A Case Study:

"Renewable energy for rural communities"

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Cambodia Climate Change Alliance-Phase 3 (CCCA3)

Project title: Piloting Energy Efficiency and Solar Micro Grids for Cambodia's Clean Energy Furture

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In Cambodia, the building sector is the most significant final energy consumer, with an estimated share of about 52 percent of the total energy consumption[1]. Residential and commercial buildings consume around 80 percent of electricity in the country[2], and the energy consumption is estimated to more than double by 2040. The major drivers of the demand growth are an increase in number of new buildings, inefficient energy utilization in existing buildings, increasing need for cooling in the buildings, and a continuously increasing penetration rate of electrical household appliances. The building sector will continue to grow in an unsustainable manner unless efforts are made to enhance energy efficiency and energy conservation in the buildings. The National Energy Efficiency Policy identifies huge energy saving potential in the buildings. Still, the lack of awareness, capacity, and demonstration projects are the identified bottlenecks to prioritize government actions in this field.

While the energy demand is increasing in the urban areas of Cambodia, there are still remote villages without access to a grid electricity. The government has a goal for providing access to electricity to all its citizen by 2030. EDC and EAC have identified 237 communities where the connection to the power grid is not financially feasible due to their remoteness. Therefore, solar home systems have been introduced for those remote villages and the system set up is currently subsidized under the Rural Electrification Fund (REF). However, solar home systems cannot be scaled up as end users need to own their solar home systems and the battery needs to be replaced every 3 to 3.5 years leading to affordability issue for rural households.

Two solar panels installed on the zinc roof of the people living on ***Koh Kantheay***

The CCCA3 grant project "Piloting Energy Efficiency and Solar Micro Grids for Cambodia's Clean Energy Future" aims to promote renewable energy and energy efficiency to reduce GHG emissions and impacts on health from traditional cooking methods. Solar micro-grids are a carbon-neutral solution for electrifying remote villages and they can decrease time used for cooking (carried out predominantly by women, 86%, 2018[3]), by providing a possibility to use modern electric rice cookers instead of burning biomass. Reduced use of biomass for cooking improves also air quality of households and this predominantly benefits children and women who usually spend more time indoors. The demonstration project is accompanied by capacity building activities on sustainable energy consumption provided to key stakeholders. The solar micro grids are providing cost-effect and feasible electrification options for the 237 remaining remote communities with no access to a grid. The project will also collect future

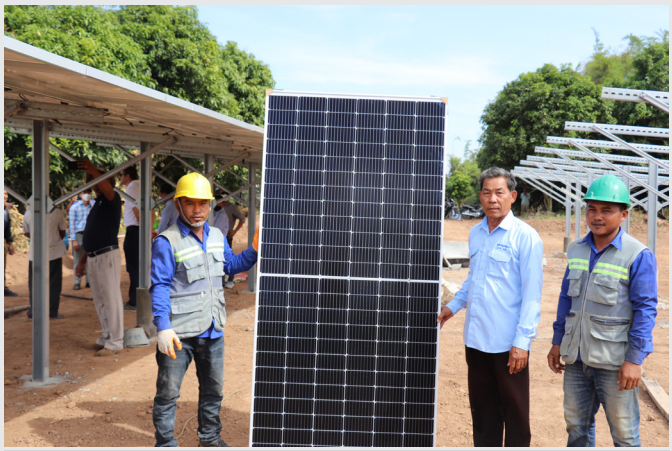
[1] IEA (2018). Cambodia Energy Balance Table 2018. Retrieved from: https://www.iea.org/data-and-statistics/data-tables?country=CAMBODIA

[2] Based on EDC Electricity Sales by sector in 2019.

[3] Care work and care jobs, for the future oof decent work, ILO, 2018

recommendations and develop a sustainable operating model for these villages. Currently, the team has almost finished the installation of the solar micro grids and the operation will start in April 2023, as planned. Koh Kantheay village in Kandal and Prey Veng provinces is part of the project and people from this remote village located on an island are excited to get solar micro grids to their village.

Mr. Chhay Soly is a 54 years old Technical Chief from Kaam Samnor Electricity Enterprise. He is pleased to be leading the first-ever demonstration project on solar micro grids at the community level in Cambodia. Within the project collaboration, he is responsible for installing the powerhouse and operating the micro grids electricity distribution network. He affirmed that the project is supplying energy sources for 179 households and one primary school. He also mentioned that solar grids provide many benefits for the livelihoods of the villages. It reduces the energy cost from using diesel oil, and it can significantly reduce noise pollution from the use of conventional generators. He emphasized that if the pilot demonstration project succeeds, he thinks, there should be a way to scale the operation model up to the other remote villages of the country."



***Mr. Chhay Soly**, 54 years old, technical chief from Kamm Samnor Electricity Enterprise and his colleauges during Solar Panels installment*

"I am interested in the solar mini grids and it is a great opportunity for me to be involved in the project - as an energy distribution network provider. The project is useful for this remote island community to access clean electricity at an affordable price. It will also contribute to improving the villagers' livelihoods, promoting income activities, and providing wide range of environmental benefits, such as avoided noise pollution from using generators," said **Mr. Soly**.

***Mr. Chhay Soly** is showing how electricity work after panels have been installed*

"As a grocery seller , I expect to utilize the electricity provided to freeze some products, and this could enable me to sell my products for a longer time period. My family will use electricity for night lighting, and for poultry and pig raising activities. Getting electricity will improve our family's livelihood and wellbeing," said **Ny Srey**, 55 years of age.

***Mrs. Ny Srey**, 55 year-old, a grocery seller smiling while expressing her feeling for be able to access electricity from solar panels*

Mrs. Nhang Oeun, sitting on a hammock while sharing her thoughts with project teams

"I am delighted to have the solar micro grids in my village since it will greatly help my family and me. We plan to have an electric rice cooker as soon as we have been connected, and using it will be easier than cooking with wood. The cooker will reduce smoke and time spent cooking so I can do some other tasks simultaneously," said **Mrs. Nhang Oeun**, a 68-year-old housewife.

Sorn Kunthoeun – 37-year-old farmer *"Having known that the solar micro grids are to be installed in our village, I feel pleased since I would need electricity for cooking and daily use in my house. We often travel by a boat to the mainland to get the battery charged – so it is better when our family will be connected and doesn't need to travel across the unsafe route, especially during the rainy season."*

Sorn Kunthoeun – 37-year-old farmer talking while doing housework with her husband

Meng Da, 34 year-old, a primary school teacher sharing her thoughts regarding the importance of electrictity to her career

"Electricity is critical for my career as a primary school teacher, and I need it for electronic appliances, such as my computer, that helps me a lot in my work when I am developing teaching manuals etc." said **Meng Da** – a 34-year-old primary school teacher.