

## Solar Irrigation for Agricultural Resilience (SoLAR)

### Newsletter

#### Issue No 2: October-December 2020

Dear readers,

We are back after a hiatus. Our work did not stop all this while, but we fell behind in communicating that work. In the three subsequent newsletters, we report all the progress we have made in the last nine months (October 2020 to June 2021). As we all know and have experienced, COVID-19 has had profound repercussions everywhere. Global goals related to sustainable development have taken a back seat wherein even achievable targets have gotten delayed. Climate change impacts are being felt everywhere, and many of those impacts are water impacts such as extreme rainfall, floods and droughts. With a resurgence of various activities as the world battles with a deadly virus, one of the most significant ways to revive global economies is to "Build Back Better" by promoting and investing in renewable energy.



Activities of the SoLAR project and its partners assume particular importance in this quest to "Build Back Better". The main goal of this project is to promote solar irrigation in ways that provide much-needed irrigation services to smallholder farmers while also ensuring the long term sustainability of groundwater resources. I hope you enjoy reading our newsletter. Please share your thoughts by writing to my colleague Ms Zeba Ahsan at [z.ahsan@cgiar.org](mailto:z.ahsan@cgiar.org).

*Aditi Mukherji, Regional Project Leader, SoLAR-SA, IWMI*

### How does the solar irrigation landscape in South Asia look like?

Our colleagues completed situation analysis reports, which are now available on our website. Here's a sneak peek into them:

Bangladesh has achieved self-sufficiency in food production and has had steady agricultural growth over the past few decades. With a commitment in its Nationally Determined Contributions (NDCs) under UNFCCC, [Bangladesh's NDC roadmap](#) specifically identifies solar pumps to curb GHG emissions. We discuss the current status and future challenges of the implementation of solar irrigation programs in Bangladesh [here](#).

With solar-powered irrigation emerging as both an economically and environmentally viable option for Indian agriculture, researchers and policymakers have been working together to frame policies that produce favourable outcomes in the long run. The recent [PM-KUSUM](#) scheme has been gaining traction among the various state governments. We look at the initiatives of various state governments and discuss the challenges and opportunities [here](#).

Nepal has come up with [subsidy policies on renewable energy](#) and has tried mainstreaming GESI in those policies. They have been promoting solar irrigation pumps in the fertile Tarai region that serves as the agricultural backbone of Nepal. We analyze the progress of the implementation of solar irrigation policies in Nepal [here](#).

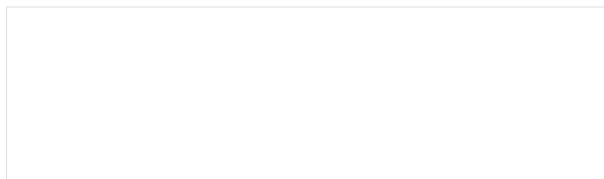
In Pakistan, solar pumping technology has emerged as an alternative to diesel and electric pumps, but water professionals are concerned that converting pumps to PV solar will result in indiscriminate pumping and eventually lead to further groundwater depletion. Our situation analysis looks at the current status of the adoption of solar pumps and the status of groundwater resources in the country and is available [here](#).

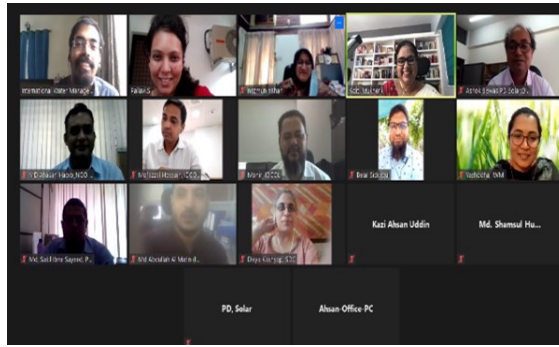
These four reports provide a rich tapestry of information on the current status and progress in implementing solar irrigation policies in South Asia. Our next step will be to synthesize these reports and come up with a pan-South Asia report.

### Country highlights

#### [Bangladesh holds first CPMC meeting](#)

The first CPMC meeting for Bangladesh was held on the 20<sup>th</sup> of October 2020 to discuss the various alternatives and financial modalities for solar irrigation pumps (SIPs) and seek overall feedback on the planned activities under the Solar Irrigation for Agricultural Resilience in South Asia (SoLAR-SA) project. Further information can be found on our website [here](#).





A glimpse from the 1st CPMC meeting, Bangladesh

**IDCOL and DAE train farmers in Bangladesh on on-farm water management**

Thirty farmers who use irrigation services from IDCOL sponsored solar irrigation pumps, were trained at Panchagarh, Bangladesh, on the 20<sup>th</sup> of October 2020 on improved on-farm water management. The Department of Agricultural Extension (DAE) conducted the training in collaboration with IDCOL. Further information can be found on our website [here](#).

