

Concept Paper
SAARC Webinar on “Challenges and Opportunities of Solar Irrigation Pumps”
Monday, 21 st October 2024: 1000 – 1200 hrs Pakistan Standard time (PKT)

Background

Increased reliance on sustainable irrigation is one of the strategies to adapt to climate change for farmers. South Asian countries are the largest extractor/user of groundwater withdrawing approximately 250 km³ of groundwater annually. It is estimated that there are approximately 21 million pumps in Bangladesh, India, Nepal, and Pakistan, of which roughly 12 million are electric and the rest are diesel¹. With the rapid decline in the cost of solar energy technologies, solar irrigation has been gaining traction in South Asia as a replacement for diesel irrigation pumps. Solar Irrigation Pumps (SIPs) require nominal operational and maintenance costs, produce no emissions, and offer automated features. SIP is also known to have direct employment generation potential².

Beside opportunities, SIPs do have some challenges and problems. As the number of SIP installations increases, groundwater resources are over extracted leading to groundwater sustainability issues. Additionally, SIP system requires high initial costs and long payback period for return. SIP also needs lots of space and provides intermittent operation turning fully off during the night. Therefore, irrigation productivity and sustainability of water resources become the major concerns with the massive use of SIPs.

Introduction

In the context discussed above, the SEC is organizing a webinar titled "Challenges and Opportunities of Solar Irrigation Pumps" on Monday, 21st October 2024, from 10:00 to 12:00 Pakistan Standard Time (PKT). The two-hour session will feature lectures, presentations, and case studies from experts with in-depth knowledge of solar irrigation pumps (SIPs). The webinar will provide a comprehensive discussion on the benefits, opportunities, and challenges of both standalone and grid-connected SIPs. It will also highlight the best policies and regulatory interventions implemented globally and within South Asian countries.

Objectives

The primary objective of this webinar is to raise awareness among the people of South Asia about the use of solar irrigation pumps to sustainably enhance crop productivity. It will also provide valuable insights to support the development and implementation of effective SIP policies.

¹ Shah, T., Rajan, A., Rai, G. P., Verma, S., & Durga, N. (2018). Solar pumps and South Asia's energy-groundwater nexus: exploring implications and reimagining its future. *Environmental Research Letters*, 13(11), 115003.

² Pradhan Mantri Kisan Urja Suraksha Evam Utthaan Mahabhiyan, 2019
(<https://static.pib.gov.in/WriteReadData/specificdocs/documents/2023/may/doc202351191401.pdf>)

Major Aspects to be covered during the Webinar

The following aspects will be covered in the webinar (but not limited to):

- Industry readiness and status of SIP in South Asian Region
- SIP promotion and management practices in South Asia and globally
- Challenges and opportunities of SIP in South Asian context
- Identification of the bottlenecks in the current deployment of SIP
- Financial, institutional, and technical aspects of different SIP promotion models in the groundwater abundant zones and ground water depletion zones
- Benefit to the farmer and potential increase in crops productivity
- Comparison of SIP, diesel power irrigation pump and grid connected irrigation pump
- Policy intervention, way forward for implementation for introduction of SIP in SAARC countries

Potential Professional Resource

During the Webinar, the experts/resource persons engaged for the purpose will deliver their presentations and respond to questions by the participants.

Venue of the Webinar

The webinar will be broadcasted from the office of SEC on Monday, 21st October 2024 from 1000 – 1200 hrs Pakistan Standard time (PKT).