

IWMI REPORT



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SECTION I

OVERVIEW

Solar energy provides clean and cost effective energy solutions to farmers for hassle free irrigation of their agriculture lands. Farmers often face the issues of soaring electricity tariffs, struggle with erratic electricity supply and dependency on rainfall for irrigation. In addition to this carrying heavy diesel pumps is extremely challenging for women farmers. To address these issues in a holistic manner, SwitchON Foundation initiated the project titled “**Mini Solar Pumps for Women Farmers**” or MSP4WF under **IWMI-SDC SoLAR**, which aims to increase the uptake of technological innovation and usage of mini solar pumps among marginal women farmers in West Bengal. Under the project, we have addressed factors leading to financial, environmental, social and sustainability related solutions to women farmers. In this context, we have innovated a **financial ecosystem** in which a **Revolving Guarantee Fund (RGF)** is set up with a bank to ease financing by providing collateral-free loans to marginal farmers and give guarantee to banks on behalf of “unbankable” customers, especially women who do not possess land in their own names. The project also focuses on **institutional innovation** in the form of facilitating **formation of Water User Groups (WUG)**, which ultimately enables solar pump users to commercially sell surplus water to local community members as an alternative revenue generation model leading to empowering women in agriculture and bring equity & inclusion in allocations for water resources in rural communities.

Under the project, we have identified and engaged with potential women farmers groups who are in need of a viable and productive farm asset such as solar pumps. Awareness about the efficacy and benefits of installing solar pumps is done among women farmers groups. Exposure visits are conducted from which these potential beneficiaries get first-hand experience of the usage and the functioning of the solar pumps from other fellow farmers. Training is organized to capacitate these women farmers for further maintenance of the installed pumps.

Locations of intervention- The areas of operation under the project are the districts namely Nadia, North 24 Pgs, Purba Medinipur, Paschim Medinipur & Paschim Barddhaman In West Bengal

OBJECTIVES OF THE PROJECT



Create an ecosystem consisting of technological and financial innovations



Promote the adoption of micro solar pumps



Create awareness and capacity building on solar water pumps usage.



Establish Revolving Guarantee Fund (RGF) for micro solar pumps lending towards women farmers

TARGET GROUP

Through this project, we aimed to install **20 small solar pumps (0.3-2HP) for women farmers**. These progressive women farmers were identified as the experts in using mini solar pumps to inspire others in their neighborhoods to take up solar pumps for better income, increased agricultural productivity, and a sustainable environment.



