Affordable Portable Solar Pumps for Small-Scale Farmers | Zambia

The challenge

There are no affordable solar pumps on the Zambian market and saving schemes and credit systems are expensive in vast rural areas and weak currencies.

Farmers would be helped with portable pumps which can be carried to their fields. A solar pump can help the farmer grow an additional crop in the 6-month dry season. However the current market offers no light weight affordable mobile pumps.

Options that are available have challenges with the availability of spare parts and with NGOs who (with good intensions) they often damage a commercial market by simply giving away products.

Figure 1: The pump is design with two panels and comes with a hose. It can pump from max. 15m depth.

Our approach

The project will add a solar pump to the market that is more portable and cheaper than other solar pumps and that can be bought with the income of one average harvest from a small-scale farmer.

The aim is to redesign the current Jacana portable solar pump to be suitable for bulk production, transport and storage. It will be an “Ikea-like” product / construction kit.

The project will make sure SMEs will play a vital role in distribution and the logistic process and software will be developed and tested to guide distribution along the proper channels.

The investment required for the purchase of the portable solar pump can be recovered within one growing season.

The goal

The goal of the project is to establish the supply chain of the Portable Solar Pump and to prepare the design for further scaling.

Through the supply chain and the network of re-sellers, the pump becomes accessible to farmers and households in (rural) Zambia and enables them to extend the growing season for their crops.

Through the introduction of the portable solar pump in Zambia, a foundation is laid for the further introduction of the pump to other countries (Kenya, Tanzania, Malawi, South Sudan and beyond).

Project name	Affordable Portable Solar Pumps for Small-Scale Farmers
Project region	Eastern Province, Zambia
Financed by	Netherlands Enterprise Agency, through the Partners for Water facility.
Implemented by	Jacana Business Development and GOPA MetaMeta.
Duration	06/2024 – 05/2026
Partners	Jacana Foundation

Key highlights

The following major achievements were reached during the project:

- ✓ Technical improvements to the initial pump design such as dry-run protection, usb-chargers, pre-filter and panel stand.
- ✓ Introduction of the pump to 20+ resellers.
- ✓ Development of website to provide exposure to re-sellers and explain the specifications of the pump (https://portablesolarpumps.com/home)
- ✓ Development of website (https://self-supply.com/) and app to track sales and provide after sales service.
- ✓ Manuals developed for the users, including a troubleshooting section.
- ✓ Exposure of the product through attendance of conferences, display at agricultural fairs and inclusion in the ADB e-marketplace.
- ✓ In preparation for the upscaling to other countries in the region, the project has been able to ship sets to distributers in 8 countries, leading to multiple follow-up orders.

Figure 2: Users of the pump, shown through the monitoring system at https://portablesolarpumps.com/

Examples of our success

As of January 2026 over 750 sets of the Portable Solar Pump have been sold. Of these 200 are partly sponsored through the project, and the others are bought by the user at full cost ±$200).

The feedback from users has been very positive so far. Recently a user-satisfaction survey was held under 100 users and this showed 99% of the pumps was working and 85% was satisfied with the daily water output.

Voices from the field

"One of the first obvious observations was that it is a daily routine for farmers to walk far distances to their fields. It became clear that these are not places where you could leave pumps or panels unattended. The portable solar pump provides a very suitable solution for this challenge."

Bart Wessels, BSc student Wageningen University

"The solar pump has helped me grow crops in the dry season and reduce the risk of crop failure during in the rainy season, when dry spells occur"

Farmer in Eastern Zambia

"Farmers from the recipients' networks are also buying pumps. They've seen the success of the voucher programme, know where to find the shops and because the pump is affordable, they can purchase it without sponsorship."

Rik Haanen, Director Jacana Zambia

More info:

- https://portablesolarpumps.com/
- https://self-supply.com/
- https://smartcentregroup.com/

Published by:
GOPA MetaMeta
Nude 54D
6702 DN, Wageningen
The Netherlands

For further information, please contact:
reinier.veldman@gopa.eu

As at: January 2026