



MEKONG  
INSTITUTE



## CASE STUDY

# Solar Water pump ensures sustainable irrigation for smallholder farmers in Cambodia

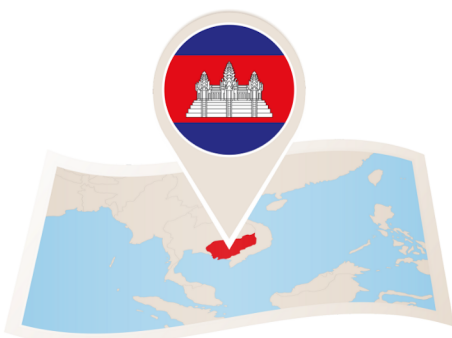


### ABOUT BUSINESS CASE STUDY:

**Solar Green Energy Company in Cambodia:** *Solar Green Energy, Cambodia (SOGEC) is a renewable energy company established in 2008 as the Renewable Energy Development Association (REDA) with the goal of promoting green energy usage in Cambodia.*

*SOGEC provides a range of high-quality solar products and services, including solar water pumps, solar on and off grid systems, solar hybrid solutions, solar streetlights.*

More info: <http://www.solarcambodia.com/>



Kampong Cham province, Cambodia

## Solar Water Pump for Irrigation of Smallholder Farmers in Batheay District, Kampong Cham province, Cambodia

Smallholder farmers in many areas still face significant obstacles in accessing smart technologies. These challenges stem from various factors, including a lack of awareness regarding the application of smart technologies in agriculture, energy, logistics, and transportation sectors, as well as limited capacities to adopt and integrate these technologies into their production methods and businesses.

In response to an increasing need for digital transformation to support the development of sustainable and smart agricultural supply chains in the Mekong region, Mekong Institute (MI) with the support from the Government of Republic of Korea through the Mekong-Korea Cooperation Fund (MKCF) designed and implemented the project on Sustainable and Smart Agricultural Supply Chains Development In Mekong Countries from December 2021–May 2023.

Through this project, Smart Renewable Energy Technologies, specifically Solar Technology, was introduced and promoted to stakeholders and beneficiaries in the Mekong countries. This included providing valuable insights to smallholder farmers in Batheay District, Kampong Cham province, Cambodia, enabling them to benefit from these advancements.

The MI's project beneficiaries conducted a case study on the Solar Water Pump Project, examining the market situation of solar water pumps implemented by SOGE among smallholder producers. The study also analyzed the economic, social, and environmental impact created by solar energy in the irrigation process.

During the project's inception phase, 130 smallholder households were chosen to participate in the Solar Water Pump project, which covered a total of 600 hectares of rice fields (ranging from 2 to 7 hectares per household). Around 80% of these smallholders rented land for farming, paying an annual fee of US\$150 to US\$200. The participating smallholders were able to cultivate two crops, each lasting for three months, primarily during the dry season to meet the high demand from the Vietnamese market. By 2022, there were 144 smallholders actively involved in the project.

Each smallholder signed two contracts with the SOGE company, enabling them to access irrigation water supported by the project. The first contract had a service fee of US\$112 per hectare per crop, while the second contract offered a discounted rate of US\$100 per hectare, resulting in a US\$12 reduction. The company has plans to further decrease the service fee to US\$75 per hectare per crop by 2026.

The project beneficiaries conducted the preliminary cost and benefit analysis for this case study and found that:

#### THE CASE STUDY FOUND USING SOLAR ENERGY FOR WATER PUMPING ARE:



**More cost-effective compared to diesel fuel**



**Helps reduce greenhouse gas emissions (GHG)**



**Creates green jobs, particularly female farmers**

#### **To address these challenges and further enhance the project's success, the following recommendations are purposed:**



SOGE should consult with the Commune Council and relevant agencies responsible for public irrigation to explore the possibility of allocating land along sub-canals for solar panel installation



SOGE should consider investing in mobile solar water pumps to improve irrigation coverage and flexibility



The government is encouraged to support the project by providing tax exemptions for solar energy-related facilities and equipment used in the agricultural sector