SECTION II

BASELINE DATA & ANALYSIS

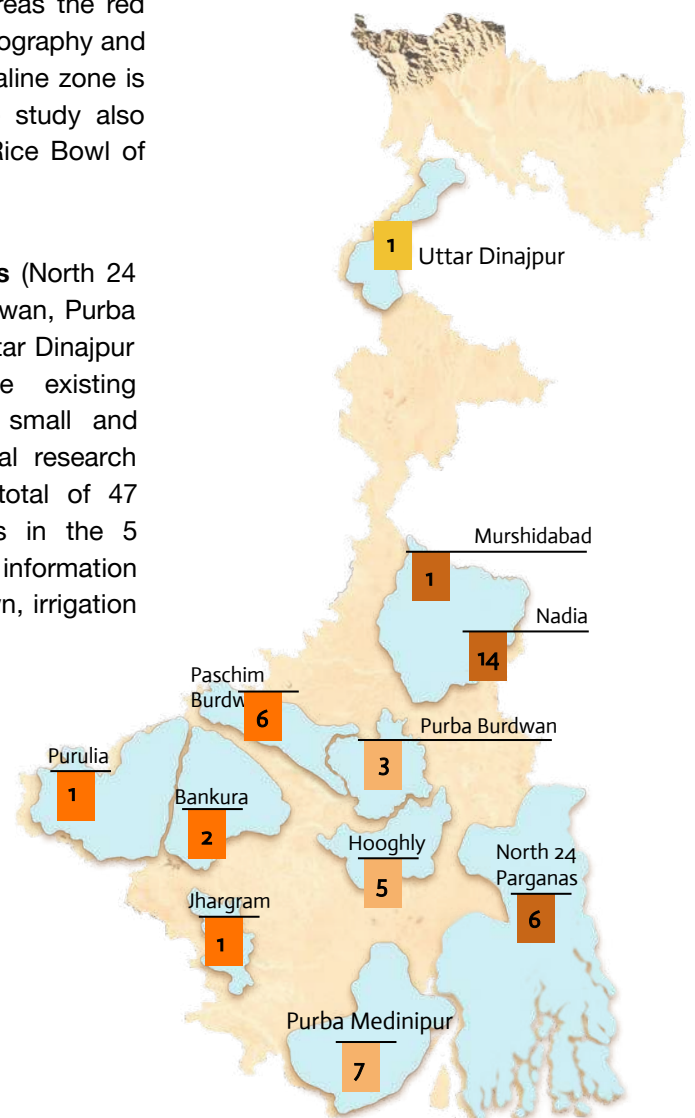
Background

The districts covered in the study falls under the New and Old Gangetic Alluvial Zone, Undulating Red Lateritic, Coastal and Saline and the Terai Teesta Alluvial agro climatic zone of West Bengal.[1] The main crops of this region are paddy, wheat, oilseeds, potato, jute and sugarcane. The main crops of the Red Lateritic Region are cotton, Bengal gram, millets and pulses. Similarly the main crops of the Coastal and Saline zone are Paddy, Oilseeds, Wheat, Potato and Chillies [2]. The five agro climatic zones have been very strategically selected for the study as all of them are very different in nature and therefore catering to different types of crops. The alluvial zone is characterized by loamy soil which has medium nutrient content whereas the red lateritic soil is characterized by rugged undulating topography and drought prone climate.[3] Similarly the coastal and saline zone is characterized by marshy and saline soil type. The study also covers Burdwan district that is considered as the Rice Bowl of Bengal.

A baseline study has been conducted in **11 districts** (North 24 Parganas, Murshidabad, Nadia, Hooghly, Purba Burdwan, Purba Medinipur, Bankura, Jhargram, Paschim Burdwan, Uttar Dinajpur and Purulia) of West Bengal to assess the existing socio-economic and environmental conditions of small and marginal farmers. The study uses a cross sectional research design and employs household level surveys. A total of 47 surveys have been conducted across 11 districts in the 5 identified agro climatic zones. The study has captured information on asset ownership, land holding pattern, crops grown, irrigation pattern etc.

AGRO CLIMATIC ZONES

-  Undulating Red & Lateritic Zone
-  Gangetic Alluvial Zone Old
-  Gangetic Alluvial Zone New
-  Terai Teesta Alluvial



FARMER'S PROFILE

Women farmers who do not have any source of income and are entirely dependent on agricultural activities for their livelihood were mainly targeted under the project. All the beneficiaries fall below the poverty line when it comes to economic status. 50% of the farmers belong to the scheduled caste category and almost all the beneficiaries have not achieved any formal education which might hinder their learning opportunities and training capacities.

SUMMARY RESULTS

For the majority of the respondents, the family size is less than 8 members. India's average family size is 4.8 people per household [4] but as can be seen a considerable percentage of the respondents (almost more than 50%) have more than 5 family members which reflects high pressure on household food security and low standard of living.

SUMMARY OF BASELINE SURVEY

Demography

For the majority of the respondents, the family size is less than 8 members. India's average family size is 4.8 people per household [4] but as can be seen a considerable percentage of the respondents (almost more than 50%) have more than 5 family members which reflects high pressure on household food security and low standard of living.

Category of Family as per number of members	% of families falling in the category
1-4 members	45.5%
5-8 members	45.5%
More than 8 members	9%



ASSET HOLDING

30% of the total respondents want to buy agricultural lands as assets. Plans for other assets included micro-irrigation infrastructure, inverter, tractor, and computer.



