endev

Energising change

Incentives for the private sector to promote solar-powered irrigation

Summary

Results-Based Financing (RBF) schemes have worked well for solar technologies for home use, and the SEFFA project wished to explore if RBF could also help stimulate access to productive use technologies for smallholder farmers (SHFs). SEFFA created an RBF for solar water pumps (SWPs) and five companies in Kenya and Uganda received funds for 4,000+ SWP sales in target areas in the two countries. Noting it can be difficult to ensure RBF schemes are truly increasing supply in targeted geographies, SEFFA's interventions aimed to address several problems witnessed in RBF programmes. The structure of the RBF included the acquisition of sales reports, data sampling for verification, ascertaining contract terms, and exclusion of ineligible sales from across the companies by a third-party verification company. The achieved outcomes involve validation of sales transactions and compliance checks, contributing to the appropriateness and accuracy of sales data for calculating incentives and assessing project performance.

Quick Facts

Kenya, Uganda

Solar Water Pumps (SWP), Horticulture and Dairy

284,000 EUR

5 Private Sector SWP Supply Companies

GIZ, SNV

RBF

To incentivise SWP supply companies to service customers in target areas via an RBF and thereby measure the effect of RBF on SWP supply in rural areas

Over 10,000 farmers were reached through awareness raising in Kenya alone
4,000+ SWP sales through 5 companies in 2 countries

- Solar water pumping for irrigation in horticulture and/or water for animals or fodder production in the dairy value chain
- Crops: Fruits and vegetables

The companies who received RBF funds also employed strategies like energy conservation campaigns and product use education, alongside the advantages of SWPs for sustainable water pumping applications. With the high uptake of sales from this RBF process the instrument shows promise in increasing the supply of SWPs in countries where there is a sufficiently developed solar equipment private sector.

Problem statement

Once a PUE technology is at scale and the private sector is reasonably mature, the market should be able to respond and supply the demand. However, it is often not very profitable to serve customers in remote areas so SHFs wishing to access SWPs may not find a vendor in their local area. The SEFFA RBF facility is intended to reduce or mitigate market barriers and challenges constraining the last-mile distribution and uptake of SWPs at scale.

Additionally, it can be difficult to ensure RBF schemes are truly increasing supply in targeted geographies. Therefore, SEFFA aimed to address these difficulties by designing their RBF to include safeguards for adherence to contractual provisions, eligibility for receiving RBF incentives, data quality and accuracy, and product eligibility.

Assumptions

- Cost of sales is preventing companies from serving more remote customers with SWPs.
- The data used for RBF sales analysis is reliable and can be used as a basis for drawing conclusions and making decisions.
- The documentation is reliable and can be used to validate the claims made by the beneficiaries, ensuring transparency and accountability in the RBF programmes.

Business Case Details

As a private company in solar equipment supply, the impetus is to concentrate on customers for which the cost of sales and service is lower. This often means that sales activities are concentrated near urban centres and that SHFs who would most benefit from productive use equipment on their farms, cannot find a point of sale or after-sales service for such equipment in their local area. The more remote the area, the higher the cost of sales and service provision are for the companies, and the lack of businesses selling in rural and remote areas creates a logistical barrier to PUE adoption for SHFs.

