



**Technical Assistance:** Solar irrigation for smallholder farmers: Innovative financing, policy support, and tailored training

**Location:** Ghana (nationally)

**Solution:** Solar Powered Irrigation Systems (SPIS) integrated with innovative financing mechanisms and tailored training modules

**UNEP CTCN grant:** USD 243,807



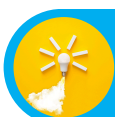
Example of Solar Powered Irrigation System with pump. © UNEP-CTCN

In Ghana, smallholder farmers struggle with water scarcity due to climate change. The adoption of Solar Powered Irrigation Systems (SPIS) to provide sustainable irrigation remains constrained by financial barriers, a lack of information, standards and enabling policies. This initiative aims to raise awareness and enhance the understanding of costs and benefits of SPIS technologies in Ghana, define business models and innovative financing mechanisms, and formulate a policy framework to promote further scale up.



### Objectives

- The primary objective is to enhance agricultural resilience to climate change by deploying SPIS, facilitating access to financing, and providing technical training to smallholder farmers.
- The project provides smallholder farmers, local communities, and agricultural policymakers with the tools, resources, and knowledge needed to adopt and maintain climate-resilient SPIS technologies and agricultural practices.



### Social Impact

- The project supported a total of 250 beneficiaries, including 30 direct beneficiaries and 220 indirect beneficiaries.
- Among both direct and indirect beneficiaries, 25% were women, and 5% were youth.
- Raised awareness and understanding of costs and benefits of SPIS technologies, and access to further information, training and tools to assist beneficiaries to plan, design and operate SPIS, with the potential to improve agricultural practices, food security and economic opportunities.



### Adaptation Impact

- **Enhanced Water Management and Agricultural Productivity:** The project promotes improved water management through the adoption of SPIS and improved cultural practices, to optimize water use and improves crop yields. This reduces the vulnerability of smallholder farmers to climate-induced water scarcity and increases agricultural productivity.
- **Sustainable Resource Management:** By promoting the use of solar-powered irrigation, the project encourages sustainable resource management and aligns with adaptation goals by reducing dependence on fossil fuels and enhancing resilience to climate change.
- **Improved Food Security:** The project supports food security by increasing agricultural productivity through efficient irrigation practices, reducing the impact of climate variability on food production.



### Other Co-Benefits

- Potential energy savings and reduction in greenhouse gas emissions with further adoption of SPIS.
- Promotion of sustainable/climate-smart agricultural practices.
- Improved social cohesion.



### Innovation & Technology

- Tailored Solar Powered Irrigation Systems (SPIS) defined for use in Ghana, to use solar energy to power irrigation systems and improve agricultural practices, to ensure sustainable and efficient water use.
- Promotion of crop-targeted irrigation and other water-saving techniques to optimize resource use.
- Development of tailored business models to help access finance for smallholder farmers, including "pay-per-use" models and other innovative financing mechanisms.



### Replication Potential

- The project demonstrates a high replication potential in other areas where water scarcity prompts the need for irrigation of crops in a manner that conserves energy and relies on clean and renewable energy sources.

### Key Figures

- USD 243,807 project budget
- 250 people benefitted in total
- 10 training modules on SPIS developed and delivered as part of the project
- 30 government representatives participated at a high level meeting discussing national framework on solar powered irrigation technology
- The project contributed to the following SDGs:

