

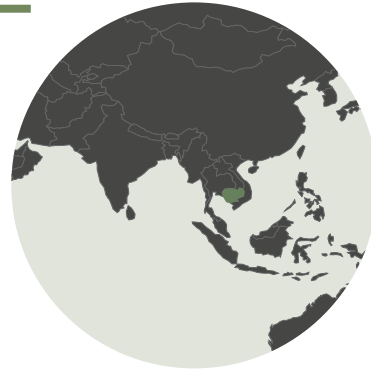


AFFORDABLE LOANS FOR CLEAN ENERGY IN AGRICULTURE – THE CLEAN ENERGY REVOLVING FUND

How a small Fund has filled a market gap by offering unsecured loans to Cambodian farmers for the purchase of clean energy technology.

REEEP[®]

BASIC FACTS: CAMBODIA



POPULATION:
16 million

GDP PER CAPITA:
USD 1,384

**SHARE OF AGRICULTURE SECTOR
IN GDP:**
27% and growing

**SHARE OF RURAL POPULATION
WITHOUT ACCESS TO ELECTRICITY:**
64%

BACKGROUND

The Clean Energy Revolving Fund (CERF) offers affordable loans to farmers and small agricultural processing businesses, for the purchase of clean energy technologies. These technologies increase farmers' productivity, resilience and regional

competitiveness by helping them to manage electricity costs, and contribute to climate change mitigation. CERF is managed by Nexus for Development and supported by REEEP with funding from the Austrian Government and Blue Moon Fund.

Right:
Gnek Sarith inspects the pepper vines on his farm in Preah Vihear province. After buying a small solar pump from a local firm, a CERF loan allowed him to purchase a system large enough to irrigate his entire 50-hectare farm.
Credit:
Jeremy Meek for REEEP



Left:
Monn Mika (right) owns a mango farm which is connected to the grid, but power cuts are frequent and can last up to a week. With his solar pumping system, purchased with a CERF loan, he can now reliably irrigate his orchard and produce mangoes also in the off-season. Mr. Mika is pictured here with his farm manager, Ms. Aet.
Credit:
Jeremy Meek for REEEP

THE CHALLENGE

Agriculture employs half the Cambodian labour force and strong growth in the sector over the past two decades has helped lift millions of farmers out of poverty. Cambodia's agricultural sector is highly dependent on monsoon rains and the annual flooding of the Tonle Sap Lake, and therefore extremely vulnerable to climate change as well as dam building projects upstream on the Mekong River. Also, in recent years Cambodian farms have had difficulty competing internationally, partly because grid electricity is expensive, unreliable and not universally accessible. Many farmers use back-up diesel generators, which are polluting and leave users vulnerable to fluctuating diesel prices and supply problems. Clean energy technology offers a reliable and affordable alternative, but has not yet been widely adopted due to two barriers:

- Farmers lack knowledge and experience of clean energy technologies and do not necessarily trust them.
- Most farmers cannot afford the high upfront capital cost of a clean energy system. Bank loans are not an option, as the large majority of farmers are unbanked and have no credit rating, and standardised methodologies to assess their creditworthiness do not exist. This leads risk-averse banks to demand high interest rates and/or land titles as collateral - conditions farmers are unable to agree to especially for technologies that, as far as they are aware, are untested. While Cambodia has a high rate of access to finance through microfinance institutions, these do not provide loans of sufficient size and can charge high interest rates.

