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BEHAVIORAL INTERVENTION NOTE

CLEAN TECHNOLOGY TO FUEL IMPROVED LIVING STANDARDS: DE-RISKING SOLAR INVESTMENTS THROUGH REFUGEES' SAVINGS GROUPS IN UGANDA[1]

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WORLD BANK GROUP

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Ci-Dev
CARBON INITIATIVE FOR DEVELOPMENT

I. MOTIVATION

Over 75% of the refugee population does not have access to any form of renewable energy and relies heavily on firewood and kerosene.

Grid connectivity in Uganda stands at 45%, falling below the Sub-Saharan Africa average of 51%.[2] This forces households to resort to highly polluting or inefficient fuel sources such as kerosene, torches, or phones to light their homes, severely impacting their respiratory health and productivity. This energy poverty is especially prominent among the 1.5 million refugees in Uganda despite the country's relatively inclusive refugee policies.[3]

Without grid connectivity, off-grid solar devices can offer a clean, safe, and reliable alternative energy source. Over 75% of the refugee population does not have access to any form of renewable energy and relies heavily on firewood and kerosene.[4] Additionally, financing options offered by several solar companies have been withdrawn from refugee and poor communities due to the high risk associated with low loan repayment capacity. However, affordability, awareness, and trust barriers constrain the adoption of solar products, particularly for disadvantaged refugee groups.

The World Bank teams have been designing and testing interventions informed by behavioral insights to increase knowledge about off-grid solar devices and skills for saving, to incentivize solar product adoption in Uganda, focusing on refugee communities. This will help increase energy security, particularly in poor grid connectivity areas where reliance on polluting fuels for energy is high.

II. DIAGNOSTICS

In 2020, the World Bank team conducted a diagnostic study[5] to understand the obstacles to adopting and continuing the use of solar energy devices. The research included thorough interviews with refugees from the Kyangwali and Rhino camps, data analysis of the 2018 Refugee and Host Communities Household Survey (RHCH)[6], and a review of relevant literature.

The study exposed the low availability of certified and reliable solar systems and the lack of financial instruments to purchase them as significant challenges for people to own solar home systems. It also showed that many barriers centered around the knowledge and perceptions of the products, including their cost. Many believed the products were of poor quality and mistrusted them, drawing from negative experiences from the few peers who owned counterfeited devices. Furthermore, the message that solar power can save time and money did not resonate with refugee households with competing economic priorities and limited mental bandwidth to make relatively complicated financial and product assessments.

III. SOLUTION DESIGN

Our diagnostics identified an untapped potential for social learning among peers, specifically regarding informal saving groups, such as the Village Savings and Lending Associations (VSLAs)[7] in refugee settlements. These groups offered more manageable alternatives to microfinance loans, which tend to have high-interest rates and short repayment periods if they were available to the refugee population at all. Although the VSLAs did not yet recognize the productive use of solar home systems, they could be a potential starting point for addressing the identified constraints around the lack of awareness of the products and purchasing options and the difficulty of following through on a savings plan.

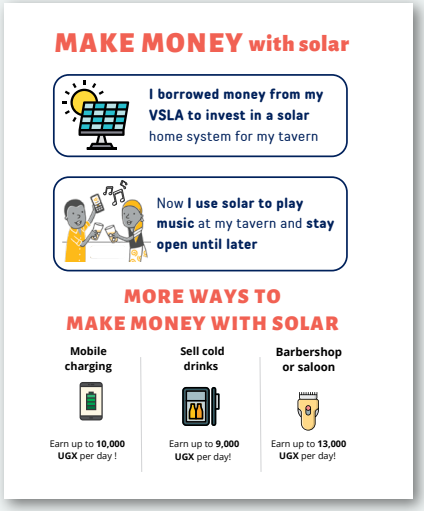
The team introduced a behaviorally informed solution to address the financing, knowledge, and trust barriers to adopting solar products by refugee communities in Uganda. The solution involved delivering training sessions during VSLA meetings in refugee settlements. The participants were provided engaging materials containing brief information on solar products, their benefits, and saving strategies for accessing them. The three Key Design Elements are presented on the next page.

IV. IMPLEMENTATION

Between March and June 2023, trained community members delivered the sessions during meetings with VSLA members in two refugee settlements. The selected settlements included Kiryandongo in the namesake district and Nakivale settlement in the southern district of Isingiro. 157 VSLAs were randomly chosen to receive the sessions and materials, while 155 VSLAs were followed as a control group for a total of 1,223 participants.