**IWMI SoLAR researcher and partners publish a newspaper article in Nepal**

A newspaper article by Dr Vishnu Prasad Pandey (Researcher, IWMI) and Mr Sagar Gyawali (Assistant Director, Nepal Electricity Authority) titled, 'Can Grid Connected Solar Irrigation Pumps Be The Future Of Irrigation In Nepal' was published in Spotlight Nepal. Read the article [here](#).

**Telephonic survey for five districts of Punjab province, Pak**

As per part of a behavioural study in the Punjab province of Pakistan, a telephonic survey was conducted in 15 tehsils across the districts of Chakwal, Jehlum, Faisalabad, Toba Tek Singh and Lodhran. Not having achieved much success out of the telephonic survey a rapid enumeration was conducted comprising 600 farmers. Further details can be found on our website [here](#).

**Pakistan holds second CPMC meeting**

The second CPMC meeting was held on the 17<sup>th</sup> of December 2020 to deliberate upon the usage of Solar Irrigation Pumps (SIPs) across various districts of the Punjab province. The researchers are also looking to assess the farmers' pumping behaviour when they use SIPs and diesel-based pumps, which otherwise is referred to as the 'dirty fuel'. Further details can be found on our website [here](#).

**IWMI- Pakistan conducts training on designing solar irrigation fields through the WinSRFR model**

IWMI Pakistan Office conducted a two-day online training webinar on the Design of solar pumped irrigated fields through a Precision Surface Irrigation System using the WinSRFR Model. Further details can be found on our website [here](#).

A glimpse from the WINSRFR virtual training

**What keeps the IWMI-SoLAR staff busy?**

Here's what Marie-Charlotte Buisson (Senior Researcher – Development & Agricultural Economics ) at IWMI has to say

**What is your role in the project?**

I lead the impact evaluation component of the SoLAR project in Bangladesh. In the last few weeks, we have been busy with the SIP level surveys. We followed a representative sample of

82 SIPs with phone surveys for each cropping season. So far, we have collected data for the Kharif 2 season in 2020. Data for the rabi season in 2020-21 and Kharif 1 season in 2021 will be collected soon. We are also finalizing the design of the household surveys that will allow us to understand how the SIPs are impacting farmers livelihoods.



#### What are the important policy questions that your country team is trying to answer?

We work simultaneously on three types of policy questions: welfare and equity, resource use and climate change mitigation, and design of solar irrigation program. Our related research questions are:

- What is the impact of SIP on agricultural practices and outcomes, farmers' behaviour, and equity in water access?
- What is the effect of SIP on diesel consumption and water applications?
- How do SIP characteristics (NGO/private sponsor, age, power installed, type of pump, financing) influence its operation?
- And how does grid connection affect the operation of SIP, water buyers, and groundwater consumption?

#### What keeps you motivated?

I like the idea of understanding both the short-term, direct effects of solar irrigation for farmers and the longer-term global implications on climate change mitigation, resource use, and even rural economy. Thanks to our partnership with IDCOL, we also have the opportunity to work closely with those who make solar irrigation happen in Bangladesh. My motivation and ambition are to be useful to them in helping to understand the effect of their program and designing impactful programs and policies. In addition, it is a pleasure to interact and learn from other SoLAR team members with different disciplinary backgrounds and from our partners at NGO Forum, which keeps me motivated in my day-to-day work.

#### What keeps SoLAR partners engaged?

Here's what Laxman Ghimire, Assistant Director, Alternative Energy Promotion Centre, Nepal, a key partner of the SoLAR project, has to say:



#### How can this project contribute to the mission of your organization?

AEPC is promoting small scale solar irrigation projects for the past few years following the renewable energy subsidy policy-2073. We were looking for a rapid assessment to make the delivery system more effective. I must thank IWMI for the rapid evaluation of installed SIPs. The findings of this rapid assessment are a meaningful implication in our delivery processes. We have adopted some of the recommendations for this year's installation of the irrigation pumps. Likewise, we have limited support in capacity building activities, and IWMI has once again proven to be of immense help in providing training to the company's technical persons and AEPC's engineers.

#### Which component of the project excites you?

We are interested in observing the impact of the micro-grid pilot project of solar irrigation pumps. If the micro-grid pilot is found feasible, we may replicate this model in the government's upcoming programmes. Impact study and rapid assessment study could be a value addition for the delivery process. Likewise, regular capacity building activities could be assets of HR development in irrigation promotion.

#### Research Papers of interest published in this period:

[Solar-Powered Automated IoT-Based Drip Irrigation System](#)

[Designing a solar and wind hybrid system for small-scale irrigation: a case study for Kalangala district in Uganda](#)

[Energy partitioning and microclimate of solar greenhouse under drip and furrow irrigation systems](#)

[Solar thermoelectric generator assisted irrigation water pump: Design, simulation and economic analysis](#)

#### In partnership with



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

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