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CGIAR

Solar Irrigation for Agricultural Resilience (SoLAR)

Newsletter

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Dear Readers,

Another year started while we are were locked down. Like the rest of the world, we turned virtual and held a series of webinars in February 2021. We also took the opportunity to brief safety windows and conducted fieldwork and trainings in Bangladesh, Nepal, and Pakistan.

Achieving progress in poverty reduction with minimal carbon emission is at the core of the climate and sustainability challenges. This need is particularly acute in South Asia, where the further expansion of irrigation holds the promise of pulling smallholders out of poverty but will also result in significant increases in carbon emissions due to overwhelming dependence on fossil fuel-based groundwater pumping. SIPs offer a 'climate-resilient' solution, yet adoption is slow. Little is also known about the impact of SIPs on groundwater use. Our six-part SDC-IWMI webinar series explored some of these more significant questions around energy transition and SIPs in four South Asian countries. Over 600 participants registered for these events, and around 400 participated in the deliberations. Besides, the first quarter of the year was also busy with several training activities conducted in Pakistan and Nepal. In this episode of the newsletter, we share some of those updates.

I hope you enjoy reading our newsletter. Please share your thoughts by writing to my colleague Ms Zeba Ahsan at z.ahsan@cgiar.org.

IWMI-SDC Webinar Updates

The highlight of the first quarter was a series of six webinars from 1-5 February 2021. In this six-part SDC-IWMI webinar series, some of these larger questions around energy transition and SIPs in four South Asian countries were explored. Over the coming months, we hope to synthesize the discussions and understand better the challenges and opportunities of renewable energy transition in the agriculture sector. Further details can be found here.

A glimpse from the IWMI-SDC Webinar series

2nd Regional forum held

The second SDC Regional forum training was held on the 23rd and 24th February 2021. IWMI research staff and partners presented results from Year 1 of the project and shared the Year 2 work plan. The SoLAR Innovation Fund Grantees also presented their progress and findings during this meeting. Year 1 offered insights into four aspects of our work on SIPs: mitigation benefits, adaptation and resilience benefit, impacts on gender, equity and social inclusion, and has implications on groundwater use. We found that while mitigation benefits in reducing carbon emissions are clear, other benefits are context-specific and need nuanced understanding. Read here for further details.

Project Steering Committee for SoLAR

The overall purpose of the Project Steering Committee (PSC) is to review and approve annual work plans, monitor progress in project execution, provide strategic and policy guidance, and support communication and dissemination of project outcomes. The third meeting of the PSC was held online on February 24, 2021. Dr Aditi Mukherji, Regional Project Leader for the SDC-SoLAR project, shared project updates as per the meeting agenda. Read the minutes of the meeting here.

Country highlights

Field visits for mapping command area of SIPs in Bangladesh

One of the project's core activities is to compare groundwater pumping behaviour by SIP and non-SIP (diesel) farmers. This requires delineating command areas of SIPs and diesel pumps and setting up discharge measurement instruments. To this end, our partner NGO Forum and officials from IDCOL undertook a field visit in our project areas earlier in the year. Read here for further details.

Interviewing and data collection from SIP operator

2nd C-PMC India meeting held

The second C-PMC meeting for India was held virtually on January 20, 2021. Members included representatives from GUVNL, GERMI, ATREE, GIZ and representatives from SDC and IWMI. The C-PMC was apprised of Year 1 progress and informed about plans for Year 2 activities in India which they approved. Further details can be found here.

IWMI and IDCOL signed an agreement to pilot grid-connected SIPs

As a part of this agreement, IDCOL will assign existing solar pump sponsors to design the grid integration pilot with IWMI. They will also facilitate the engagement of solar irrigation sponsors in all project activities, conduct multiple need-based farmer training, and facilitate organizing national forums with relevant stakeholders from national, provincial and local policymakers and help disseminate information. IWMI's Director-General, Dr Mark Smith and Executive Director & CEO of IDCOL, Mahmood Malik, signed the agreement on February 24, 2021. Further details can be found here .

