

Green World Renewable Energy



Executive Summary

Grean World Energy Technology PLC aimed to address the lack of clean affordable irrigation technologies in Ethiopia by introducing cost-effective solar-powered irrigation solutions that can significantly reduce operational costs. Through the utilisation of a results-based financing (RBF) model, their PAYGO system hoped to overcome financial challenges, while its decentralisation empowers farmers by giving them control over their water supply, reducing their dependence on centralised infrastructure.

Their journey highlighted the challenges of doing business with macro-economic uncertainty, how start-up businesses can be hindered by lack of access to finance, and how inflation can adversely affect their planning.

The joint project between SEFFA and Grean World was beset by issues in access to foreign exchange (forex) and bank loans due to national problems within Ethiopia. Furthermore, a financial due diligence exercise of Grean World conducted by SNV showed some risk in their procedures and processes.

In the end, the liquidity and foreign currency problem in Ethiopia was beyond the company's mitigation plan and there were difficulties in retaining staff. The price inflation during the project and the non-availability of solar-based irrigation technologies were major problems and Grean World decided to minimise the number of solar water pumps (SWPs) and to upgrade the Grean World's PAYGO system. Ultimately, the project did not succeed due to a combination of external forex issues and internal financial process weaknesses within the company.

Case Data

-  Ethiopia
-  Solar Water Pumps (SWP)
-  EUR 22,500
-  SNV
-  Grean World Energy Technology PLC
-  To address the problem of limited access to reliable and efficient irrigation services for smallholder farmers in Ethiopia
- 
 - Learnings for future project design
 - Due diligence considerations for fund release for the implementing organisation
-  Innovation Fund
-  Crop: Cabbage, potatoes, tomatoes

Problem statement

Many SHFs in the region struggle with limited access to reliable irrigation service, especially in areas with restricted availability of electricity or conventional irrigation methods. This hinders their agricultural productivity and crop yields, impacting food security and their incomes. Additionally, high upfront costs associated with traditional irrigation systems create a financial burden for SHFs.

Assumptions

The assumption was that access to financing was the main barrier to SWP adoption in Ethiopia and that leasing and usage-based financing solutions like PAYGO systems would help.

Business Case Details

In the pursuit of their mission to create a lasting impact within the community, Grean World embarked on a groundbreaking journey with SNV, the co-implementer of GIZ for the SEFFA project. The goal was to introduce a transformative financing model that would revolutionise irrigation services. The use of solar-powered irrigation systems was a key technology employed by Grean World. These systems provided reliable access to irrigation services by harnessing solar energy, which was both a renewable resource and cost-effective.

By using clean renewable energy, the company reduced greenhouse gas emissions and mitigated the impact of agriculture on climate change. Additionally, the company recognised the power of technology and developed a mobile app as the cornerstone of its innovation. This app connected farmers to the transformative benefits of solar-powered irrigation systems.

- Grean World aimed to create access to SWP systems with two feasible options: Lease-to-own model where consumers pay for the entire product in small instalments and own the product after settling preset payment in full.
- The usage-based payments model where customers prepay for the electricity supply (in kilowatt-hours).

These options solve financial problems which are among the major inhibiting factors for SHFs in irrigating their land. The solution is innovative in the sense that it employs sustainable, green, affordable energy with feasible financing technology for small-scale farmers, enabling individual farmers or SMEs to access water for irrigation. To support the system, the Grean World technical team developed a mobile app that integrates their PAYGO system with Telebirr, a popular national mobile payment service.

Yet, when Grean World turned to commercial banks in search of loans, they encountered a sobering reality. The banking landscape in Ethiopia was marred by a severe liquidity crisis, leaving many institutions unable to extend the financial lifeline to support business development.

