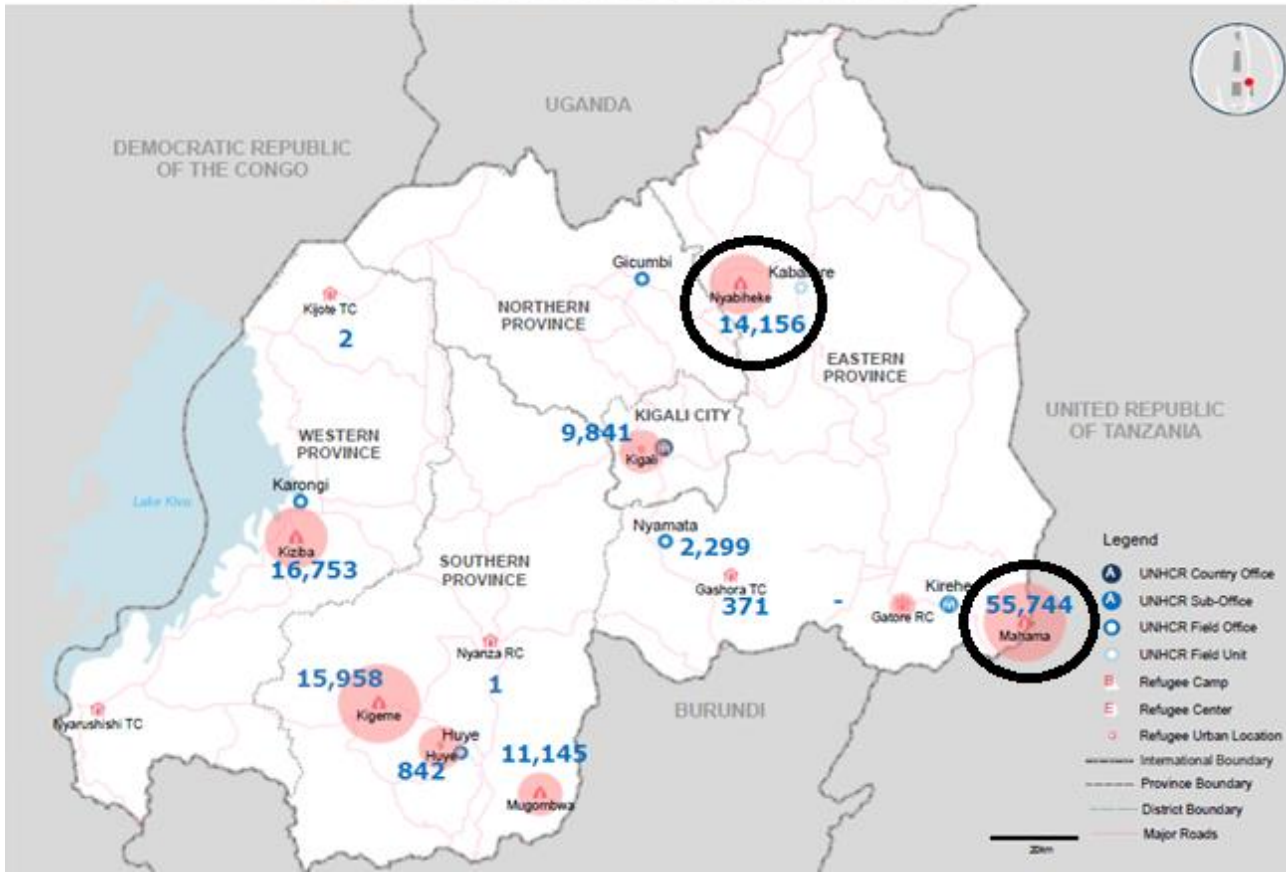
Rwanda



Methodology

Two sites were selected for site assessments in Rwanda – Nyabiheke and Mahama. The selection of sites was based on secondary data on the current situation in each settlement and discussions with E4I country team.

