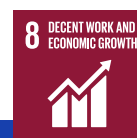


IMPACT SHEET: SWITCH to Solar

SWITCH to Solar for a Thriving Agri-Fisheries Market in Cambodia



Leveraging Cambodia's abundant sunshine to foster sustainable agri-fisheries MSME development through solar technologies and green financing options.



PROJECT BACKGROUND

Despite Cambodia's success in expanding access to the grid, electricity tariffs are among the highest in the region, with businesses in rural areas paying up to twice as much as those in urban, grid-connected areas (from \$0.14/kWh in the capital vs. up to \$0.25/kWh charged by diesel-powered mini-grids). Expensive and unstable electricity access negatively affects MSMEs' operations by raising their operational costs and causing financial losses due to unpredictable power outages. Despite the potential return on investment for shifting to solar, MSMEs have limited access to capital, with 60 to 90% using informal channels.

The Switch to Solar project is designed to accelerate the nationwide uptake of solar technology for productive use across Cambodia's agri-fishery value chains. The project works with Khmer solar technology providers, start-ups, financial institutions, and other stakeholders to make solar-based solutions more accessible and economically attractive to rural farmers living in six provinces around the Tonle Sap region, including Kampong Chhnang, Pursat, Battambang, Siem Reap, Kampong Thom, and Phnom Penh.

Using a blend of market-based approaches, the project aims to ameliorate the environmental impact of agri-businesses by greening their energy consumption while improving productivity and profitability. This is a four-year (2020-2024) project funded by the European Union through the SWITCH-Asia grants programme. People In Need Cambodia is the lead organization, with EnergyLab and SEVEA Co., Ltd. as consortium partners.

CHALLENGE

- 56% of farmers perceives switching to solar expensive with insufficient after-sale support and lack of long-term warranty;
- Lack of affordable loan financing options and general high indebtedness of the local population;
- Limited access to low-value(\$1mill>) impact investment opportunities;
- Regulatory barriers for synchronizing solar systems with the national grid.

PROJECT OBJECTIVES

The project aimed to contribute to sustainable and inclusive economic growth in rural areas of Cambodia by reducing the environmental impact of MSMEs energy consumption and generating green employment opportunities.

More specifically, to improve consumption patterns and behaviours in rural areas of Cambodia by supporting MSMEs to switch from unsustainable energy to solar energy source.

TARGET GROUPS

- 9000 MSMEs in the agri-/fishery sector across key sub-sectors;
- 20 Solar technology providers (STP) and entrepreneurs in Cambodia and regionally
- 15 Financial institutes and intermediaries;
- 70 Retailers and 250 Sale agents/after-sale service providers;
- At least 100 staff from line ministries/sub-national agencies: MAFF, PDAFF, MoE, MME and NCSD;
- 60 Students from technical universities Royal University of Agriculture (RUA), Prek Leap National College of Agriculture (PNCA).

PROJECT ACTIVITIES

Business models and technology solutions are designed, demonstrated and promoted to scale for agri/fishery MSMEs' specific needs

- **Market Analysis:** Assess MSMEs' needs, existing solutions, supply chains, and financing options, and present findings.
- **Workshops:** Conduct energy challenge workshops with entrepreneurs, solar technology providers, and sector actors.
- **Hackathons:** Organize hackathons to design business models and solar technology solutions for MSMEs.
- **Incubation Programme:** Support entrepreneurs and STPs in developing new solutions.
- **Demonstration Sites:** Establish MSMEs demonstration sites with solar solutions and facilitate learning visits.
- **Scale-Up Support:** Assist in scaling new solutions through financing, supply chains, and market routes.

Local solar technology providers/entrepreneurs strengthened their capacity and have expanded their operation to better reach MSMEs, and provide new technologies that bring added value to the agri/fisheries sector.

- **Business Surveys:** Conduct surveys to specify advisory services needed by STPs.
- **Technical Support:** Provide tailored technical support to STPs/entrepreneurs, including market identification and marketing.
- **Collaboration Agreements:** Support STPs in developing agreements with finance actors.
- **Supply Chains and Market Routes:** Assist STPs in developing sustainable supply chains and market routes.

Targeted MSMEs and consumer have improved awareness and access to a range of solar energy devices, financing options and customer services.

- **Retail Network:** Support STPs to establish, train, and maintain a network of retailers.
- **Outreach Campaign:** Conduct campaigns to promote STPs' technology and provide advisory services to MSMEs and individuals.
- **Financing Assistance:** Provide tailored assistance to MSMEs and individuals on accessing financing.
- **After-Sale Services:** Offer technical support to STPs to improve after-sale services.

Improved business environment for solar technology solutions and established synergies among main stakeholders.

- **Awareness Campaign:** Promote STPs/entrepreneurs through incubation.
- **Internship Linkages:** Support linkages for internships and job opportunities between students and STPs.
- **Networking Events:** Organize events on innovative financing options for STPs, including regional and EU investors.
- **Clean Energy Week:** Support Clean Energy Week Cambodia.
- **REAFBI Series:** Conduct practice-based renewable energy and agri-fisheries business insights (REAFBI) series and cooperate with the SWITCH-Asia Network Facility.