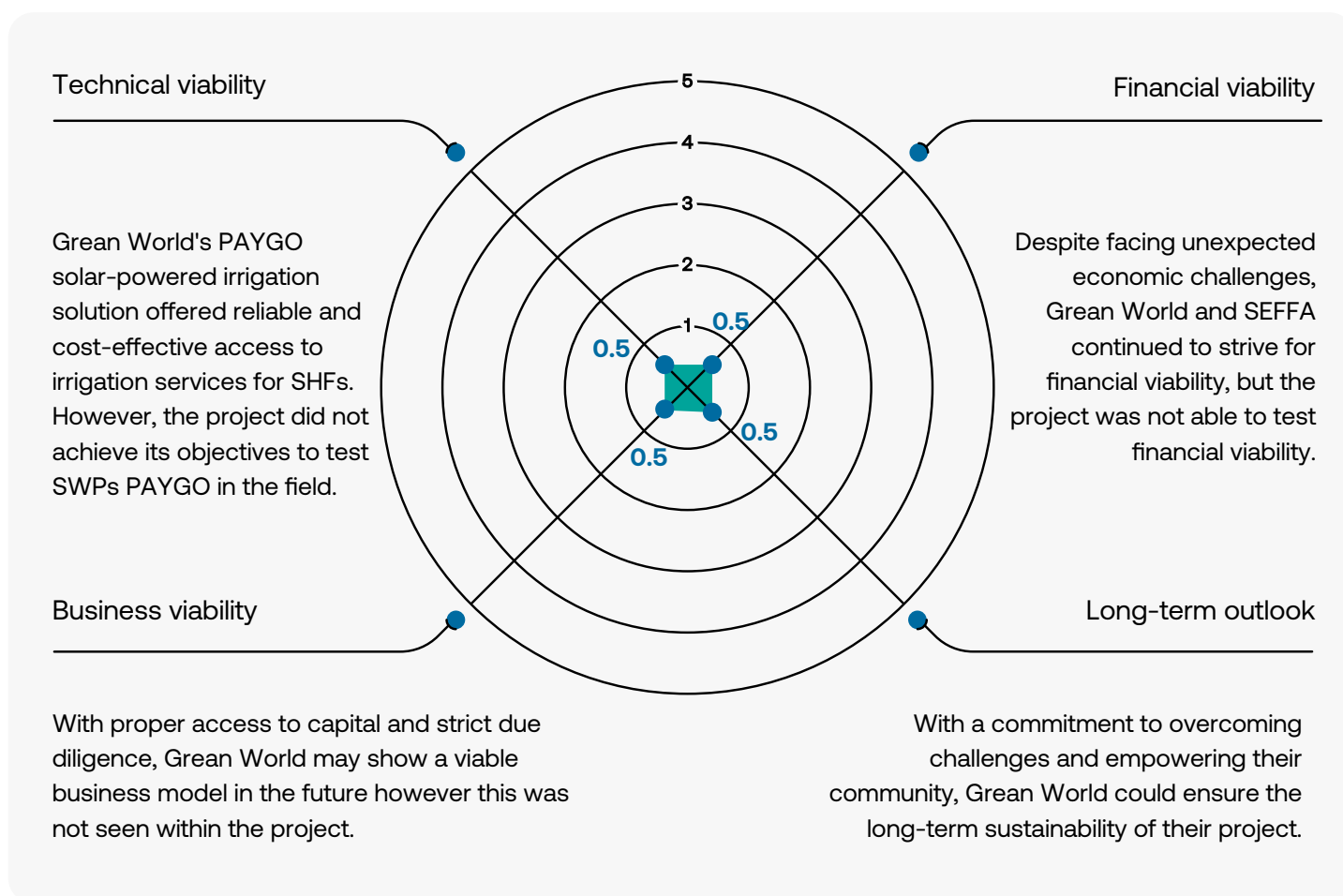
When internal record-keeping weaknesses prevented Grean World from receiving the innovation fund grant which had been earmarked for them, the SNV team decided to alter the arrangement and offer them support from SEFFA via an RBF scheme. Grean World sought to promote behaviour change among SHFs and activate demand for their solar-powered irrigation solutions and in doing so contribute to poverty reduction, improved livelihoods, and economic development in rural areas. The RBF award would help them to take their solution into rural areas by defraying the cost of doing business.

Grean World's journey took another unexpected twist as inflation rates began to rise. This unforeseen economic challenge threatened to inflate project costs, particularly for the crucial components of the initiative – the irrigation pumps and the mobile app for PAYGO services that formed the core of their offer. The proposed budget was strained under the weight of these cost escalations, casting doubt on the viability of the project.

Grean World refused to be disheartened and believed that a locally adapted mobile app for PAYGO SWPs could transform irrigation services, offering a lifeline to SHFs, and contributing to food security in their community. However, by the close of the SEFFA project, Grean World has been unable to fulfil its objectives due to both external factors (forex issues and liquidity crisis) and internal management issues (deficiencies in record keeping and financial governance).



Business Case Attractiveness



Outcomes

Although the Innovation Fund and RBF approach did not work to overcome the difficulties faced by Grean World and SNV on this project and outcomes were not achieved, there were nonetheless some learnings:

- Due diligence in any fund release is critical and should not be limited to technical and financial aspects but also check record keeping and management.
- Flexibility in financing is advised: if due diligence fails for an innovation fund grant, a results-based release of money could be considered.
- The ability to reverse a financing decision based on due diligence is key.

Key Takeaways



Project Design

- Feasibility studies on the introduction or expansion of the PAYGO solar-powered irrigation solutions are recommended.
- Economic factors such as inflation need to be factored into project design and contingency plans.
- Project design should tackle the lack of financial institutes that incorporate the SWP PAYGO model in their loan products.
- Project design should ensure that disbursement of funds is subject to due diligence and the project lifetime needs to allow sufficient time for this.



Overcoming Financial Barriers

- PUE companies in Ethiopia need to research alternative sources of funding, such as grants and impact investors, to mitigate the risk of relying entirely on banks.
- Support PUE supply companies by establishing partnerships with financial institutions to mitigate against risks on forex and inflation.



Overcoming Logistical Barriers

- Project supported PUE supply companies should show how they plan to develop a reliable and efficient supply chain to ensure speedy delivery of irrigation pumps.



Overcoming Farmers' Barriers

- Community outreach programmes to educate farmers on the benefits of the PAYGO SWPs showed benefit.
- Training sessions to farmers on the efficient use of the irrigation pumps and the mobile app are needed to support uptake.



Overcoming Technology Specific Barriers

- SWPs are high-value assets and adoption is more difficult to support when there is a lack of access to forex and in situations of high inflation.
- Identifying the right farmers for whom the PAYGO model works is critical as lease-to-own assets require a degree of financial and business literacy.



Overcoming Value Chain Specific Barriers

- SWP should be considered for high-value horticultural crops like the production of seedlings for fruit and cash crops (coffee).

Understanding the Context of SEFFA: Farmers' experience

Several layers of barriers to the adoption of PUE technologies.

Technologies



Financial Barrier



Logistical Barrier



Farmer Internal Barrier



Farmers



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



Irrigation



Cooling



Drying

Other



Total
Budget



Farm
Size



Ethiopia



Kenya



Uganda

Technologies

Location



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

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