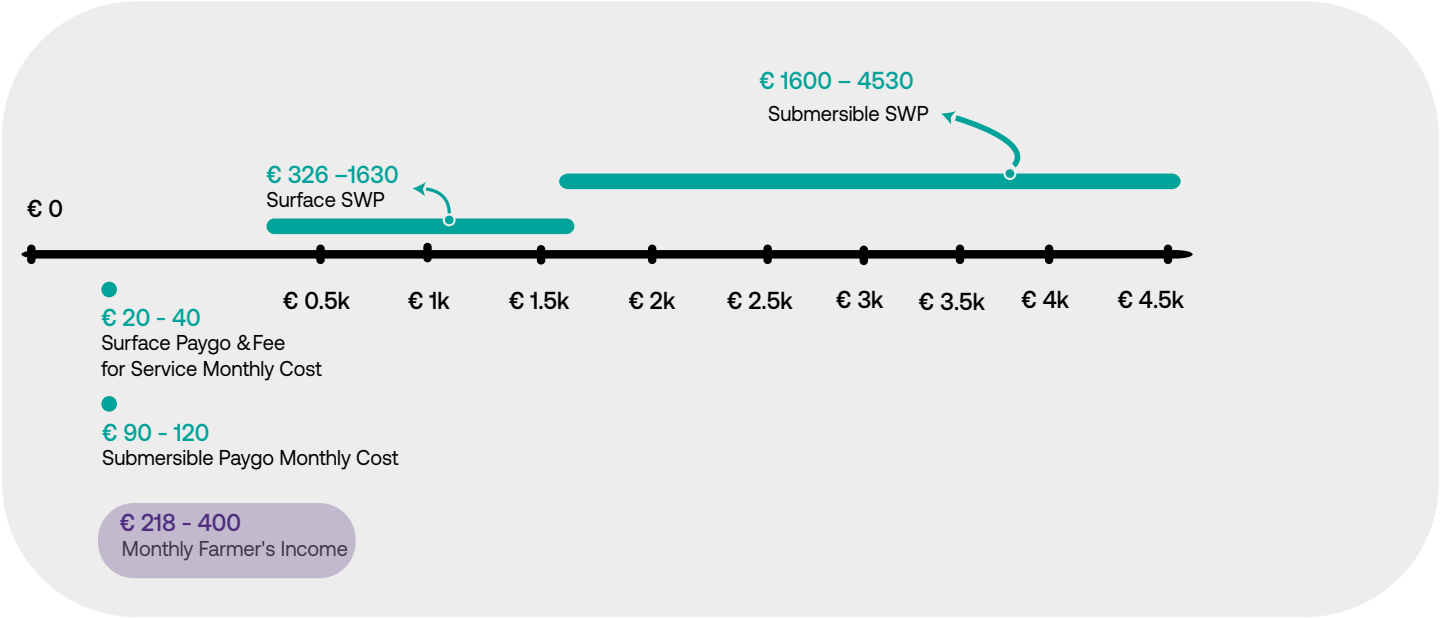


Figure 1: Affordability Gap for SWP: Equipment prices, Farmer incomes and PAYGO fees

The SEFFA project wished to study the effect of introducing RBF for private companies on the supply of SWPs in Kenya and Uganda. Performance-based grants were disbursed based on the attainment of specific performance indicators or targets.

This meant the programme design needed to tackle issues of compliance, as the initiatives sought to verify adherence to contractual provisions and eligibility criteria for receiving RBF incentives. Data quality and accuracy were also crucial, with the RBF reports focusing on verifying complete and correct data captured to ensure accurate calculation and payment of incentives. Product eligibility was another problem identified, ensuring that only approved products were claimed. Furthermore, documentation review was emphasised to ensure all transactions and claims had adequate support.

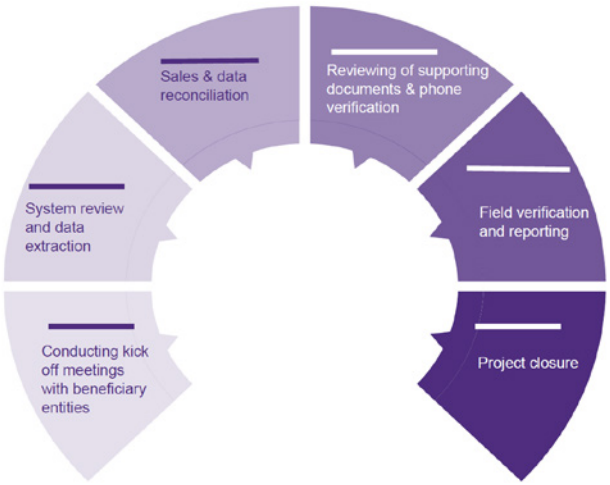


Figure 2: RBF Verification Process

Lastly, the reports aimed to identify anomalies and findings that could affect the credibility and transparency of the RBF programmes, such as duplicate sales orders or discrepancies between beneficiary and project data. These grants were designed to encourage and reward the achievement of desired outcomes, and this is reflected in the verification process by SEFFA.

Across the initiatives in Kenya and Uganda, five companies supplying SWPs received funds from the RBF. Several financial instruments were applied to support and incentivise the implementation of the RBF programmes.

