

SoLAR Team Visits SIP Sites in Gaibandha, Birganj and Dinajpur

A two-member team from SoLAR-SA, Bangladesh along with a personnel from its partnering organization, IDCOL visited several SIP sites in the Gaibandha, Birganj and Dinajpur districts of Bangladesh from 11th to 13th February 2022. The purpose of the visit was to understand to understand the operational mechanisms, design and technical details through interaction SIP operators and field partners.

Here are some entries from their field diary:

Sadallapur, Gaibandha district

- Visited two sponsored solar installation in the Sadallahpur which started in 2014. Each SIP is of 5.5 kw pump and ~ 9.8 kw solar panels and with command area of ~ 40 bigha
- There are 9-10 water outlets in command area, each serving 4-5 bigha.
- Mostly solar pump is run of 4-5 hours every day except 2 months during Aman rainy season. No use of energy other than irrigation.
- Borewell is 200 ft, with 10 inch suction pipe and 6 inch delivery pipe
- 80 % of farmers are now doing three crops and 20 % two crops [Aman rice-Potato-Boro rice].
- Previously, farmers say boro rice was limited, as it is expensive to do it, before the scheme.

Irrigation cost:

- In the scheme, sponsor sets the rate in collaboration with IDCOL and locals considering the prevailing rates of diesel pumping. The rates in the scheme vary for each season: 80 taka/decimal/season (boro rice), 30 taka/decimal/season for Aman rice and rabi vegetables [33 decimals = 1 bigha, 3 bigha = 1 acre].
- Based on discussion, cost for diesel pump is around 130-150 taka/decimal/season. Other than the lower cost, solar scheme also provides easy of service.
- Payment by farmer is done in parts, some initially and rest at the end of season. There as such didn't exist pre-determined percentages for this and vary. Sponsors told that collection efficiency is more than 90 %.

Data availability:

- The scheme has water meter installed. But there is no energy meter so data on how much energy panels are generating and how much is being used by pumping.
- Detailed log book is maintained by sponsor with each farmer account and balance.
- Sponsor also have a log book which notes down the starting and end reading water meter for each operation. Both of the above can be digitised.
- Lay out and drawings of scheme area available
- Pumping tests results are available.

- Groundwater level is monitored at the scheme 3 times in an year.
- **Other**
 - No leakage and all has been reported yet. Sponsors does all O&M of scheme.
 - There is an adjoining area where diesel pumps are used and could be used for comparison.
 - Diesel pumps used are small shallow pumps (~ 4 HP).



12th



Dinajpur district

Site 1 and 2: Dohola, Hatrampur and Purbo Kandor, Dinajpur

Both schemes are recent (started in 2019). Here, solar panel is 38.02 kw solar with 22 kw, ~3400 ft buried pipeline with 23 outlets.

- For Dohola site, command area till now (expected to increase as more farmers join in) is 68 bigha boro rice and 51 bigha aman rice. Same for Purbo Kandor site is ~ 43 and ~ 57 bigha. Design command area is 132 bigha boro rice.
- Solar irrigation rate is 2500/bigha/season and for aman and others crops at 660/bigha/season. Again rate is decided in collaboration with IDCOL and locals keeping in mind the financial sustainability and diesel irrigation cost.
- New schemes so sponsor still engaging with farmers to convince them to buy water.
- Many still are using diesel pumps in the area. During the visit also, diesel pump was in use.
- Water table at the site is shallow and during field visit was measured at ~ 7 ft.
- There is no water and electricity meter at the site.
- No use of energy other than pumping.
- Log book data is being maintained but we didn't see that.



Birganj district, Kalinagar [Site sponsored by SolarGaon]: SolarGaon has 92 solar sites in the area

- Visited sites have 30 kw panel and 15 kw pumps
- Targeted coverage area is 50 acres
- Cropping pattern is more diverse with Mustard, Maize and Boro rice. Mustard occupies about 35 % of area
- Rates are set in collaboration with IDCOL and local discussion.
- Rate for Boro rice here is 5000-7000/acre/season (for lowlands rate is 5000 and highland 7000)
- Whereas the rate for mustard, maize and aman rice where irrigation numbers are low are set per irrigation and is 600/acre/irrigation
- A lineman operates the system and farmers contact the lineman whenever they need irrigation
- There is no flow and electricity meter at the site.
- Excess solar energy is used here onsite in activities like husking, thrashing. Machines are available at the place where solar panels are installed.
- Also, poultry is done under solar panels.



Horhoriya site, Dinajpur

- Site has 30 kw panel and 15 kw pumps with targeted coverage area is 50 acres
- At this site, solarGoan is trying to practice the integrated service centre where along with providing solar irrigation, there also provide banking services (Agri loans), agri. machinery, services such as husking, practicing fish farming, poultry and vermi- composting at the center.
- Training is provided to farmers for above and water management practices such AWD.
- Sponsor indicated that at the start, as solar rates were lower, farmers tended to use more water. However, they have provided training to farmers on boro cultivation and already a good percentage of farmers are doing AWD for boro rice.
- In their other site, excess energy is being used to run banking office, husking machines and charging other machinery which they are trying to convert to battery operated.
- In general, IDCOL scheme has 50 % grant and 15 % upfront and 35 % loan with 8 year finance. With additional activities, they plan to break even in 5 years. For around 22-23 sites, SolarGaon has already paid the alone (would be interesting to see the dynamics there).



Integrated service center



Agri. Machinery