KNOWLEDGE EXCHANGE FOR MAKING SOLAR WATER PUMPING (SWP) SYSTEMS AFFORDABLE TO SMALLHOLDER FARMERS

PROJECT'S AIM: TO INFORM FARMER COOPERATIVES ABOUT HOW TO MAKE SWP AFFORDABLE, ENABLE THE SHARING OF BEST PRACTICE, INCREASE ACCESS TO FINANCE AND ADVOCATE FOR THE TECHNOLOGY

Location:
Nawalpur, Rupandehi and Kapilvastu districts, Nepal

Technology:
Solar Water Pumps

Costs:
Total: € 49 100
WISIONS financial support: € 49 100

Partners Involved:
Winrock International for Agricultural Development (https://winrock.org/)

Nepal Agricultural Co-operative Central Federation Ltd. (NACCFL) (https://www.naccfl.org.np/)

Duration:
July 2018 – December 2020

Picture: Winrock International

Most smallholder farmers in Nepal are dependent on rainfall, hand or diesel pumps, or the manual transportation of water for irrigation and livestock watering, which limits them to subsistence farming. A reliable and sustainable water supply could bolster agricultural productivity, improve livestock farming and ensure food security.

Although Solar Water Pumping (SWP) systems are a proven technology in Nepal, they have not been widely used because market participants in the agricultural value chain are not sufficiently aware of the technology. In addition, its high upfront cost makes the technology unaffordable for many farmers.

EXHANGE NEED AND OBJECTIVE(S)

Building on Winrock's previous experience, the "Knowledge Exchange for Making Solar Water Pumping (SWP) Systems Affordable to Small Farmers" project aimed to increase the use of SWPs through knowledge exchange. Its main goal was to increase the knowledge within smallholder agricultural cooperatives (SFACLs) about how to provide solar water pumping systems for their members. Other objectives were to improve access to finance for SWPs and to raise awareness of the technology and possible business models among municipalities, farmers and supplier companies.

PARTICIPANTS & TARGET GROUP(S)

This exchange aimed at increasing the knowledge and capacities of farmers and farmer cooperatives, financial institutions, supplier companies and policymakers in rural municipalities.

Eight smallholder farmer agricultural cooperatives were selected to take part in the project.

ACTIVITIES

Various workshops and demonstration programmes were organised for board members of SFACLs and their associated smallholder farmers in three districts of Nepal (Nawalpur, Rupandehi and Kapilvastu) to demonstrate the technology, share best practice from farmers who had already installed a SWP under a previous project, and promote commercial farming. To this end, a training package together with various information, education and communication materials in the Nepali language (such as posters and a booklet with definitions and information on design considerations and business models) were developed.

Furthermore, the project facilitated the development of a network comprising five municipalities, eight SFACLs and their associated farmers, and six SWP supplier companies to promote SWP systems and upgrade subsistence farming to commercial

farming.

To tackle one of the biggest obstacles to SWPs, the project also aimed to increase access to finance options for rural farmers. It provided farmers with information about the Alternative Energy Promotion Centre (AEPC) subsidy programme and finance options from financial institutions.

RESULTS & IMPACT

A total of 682 people from farmer cooperatives, finance institutions, municipalities and companies were involved in the project activities: mostly smallholder farmers.

In the project area, 29 farmers were selected for the AEPC subsidy programme in 2020. They signed contracts with a SWP installation company.

By December 2020, 17 people who had attended workshops and demonstration programmes had installed a SWP system. 16 SWP systems were installed under the AEPC subsidy programme, and one SWP system was installed with support of a credit facility from the financial institution Janautthan Samudayic Laghubitta Bittiya Sanstha Ltd (JSLBSL).

Since most of the SWP systems had not been long installed by the end of the project, the farmers were unable to calculate the precise increases in their income. However, farmers from the previous project, who had installed the SWP system eighteen months previously, reported an increase of up to 50% in their annual income. The SWP systems had enabled them to increase crop cycles, fish farming and livestock farming. Due to savings on diesel, they had also reduced their operating costs.

Further results:

Some farmers have showed an interest in starting commercial vegetable farming due to the reliable and sustainable irrigation provided by the SWP.

Some farmers have expressed willingness to provide surplus water to irrigate their neighbour's farm if required.

NACCFL incorporated a session on SWP systems in their capacity building programmes.

The SFACLs that took part have made arrangements for the provision of credit to farmers who want to install a SWP system.

LESSONS LEARNED

SWP systems should be promoted in areas where irrigation or the availability of water is highly dependent on diesel pumps. Savings in fuel costs make SWP systems more financially attractive. Similarly, commercial farming helps smallholder farmers to generate income through their SWP systems. Therefore, knowledge exchange programmes should be combined with training on commercial farming.

Some of the farmers are still using diesel and electric pumps on very foggy and cloudy days. Further research is needed to find practical solutions for dealing with these types of seasonal interruptions.

Raising awareness of the technology and its benefits among finance institutions is crucial. In areas where farmers do not receive government subsidies, credit finance should be promoted for SWP systems, with a particular focus on commercial sectors such as aqua culture or livestock farming.

Further lessons learned concern associated environmental issues: the ground water levels are quite low in some areas, which makes it difficult to extract enough water for irrigation. In addition, the installation and demonstration of an SWP system in river water was sometimes challenging as the water was often heavily polluted. This meant that more time was needed to install the system and also led to problems with the smooth pumping of water to its full capacity.

Source: Final Report submitted to WISIONS by Winrock International for Agricultural Development

Picture: WISIONS