

## **SDC-IWMI SoLAR Project Builds Institutional Capacity for Micro-Grid Connected Solar Pumps through Knowledge Partnership**

*On March 26, 2022, a delegation of 13 members from Nepal visited Gujarat to see the micro-grid-connected agricultural feeders under the Gujarat Government's SKY scheme. This exposure visit led to some new learnings for NEA and local governments in Nepal working towards expanding and strengthening solar electricity generation through solar. Ms. Jeniya Shakya - an intern at IWMI-SoLAR, Nepal - interviewed Mr. Ambuj Ahmed and Mr. Bhulan Sah, Junior Technical Assistants at the Chhipaharmai Municipality. The conversation points out how the knowledge transferred through the exposure visit has influenced the municipality's future course of action for grid-connected solar irrigation pumps.*



*Ambuj Ahmad*

*Bhulan Sah*

**So far, what has been the significant contribution of the solar irrigation pumps (SIP) and the Micro Grid (MG) project for the farmers in the Chhipaharmai municipality?**

**Ambuj Ahmad:** The SIP subsidy project has freed farmers in Chhipaharmai from financial burden. Alternative Electricity Promotion Centre (AEPC) has given a 60% subsidy on the SIP system. SIP systems cost around Nrs. 10, 00,000. Initially, the rural municipality planned to provide a 30% subsidy and charge 10% to farmers. But later, it decided to give a 40% subsidy. Installation of solar panels and the cost of boring is free for the farmers.

The MG project is yet to be implemented, so it is too soon to discuss its impact.

**Bhulan Sah:** The SIP project has helped farmers grow more crops by facilitating irrigation for them. Some farmers who grew 2 crops before SIP are now growing 3 crops. This has made farmers independent. Enabling these benefits for the farmers is a significant achievement for a rural municipality.

**Recently, you went to Gujarat to visit their grid-connected solar irrigation sites. How was the experience? What new lessons could you learn from the visits?**

**Ambuj Ahmad:** The main aim of the Gujarat visit was to observe and study the different solar irrigation and microgrid systems.

One of the most fascinating takeaways is that electricity can be sold back to the electricity authority. This was not known to us earlier, nor was the process of selling electricity to the government.

In Gujarat, farmers buy electricity at Rs 0.60 per unit and sell excess electricity at Rs 3.5 per unit. To cover the loss of purchasing electricity at a lesser rate, the Indian government exports electricity. Also, it was interesting to see how they have arranged a pipeline over the solar panel to clean it. These pipelines make panel cleaning easier and improve the generation efficiency and electricity sales to the grid.

In Dhundi village, the first site of the microgrid pilot in Gujarat, a group of around 16 farmers has put their individual master meters in their shared space. Each master meter records farmers' daily and monthly electricity consumption and the extra electricity produced by a solar panel. In Gujarat, one farmer has 60-70 solar panels with a 15 HP pump. In contrast, in Nepal, one farmer has a maximum of 11 panels with a 3 HP pump.

**Bhutan Sah:** There has been working in the Chhipaharmai rural municipality on a micro-grid. The main aim of the Gujarat visit was to observe the advantage of the micro-grid. To determine whether a similar project is feasible in Chhipaharmai and whether it is possible to grow similar crops in Nepal as in Gujarat.

It is interesting to observe how farmers are benefitted from the micro-grid. Gujarat grows commercial crops such as aloe vera, tulsi, and castor. Farmers in Gujarat earn extra income by selling electricity and then spend that money to buy seeds and fertilizer. The government of Gujarat also takes a due interest in the project, ensures the system is well managed, and issues of operation and maintenance are resolved as quickly as possible.

**How is a rural municipality implementing the lessons learned in their country / local context?**

**Ambuj Ahmad:** After returning from Gujarat, 5-6 farmers were gathered to showcase the videos and photos from the visits and share their experiences and learning. Farmers learned that it is possible to sell excess energy when the solar panel is not used for 9 months in a year.

However, other than knowledge sharing, the municipality has not initiated any full-scale implementation activities from their side as yet. But supported by the International Water Management Institute (IWMI), they are implementing a microgrid pilot project in the Chhipaharmai municipality. The rural municipality-provided land to build the system of the microgrid. They convinced 8 SIP farmers to collaborate with the project. They also oversee microgrid activities such as the erection of poles and soil filling in the MG site.

**Bhulan Sah:** Currently, the municipality is working on allocating budgets for providing subsidies on seeds for introducing seeds of commercial crops like the ones in Gujarat. It is also thinking about ways of increasing production from the micro-grids. Besides, they also work closely with IWMI to implement the MG pilot project and oversee the MG activities.

**Personally, which aspect of the project excites you the most and why?**

**Ambuj Ahmad:** My favorite aspect of the project is micro-gridding. We have been working with IWMI on MG since April-May 2022, and there have been more than 10 rounds of field visits to the pilot sites. The best part of MG is that the solar panel from farmer's land will be shifted to the land provided by a rural municipality. Thus, the farmer will get the extra land for plantation, and they will also get enough water for irrigation. They will be able to irrigate their land 24 hours a day. I am glad I could be part of the project, which is happening while I am working here in the rural municipality. I never thought I would do anything like this during my service period. So, I am thrilled.

**Bhulan Sah:** For me, one thing I like the most about this project is that this kind of MG project is happening for the first time in Nepal. Farmers can earn from a natural element like sunlight without having to make any prohibitive investment for accessing irrigation. I am delighted that I am part of the project and find this very interesting.

*Image source: Through special arrangement*