

Solar Irrigation for Agricultural Resilience in South Asia (SoLAR-SA)

**Minutes of the 7th Project Steering Committee (PSC) Meeting February 07, 2023, |
17:30 PM – 19:00 PM (IST)
Venue: IIT Gandhinagar-Academic Block 7/101**

A) Attendees

Name and Designation	Designation at PSC	Attended
Corinne Demenge, Head of SDC, New Delhi	Chair	Yes
Mark Smith, Director General, IWMI	Co-Chair	Yes
Divya Kashyap Sharma, Deputy Head and Project Manager, SDC	Member	Yes
Vidhisha Samarasekara, Strategic Program Director, Water, Climate Change and Resilience, IWMI	Invited	Yes
Alok Sikka, Country Representative, India, IWMI	Member	Yes
Aditi Mukherji, Principal Researcher, IWMI and Regional Project Leader, SoLAR-SA	Member	Yes
P.C. Sharma, Additional Director, International Solar Alliance (ISA)	Co-opted Member	Yes
Enamul Karim Pavel, IDCOL	Invited	Yes
Abbreviations: IDCOL: Infrastructure Development Company Limited; ISA: International Solar Alliance; IWMI: International Water Management Institute; SDC: Swiss Agency for Development and Cooperation		

A) Agenda

Corinne Demenge (SDC), Chair of PSC: She chaired the meeting and opened the session with her remarks by welcoming the members.

Dr Aditi Mukherji, IWMI: Dr. Aditi Mukherji presented the Annual Report for the SoLAR project. She presented the completion of **15** activities under **7** outputs and **3** outcome categories except the one on regional training. The ideas around the Regional Training in under development in discussions with Vidya. The Regional Knowledge Forum saw **70** technical presentations, **14** technical sessions, over **130** in-person participants and **30-35** organisations represented from across **16** countries. She also stated the need for conversations around tariffs for grid-connected solar pumps and emphasized the need to be focused on it for the next phase. She also discussed the importance of recognizing and covering variations in solar irrigation models in different countries, particularly for small farmers. While diverse models have worked for different agro-economic system specific contexts, there is now a gradual move to centralised systems like PM Kusum. Other significant overarching outcomes included emerging evidence that SIP is not leading to overextraction of groundwater in

Bangladesh nor India; and emerging knowledge exchange between countries with a **9-member** team from IDCOL from Bangladesh meeting GUVNL and visiting SoLAR grid connected models in India.

Key Results from Bangladesh:

Dr. Aditi presented the following key results from Bangladesh project activities: a) CO₂ mitigation was being achieved under IDCOL SIPs without trade-offs for productivity; b) Multiple co-benefits of IDCOL SIPs were emerging, including more income, time saved for irrigation, less labour burden; c) Increased yield and income for SIP water buyers (9% increase in production) was observed due to better water control. Also, no substantial increase in groundwater extraction was found in Bangladesh.

Key Results from India:

Three core results emerging from India were about the – a) impact evaluation of the SKY scheme, b) training of farmers in SIP under SKY and c) studies on groundwater sustainability. Larger farmers were found to be the major participants in SKY and the generation performance of solar units was found to depend on governance; therefore, well-governed decentralised systems could work equally well breaking narratives against decentralised systems. An assessment of financial models revealed that while 90% of the farmers were evacuating electricity, only 50% farmers were found to be making an income. This was primarily due to heavy loan amounts. It was therefore assessed that if the loan period is increased to 10-15 years, the percentage of farmers earning incomes increases. This was put forward as a point for advocacy for the government as a possible policy step towards re-examining financial models.

Training of farmers done through SDC support based on demand from farmers for this training in SKY was presented and considered as a most cost-effective intervention – done in RCT mode. As a result of this training, farmers are starting to perform better with their solar schemes. Most mega schemes are running sub-optimally without capacity building – therefore capacity building is a good cost-effective intervention. A study on the relationship between energy use and water pumping has been underway and is expected to reveal more robust results in the coming period.

Key Results from Nepal:

Results from Nepal included a Gender-SIP study that revealed that while water and agriculture policies are more inclusive, renewable energy policies have been completely technology centric and completely missing gender components. Reduction in diesel use and productivity benefits were found. A pilot on grid-connected solar pumps was completed in 2023 and the idea for micro-grids was pitched by the SoLAR team in Nepal at the Korea International Water Week, which won awards for innovation. The project contributed to Nepal's NDC in response to NDC partnership request to provide emission factor for diesel pumps. For scaling up grid-connected SIPs, Nepal posed a challenge due to the governance mix as mandates for different government levels are not feasible for grid-connected solar (NEA, AEPC, Local Govt, community). Capacity Building workshops have also been conducted.

