POLICY BRIEF
December 2019

Practical ACTION

ACCESS TO ENERGY IN REFUGEE CAMPS IN RWANDA

SUMMARY

The Renewable Energy for Refugees (RE4R) project, led by Practical Action and UNHCR, assessed energy access in Gihembe, Kigeme, and Nyabiheke refugee camps in Rwanda. During the assessment phase of the project, Practical Action conducted hundreds of surveys, interviews, and focus group discussions with camp residents, business owners, community leaders, and organizational staff to help identify the most important energy issues in the camps. Working with key stakeholders, the RE4R project co-designed four renewable energy interventions that each address different needs and priorities to improve the energy access, well-being, and livelihoods of displaced people in the camps.

RECOMMENDATIONS

The RE4R project has four key recommendations for assessing the levels of energy access in situations of displacement, and for understanding the needs, priorities, and lived experiences of refugee communities:

- **Undertake data collection** and analysis before designing and implementing energy interventions to gain a better understanding of the most important issues. The information collected should have a well-defined purpose, a clear pathway for analysis, and be verifiable by other sources where possible.
- **Include the means for displaced people to contribute** to the decisions that affect them. Engaging with community leaders and representatives can be an effective way of incorporating the views of displaced people and providing validation to ideas and assumptions.
- **Remember that energy access covers lighting, cooking, and electricity** and spans across households, enterprises, and community facilities. Energy for business activities should be addressed to offer meaningful livelihood opportunities, and institutional energy should also be included – particularly for community facilities around the camps, and for space lighting.
- **Incorporate the multidimensional nature of data and evidence** into project design. Using more than one type of information provides more compelling evidence and reduces the likelihood of overlooking key energy issues and priorities.

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LIGHTING AND ELECTRICITY IN HOUSEHOLDS

Access to electricity and lighting in refugee households is low and below the targets set by the government of Rwanda (Ministry of Infrastructure, 2016, 2018). The majority of refugee households report little or no access to energy for lighting: 58 per cent either have no lighting at night or use only basic sources such as candles and torches. Small minorities primarily rely on either solar lanterns (21 per cent) or solar home systems (16 per cent), and mobile phone torches and burning sticks are commonly used to move around the camps at night. In comparison, 24 per cent of people in Rwanda have access to the national grid network, and a further 5 per cent have off-grid electricity access (World Bank, 2018).

Solar home systems provide an average of four hours of lighting in the evenings, 45 minutes more than solar lanterns and 90 minutes more than non-electrical sources such as candles. Solar home systems also provide around 10 hours of electricity in total during the day, compared with around 4.5 hours from solar lanterns, and can also facilitate basic services such as phone charging. The proportion of households who own solar home systems was found to vary between camps. Households in Gihembe and Nyabiheke are more likely to have paid for solar products, and those households are less likely to suffer issues with them compared with those in Kigeme, where receiving solar products as donations is more common.

ACCESS TO STOVES AND FUELS FOR COOKING

More than three-quarters of households rely primarily on basic three-stone fires, mud stoves, and firewood for their cooking needs. Despite a range of distribution programmes, only 21 per cent of households across the three camps use an improved cookstove as their main source of cooking, compared with 30 per cent of households in the rest of Rwanda (World Bank, 2018) – although 42 per cent reported using an improved cookstove as a secondary backup stove. In Kigeme, three times more households reported using improved cookstoves compared with the other camps, likely due partly to the ongoing Inyenyeri cookstove programme, but refugees shared in interviews that the unaffordability of the fuel in this programme limited the stoves' usage.

