



Photograph of the solar parabolic dryer
Abahuzamugambi Ba Kawa Maraba
Rwanda

Inclusive Energy Fund Case Study 1

Installing a solar parabolic dryer for more efficient
and environmentally friendly coffee processing

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FOUNDATION

IEF Case Study 1

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- Cooperative: Abahuzamugambi Ba Kawa Maraba
- Country: Rwanda
- Theme: Clean, green energy for production

Introduction

Abahuzamugambi was founded in 2002 and the cooperative members aim to work together to combat poverty by producing high-quality coffee that is competitive in both local and international markets. They were the first cooperative to process specialty coffee through a coffee washing station in Rwanda and currently oversee and manage four coffee washing stations: Sovu, Kibingo, Kabuye and Cyarumbu. The cooperative has approximately 1,560 members of which around 56% are male and 44% are female.

Project Objectives

One of the key focus areas for Abahuzamugambi through the IEF project was to increase the availability of clean and green energy products for productive use and shared benefits. They therefore chose to use some of their IEF funding to build a solar parabolic dryer for coffee parchment drying at one coffee washing station (Sovu). A solar parabolic dryer is an improved and advanced form of a greenhouse solar dryer which is typically used for drying food and agricultural commodities. It contains a parabolic reflector that concentrates sunlight to generate higher temperatures and to accelerate the coffee drying process.

Abahuzamugambi hoped that the impact of building a parabolic dryer would be increasing coffee quality, facilitating easier processing of the coffee harvest and reducing money spent on coffee drying tables. Moreover, the cooperative observed that currently trees are cut down and used for constructing new drying tables each year – building a parabolic dryer is a longer-term, effective and more sustainable solution to drying coffee with lower environmental impact than current approaches. Parabolic dryers can also enhance food preservation, reduce post-harvest losses and are more energy efficient than use of fossil fuels.

Challenges and Lessons Learnt

There were some challenges in the process, including planning building around the rainy season, initial difficulties in levelling the land to prepare it for building the parabolic dryer and finding enough skilled technicians to install the solar parabolic dryer. The challenge around technicians

was mitigated by organising a field trip for the technicians to visit where the solar parabolic dryer would be installed. The cooperative also reflected that there were some implementation delays due to difficulty in accessing the materials needed – noting that better planning and preparation could help avoid these challenges in future.

Successes

In April 2024, the cooperative were able to install the solar parabolic dryer at Sovu coffee washing station. Now that the drier is in active use, the General Manager noted that they are already seeing some early benefits and impacts.

The parabolic drier has a triple drying bed in one space, which has reduced the amount of space used previously with drying tables. Cooperative members in the Sovu area are no longer cutting trees to get poles to be used in making drying tables. He reflected there have been improvements in efficiency as the time taken to dry coffee has also reduced - the ordinary drying tables take over two weeks for coffee to dry whereas the parabolic drier takes less time. Additionally, the parabolic drier needs less human resource than drying tables and therefore reduces costs that would have been spent on casual workers before.

Next Steps

In the longer term, the cooperative notes they will save the money that is spent in repairing coffee drying tables every year and on casual labour. The cooperative also hopes to see improvements in coffee quality as a result of using the parabolic drier. The General Manager highlighted that the cooperative are now planning to buy more parabolic driers to cover all of their coffee washing stations.

"If not for the IEF project procurement grant, we wouldn't have bought a parabolic drier, but now we are planning to buy another parabolic drier because we have four coffee washing stations and they all need parabolic driers"

Biziyaremye Theophile, age 44, General Manager
