

## Upscale deployment of solar pumps in rural India

*Gauri Shankar Singh and four other farmers always irrigated their land with a diesel pump. However, the regular expenses for fuel to irrigate continuously during dry periods were too high and their crops often died. Now, they have formed a Joint Liability Group (JLG) to access a bank loan from the State Bank of India to purchase a solar water pump. Now the farmers can irrigate without losing money and their crop even survive the driest periods.*

*“Formation of a Joint Liability group allowed us to get a bank loan for solar water pumps”*



Two farmers of the JLG. (Nilanjan Ghose/ GIZ)

Members of the JLG	5
Name of the bank	State Bank of India
Total duration of the loan in years	7
Interest rate	1.45%
Specifications of the solar pump acquired	5 HP (4.8 kW) DC submersible solar pump
Area under irrigation (in acres)	3.25

### Facts and Figures

### Challenge

The five farmers from Haharo village in the Vaishali district of Bihar used their diesel pumps for irrigation of their cultivated lands as well as to balance the water level of their fishponds. However, especially during dry periods, the diesel pumps required as much fuel to keep running that they turned out to be too expensive for the farmers. Having to shut off the pumps, the farmers lost a lot of crop. Even though the farmers would have liked to buy a solar pump (which can run continuously at no further cost), the banks would not give them a loan. As smallholder farmers, their land is insufficient as collateral for a bank loan, making it impossible to access loans. So, they decided to form a Joint Liability Group (JLG).



The solar panels acquired by the JLG. (Nilanjan Ghose/ GIZ)

A **Joint Liability Group (JLG)** is a mechanism for mutual guarantee by a group of farmers to ensure repayment of a bank loan. This model can grant access to bank finance that may not be available for individual farmers.

A contribution to

**POWERING  
AGRICULTURE**

AN ENERGY GRAND CHALLENGE  
FOR DEVELOPMENT



More?



The solar pump is also used for maintaining the optimal water level in the waterbody for cultivation of fish. (Nilanjan Ghose/ GIZ)

Solution

The five farmers from Haharo village in the Vaishali district of Bihar used their diesel pumps for irrigation of their cultivated lands as well as to balance the water level of their fishponds. However, especially during dry periods, the diesel pumps required as much fuel to keep running that they turned out to be too expensive for the farmers. Having to shut off the pumps, the farmers lost a lot of crop. Even though the farmers would have liked to buy a solar pump (which can run continuously at no further cost), the banks would not give them a loan. As smallholder farmers, their land is insufficient as collateral for a bank loan, making it impossible to access loans. So, they decided to form a Joint Liability Group (JLG).



Thanks to the solar water pump,  
crop mortality has  
decreased by

10%

Vaishali Area Small Farmer's Association (VASFA) is a community-based farmers' organization. The organization provides training and capacity building to teach its members about new methods and approaches in agriculture. The organization has an active presence in the districts of Vaishali, Muzaffarpur, East Champaran, West Champaran and Saran in Bihar. GIZ India has been working closely with VASFA. VASFA uses a popular financial tool called a "Joint Liability Group" (JLG) to provide access to finance in order to promote new innovative technologies – for example, solar water pumps. GIZ provided financial and technical support to the farmer's association to create the linkage between the JLG and the local bank for financing.

**Authors:** Nilanjan Ghose and Jitesh Kumar

**Main implementer:** Vaishali Area Small Farmer's Association

**Further information about Powering Agriculture:**

[https://energypedia.info/wiki/Portal:Powering\\_Agriculture](https://energypedia.info/wiki/Portal:Powering_Agriculture)

**Further information about the project:**

<http://vasfa.org.in/index.php>

**Contact:** vasfa1971@gmail.com

As at March 2019



This knowledge product represents an in-kind contribution by the German Federal Ministry for Economic Cooperation and Development (BMZ), through GIZ, to the work of Powering Agriculture: An Energy Grand Challenge for Development, as one of the Founding Partners. The other Founding Partners are the United States Agency for International Development (USAID), the Swedish Government, Duke Energy, and the Overseas Private Investment Corporation (OPIC). Further information about Powering Agriculture can be found at [PoweringAg.org](http://PoweringAg.org).