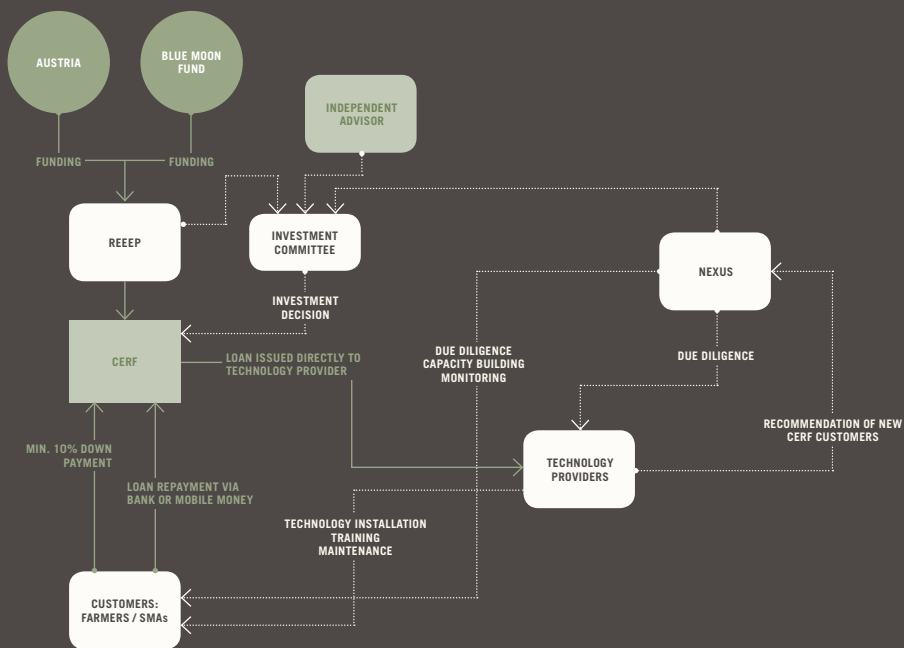
THE SOLUTION

CERF offers attractively priced loans of an appropriate size for small agricultural enterprises. Instead of requiring collateral or proof of creditworthiness in the traditional sense, the fund manager carries out extensive due diligence on each potential borrower, and stays in close contact throughout the loan payback period. In this way, the fund manager builds relationships with customers and teaches them about clean energy technology and financial services. The borrowers, meanwhile, build a credit history that may be helpful when they eventually seek a commercial loan. CERF's

loan conditions, including tenors, interest rate and repayment schedules, are flexible and negotiated separately with each farmer, to match his or her technology purchase and agricultural harvest cycles.

Only a small number of local clean energy technology providers are accredited to supply CERF-funded products to farmers, and these businesses are also subject to extensive due diligence. Once accredited, a technology provider can bring customers to CERF, and thus expand its customer base.

How CERF Works



Source:

THE RESULTS

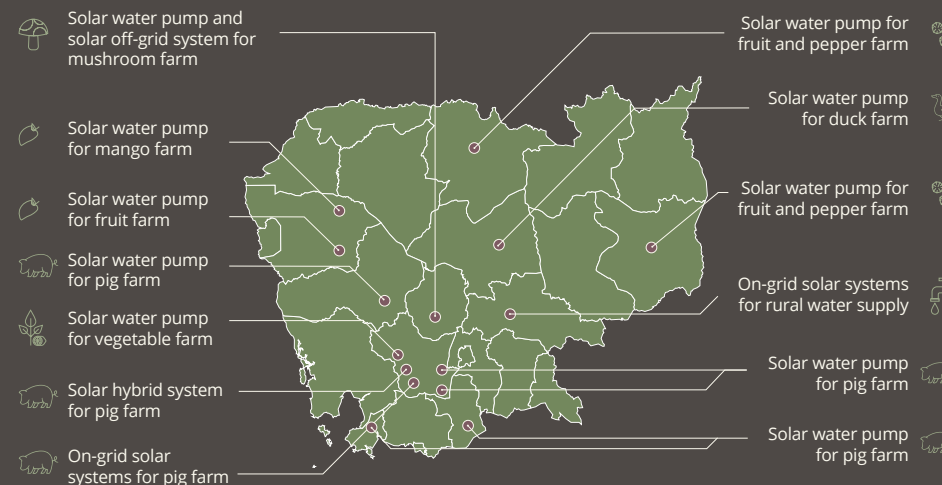
- CERF has thus far provided 15 loans to farmers and agricultural processing businesses all over Cambodia. Loans vary in size from USD 7,000 to over 50,000, with most in the USD 10-15,000 range.
- Most loans were used to purchase solar powered water pumps and small on- and off-grid solar installations.
- To date more than 90% of loan repayments have been made in full and on schedule. The fund is now truly revolving.



Right: Ty Heang is one of the workers on Mr. Sokhom's longan farm in Battambang province, which is now irrigated through a solar pumping installation purchased with a CERF loan (see also p.7).