Mobile 41



Agri Land 39



House 36



2-wheeler 35



Color TV 33



Pond 33



Fridge 28



Sprayer 27



Livestock 24



Non-agri land 21



Plough 13



Sprinkler 12



Power Tiller 12



Laptop 8



Tractor 7



Inverter 6



4-wheeler 4



Thresher 4



Rice Cutter 3

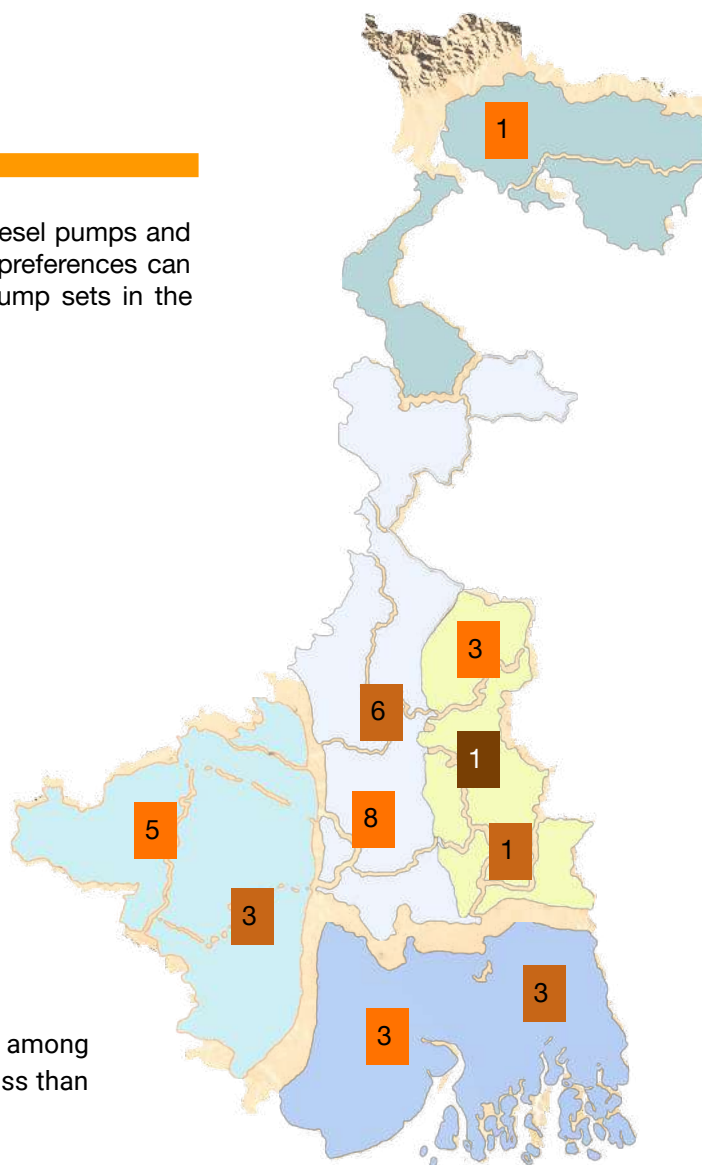


Building 2



IRRIGATION PRACTICES

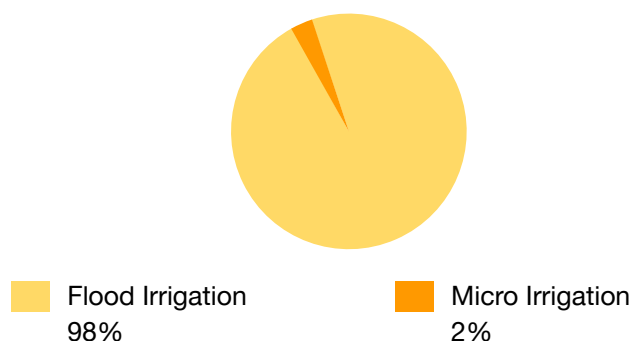
38% of the respondents preferred the usage of diesel pumps and 32% preferred the usage of electric pumps. The preferences can be influenced by the easily available option of pump sets in the region.



5HP pumps are the most commonly used pumps among the respondents. At present, pumps of capacity less than 1.5 HP and more than 5 HP are not that common.

Size of Pump	1 HP	1.5 HP	2 HP	3 HP	4 HP	5 HP	5.5 HP	7.5 HP
Coastal Saline Zone	1		3	1		2		
Gangetic Alluvial Zone (New)	1		4	3	2	5	3	3
Gangetic Alluvial Zone (Old)			2			6		
Terai Teesta Alluvial Zone						1		
Undulating Red and Lateritic Zone		1		3		5		
Grand Total	2	1	9	7	2	19	3	3

- 98% of the respondents use flood irrigation as an irrigation practice. However, only 2% of the respondents have recorded to have practiced micro irrigation practices. This poses a huge scope to combine alternative use of agricultural pump sets with sustainable irrigation practices.