POPULATION DISTRIBUTION BY LOCATION IN RWANDA



Refugee camps and population in Rwanda, as of Dec 2021. Taken from <https://data2.unhcr.org/en/documents/details/90368>.

- Surveys were conducted across these 2 sites to provide insights into incomes, current energy usage and willingness to pay for energy services.
- KII's were conducted along with a market engagement workshop.
- Data was collected between Feb – May 2022.

272 households surveyed

20 institutions surveyed

4 focus group discussions

43 businesses surveyed

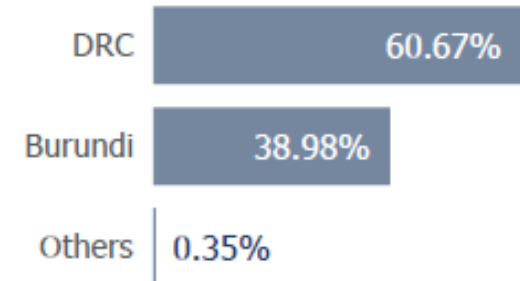
30 key stakeholders engaged

Workshop with 11 organisations

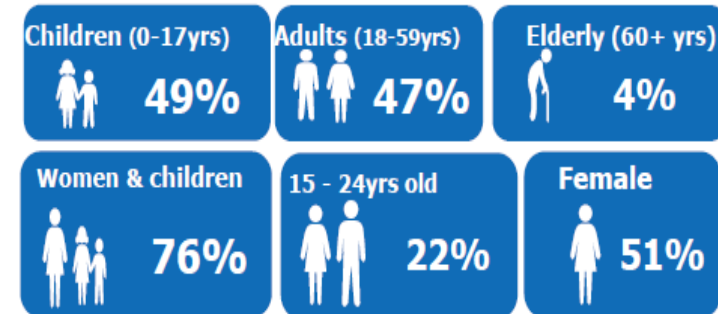
Humanitarian context

- Rwanda hosts more than 126,000 refugees and asylum seekers from Congo and Burundi at five refugee sites and several urban centres.
- Rwanda has favourable policies to support the integration of refugees into society, including freedom of movement and the right to work and own a business.
- Government policies promote the economic inclusion of refugees and the host communities and include them in targets on financial inclusion.
- The sector is well coordinated by the government but there have been limited past energy interventions.
- In the past few years, the Government of Rwanda has consolidated some of the camps, due to concerns around environmental hazards and aging infrastructure.
- Most Burundi refugees have arrived in the past six years. As the political situation in the country has stabilised, UNHCR has started a voluntary repatriation programme.
- Congolese refugees have been in Rwanda for over 20 years - the focus is on integrating them into national systems and offering livelihood opportunities.

MAIN COUNTRIES OF ORIGIN



DEMOGRAPHICS



Source:

<https://data2.unhcr.org/en/documents/details/90368>

Refugee demographics as of Dec 2021:

Energy Market Context

- Rwanda's current electricity access stands at about 75%, - 51% connected to the national grid and 24% accessing through off-grid solutions (REG, Oct 22).
- The government aims to achieve universal access to electricity by 2024. It is expected that 30% of this will come through off-grid solar based on the National Electrification Plan.
- Both Mahama and Nyabiheke camp fall under the grid extension zone and the grid is already connecting households in the host community as well as institutions and business centres in the camp.
- The government aims to reduce the reliance on biomass fuel nationally to 42% and increase the use of LPG to 40% by 2024.
- There are several donor-backed programmes supporting the government's efforts by extending subsidies and grants to deliver this access to the last mile. However, refugees are excluded from these programmes.
- Such programmes included the World Bank funded EAQIP programme offering subsidies on clean cooking equipment and pro-poor national projects targeting household access to SHS.
- Refugee households face hurdles in getting access to the national grid, including through pre-connection requirements, which often deem household connections too risky in terms of safety and illegal connections.



