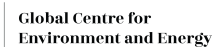


# Energizing Agriculture and Enabling Just Energy Transitions in South Asia: A Regional Knowledge Forum

Venue: Indian Institute of Technology Gandhinagar, Gujarat

Date: February 06–08, 2023

## Conference Partners



## Conference Concept Note

Science is unequivocal that emissions of Greenhouse Gases (GHG) by humans have caused global warming. We live in a warmer world where global surface temperatures are ~1.2 degrees Celsius higher than in pre-industrial times. Impacts of climate change, including extreme events, are already being felt by a large section of people everywhere on the globe and disproportionately so by the poor and vulnerable populations in the Global South. Therefore, it is imperative to keep global temperatures within the Paris Agreement goals of 1.5°C-2°C, which requires sharp reductions in GHG emissions in this very decade.

## Just Energy Transition for South Asia

Energy transition involves moving from fossil fuel to renewable energy sources to reduce GHG emissions. In this context, just energy transitions are strategies that allow these systemic changes to happen in fair and equitable ways to ensure that the costs and benefits of climate action are distributed equitably. More than 60% of South Asia's population is engaged in agriculture, and this sector is highly exposed to climate hazards such as heat waves, droughts, floods, and rainfall variability. Current impacts and future risks are further compounded because those involved in the sector are already highly vulnerable. Thus, Just Energy Transition, particularly in agriculture, is critical for South Asia.

## Solarizing South Asian Agriculture

South Asia is home to 25-30 million agricultural pumps, the largest worldwide. These pumps, powered by either dirty diesel or electricity, cause substantial carbon emissions from groundwater irrigation. Replacing these fossil fuel-based pumps with solar irrigation pumps (SIPs) is an effective mitigation strategy. Unlike agricultural emissions mitigation strategies, such as improved water management in paddy or fertilizer management protocols, which can have short-term negative productivity impacts, replacing fossil fuel-based pumps with SIPs has no negative productivity impacts. Deployment of solar technologies for rural enterprises and agricultural processing and value chain improvements are also happening across South Asia, and policies underpinning their implementation and institutional models that support them are crucial for their success.

## The SoLAR Regional Forum

The forum is proposed as a two and half-days conference of regional researchers, policymakers, and practitioners in the renewable energy sector. It will be co-organized by the International Water Management Institute (IWMI), Swiss Agency for Development and Cooperation (SDC), Indian Institute of Technology, Gandhinagar (IIT-Gandhinagar), Ahmedabad University, Global Centre for Environment and Energy, International Renewable Energy Agency (IRENA), World Resources Institute (WRI), India, International Solar Alliance (ISA), India, and the Global Green Growth Institute (GGGI).

## Themes of the Conference

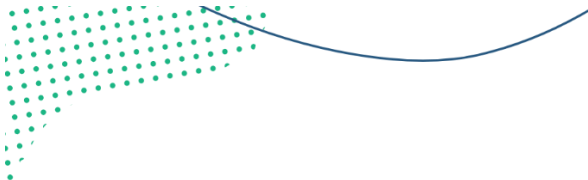
### **Theme 1: Solarizing Smallholder Irrigation**

*(Policy landscape and empirical evidence of the impact of solar irrigation pumps (SIPs) on farmers' incomes and livelihoods)*

The adoption of solar irrigation pumps (SIPs) has rapidly increased in South Asia over the last decade. The region now has nearly 300,000 SIPs. Various technical, financial, and institutional models have been tried. In this session, we welcome presentations and panel discussions on the overall policy landscape of solar irrigation in South Asia, issues related to the governance of utilities that can affect solar irrigation, and the impact of solar pumps on diesel use and farmers' livelihoods and incomes.

### **Theme 2: Conserving groundwater through solar irrigation**

*(Empirical evidence and future projections)*



Given the zero marginal energy costs of solar pumping, there are apprehensions that the rapid spread of SIPs will lead to excessive groundwater use for irrigation, causing further depletion in regions that are already water scarce. In this session, we look forward to presentations and panel discussions that provide empirical evidence of the impacts of SIPs on groundwater use or model the same, given future climate change scenarios.