These instruments included Output-Based Aid (OBA) linking payment to the delivery of pre-defined outputs or outcomes. For instance, SunCulture in Kenya was provided incentives based on the number of solar systems sold and installed by the beneficiary. Performance-based grants were disbursed based on the attainment of specific performance indicators or targets. Similarly, SunCulture indicates that "the payment rate is fixed at EUR 650 per verified and approved system installed."

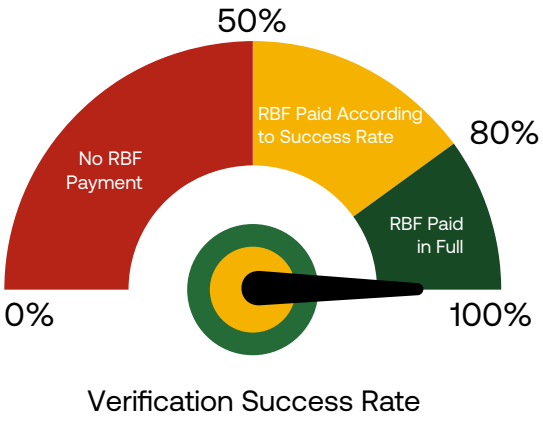


Figure 2: How RBF funds were claimed by the companies

For Sprinkletech from Uganda, the performance-based financing mechanism was used to incentivise service providers or suppliers to meet agreed-upon performance indicators. For Sprinkletech, this meant that "Payment will be based on the verified 850 units delivered." Many of the models used could be considered investment-based financing, providing funds to support the development or expansion of a business or project. The initiatives highlighted that demand activation strategies were critical in promoting buy-in and acceptance of the products and services offered under the RBF programmes. Local authorities, community-based organisations, and awareness campaigns were utilised to strengthen demand for the products or services. For instance, Aptech in Uganda indicates that "Community mobilisation efforts involved partnerships with local governments, print media, and mass sensitisation campaigns." At the same time, strategies such as energy conservation campaigns and appropriate product use education were utilised to foster sustainable practices. For example, in Kenya's Epicentre case, "the programme sought to educate users on energy conservation measures to optimise the use of their systems and minimise wastage."

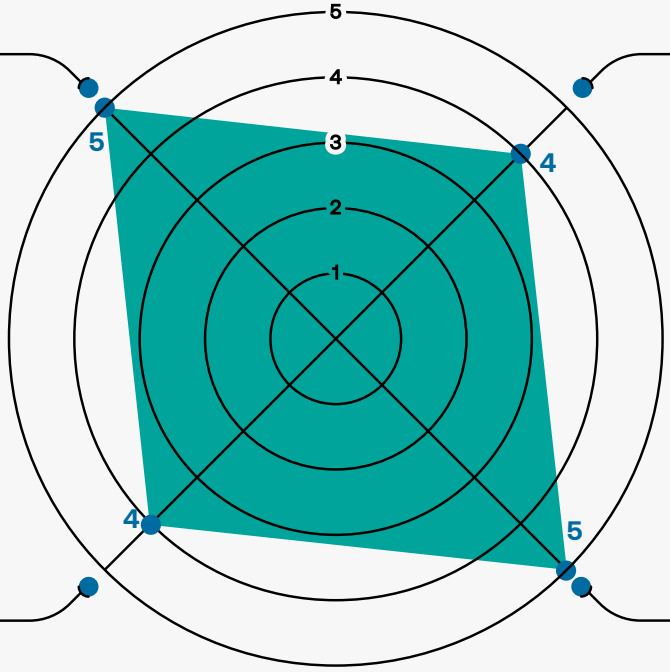
Business Case Attractiveness

Long-term outlook

The involvement of established private companies and independent verification agents contributes to project sustainability. Market development activities, such as market activations and sales strategies, are likely included, which contributes to sustainability of the approach.

Business viability

The availability of RBF has been shown to reorient equipment companies' business strategies towards harder-to-reach areas, as the funds make it more profitable for them to do so.



Financial viability

RBF promotes an outcome-focused approach, linking payments directly to results achieved and shifting the emphasis from inputs and activities to measurable impacts for established and viable private sector companies.