A survey was collected five months before and two months after the sessions to assess the impact of the intervention on knowledge about and attitudes towards solar products, planning and goal-setting skills for saving, social support from fellow VSLA members, and savings towards a solar goal. Additional demographic and socio-economic information on the participants was collected.

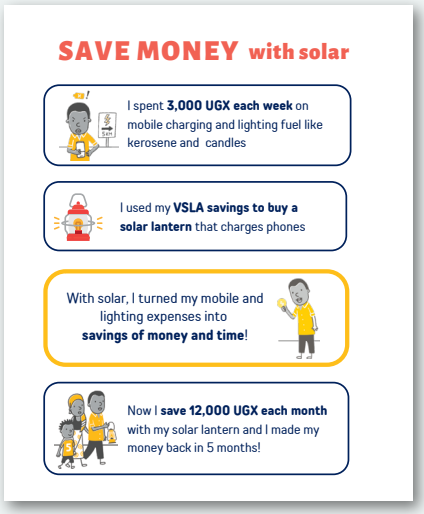
01 BOTTLENECK: **LIMITED AWARENESS OF SOLAR PRODUCTS AND THEIR BENEFITS**



BEHAVIORAL SCIENCE LEVER: Salient information about solar benefits tailored to the specific interests of the target audience.

SOLUTION ELEMENT: Messaging and discussions with relatable examples for households and businesses, delivered through attractive and simple flyers.

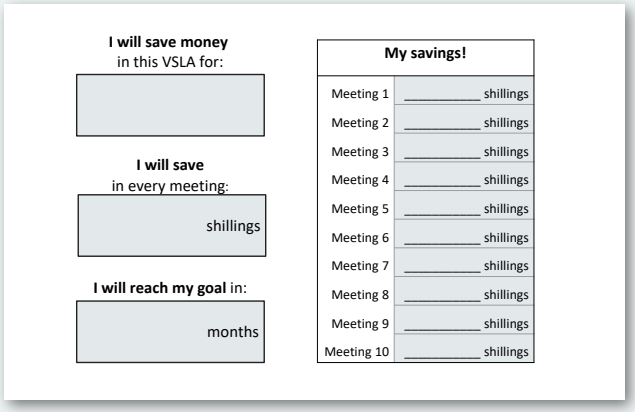
02 BOTTLENECK: **2. MISTRUST AND PERCEPTION OF POOR QUALITY OF SOLAR PRODUCTS**

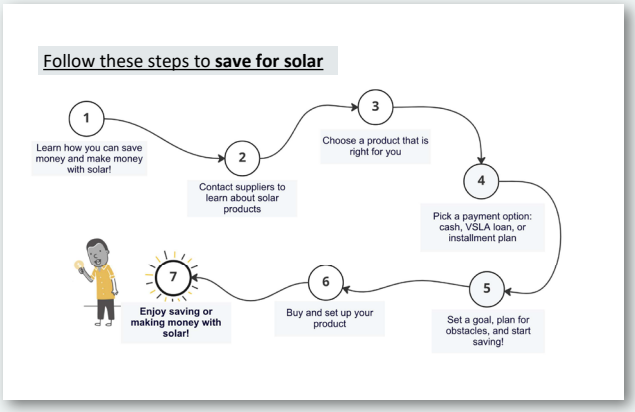


BEHAVIORAL SCIENCE LEVER: Social-based information provided by a relatable and trusted source, such as a community role model.

SOLUTION ELEMENT: Information presented as quotes from a community peer as a satisfied solar user and including a catalog of trusted products, contact information of certified sellers, and financing options

03 BOTTLENECK: 3. INTENTION-TO-ACTION OF SAVING AND COGNITIVE COST OF SETTING AND TRACKING SAVINGS





BEHAVIORAL SCIENCE LEVER: Goal-setting skills and tools to reduce the required effort to save, prepare for possible obstacles, and commit to a savings goal

SOLUTION ELEMENT: Training on goal-setting and planning for solar savings with easy-to-follow resources and a public commitment activity.

V. RESULTS

The intervention increased the pursuit of solar products in terms of saving goals, although there was no improvement in the ownership of solar devices. Participants were 31 percentage points more likely to have a solar saving goal after the intervention and were more likely to save for certified solar devices, such as solar home systems, rather than panel and battery systems. Those assigned to the sessions saved 2,100 Ugandan shillings for solar products, equivalent to 0.57 USD,[8] more per week than their peers from the control group.