- 40% of the respondents have been using irrigation pumps for over 10 years.
- On an average, a respondent avails 127 days of irrigation annually from different sources. However, the range of annual days of availing irrigation by a respondent varies from as low as 3 days to as high as 300 days. However, the aforementioned average varies with the source of irrigation.

Agro Climatic Zones	Average of Number of Days Irrigated in a Year	Minimum of Number of Days Irrigated in a Year	Maximum of Number of Days Irrigated in a Year	Median of Number of Days Irrigated in a Year
Coastal Saline Zone	101.17	65	150	93.5
Gangetic Alluvial Zone (New)	162.76	10	300	197
Gangetic Alluvial Zone (Old)	109.00	3	180	120
Terai Teesta Alluvial	30.00	30	30	30
Undulating Red and Lateritic Zone	87.80	3	230	77.5

- 15 out of the 18 survey participants who testified to be using diesel pumps as first preference, disclosed the volume of fuel (liter) consumed season wise. 10 of them could disclose this seasonal volume for all 3 seasons. Comparing the response of these 10 respondents, it's found that the amount of fuel consumed in Rabi (Winter) season is 1.26 times of Kharif (Rainy Season). The same for Zaid (Summer) is 2.16 times of Kharif and 1.71 times of Rabi season.



158

Electricity



133

Diesel



85

Kerosene

Energy Source wise average days of irrigation availed in a year

- The median land size is 10 Bigha (2 Acres) (Mean=14.55 Bigha). On an average, 60% (Median 61%) landholding of equivalent area is covered under agriculture during Summer, 64% (Median 75%) during Kharif, and 49% (Median 42%) during Winter.

LAND USE PATTERN IN AGRICULTURE

Crop	Proportion of respondents involved in Summer	Proportion of respondents involved in Kharif	Proportion of respondents involved in Winter
Paddy	55%	74%	17%
Vegetables	40%	30%	47%
Jute	13%	13%	-
Oil Seed	9% (Sesame)	-	43% (Mustard)

- Apparently, Kharif (Rainy Season) is more popular for paddy, whereas Winter sees more vegetables closely followed by Summer. Jute is equally popular during Summer and Kharif. Mustard is cultivated by 43% respondents in Winter whereas Sesame is the oilseed in Summer

Season	Variety in Vegetables and Fruits grown
Summer	Bottle Gourd, Bitter Gourd, Pointed Gourd, Ladies Finger, Cucumber, Banana
Kharif	Bitter Gourd, Pointed Gourd, Brinjal, Onion, Chilli, Banana
Winter	Potato, Brinjal, Onion, Tomato, Banana

- Though the cropped area is less in Summer than Kharif, but cropping intensity in terms of number of vegetables is slightly more.
- While comparing seasonal investment of irrigation v/s income from agriculture, the ratio in Kharif is found higher as the irrigation is complemented by rain to a great extent.

	Median Cost of arranging irrigation water (INR)	Median Income Value (INR)	Cost Benefit of Income to Irrigation
Summer	4600	48000	10:1
Kharif	2250	49000	22:1
Winter	4233	36250	9:1

- 15% of the respondents are involved in water selling practices for irrigation. The average rate for the same is @ Rs. 85 per hour or @ Rs. 2000 per bigha. In this process, 54 individuals could irrigate around 70 Bighas of agricultural land.

IMPACT ASSESSMENT

S.No.	Parameters	Indicators
1.	Demography	Family profile, Category of houses
2.	Asset ownership	Household related assets, Agriculture related assets, mobility asset (self and business)
3.	Irrigation pattern/practices	Hours of irrigation (annually) from different sources/types of irrigation
4.	Pumps usage pattern	Type of pumps- diesel/electric Fuel cost (annually) for diesel and electric separately Maintenance cost (annually) for diesel and electric separately Pump size and mobility issues Repairing cost and time of solar,diesel and electric pumps.
5.	Land holding and utilization	Landholding size (own and leased) Area of cropping (own and leased)

S.No.	Parameters	Indicators
6.	Crops production	Production across three harvesting season (Kharif, Rabi and Zaid) Seasonal income and profit from selling of crops annually
7.	Alternative livelihoods avenues	Time saved gender based Gender wise utilization pattern of additional time saved (prove if additional livelihood avenues being explored)
8.	Empowerment of women farmers	Asset ownership Decision making abilities (qualitative)
9.	Water Users Group	No of non solar families benefited Selling price per hour/per unit area Aquaculture practices and consumption/sell ratio (profit from sale) Water measurement and conservation practices
10.	Awareness on solar pumps	Scope of future scale up of solar pump installation
11.	Revolving guarantee fund	Access to loans through RGF Repayment success rate Change in perception of bankers for disbursement of loans to farmers in the future.