Technical feasibility

At the stage that RBFs are implemented, the technology should already be proven technically and sold commercially. SWPs offer numerous advantages that make them a favourable choice for water pumping applications and are a scalable technology.

Outcomes

The cases outline various activities and processes carried out as part of a review of sales transactions and project documentation related to RBF projects.

- Implementation of replicable systems of verification for RBFs related to PUEs. Overall, the achieved outcomes include validation of sales transactions, compliance checks, and reviews of the appropriateness and accuracy of sales data.
- Awareness raising among 10,000+ farmers, 8,000+ qualified sales leads for SWPs and over 4,000 SWPs sold into target areas.

Key Takeaways

Project Design

- Ensure the project design includes clear guidelines for product eligibility and compliance with the RBF facility.
- Develop robust financial models to accurately calculate and incentivise sales based on predetermined criteria.

Overcoming Financial Barriers

- This RBF did not target financial barriers for farmers to adopt SWP technologies directly, however, RBF payments were used to assist some companies in offering demand-side financing to farmers (via consumer credit and PAYGO

Overcoming Logistical Barriers

- RBF is an effective tool for increasing the SWP supply in rural areas

Overcoming Farmers' Barriers

- Provide training and support to farmers on the proper use and maintenance of solar-powered water pumps.
- In switching from diesel powered irrigation cost reduction is likely to be the basis for return on investment rather than productivity increases.

Overcoming Technology Specific Barriers

- SWPs are a reasonably mature technology and scalable in many countries. RBFs are an appropriate tool to speed up access to SWPs where the private sector is mature, and the companies are of a sufficient size to handle RBF reporting requirements alongside their usual business.

Overcoming Value Chain Specific Barriers

- Most crop chains can see productivity benefits from irrigation and communicating the cost-benefit to farmers is useful in horticulture chains.

Understanding the Context of SEFFA: Farmers' experience

Several layers of barriers to the adoption of PUE technologies.

Iconography

Financial Instruments

Result-Based Financing

Innovation Fund

Fee-for-Service

Consumer Credit

Lease-to-Own

Types of Barriers

Farmer

Logistics

Technology Related

Financial

Value Chain Related

Agriculture Chain

Dairy

Horticulture

Technologies

Irrigation

Cooling

Drying

Other

Total Budget

Farm Size

Location

Ethiopia

Kenya

Uganda

About SEFFA

The Sustainable Energy for Smallholder Farmers (SEFFA) in Ethiopia, Kenya and Uganda project was designed by leveraging over 15 years of practical experience of EnDev. The strategic partnership identified lack of modern energy access as one of the critical development barriers in rural areas since it undermines agricultural productivity, exacerbates pre- and post-harvest loss, and makes it challenging to store and process produce. The IKEA Foundation has provided an €8 million grant to support EnDev's efforts. Learn more about the project here.

About the IKEA Foundation

The IKEA Foundation is a strategic philanthropy that focuses its grant making efforts on tackling the two biggest threats to children's futures: poverty and climate change. It currently grants more than €200 million per year to help improve family incomes and quality of life while protecting the planet from climate change. Since 2009, the IKEA Foundation has granted €2 billion to create a better future for children and their families. In 2021 the Board of the IKEA Foundation decided to make an additional €1 billion available over the next five years to accelerate the reduction of Greenhouse Gas emissions.

Learn more at: www.ikeafoundation.org or by following them on LinkedIn or Twitter.

About EnDev

The Energising Development (EnDev) programme is funded by the German Federal Ministry for Economic Cooperation and Development (BMZ), the Netherlands Ministry of Foreign Affairs (DGIS), the Norwegian Ministry of Foreign Affairs and the Norwegian Agency for Development Cooperation (NORAD) and the Swiss Agency for Development and Cooperation (SDC). The programme is implemented in 20 countries across Africa and Asia in close cooperation with leading international organisations and key local stakeholders.

EnDev is jointly coordinated by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Netherlands Enterprise Agency (RVO.nl) with strategic partnership is with the SNV being one of the most prominent partners. Learn more at www.endev.info

Funded by:

german cooperation
DEUTSCHE ZUSAMMENARBEIT

Ministry of Foreign Affairs of the Netherlands

Norad

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

Co-financed by:

IKEA Foundation

Coordinated and implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Netherlands Enterprise Agency

SNV