

# Productive Use of Energy (PUE) in Rwanda



Country	Rwanda
Technology	Mini-grid
Project period	01/2020 – 07/2022
Budget	EUR 198,356
Partners	District offices, mini-grid developers, Saving and Credit Cooperatives (SACCOs) and suppliers of appliances
Implementers	EnDev Rwanda and AVSI Foundation
Objective	Increase electricity consumption through promotion of Productive Use of Energy at six mini-grid sites through the provision of business development support and grants to selected entrepreneurs.
Achievements until 06-2022	<ul style="list-style-type: none"> <li>• 97 entrepreneurs trained on business skills, of which 39% are women</li> <li>• 71 beneficiaries, of which 41% are female, purchased electrical appliances for productive uses through a matching grant</li> <li>• 70 entrepreneurs participated in the business incubation sessions (coaching)</li> <li>• One loan product for appliances was designed to facilitate access to financing for entrepreneurs.</li> </ul>

## Accelerating mini-grid development

The Government of Rwanda aims to accelerate access to electricity through off-grid solutions including mini-grids that can provide higher levels of electricity to both households, and

small and medium businesses. Through a results-based financing scheme, EnDev contributed to the development of two solar mini-grids, twenty-two solar nano-grids and one hydro power plant in Rwanda. However, mini-grids have not advanced at the desired pace, partly due to the limited financial capacity of customers to afford the electricity resulting in a lack of demand and operating cash flow for many mini-grid projects. As a result, the viability and sustainability of mini-grids remains a challenge as many developers are not able to maintain sufficient cash flow for operations and maintenance. Therefore, the economic viability of a mini-grid depends largely on the productive use of energy, which upsurges both electricity demand and the developer's revenue streams.

## Financing and skills for productive use of energy

EnDev Rwanda's PUE project focuses on the development and stimulation of productive use in existing mini-grid sites to support rural development of communities and mini-grid sustainability. EnDev, in partnership with AVSI, implemented a productive use of energy intervention at six existing mini-grid sites in Rwanda. The intervention created a win-win solution: on the one hand the entrepreneurs gained access to coaching, training and the provision of electrical appliances that allowed them to generate revenues; on the other hand, newly created businesses increased the demand for electricity.

The project also facilitated access to finance, whereby entrepreneurs were able to procure equipment through loans and a matching grant provided by EnDev. Project beneficiaries were selected through a business idea competition, whereby beneficiaries contributed between 30% to 50% to the purchase of appliances, with the remainder paid by a grant. The project also worked jointly with a financial institution to further facilitate access to finance. In parallel, suppliers were selected to provide quality electrical equipment and PUE appliances.

## Outcomes and Impacts

The project, which was implemented in six villages in Rwanda, conducted a scoping study at each site to assess the existing businesses as well as opportunities for business development. Business idea competitions were organized and about 158 applications (48% by female applicants) were submitted. Based on an affirmative action approach, women were given additional marks for submitting a business idea and were prioritized in case of equal marks between men and women. 97 of these applicants were selected for training.

The 97 selected entrepreneurs, of which 41% were female, received entrepreneurship and business skills training. These entrepreneurs were also eligible to benefit from the matching grant. Ultimately, 71 entrepreneurs purchased electrical appliances. The beneficiaries who succeeded in purchasing appliances received regular coaching sessions throughout the project period. To further facilitate the provision of appliances, agreements with six suppliers were signed.

Most entrepreneurs are active in the secondary sector such as shoe making, welding, bakery, carpentry and in the tertiary sector, including beauty salons, printing and gastronomy services. In addition, one entrepreneur decided to purchase an egg incubator for chick hatching.

## Lessons Learnt

Many lessons have been pulled out of AVSI's experience during the project implementation in Rwanda. Some beneficiaries tended to sell or relocate the appliances out of the mini-grid areas. To avoid this issue, AVSI established a measure to sign a grant and business agreement with the beneficiaries.

COVID 19 demonstrated that any unforeseen circumstances could be a barrier to project implementation: Some trained entrepreneurs who were interested to purchase the appliances decided to drop out during the COVID 19 pandemic. While the matching grant instrument was successful, the loan product performed poorly due to several barriers, such as lack of collateral and land title certificates, with only two beneficiaries able to secure loans.

Finally, mini-grid viability and sustainability remains a challenge for developers – which can heavily impact the intervention's success. During the project implementation period, some mini-grid developers faced technical issues and requested financial support from EnDev to repair/replace broken or obsolete mini-grid components. EnDev provided some support to mini-grid developers to ensure sustainability and availability of electricity to beneficiaries.



## From vision to reality (Impact story)

**Jean Baptiste NDAGIJIMANA** is a local farmer running hatchery business in the village of Rutenderi, Gatsibo District in the Eastern Province Rwanda where a solar mini grid supported by EnDev is installed. He has been working in a hatchery in Kigali city and harbored the dream of opening a similar business in his village. Through the PUE project, he could afford an egg incubator machine and now, started gaining profit from his own business.

*He said, "I have been trained on business skills and gained regular coaching from the project staff. This helped me to manage positively my business. Now it is well known in my community and people like chicks from my farm".*

Funded by:



Implemented by:



Published by:

Deutsche Gesellschaft für  
Internationale Zusammenarbeit (GIZ) GmbH  
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As of: November 2022

Photos:

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