Note- The detailed baseline report has been submitted as a part of the annexure



SECTION III: PROJECT UPDATES- PLANNED VS PROGRESS

SwitchON Foundation started working on the project in October, 2020 and has made some significant progress since then. To get a better understanding of the project achievements, the detailed updates (Planned Vs Progress) are given below:

Increased economy of women farmers: Case studies of nine women farmers have been documented that depicts the change in their lives in terms of management of finances very vividly. The case studies also record their aspirational changes in their lives. Field visits by the project management team were conducted to interact with the women farmers to understand the change in women's participation in economic activities. A qualitative research study was conducted to assess the impact of the project on the increased economy of women farmers which was captured by developing case studies.. This study is was conducted in August 2022.

CO₂ Emissions reduced through replacement of diesel pumps: During the reporting period, 20 applications of mini solar pumps were raised. Out of the total 20 mini solar pumps which were to be installed, a cumulative of 20 pumps have been deployed for women farmers in 4 districts of West Bengal. Out of the 20 mini pumps installed for women, 6 of them have replaced electric pumps, 13 have replaced the diesel pumps and 1 woman farmer who was borrowing & purchasing water for irrigation has adopted solar pumps for irrigation. An average of 9.78 tonnes of CO₂ emissions from Electric pumps and 16.5 tonnes of CO₂ from Diesel pumps have been abated.

Increase in awareness, knowledge, capacity and skill of women farmers: Sensitization programmes and awareness workshops have been conducted with 1614 women farmers. These interactive programmes help the women farmers to know more about the climate smart agricultural practices. These village level capacity building workshops also serve as a platform to facilitate discussions among the women farmers and learn from each other's best practices.

Developing a financial ecosystem supports scaling up of solar-powered irrigation: SwitchON Foundation has partnered with RBL Bank and established a Revolving Guarantee Fund to sanction loans for women farmers. SwitchON Foundation has also partnered with Punjab National Bank, a social sector bank and is working on a Bankers' Toolkit to facilitate loan sanctions for small and marginal women farmers. Under the project, 10 loans have been disbursed in the name of women farmers under the Financial Scheme for Farm Mechanization Scheme, a subsidy scheme by the Government of West Bengal. In case of rest of micro pumps, the financing was not required. In such cases, women utilised the subsidy under Financial Support Scheme for Farm Mechanization (FSSM) along with the self cash payment.

Asset Creation for women: In India, 85% of rural women are engaged in agriculture, yet only about 13% own land.<https://www.oxfamindia.org/women-empowerment-india-farmers>. Therefore, to reduce the existing gender gap in the farming sector, SwitchON Foundation is making efforts so that women have productive assets in their own name. 19 mini solar pumps have been installed so far in women's name. In rural India, the percentage of women who depend on agriculture for their livelihood is as high as 84%. Women make up about 33% of cultivators and about 47% percent of agricultural laborers. <https://ideas.repec.org/a/jge/journl/224.html>

Summary progress table (reporting period and cumulative progress)