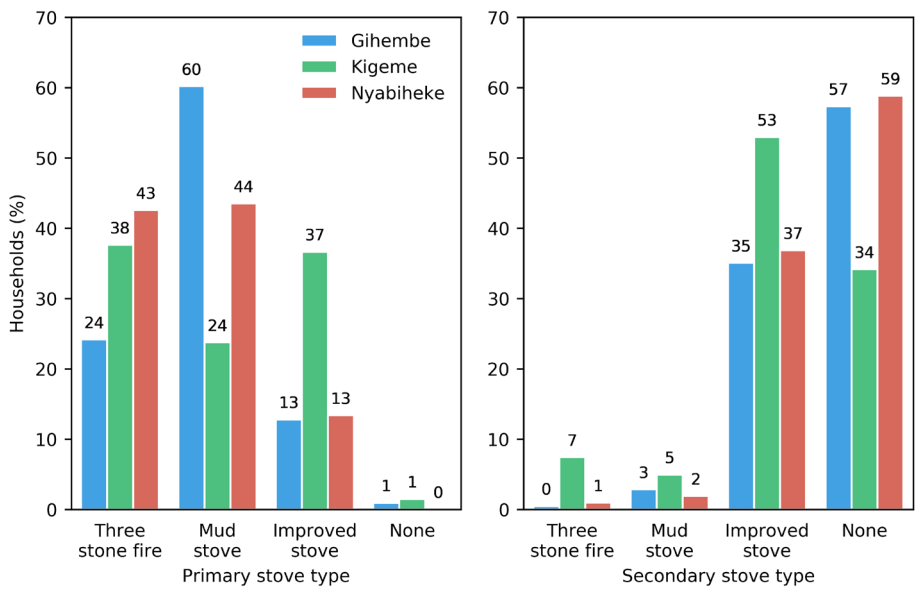

Figure 1 More than three-quarters of households rely primarily on the most basic stoves. Improved stoves, if available, are more commonly used as secondary backup stoves.

Firewood is the primary source of cooking fuel in the vast majority of households, although changes in fuel distribution in the camps since the assessments were carried out may significantly change this. Before the cessation of firewood distribution mandated by the government of Rwanda, 81 per cent of refugee households primarily relied on firewood and 17 per cent relied on charcoal, with a similar split seen at the national level (World Bank, 2018). For secondary backup stoves, 17 per cent used firewood and 79 per cent used charcoal. Shortages of fuels are major concerns for respondents, among other issues such as keeping firewood dry from the rain and the fluctuating price of charcoal between the dry and wet seasons.

A lack of cooking resources, particularly firewood, results in the majority of households using coping mechanisms to get by. Strategies vary between the camps, but when fuel for cooking is unavailable, more than 90 per cent of households rely on some kind of coping strategy. Half of households reported skipping meals, while others reduce portion sizes or rely on exchanging food for cooking fuel, all of which could result in food insecurity.

75%

of refugee businesses use some form of electricity

Other coping mechanisms include exchanging different kinds of fuels, feeding only certain household members, or sharing resources such as stoves and cooking spaces.

Women spend more than three hours per day on cooking and related activities, four times longer than men. Of those three hours, female camp residents spend an average of 45 minutes per day collecting and preparing fuel, many experiencing threats and violence when foraging in the local areas around the camps. Cooking is perceived as the sole responsibility of women, and the time burden of cooking falls on women across all ages.

ENERGY FOR LIVELIHOODS AND COMMUNITY FACILITIES

Refugees have a diverse range of livelihoods, and three-quarters of businesses use some form of electricity. Small-scale technologies such as solar home systems allow many small shops and petty traders to offer key services such as phone charging and to use lighting to extend their business hours; this can also provide domestic electricity access, as 89 per cent of businesses operate from a household.

Both households and enterprises expressed a need for electricity services that could be provided by solar home systems. Lighting, phone charging, and entertainment services such as televisions and radios are the most commonly desired facilities if adequate electricity were made available.
There is a stark contrast in the levels of energy access between camp institutions and facilities that have connections to the camp minigrids and those that do not. The office buildings, health centres, and other central institutions that are connected to the camp minigrids have the highest levels of energy access in the camps. On the other hand, those located further from the centre of the camp, such as schools, latrines, and religious buildings, have only basic or no access to electricity.

The camp minigrids provide a high degree of stable and reliable electricity access for the community facilities connected to them, but they rely on carbon-intensive sources of power. The minigrids are supplied by either or both the national electricity grid and diesel generators, resulting in high levels of greenhouse gas emissions from electricity usage.