Credit: Jeremy Meek for REEEP

Clean Energy Revolving Fund - Investment Snapshot June 2018



THE IMPACT

- **Cost savings:**
CERF borrowers have reduced their operational costs by up to 34%, primarily through a reduction of up to 80% in diesel consumption.
- **Enhanced resilience:**
Solar powered irrigation systems protect farmers from changing rainfall patterns, and do so more reliably than grid-connected or diesel-powered systems. Cost savings provide farming enterprises with a buffer against other shocks.
- **Enhanced energy security in rural communities:**
The CE technology purchased by farmers is more resilient to storms and other weather shocks than the central grid, and experiences far less downtime.

- **Emissions reduction:**
CERF-funded technology produces up to 160,000 kWh of clean energy per year, and avoids the emission of 168 tonnes of CO₂e per year.
- **Market building:**
Three clean energy technology providers have been accredited to CERF so far, and as a result are able to reach a wider customer base through the offer of a fit for purpose financing solution.

WHAT HAVE WE LEARNED?

- Though the farmers CERF works with have no credit history and do not have to provide collateral to secure the loan, the overwhelming majority of them are repaying their loans reliably and on schedule.
- Many of the farmers were not or only minimally aware of available clean energy technology options and their benefits. Following capacity building by the technology providers and fund managers, and given the quality assurance provided by CERF, they were willing to invest. This proves the effectiveness of this type of one-to-one capacity building.
- The main reason for adopting clean energy technology among the farmers was to reduce their energy costs. Other benefits (less local pollution, reliability, no reliance on diesel supply) were appreciated but less important in the decision-making process.
- Technology providers are keen to cooperate with the CERF, as it allows them to access a broader customer base. They are happy to undergo the due diligence process themselves and to assist with the due diligence for customers, by conducting energy assessments and collecting baseline information.
- CERF's success proves that even in low-income countries, given the right financing instruments farmers can and will purchase clean energy technology without the need for subsidies or public funding (other than the seed funding and due diligence contribution provided through REEEP by Austria and Blue Moon Fund).

WHAT IS NEXT?

- CERF has successfully demonstrated that its model of offering unsecured, affordable loans works. This paves the way for expansion and for other financiers to develop their own, similar products. However, to achieve sustainability, the main challenge the fund needs to overcome is the high cost of due diligence relative to loan size. Nexus and REEEP are now working to achieve three goals:
- Growing the portfolio to meet the considerable demand, and diversifying it to include a mix of small- and medium-sized loans
 - Continuously increasing the cost-effectiveness of due diligence and monitoring processes
 - Building relationships with local financial institutions to make them aware of the proven viability of the CERF model and build their capacity to provide CERF-style loans

The last point is crucial, as under current regulations non-banks are not allowed to manage a loan portfolio worth more than USD 250,000. Beyond the pilot project stage and to fully comply with country's current banking regulation, CERF loans should be provided through licensed financial institutions. Over the next two years, CERF will build relationships with Rural Credit Operators (RCOs) and other financial institutions, provide capacity building on the CERF model and help them provide financial support to at least 70 farmers. The ultimate aim and fund manager's exit strategy is for one of these financial institutions to take over management on CERF's portfolio and continue its expansion.

REEEP and Nexus are also investigating the potential to replicate CERF's successes in other countries in the region.

Mr. Sokhom worked as a bank manager in Phnom Penh until, about ten years ago, he decided to change careers and start cultivating longan fruit in Cambodia's north-western Battambang Province. Mr. Sokhom's 3,000 longan trees can produce fruit three times a year, but only if they are irrigated. Though the farm is connected to the grid, power cuts are frequent. Mr. Sokhom used to irrigate using three diesel-powered pumps, which required him to invest USD 140 to 300 in diesel every month. A loan of USD 10,000 from the Clean Energy Revolving Fund allowed Mr. Sokhom to buy a solar-powered pump. He now no longer needs to worry about his fuel supply, and the new pump is easy to maintain. To support his growing business, Mr. Sokhom has hired seven farm workers, who used to cross the border into Thailand illegally looking for work. They now live on the farm and are paid a decent salary.

Below:
Mr. Sokhom inspects his longan orchard.
Credit: Jeremy Meek for REEEP



REEEP®

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Nexus
for development

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Federal Ministry
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Sustainability and Tourism



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