Key Results from Pakistan:

For SIPs model in Pakistan, no financing was seen to be available. Only large farmers self-financing can take on solar – already doing commercial crops. Grid-connection is more feasible and sustainable than standalone pumps – in the micro-grid format. In-situ instrumentation for groundwater tubewell discharge was taken up and sugarcane farmers were found to be over-extracting, leading to adding more nuance in groundwater extraction outcomes of SIPs in Pakistan compared to India and Bangladesh. A choice experiment on willingness of farmers to sell electricity instead of cultivating as a powerful tool to reduce groundwater extraction was discussed in addition to training of water professionals. At the National Forum, the topic of sustainable solar irrigation was taken up.

Key Results – Regional:

The ongoing Regional Knowledge Forum was discussed as the key regional level project result.

Corinne Demenge invited comments from the PSC members.

Laxman Ghimire, AEPC Nepal:

Mr. Ghimire acknowledged that Nepal was quite new to the grid connected systems and that AEPC was mostly mandated for doing off-grid systems. However now with the support of IWMI, they were able to successfully pilot one connective system to the grid. He was optimistic about the opportunity for thinking of scaling up such pilots and continuing discussions on multiple such pilot projects in the region. He also appreciated the support from IWMI for preparing a manual for technicians to be uploaded on the AEPC website for wider use by technicians and the private sector.

Md. Enamul Karim Pavel, IDCOL

He appreciated the support for the program from IWMI over the past couple of years. He acknowledged that this was providing them with a better technical understanding of the grid connection and various other models. He also mentioned the need for higher tariff rates from the government to encourage project sponsors towards grid connection. He focused on the need for more income generating activities around SIPs and reiterated that IDCOL would be happy to receive groundwater data from IWMI to understand the argument of implications for groundwater extraction to advocate/apply for the Green Climate Fund (GCF). On an optimistic note, Mr. Pavel stated that they had developed the base capacity now and were now ready to scale up the solar irrigation program.

Corrine Demenge in response, mentioned that the GCF Monitoring Fund could help support groundwater monitoring data.

PC Sharma - ISA Representative

Mr. Sharma appreciated the SoLAR project for developing some dense base studies and showcased outcomes. In alignment with this, he focused on his optimism about working with IWMI on knowledge sharing through South-South cooperation with an IPSA Fund launched worth 200 million USD by ISA (with 9 countries from Africa). He mentioned that the rich research findings from this forum would help in sharing knowledge with other countries.

Divya Kashyap (SDC)

Having participated in the three-day SoLAR Regional Forum, Sharma appreciated the enriching knowledge sharing at the forum. She recognized the emerging opportunities in other regions such as Central Asia and Africa, from where studies were showcased at the forum. Sharma stated that consolidating the findings of this regional forum would be a rich resource and can be taken to the policy level. Dialogue with more policy makers could be a possible focus for the next regional dialogue. She also referred to RJ Vala's appreciation for the farmer training done by the SoLAR project in Gujarat. For the next steps, she stated the need for a review to identify where the project could go from here and in line with this need, a meeting with key members was requested. She also acknowledged that ISA with a global overview can help offer suggestions where SoLAR can go from here and where it can add value.

Vidisha Samasekaran

Dr. Vidhisha appreciated the progress of this work and focused on the need for using the project experience and research so far to leverage policy and impact in the next phase through funding leverage and ongoing communications with GCF, KFW, multilateral development banks IFI, World Bank and ADB.

Alok Sikka

Dr. Sikka appreciated the Regional Forum for going beyond project partners in this regional workshop, bringing in more experiences and exchange beyond the geography and region. He considered this as an opportunity for further South-South collaboration. SoLAR project findings were well disseminated but we also need to learn from them. The groundwater implication component emerged as an important theme with a mix of both field experimentation and groundwater modelling making them complementary and integrated.

Mark and Corrine closed the meeting by highlighting the importance of the project and looking forward to the next phase of the project to engage and foster policy, evidence driven dialogue and policy and strategy development.