LESSONS LEARNED

The COVID-19 pandemic resulted in delays of some activities and achievements due to the country-wide restrictions imposed between September 2020 to December 2021. COVID put on hold the project's ability to hold events (in-person, community and stakeholders' events). The project largely shifted to virtual communication platform and door to door outreach activity. In particular, the project has many dissemination platforms since the launching phase, including, Facebook, website, and partners' individual social media platforms.

The development of innovative and tailored financial solutions to facilitate solar technology adoption has been challenging and a time-consuming process. Financial Institutions (FIs) have limited knowledge of solar technology and its application in the agri-fishery sector. For these reasons, FIs view the sector as a risky undertaking, offering financing options with only standard terms. Furthermore, most of the FIs already have agricultural financial products, so it is difficult to create new options for the solar technologies. PIN and consortium partners have organized meetings between the parties to encourage the creation of partnership. The consortium also facilitated linkage to and support with grant funding opportunities offered through development partners.

Due to the project's short duration (3-4 years), it is highly recommended to prioritize working with established start-ups rather than creating new ones through hackathon programmes. A focus on accelerator programmes rather than hackathons and incubation programmes is suggested.

The promotional events with STPs/start-ups play a crucial role in directly engaging the target customers of solar energy technologies. Having a product for demonstration and/or inviting farmers to visit demonstration sites is important for gathering feedback on the specific challenges faced by end-users in adopting solar technologies, as well as understanding their perceptions of performance and long-term impacts on agricultural and fishery activities.

Before conducting the outreach campaign to MSMEs, having proper green/renewable financing options to accompany the solar technology products is important given the high upfront costs.

PROJECT ACHIEVEMENT

- The 10 supported solar companies sold 1,123 solar technology products worth over 3 million USD, avoiding 9,327 tons of CO₂ emissions, surpassing the project's target of 3,915 tons and achieving 238% of the goal.
- Established 11 demonstration sites in the field of solar technology for agri-fishery.
- More than 92% of agri-businesses reduced their operating expenses by 20% after purchasing or switching to solar technology. This fully met the project's target of a 20% reduction in operating expenses, achieving 100% of the goal.
- 130 jobs (30% held by women) were created and employed in 10 STPs and start-ups, exceeding the project's target of creating 120 new green jobs and achieving 243% of the goal.
- 10,244 MSMEs in the agri-fishery sector were reached through an outreach campaign over the lifetime of the project, surpassing the project's target of 9,000 MSMEs and achieving 113%.
- Established, trained, and supported more than 200 sales agents and 45 retailers for six STPs and start-ups.
- Successfully mobilized a total financing investment of over USD 1.2 million for the supported solar technology providers and start-ups, with over 50% contributed by external investors.
- Completed two Practice-Based Renewable Energy and Agri-Fisheries Business Insights (REAFBI) studies, with the study for the Harvest the Sun demonstration site reaching over 1,300 people.
- Lastly, the Switch to Solar consortium's Facebook and LinkedIn pages reached over 554,016 people, making substantial progress in disseminating information about the project.



Cassinero Alessandro
People In Need, Cambodia



Despite Cambodia's grid expansion, rural electricity tariffs are up to twice as high as urban rates, impacting MSMEs with costly, unstable power. The Switch to solar project aims to accelerate solar technology adoption across the agri-fishery value chains by working with solar technology providers, start-ups and financial institutions, to bring solutions more accessible, reducing GHG emissions, operational cost, job creation and improving MSMEs' competitiveness.



Long-term project sustainability

One of the main objectives of the project was to enable the technology supply side, including STPs and start-ups, to generate revenue, allowing them to continue providing after-sales service and maintenance to consumers after the project's completion. Throughout the project, numerous business development services were provided to STPs and start-ups to scale up operations and apply for grants from various organizations. As a result, 13 grants were awarded. Additionally, the consortium team, in collaboration with the STPs and start-ups, developed comprehensive three-year master plans for each company. These plans aim to facilitate the scaling-up of their businesses and position them favourably for potential future investments.

The consortium partners actively engaged with other programme actors involved in similar project interventions in Cambodia, including UNIDO, CAST, UNDP, GIZ, and Harvest III. PIN and its partners were instrumental in creating synergies among these programme actors to ensure good governance, foster cooperation between the projects/programmes, and strive for the overall sustainable development of the Tonle Sap region.

Project contributions to Climate Change Mitigation and SDGs

SDG12: Responsible Consumption and Production. The reduction in CO₂ emissions, operational expense savings, job creation, extensive outreach, and mobilization of financing all contribute to achieving the goal of sustainable management and efficient use of natural resources. These outcomes highlight the project's success in fostering sustainable business models and practices, ultimately supporting the broader objectives of SDG12.