Outcome	Outputs	Cumulative Progress till 30th Sept., 2022	Indicators	M&E Plan	Assumptions
1. Increased economy of women farmers	2X increase of income of the women farmer	Initiated end of July 2022	Overall increase in the income	Monitoring Records, Surveys and Interviews	
	50% Increase in income annually	Initiated end of July 2022	1.1.1. Monthly Income	Interview and comparison of previous income with present income/Monitoring Records, Bank Records	There is no natural calamity
			1.1.2 Monthly expenses	Interview and comparison of previous income with present income/Monitoring Records, Bank Records	No emergency expenses
2. CO ₂ emissions reduced through replacement of diesel pumps	100% decrease in CO ₂ emission from replaced pumps	26.28 tonnes of CO ₂ Emissions abated from 20 diesel/electric pumps replaced (one bought water)			
	2.1. 20 solar pumps	20 solar pumps deployed	2.1.1. solar pumps deployed	Monitoring Records, Loans sanction reports, field visits	
3. Increase in awareness, knowledge, capacity and skills of women farmers	3.1. 50% increase in income	Initiated end of July 2022	3.1.1. % increase in income for farmers within 2 yrs	Interview and comparison of previous income with present income/Monitoring Records, Bank Records	increase in skills and capacity leads to increase in income
3.2. 200 women entrepreneurs practitioners	356 women farmers trained	3.2.1. 200 practitioners sensitized	Workshop / attendance sheets, monitoring records and interviews	There is total retention and application of the knowledge from the workshops	3.2. 200 women entrepreneurs practitioners
3.3.10 field visits	35 exposure visits	3.3.1. Field visits to demonstration sites set up	Field Visits	Increase in demonstration sites leads to increase in the number of demonstration	3.3.10 field visits

4. Develop a financing ecosystem that supports scaling of solar-powered irrigation					
	4.1. 20 of loans disbursed	10 loans disbursed by RBL Bank Till Date	4.1.1. No. of loans disbursed by banks / other financiers for solar powered irrigation system	Loan sanction records	
5. Asset Creation for women	5.1. 20 of asset created in the name of the women	20 solar pumps as assets created in the name of women farmers	5.1.1. No. of solar pumps sanctioned in the name of the women farmers	Loan Sanction Records, Monitoring Records and Loan submission documents	

SECTION IV: KEY HIGHLIGHTS AND ACHIEVEMENTS UNDER THE PROJECT

Water Users Group formation- Under the project, the women farmers have formed the Water Users Groups as a platform to practice community level water management, identify specific local/ community level agricultural issues, share learnings and failures and expand into new innovative models of enhancing agricultural productivity. The water Users groups are also acting as the bodies to further the thought of sustainability of the solar irrigation projects in their villages.

Asset Ownership- Having mini solar pumps in the women farmers' name, helps them to have a sense of ownership and empowerment. This model has opened spaces for decision making capacity among the women farmers who hardly own any forms of assets in our areas of operation due to patriarchal and traditional belief systems. At the same time, it also provides the women farmers the scope to negotiate with the male authorities of the family and help in decentralization of power within the families. We also believe that women who own property or assets experience noticeable improvement in their socio-economic well-being, their family's health and nutritional outcomes, and also in their own physical security.

FLDG Model: A support during challenging times for women farmers- First Loss Default Guarantee Fund or FLDG model is undoubtedly the most successful achievement under the project. To address the economic challenges faced by women farmers, the project laid out a strategy to organize women into water users' groups and avail bank financing to install solar water pumps. The women farmers through initial discussions shared the bottlenecks faced by them in installing solar water pumps namely lack of loan facility and lack of trust by the banks to get the repayment from the farmers. Switch ON introduced an innovative Solar Irrigation pump financing system, where a first loss guarantee arrangement (FLDG) is set up and tied up with RBL to facilitate and help marginal woman farmers to access financing for solar pumps. The women farmers can avail a bank loan against a mutual guarantee and FLDG. The FLDG acted as a catalyst for banks to build confidence on solar pump lending and farmers were able to access the much-needed technology. The Farmer Group model not only helped lessen the financial burden on the women farmers but also made them 'bankable customers' as the Banks know that the women farmers will be able to pay back the loan. This financial innovation and ecosystem creation coupled with technology innovations has supported water conservation and better health of soil. We have seen that this intervention has solved the problem of 'access' to remote women farmers and made the loans available to them more easily than earlier.

FLDG Model during COVID crisis- COVID was the time when farmers were affected the most. Since all the economic activities came to a halt, farmers did not have the hope and way out to pay the loan amount. During the pandemic, farmers were provided with the time relaxation to pay their loans back to the banks which eased out the worries of women farmers.

Sustainable livelihoods avenues diversification- The marginal women farmers now have better access to loans through First Loss Default Guarantee Fund, and as result have shown increased levels of confidence in expanding their livelihoods avenues. During the project duration, women shared the willingness to learn new vocational skills which can be taken up simultaneously along with taking care of the household chores. This interest and confidence has been a result of the engagement of women farmers in diversified farm practices and generating profits for their families, after getting better irrigation facilities.



