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Implemented by:
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In cooperation with:
MINISTRY OF ENERGY

Solar Power for Ghana's Agricultural Production

Green People's Energy (GPE)

The challenge

Despite the pivotal role of agriculture in the Ghanaian economy, farming is predominantly seasonal due to the excessive dependence on rain for agriculture. Coupled with this is the incidental impact of climate change on rainfall variability worsening the situation. This affects the robustness of the agriculture value chain in Ghana.

Irrigation as a solution to curb seasonal farming is incumbent on energy, however, the availability of grid-based electricity for rural farming is unstable or nonexistent. In addition, powering irrigation for all year-round agriculture has been soaring due to increased cost of electricity from the grid or diesel for gen-sets. Solar Powered Irrigation System are sustainable and cost-saving alternative.

Our approach

To help improve the agriculture sector and the livelihoods of people, the Green People's Energy Project aims to foster investment into Solar Powered Irrigation Systems (SPIS). Farmers, small-scale enterprises, NGOs, cooperatives, women's groups, and other stakeholders in rural areas are supported through technical validation and financial incentives on a results-based financing (RBF) scheme.

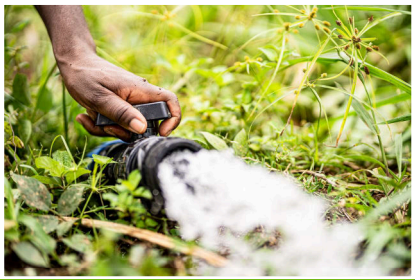
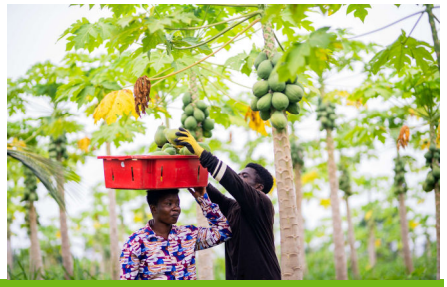
The scheme supports the farmers with a technical evaluation of the SPIS offers from local solar pump companies, which receive up to 40% of the costs for the SPIS installation after successful commissioning. As a measure for gender inclusivity, women farmers and women groups received 50% incentive of the entire SPIS cost to help promote more female investment in renewable energy for agriculture.

Additionally, technical training support was given to local solar pump companies to upskill their knowledge on SPIS. As part of government support, a licensing scheme was to be created to ensure quality standards and installation of solar pumps.

The project adapted to the following strategies to reach its desired outcomes.

- *Support rural farmers, agribusiness, and women's groups to invest in productive use of renewable energy*
- *Collaborated with 5 local solar pump companies to supply and install 150 Solar Pump Irrigation System (SPIS)*
- *Technical Evaluation of SPIS designs before and after installations*
- *An incentive of 40% of the farmer's entire SPIS cost. This shall be granted to the solar pump companies, who supply the system to their customer.*
- *Maintenance agreement of installed SPIS to enforce sustainability*

Supporting Solar Pump Irrigation Sytems for farmers in rural arreas

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The Results

- 148 agribusiness have been reached by the five solar pump companies to apply for the SPIS investment
- 93 agribusiness have been fully supported to install and use SPIS for their farming activities
- Out of the 93 beneficiaries, 27 are female
- Local financial institutions have been included to provide funding for the investments
- An operation and maintenance manual on SPIS has been developed and distributed
- A partnership with government agencies such as Ghana Irrigation Development Authority (GIDA) for the registration and monitoring of implemented SPIS is in place
- Energy Commission introduced a licensing scheme for solar pumps service providers
- Representatives from all 5 solar pump companies received technical training support.
- Workshop to sensitize famers, farmer-based organisation, and financial institutions on the benefits of investing in SPIS have been launched
- A digital data management tool (KoBo Collect) for collecting beneficiary's data has been used

Project name	Green People's Energy
Commissioned by	German Federal Ministry for Economic Cooperation and Development (BMZ)
Project region	Ghana
Lead executing agency	Ministry of Energy
Duration	**10/2019 – 09/2023**

Some lessons learnt for supporting solar irrigation systems for smallholder farmers through the result-based financing approach

The intervention brought by the Green People's Energy Project has contributed to the growth of Ghana's agriculture sector. It has also provided the platform to discover innovative ideas and strategies in promoting renewable energy investment for agriculture.

Lessons learnt:

- The SPIS technology being installed by the solar pump companies is very user friendly, but more financial support is neded for the uptake of the technology.
- Solar pump companies should ensure to conduct a site visit assessment and evaluation prior to designing the systems, for most farmers in the rural communities do not have accurate data or enough knowledge on their farming activities such as water source details, irrigation needs, expenditure and incomes.
- Some of the farm sites are are very difficult to locate, not easily accessible and language barrier sometimes contributes to that. Site visit must be coordinated with farm owner and solar pump installer.
- A standardize mounting structure template must be designed for the installer to use. This creates design uniformity and helps with easy assessment of the structures.
- Solar pump companies should be encouraged to train local representatives to conduct maintenance of systems without technicians travelling long distance for maintenance activities.
- Training on SPIS must be organized by government bodies, development organization and educational sector to promote the uptake of renewable technologies.

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