Power lines extending into the refugee camp (Nyabiheke)

Key stakeholders

Displaced and host communities

- Need to be involved in programme design
- Need to understand desires, needs and WTP

Humanitarian actors

- UNHCR and MINEMA are the key partners for buy-in of future interventions.
- WFP plays a strong role in food and cash distribution and has an interest in clean cooking.

Government

- Rwanda Energy Group (REG) is key to understanding how possible it is to extend the grid to businesses in the camps and the plans for household connections.
- Stakeholders such as Energy Development Corporation Limited (EDCL) and Development Bank of Rwanda (BRD), will be administrating RBF funds for cooking and lighting solutions – may be opportunities to extend these subsidies.

Donors and development partners

- There is a need to coordinate with other interventions on energy and livelihoods by organisations such as Practical Action, Alight and GIZ.
- Coordination is needed with energy access activities planned by Practical Action and SIDA, as an extension to RE4R in both camps.

Finance provider

- There are several microfinance providers in Rwanda. Some, such as Umutanguha Finance Company, are already engaging in the provision of credit to refugees.
- Other stakeholders with experience in this area include Belecom, Inkomoko, Access Finance Rwanda and finance providers that will be supported under the Jya Mbere project.

Private sector

- There are several private sector players that provide energy technologies, and some SHS and clean cooking companies have experience of working in the refugee camps - Safe Gas, Ecogreen, Belecom and BBOXX.