Opportunities to access higher levels of power for livelihood activities are severely limited in the current setup of the camps. The camp minigrids provide power to only a small number of refugee businesses – around one in four enterprises in Gihembe, and one in 10 in both Kigeme and Nyabiheke. These connections are not metered or paid for and are permitted on an unofficial basis by the camp authorities. They are also available only to businesses close to the administrative centres of the camps, and there is no process by which new entrepreneurs can access the power required to develop their own livelihood opportunities.

HOW THE RE4R PROJECT WILL DELIVER ENERGY ACCESS

The RE4R project will deliver four renewable energy interventions in Gihembe, Kigeme, and Nyabiheke refugee camps.

Intervention I will promote the delivery of solar home systems in the camps and increase their usage among households and small businesses. The systems will provide access to basic lighting, phone charging, and entertainment services and offer a significant increase in the levels of energy access for most of the camp residents who are currently reliant on non-electric forms of lighting. Two companies have been selected to provide the systems at a reduced rate to camp residents and members of the host community, with refugees being employed as sales agents. Awareness-raising and technical training activities for camp residents and the host communities will support the delivery of this intervention, which also represents an opportunity for the private sector to learn more about providing products and services in humanitarian settings and the potential to extend operations into other camps in the future.

Intervention II will increase access to improved cooking solutions and sustainable renewable fuels.
Owing to the ongoing discussions around the long-term response to the cessation of firewood distribution in the camps – representing a fundamental shift in the way cooking fuel is provided to camp residents – it is yet to be established how this intervention can best contribute to the wider national strategy. Potential activities are being developed and will likely include supporting existing clean-cooking suppliers operating in Rwanda to scale up their businesses to meet the challenge posed by the situation in the camps, and activities to increase the uptake and affordability of improved stoves and fuels.

Intervention III will provide standalone solar streetlights for public-space lighting, with the aim of improving mobility around the camps after dark. This will help increase the perception of safety in the camp and provide enterprise opportunities by extending the hours in which camp residents can access businesses. The streetlights will be installed at key locations determined by Practical Action and UNHCR staff, the refugee executive committees, and other stakeholders. Camp residents and members of the host communities will both be involved in the initial installation of the streetlights and trained in their long-term operation and maintenance.

Intervention IV will provide solar electricity to camp institutions and businesses to reduce the use of diesel generators. This intervention will be based in Nyabiheke, as this camp does not have a connection to the national grid network and relies entirely on diesel generation to provide electricity. The introduction of solar power will reduce both expenditure on, and greenhouse gas emissions of, the existing minigrid. An initial design stage will measure the present usage of electricity and predict the potential for future energy demands. A number of potential delivery models for infrastructure development and power supply agreements will then be explored to support high-quality electricity provision to both institutional users and new entrepreneurs in the camp.

References

Ministry of Infrastructure (2016) Rural Electrification Strategy, Government of Rwanda, Ministry of Infrastructure, Kigali.

Ministry of Infrastructure (2018) Energy Sector Strategic Plan 2018/19–2023/24, Government of Rwanda, Ministry of Infrastructure, Kigali.

World Bank (2018) Rwanda Beyond Connections: Energy Access Diagnostic Report Based on the Multi-tier Framework, World Bank, Washington DC.

About the Renewable Energy for Refugees project

Practical Action is implementing a three-and-a-half-year Renewable Energy for Refugees (RE4R) project in Rwanda and Jordan. This project is led by Practical Action and UNHCR to deliver renewable energy investments through innovative approaches in humanitarian settings, working directly with refugees and host communities in Kigeme, Nyabiheke, and Gihembe refugee camps in Rwanda, and with urban refugees in Irbid in Jordan. The project will provide access to affordable and sustainable sources of renewable energy, and improve the health, well-being, and security of target populations. It draws on Practical Action's considerable existing experience in renewable energy programmes in developing countries, working directly with communities to deliver the best energy services and products possible for local people.

About Practical Action

We are an international development organization putting ingenious ideas to work so people in poverty can change their world. Our vision is for a world that works better for everyone. We help people find solutions to some of the world's toughest problems, including challenges made worse by catastrophic climate change and persistent gender inequality.

We believe in the power of small to change the big picture. And that together we can take practical action to build futures free from poverty.

Big change starts small.

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