SDG5: Gender Equality. The project has directly addressed gender roles in the agri-/fisheries sector through the strategic and inclusive implementation of solar energy solutions for productive use. With 292 FTE working opportunities created in the industry, more female led MSMEs, business owners and entrepreneurs were encouraged to further develop their businesses in Phnom Penh and the five provinces around the Tonle Sap region. Additionally, through the internship programme, 25 female (and 26 male) students received equal opportunities through technical roles and placement programmes at clean energy and/or agriculture-related companies.

SDG7: Affordable and Clean Energy. The purpose and direct intervention of this project was to bring affordable and clean energy sources in the form of solar energy to rural communities in Cambodia. Beneficiaries benefitted from improved production and consumption patterns leading to inclusive and sustainable economic growth of local communities around the Tonle Sap region. This also aligns with the overall objective of having at least a 20% reduction in operational expenses of MSMEs through providing affordable and reliable access to clean energy solutions.

SDG8: Decent Work and Economic Growth. Improving the production patterns of MSMEs in the agri-/fisheries sector through the adoption of clean energy solutions, further led to improving the livelihoods of beneficiaries in the sector.

SDG11: Sustainable Cities and Communities. Targeted communities benefitted from sustainable access to clean energy solutions for productive use after the project's final year. With established linkages between the various stakeholders involved in the project, such as STPs, entrepreneurs, financial institutions, and MSMEs; the goal was to create a sustainable working economy of the agri-/fisheries sector in the Tonle Sap region, which was partially achieved in the last four project years.

SDG13: Climate Action. The project aimed at reducing reliance on unsustainable energy sources (such as diesel generators) and encouraging the switch to clean energy sources (solar energy). Project interventions reduced more than 9,000 tons of CO₂ by 2024. Additionally, project interventions implemented climate change adaptation strategies by introducing climate-smart solar technologies and building synergies between STPs and the beneficiaries to support the adoption of climate resilient products and services for the agri-/fisheries sector.

Impacts at a Glance

Economic Impact	<ul style="list-style-type: none"> • 10 supported solar companies sold 1,123 solar technology products worth over \$3 million. • 85% of STPs/start-up increased sales between 15% to 30% compared to the past year. • 69% of MSMEs in agri-fishery sector reporting an increase in yield and production capacity. • Types of new green products in the market: solar dryer dome, solar cricket raising, solar cooling system, solar aerator and solar hydroponic system.
Environmental Impact	<ul style="list-style-type: none"> • 92% of MSMEs reporting a reduction of spending on fuel and grid by at least 20%, with estimated savings of 913 litres of diesel, 458 litres of gasoline, and \$284 in maintenance per farm per year. • Reduced noise, smoke from engine and risk in operation the machinery
Social Impact	<ul style="list-style-type: none"> • 130 new jobs created (30% for women) in 10 STPs and start-ups, achieving 243% of the goal • 11 demonstration sites across the 5 provinces became the learning site for others in the communities to learn about the advantages of solar technology • 4,953 women (48.35% of participants) engaged in SWITCH to Solar activities. Women's and youth participation was prioritized at every stage, allowing equal involvement in meetings, feedback, and decision-making processes. Additionally, 33% of our partner solar technology providers, including EGE Cambodia, Harvest the Sun, and SOGE, were led by women.
Climate Benefits	<ul style="list-style-type: none"> • Reduction of 9,327 tons of CO₂ emissions, surpassing the target of 3,915 tons (158% of the goal). • 1,001 MSMEs have switched from diesel, gasoline and electricity to solar technology energy.
Green Finance	<ul style="list-style-type: none"> • Successful mobilization of over USD 1.2 million in financing investment for solar technology providers and start-ups, with more than 50% contributed by external investors.
Target Group Engagement	<ul style="list-style-type: none"> • 10,244 MSMEs in agri-fishery sector reached through outreach campaign over the lifetime of project, surpassing the project's target of 9,000 MSMEs and achieving 113%. • Over 200 sales agents, 45 retailers, 13 STPs and start-ups, 6 representative from provincial department of agriculture offices, 19 financial intermediaries, 1 fishery SMEs association, Ministry of Agriculture, Forestry and Fishery and 5 development agencies(GIZ, USAID-HARVESIII, UNIDO, UNEP, UNDP)
Policy Development	<ul style="list-style-type: none"> • 2 policies papers developed and submitted. • Shared recommendations to Euro Cham for its White Book - Business Policy Recommendations 2024
Europe-Asia Cooperation	<ul style="list-style-type: none"> • Two brief supply chains focusing on Solar Aerator and Solar Dryer were developed and published at the Europe Day 2024 reception in May 2024.





FUNDING

EUR 2,560,000
(EU Contribution: 89.84%)



DURATION

2020 - 2024



PARTNERS



People in Need (PIN)



EnergyLab Cambodia



Sevea Consulting



CONTACT

Cassinerio Alessandro
#33 (4th floor), St.71, S/K Tonle Bassac, Khan Chamkarmon,
Phnom Penh, Cambodia
Telephone: +855 95 365 296
Email: alessandro.cassinerio@peopleinneed.net
Website: <https://switchtosolar.kh.org/>
Facebook: <https://www.facebook.com/switchtosolarcambodia>

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