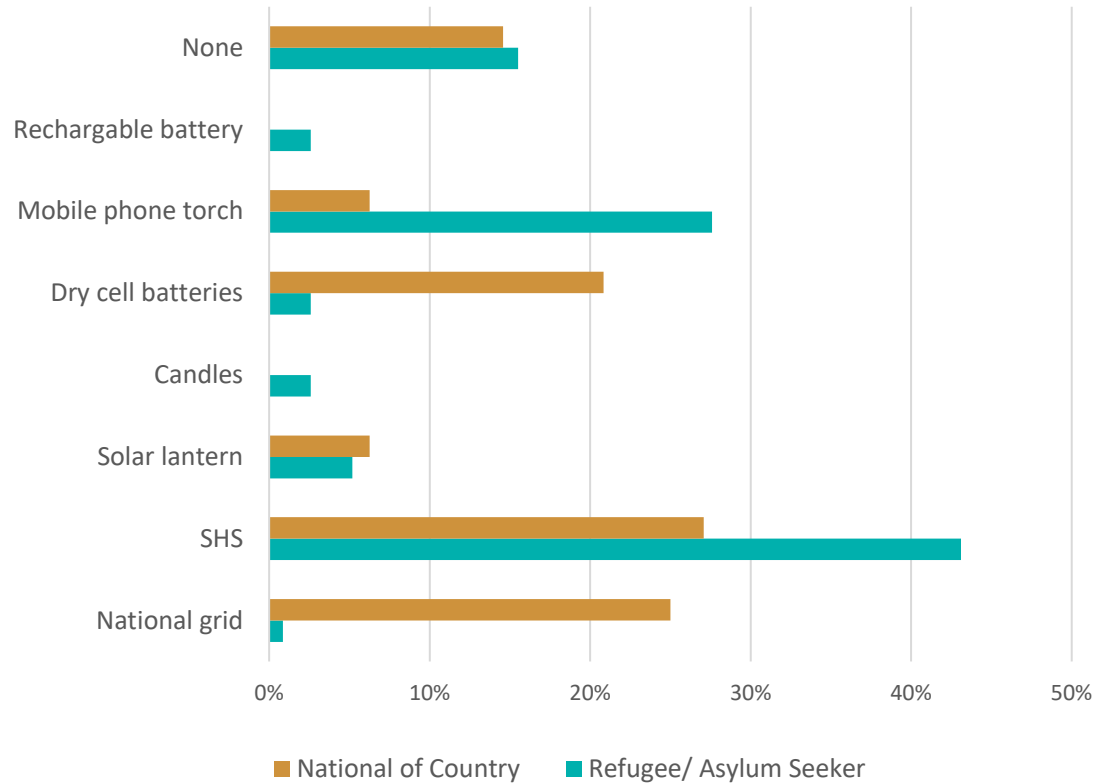
Current income levels and energy usage

- Humanitarian assistance is the most common source of income at both sites.
- Other sources of income include NGO work and small commerce and for the host community, subsistence farming and public administration.
- Formal education within the population in Mahama is higher than in Nyabiheke - 15% of respondents in Mahama had a university or college degree.
- Energy interventions, such as RE4R, have increased access levels but gaps still remain.
- Many households still rely on single light sources such as torches or have no lighting at all.
- The national grid extends into both refugee camps. It connects host community hhs, businesses and institutions but not refugee households. There are also existing solar mini-grids at both sites.
- Households receive free LPG in Mahama, but it does not always cover all cooking needs. The use of biomass fuels is high in Nyabiheke.
- Monthly spending on lighting was generally low at both sites, but spending on cooking fuel was higher.

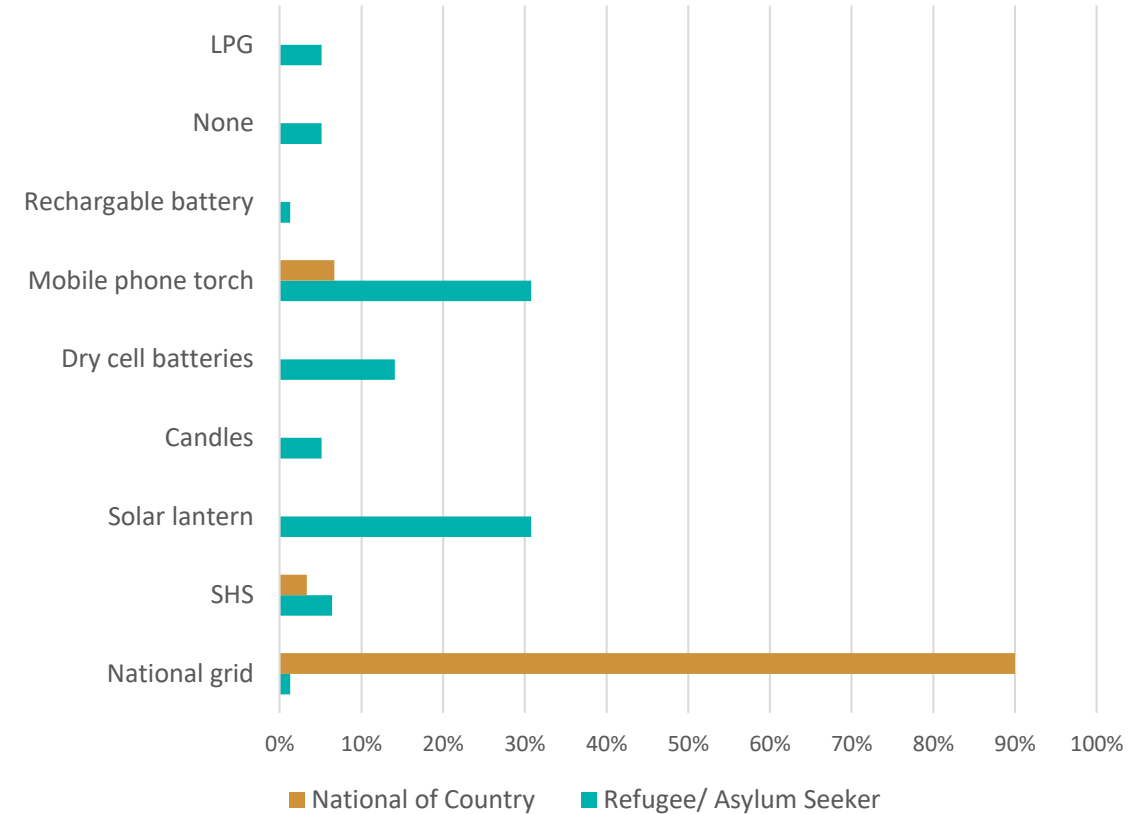
Survey Data	Mahama	Nyabiheke
Camp population	57,670	13,912
Population with no formal schooling	6%	30%
Average monthly incomes refugee community	\$44.34	\$43.52
Average monthly incomes host community	\$81.23	\$52.76
Average monthly expenditure on lighting (all hhs)	\$1.33	\$1.14
Average monthly spending on cooking fuel (all hhs)	\$4.32	\$9.39
% of hhs that want more energy for lighting	71%	77%
% of hhs that want more energy for cooking	50%	79%

