Malawi Irrigation

Country	**Malawi**
Name of Company / Implementer	**Smart Energy Enterprise**
Type of Business Model	**Lease-to-own**
Type of Use Case	**Solar irrigation**

Summary

SEE in Malawi has implemented an innovative lease-to-own business model for solar-powered irrigation systems targeting smallholder rice farmers in Northern Malwai. Smart Energy Enterprise (SEE) was contracted through an open call by Siemens Foundation under the SESA project and has received support from the SESA incubator program. Throughout the SESA project, SEE introduced the Kanyumba Solar Irrigation Package, designed for rice farming using surface water sources. The model enables farmers to pay in installments aligned with harvest cycles, improving affordability and accessibility. Embedded digital management systems, after-sales services, and strategic partnerships with financial institutions and NGOs enhance sustainability. SEE managed to demonstrate viability of their approach within the SESA project period.

The model

Lease-to-own model. Total Price: 6,300,000 MWK (3,150 Euro). 20% down-payment for solar irrigation pump, followed by two installments (40% each) which are temporally aligned with the harvesting seasons. Customer segment: smallholders and commercial farmers. SEE has established partnership with financial institutions who provide loans to farmers to buy SEEs product based on a digital loan and pump management system, which allows SEE to shut down the irrigation system until payment is made.

Key figures under the SESA project

- 25 solar pumps sold
- 100% increase in yield for users of solar pump

Key Lessons Learnt

Flexible Payment Model

The lease-to-own model with a Pay-As-You-Grow approach proved highly effective for smallholder farmers. Bundling the irrigation system with extension services and market linkages significantly increased loan repayment rates (96%) and farmer income.

Product Innovation

SEE developed the Kanyumba Solar Pump Irrigation System, a movable pump house that enhances security and portability and protects equipment from flooding and theft. In addition, it also includes digital loan and pump management systems improved monitoring and reduced default risk. It also developed trust among the customers for their product and services.

Customer Segmentation & Market Strategy

Initial focus on resource-poor farmers was challenged by dry spells and low income. SEE improved their existing outreach methods to the target customers during the SESA sub-contract period. SEE diversified their target customers by including new customers/farmers who have higher ability to adopt the solution and make payment for the product in short duration of time. Referral marketing via Agricultural Extension and Development Coordinators (AEDCs) replaced costly community sensitization meetings and proved more effective.

Seasonality of Irrigation Business Models

SEE introduced diverse revenue streams to overcome the rainy season in which there is no market for new solar irrigation systems.

Impact on Farmers

Farmers doubled their rice production from 3 tons/ha to 6.2 tons/ha. Income increased from MWK 2.4M/ha to MWK 5M/ha, improving food security and livelihoods. Farmers now earn MWK 15.8M/year from combined rain-fed and solar-irrigated farming.

Figure:
The Kanyumba Solar Irrigation Package

Next steps

SEE plans to expand regionally and into neighbouring countries such as Tanzania, Mozambique, Zambia and Zimbabwe and diversify income streams through agro-dealer shops, construction services, and digitalization of its business model. Key recommendations include developing smaller, affordable solar irrigation systems for farmers with limited land, strengthening partnerships with financial institutions and NGOs to enhance accessibility, and improving supply chain resilience by sourcing from international suppliers. Continued investment in after-sales services and extension support is vital to ensure loan repayment and farmer success. SEE will also refine its marketing strategy and product design based on customer feedback to sustain growth and impact.

About the company/implementer

Smart Energy Enterprise (SEE) was established on March 6, 2017, is located in northern Malawi, and has a team of 11 staff. SEE specializes in selling affordable solar pump irrigation systems to small-scale farmers that aims at enhancing their food and income security while mitigating the effects of climate change.

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