### **Theme 3: Connecting off-grid to the grid**

*(Pilots and lessons from grid-connected solar irrigation projects)*

SIPs started as an off-grid enterprise in South Asia, but most countries have felt the need to move to on-grid solar irrigation over the years. This is because on-grid solar pumps can help electricity utilities meet their renewable energy mix targets. At the same time, feed-in tariffs can be attractive for consumers (farmers) and investors if set right. Incomes derived from selling electricity to the grid can incentivize farmers to pump less groundwater without losing income. In this session, we solicit presentations and panel discussions on grid-connected solar pumps' technical, policy, and institutional aspects.

### **Theme 4: Renewable energy in agricultural value chains**

*(Institutional models, policies, and case studies on livelihoods and impacts)*

Renewable energy (RE) is used in many agricultural processes, including irrigation, harvesting, drying, post-harvest processing, or cooling and preserving agricultural products. In this session, we solicit papers and posters that examine policies, institutions, and financial models that support the use of RE in agriculture, as well as empirical case studies that look at the impacts of RE in agriculture on farmers' livelihoods and incomes. Presentations and panel discussions on the use of RE in agricultural processes other than irrigation are welcome.

### **Theme 5: Making energy transitions inclusive and equitable**

*(Is renewable energy transition GESI (gender, equity, and social inclusiveness) compatible?)*


The requirement that RE policies and institutions are GESI transformative is at the heart of just energy transition. In this session, we look forward to presentations and panel discussions on RE policies, technologies, and institutions from a GESI lens and examine if they are gender transformative or not and ways in which these can be made so.

## **Format of the Conference**

The conference will be organized in a hybrid format, with a selected group of participants (invited as speakers and panelists) participating on-site while the remaining join online. The conference will feature three categories of sessions:

**1.1 Keynote Sessions:** Keynote speakers will be invited to the conference location to deliver their talk in person (unless they choose to do so online). These sessions will be streamed live through the conference media channels.

**1.2 Technical Sessions:** Participants will be selected internally by the conference partners to present their work under the five themes of the conference. These sessions will be designed by the conference organizers and conducted in person.



**1.3 Partner Sessions:** All conference co-organizers will organize at least one session on the abovementioned themes. The partners will be given complete flexibility to design their sessions, invite suitable panelists and speakers, and prepare their dissemination material. Partner organizations may conduct these sessions either on-site or online, in which case, online sessions will be streamed live to a broader audience.

**2. Field visits:** All in-person attendees will join in a half-day-long field work where they will see solar irrigation pumps in operation and interact with farmers and utility officials and visit a training facility of the Gujarat Energy Research Institute (GERMI).

## Proposed Conference Schedule

Time	Type of Session	Day 1: Feb-06	Day 2: Feb-07	Day 3: Feb-08
9:00-9:30		Registration		- Field visit to solar irrigation sites and interaction with farmers and electricity utility officials
9:30 – 10:00		Inaugural session / welcomes address	Registration	
10:00 – 11:15	<b>Plenary</b>	Plenary Session- Keynote Speeches (TBC)	Plenary Session- Keynote Speeches (TBC)	
11:15-11:30	Tea/Coffee Break			- Visit to GERMI's training facility
11:30-13:00	<b>Parallel sessions</b>	Parallel Sessions: Thematic Technical / Partner sessions (sessions, speakers, and panels TBC)	Parallel Sessions: Thematic Technical / Partner sessions (sessions, speakers, and panels TBC)	
13:00 – 14:00	Lunch			
14:00 – 15:30	<b>Parallel sessions</b>	Parallel Sessions: Thematic Technical / Partner sessions (sessions, speakers, and panels TBC)	Parallel Sessions: Thematic Technical / Partner sessions (sessions, speakers, and panels TBC)	
15:30 – 15:45	Tea/Coffee Break			
15:45 – 17:15	<b>Parallel sessions</b>	Parallel Sessions: Thematic Technical / Partner sessions (sessions, speakers, and panels TBC)	Parallel Sessions: Thematic Technical / Partner sessions (sessions, speakers, and panels TBC)	
17:15 – 18:15	<b>Wrap-up</b>	Deliberating the highlights from sessions of that day		
19:00 -21:00		Conference Dinner	Dinner	

For more updates on the conference, watch out for our space <https://solar.iwmi.org/>.