Primary lighting and power sources at each site

Primary lighting and appliance powering technology for households in Nyabiheke



Primary lighting and appliance powering technology for households in Mahama



Current energy usage – supporting survey data

Survey Data	Mahama	Nyabiheke
Top source of lighting for households	HC - National grid (90%) RC -Mobile phone torch/ solar lanterns (31% each)	HC - Solar home system (27%) RC- Solar home system (43%)
% of hhs with no primary lighting source	4%	15%
Main energy sources being used by businesses interviewed	National grid (35%), solar lantern (17%), dry cell batteries (17%)	SHS (60%), National grid (30%), mobile phone torch (15%)
Mini-grid / grid extension	National grid and existing mini grid connecting some businesses and institutions.	National grid and existing mini grid connecting some businesses and institutions.
Most common primary cooking fuel RC	LPG (99%)	Charcoal (84%)
Most common primary cooking fuel HC	Firewood (43%)	Firewood (77%)
Three stone fire or traditional stove as primary cooking technology	13%	74%

RC = refugee community, HC = host community, hh = household, MG = mini grids

Market ecosystem

- Mahama is a bigger site but there is some risk that Burundi refugees will be repatriated although there could also be additional relocation to Mahama from other sites.
- There is existing product awareness, interest in energy products and the refugee camps can be integrated into national markets.
- There are no security issues at either site. Relations with the host community are good and communities are quite integrated.
- There is a higher presence of donated items in Mahama. Nyabiheke has already had experience with market-based approaches through RE4R which were well received and have been sustained.
- Private sector providers of energy products and services are present nationally but need to be supported to extend their presence into the camps, particularly in Mahama where there are no current energy product providers.
- There are high levels of mobile phone ownership and use of mobile money.
- Financial institutions are present in both areas and some have products tailored to the refugees. Experience with semi-formal finance is lower in Mahama and there are perhaps less providers available in the area.
- Both sites are accessible from other towns and cities for developing supply chains. However access to the camps is controlled by the government.
- Support is needed to overcome perceived and real market barriers including increasing access to finance for refugees, streamlining entry into the camps and de-risking for private sector investments.
- Supporting retailers and energy businesses at the settlement level is important for cost effective delivery and the sustainability of interventions



Photo; Power lines extending into the refugee camp (Nyabiheke)