The intervention successfully improved knowledge and attitudes towards solar products among participants. Knowledge of targeted solar benefits increased by 17 percentage points and that of certified products by 33 percentage points. Trust in solar providers among intervention recipients was 5 percent higher, and aspirations to purchase solar increased by eight percentage points.[9]

The intervention also increased participants' belief that they could overcome obstacles while saving for solar products. Session participants were 28% more likely to feel more able to overcome challenges faced while saving for their solar goal. Moreover, intervention recipients reported a 38% increase in feeling supported to save by their VLSA. Additionally, there was a seven percentage point increase in respondents who had contacted solar companies after the treatment.[10]

VI. POLICY APPLICATIONS

This study is a valuable example of how a behavioral approach can inform the design, implementation, monitoring, and evaluation of programs and policies promoting clean energy access by addressing behavioral constraints while considering the underlying structural factors.

COMPLEMENTING TRADITIONAL ENERGY ACCESS SOLUTIONS FOR THE VULNERABLE REFUGEE POPULATION. The intervention is a valuable example of how a behavioral science approach to policy design and implementation can address psychological and social constraints (awareness, mistrust, and ability to commit to savings) while still considering the underlying systemic factors (financial access). Given the context of refugee settlements and lack of access to electricity, the findings are especially relevant for program activities and policy interventions improving vulnerable populations' access to and adoption of clean and conventional energy sources, as well as initiatives incentivizing income generation activities.

IMPROVING PROGRAM DESIGN WITH VALUABLE AND CONCRETE INSIGHTS FROM THE TARGET BENEFICIARY POPULATION. Relying on qualitative diagnostics to identify potential solutions and prototyping to zero in on program design and implementation details is a significant learning from this research. This process also allows for integrating nuanced, behaviorally informed aspects, enhancing the target population's appeal for and understanding of materials. For example, intervention materials stressed solar businesses' economic benefits and income-generating potential to align with entrepreneurial members' aspirational and financial goals within the refugee community.

LEVERAGING BOTTOM-UP, COMMUNITY-BASED SOLUTIONS TO ENERGY ACCESS AND BROADER CLIMATE AND ENVIRONMENTAL CHALLENGES. The study showed that VSLAs are a mechanism to overcome financial or risk-associated challenges and psychological and climate-risk-related constraints. As a de-risking strategy for communities and a venue for complementary training, VSLAs can provide members with the soft skills needed to effectively implement the desired saving and investment actions. This can further help ensure participants can continue to sustain a livelihood even in the face of events that force families to sacrifice immediate consumption for future needs, such as climate and environmental disasters. Lastly, the demonstrated success of leveraging trustworthy and supportive program implementation channels already integrated within the community (i.e., VSLA groups) opens the doors for other group-based strategies like social demonstrations, commitments, and edutainment activities.

PROMOTING TRANSPARENCY AND TRUST AS AN ADOPTION BOOSTER. The results suggest that when consumers place more trust in companies that have invested in getting quality certificates, the demand for those products increases with an adequate understanding of the companies' signaling. Therefore, regulators should reinforce energy access programs by paying attention to controls related to certification and labeling, including processes, enforcement, and advertising. Policymakers can identify ways to popularize and strengthen such certifications at a community level with low-cost, crowd-sourced monitoring solutions. These can improve consumer awareness and education and increase energy access.

ENDNOTES

1 The present research, including the field data collection activities, has been financed by the Carbon Initiative for Development (Ci-Dev), a trust fund administered by the World Bank, under the grant TF0B5183.

2 World Bank Data (2021). Available at: https://data.worldbank.org/indicator/EG.ELC.ACCS.ZS?locations=ZG-UG

3 UNHCR (2018). Uganda Country Refugee Response Plan. Available at: https://data.unhcr.org/en/documents/details/67314

4 Ibid.

5 De Martino, S., Sousa, J., Yagman, E., and Coony, J (2021). Clean Technology to Fuel Improved Living Standards: Uganda Energy Access Scale-up Project. Behavioral Diagnostics Note. Washington, D.C.: World Bank Group. Available at: http://documents.worldbank.org/curated/en/366291614075119578/Uganda-Energy-Access-Scale-up-Project-Behavioral-Diagnostics-Note

6 Data and documentation of the Refugee and Host Communities Household Survey 2018 can be accessed at: https://doi.org/10.48529/gvwc-vx89

7 In Village Savings and Lending Associations (VSLAs), members pool their individual savings to create a common credit source. The VSLA program in Uganda aimed to increase financing options for rural communities that lacked access to formal credit institutions.

8 Official exchange rate for August 24, 2023.

9 These results were statistically tested through econometric analysis and were significant at a 1% level.

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