Solar technicians trained in Itahari, Nepal

A 7-day residential solar technicians' training under the project was successfully carried out in Itahari, Nepal, from February 28 – March 06, 2021, following all COVID-19 restrictions. The pool of 20 trainees consisted of technicians, engineers and technical officers from private companies and government bodies such as officials of rural municipalities and representatives from the Alternative Energy Promotion Centre (AEPC). The participants were trained on major components of Solar PV systems. Local partner Pathibhara Polytechnic conducted the training at their training Centre. Read here for more information.

Understanding agricultural water management: IWMI partners with KFUEIT

On March 30, 2021, IWMI, under the SoLAR project, partnered with Khawaja Fareed University of Engineering and Information Technology (KFUEIT) to generate field-level evidence on some of the best agricultural water management practices coupled with solar irrigation pumps. IWMI has also provided training on precision surface irrigation to faculty, students, and farmers during field trials. Four trials sites were undertaken during the winter season to sow wheat under different configurations of the farming fields. Read here for more information.

Inspection of flow meter structure

Training conducted by IWMI-Pakistan

A half-day training session was arranged on the *'Design of Solar Operated Pumping System for Precision Surface Irrigation'* at the Civil Engineering Auditorium of the KFUEIT in Rahim Yar Khan on March 31, 2021. A total of 81 participants attended this training. The program was also live-streamed. Read here for further details.

IWMI researchers also conducted a training on O&M of SIPs with 19 farmers. This was followed by a field visit for giving them a hands-on experience. Read here for further details.

Field demonstration during O&M training

What keeps the IWMI-SoLAR staff busy?

Here's what Dr Azeem Shah, Senior Regional Researcher - Governance of Water Institutions at IWMI has to say:

What is your role in the project?

I am currently the Country Lead for the SoLAR project in Pakistan.

What are the important policy questions that your country team is trying to answer?
The beauty of the SoLAR project is that it was developed through extensive consultations with all the key stakeholders from public and private sectors in Pakistan. The project is trying to provide evidence-based information to the following three policy questions:

- Does farmer behaviour vis-à-vis groundwater pumping change when they replace diesel pumps with solar technology for groundwater pumping for agriculture?
- Does farmer behaviour vis-à-vis groundwater pumping change if they could feed-in electricity to the national grid. The farmers included in this sample do not have a grid-connected tube well and use the solar pump to abstract groundwater.
- Would precision surface irrigation coupled with solar technology merit promotion, or is the traditional approach of solar associated with HEIS the future of solar irrigation?

What keeps you motivated to be a part of this project?

This is one project which is very close to my heart. There is so much potential in Pakistan for promoting SIPs, and we need to answer some of the critical policy questions. The Government of Pakistan has a firm belief in us to provide evidence on some of these pressing policy questions to promote solar-based irrigation in Pakistan. This keeps me motivated to design and implement action-based research to meet the expectations of the important stakeholders in the country. Moreover, we bring knowledge/best practices/success stories from the region, which provides an excellent learning opportunity.

What keeps SoLAR partners engaged?

Here's what Dr Sunderrajan Krishnan, Executive Director of INREM, our key partner for the SoLAR project has to say:

How can this project contribute to the mission of your organization?
The SoLAR project helps the mission of our organization on sustainable management of water resources and clean energy promotion for mitigating the effects of climate change.

Which component of the project are you most excited about?
We are excited to be part of the research on determining relationships between energy data and water use, thereby helping to answer some larger questions related to solar irrigation pumps.

Research Papers of interest published in this period:

Performance evaluation of solar PV pumping system for providing irrigation through micro-irrigation techniques using surface water resources in hot arid of India.

Solar or Diesel: A Comparison of Costs for Groundwater-Fed Irrigation in Sub-Saharan Africa Under Two Energy Solutions

Suitability, sizing, economics, environmental impacts and limitations of solar photovoltaic water pumping system for groundwater irrigation- a brief review

Agricultural Water management challenges in the Hunza River Basin: Is a solar water pump an alternative option?

Other news from the solar space:

Uttar Pradesh Floats Tender for 106 MW of Solar Projects under KUSUM Program - Mercom India

India's Solar Market to Recover Rapidly in 2021: IEA Report - Mercom India

In partnership with

For further information, please get in touch with Ms Zeba Ahsan, Communications Consultant, SoLAR Project, IWMI at z.ahsan@cgiar.org

Visit the SoLAR website