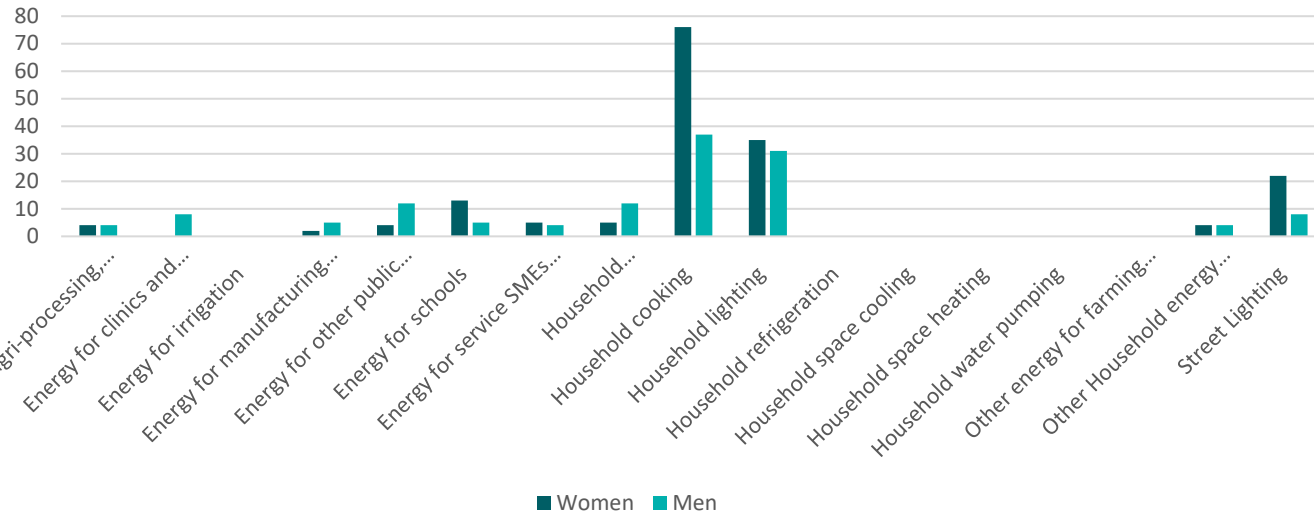
Market ecosystem – supporting data

Survey Data	Mahama	Nyabiheke
% of hh with access to formal banking services RC	15%	8%
% of hh with access to formal banking services HC	30%	48%
% of hh with access to semi-formal or informal banking RC	9%	40%
% of hh with access to semi-formal or informal banking HC	33%	62%
% of hh with access to mobile money RC	100%	97%
% of hh with access to mobile money HC	97%	94%
Mobile phone ownership (overall)	100%	96%

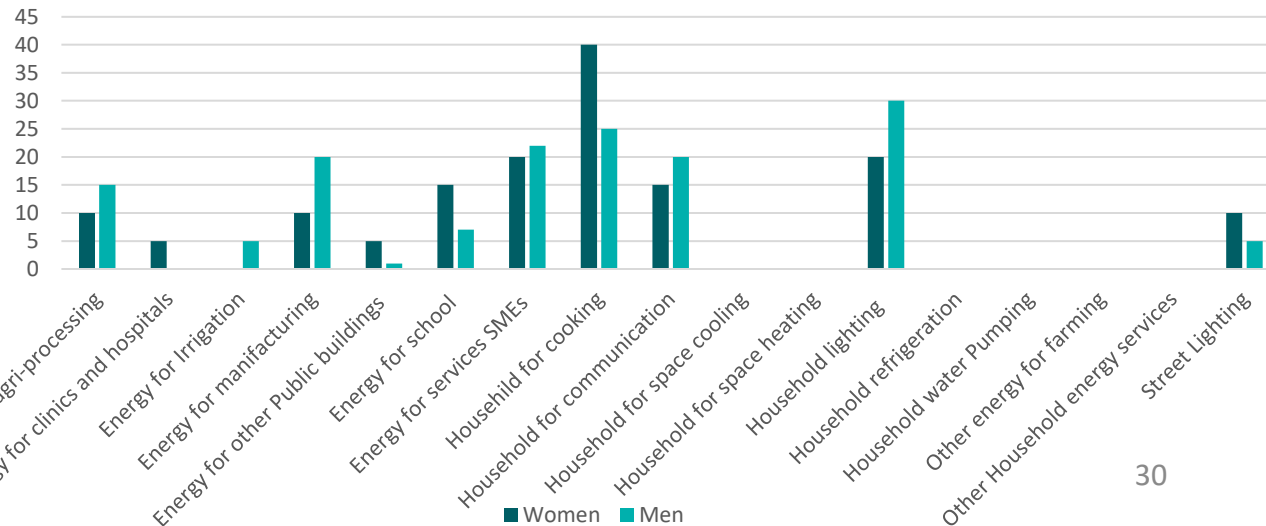
RC = refugee community, HC = host community, hh = household

Alignment and priorities

Voting on energy services to priorities for action in Mahama



Voting on energy services to priorities for action in Nyabiheke



- Energy is a clear priority, particularly for refugee households, and particularly for household cooking and lighting.
- For businesses, electricity for productive use and business financing were strong priorities.
- In Nyabiheke, there are opportunities to build off RE4R’s work which has already created energy supply chains and some awareness of products.
- There is less existing energy programming in Mahama but opportunities to support the MeshPower mini-grid and UNHCR’s LPG promotion.
- There appears to be more livelihood programming in Mahama including a GIZ programme on economic empowerment and work by Aight and Food for the Hungry prompting income generating activities.
- Practical Action and Sida are planning new energy activities as an expansion of the RE4R programme which future energy programming should coordinate with.

Graphs show how participants from FGDs voted for energy services to be prioritised.



Alignment and priorities - supporting data

Survey Data	Mahama	Nyabiheke
Top 3 services/ infrastructure in the community that you would like made easier to access - refugee community	Household electricity (62%), Electricity for productive use (42%), Finance for business use (38%)	Household electricity (40%), Clean Cooking Fuels (33%), finance for business use / electricity for productive use (27%)
Top 3 services/ infrastructure in the community that you would like made easier to access - host community	Health care (50%), Education facilities (40%), Clean water (40%)	Clean water (77%), Household electricity (73%), finance for business use (38%)
Top 3 areas for action (from FGD)	Household cooking, household lighting, street lighting	Household cooking, household lighting, energy for service SMEs
Top 3 businesses challenges to be addressed	Electricity for productive use, Finance for business use, Efficient health care, Clean water	Finance for business use, Electricity for productive use, Productive use appliances

Potential Opportunities

- Gaps remain in access to lighting for households and businesses and clean cooking.
- For households it is likely this will come from off grid solar products, given challenges in connecting households to the grid.
- Continue to support clean cooking fuels and fuel-efficient stoves where biomass is being used.
- There are opportunities to build off past and on-going energy and livelihood interventions.
- The private sector can be supported to make products more accessible in the camps, ensuring service centres are locally available and building awareness on available energy appliances.
- For businesses there are opportunities to support access to higher-tier energy by providing safe working spaces connected to the national grid. This could include training, enterprise and market hubs that provide opportunities for vocational training, retail shops and workshops as well as looking at agri-processing needs in the host community.
- One important theme across sites and end users is the need for refugee households and businesses to have access to financing to help them purchase these energy products.
- Opportunities to build tailored products with MFIs such as Umutanguha and others being supported under the Jya Mbere programme.
- Given the high reliance on cash assistance and limited incomes of households and businesses, it's likely that some level of subsidy will also be needed – there could be opportunities to extend existing national schemes to refugees.



Photo: stakeholders engaged in a focus group discussion.

Poll Question 2

What activities/actions do you think should be prioritised to support increased access to energy in displacement settings in Rwanda (select up to 3)?

- De-risking grants for private sector energy companies
- Access to flexible commercial funding for energy companies
- Access to end user financing for energy appliances and services
- Access to finance for local businesses to purchase energy appliances
- Subsidising the price of energy appliances and services
- Awareness and marketing campaigns on energy products and services
- Supporting government policies and access to settlements
- Increased community engagement in designing and implementing energy interventions
- Other (please add in the chat)
- Don't know

Enter Energy Assessments

Q&A



Enter Energy Assessments

Thank you!

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Cecilia Ragazzi: cragazzi@mercycorps.org



THANK YOU

Webinar presentation and recording will be available at the [GPA website](#).

Register for the second webinar focusing on Somalia & Niger on Tuesday, 13 December 2022 at 15:00-16:30 CET / 17:00-18:30 EAT [here](#).



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