SECTION V:

VOICES FROM BENEFICIARIES

I- GENERATING ADDITIONAL SAVINGS AND PREVENT FURTHER MIGRATION

In lush green terrain of Purba Silampur village situated in Contai 1 (Purba Medinipur), Sutapa Mandal lives with her joint family of 12. Anyone who goes to her house witnesses a board with the details of the solar pump initiative under the Solar Innovation Funds by SwitchON Foundation, IWMI and RBL Bank. Her daughter in law Satashi Mandal proudly demonstrates the solar water pump and helps Sutapa in operating the pump.

Sutapa and her husband, Ujjawal Mandal initially owned 2 bigha (1.25 Acre) land and in 2018 bought more land to make it 4 bigha (2.5 Acre) which they use for growing paddy, seasonal vegetables and fish cultivation especially tilapia. This was possible only due to Sutapa's decision of applying for the subsidy fund for solar water pump installation jointly along with her husband Ujjawal Mandal in March 2021. Sutapa feels very happy to showcase the variety of livelihoods she is uptaking since receiving subsidy for 2 HP AC submersible pump. But life was not the same for the Mandal family. Reminiscing about the earlier life struggles which included Ujjawal's parents passing away at an early age and his migration to Orissa in an iron melting factory where he worked in hot and hazardous conditions just to send money back home and ensure family's survival. The time was extremely difficult for the family where doing something in the village was an implausible thought. But the life for the family changed with the onset of pandemic in 2019 which brought Ujjawal back to the village where the family was impelled to do agricultural work for sustenance.



The initial expenditure on using diesel pumps burnt holes in their pockets and dependency on others for water restricted them to grow only paddy for bare minimum survival. Some months down the line, through the visit to the agriculture department and through an awareness & exposure program organized for farmers, Sutapa came to know about the solar pump installation initiative from SwitchON Foundation field staff which gave her the confidence to apply for the subsidy along with her husband. Post installation, she has started producing more varieties of fruits and vegetables which not only is enough for the family's sustenance but has also resulted in doubling the income for the family by selling the produce in the market. The ponds made on the land are giving ample scope to do fish farming and yielding high production of tilapia fish, which Ujjawal sells in the market. In addition to this, she is also selling water to other local farmers and earning INR 2000/bigha as an additional income. Another aspect of livelihood expansion can be seen in the form of poultry (duck) farming which are being farmed in and around the ponds. Solar pump has enabled Sutapa and her family to be self-sufficient for consumption, earn additional income and prevent migration of further generations.

“SwitchON Foundation has helped us with the necessary hand holding to build linkages with the government departments to know the schemes and experience smooth process to apply for subsidy to install solar pump”

Sutapa Mandal

Purba Silampur village

VOICES FROM BENEFICIARIES

II- CARRYING OUT IRRIGATION INDEPENDENTLY & EXPLORING ALTERNATIVE LIVELIHOODS

A warm and hospitable Pori Giri has 1 acre of land where she, her family of 4 and other families are collectively managing a nursery along with growing paddy. The burgeoning nursery is a result of hard work of a long period of time and collective effort of the Giri family where they dreamt of a better future for themselves. Pori shares that earlier she used to cultivate only paddy and nursery plants with the help of an electric pump for domestic purposes which would cost them INR 1500-2000 every month. However, in November 2011 she along with her husband Sukamal Giri applied for the installation of 2 HP pump. Pori came to know about solar pumps through NABARD's training organized as part of SwitchON Foundation's Farmers Produce Organizations. Pori Giri received subsidy within a couple of months post application with the help of SwitchON Foundation's intervention. But at present the paddy production and her nursery has grown manifold with a high variety of plants which are sold both within and outside West Bengal. The unrestricted supply of water through the mini solar pumps has made it possible to water the plants in the nursery and conduct agricultural activities which was earlier hindered by the erratic power supply and low voltage issues. Earlier Pori was able to cultivate only kharif crops which has now changed to cultivation during Kharif, Rabi and Zaid. She has been able to successfully grow an uncommon variety and range of plants like apples, grapes, custard apples, berries, guava etc. as well as a wide variety of flowers.



Quality and quantity of agricultural produce has increased leading to 3 times income enhancement and expansion of the nursery business. This is helping the family to pay their loan amount as well as live without worrying about the added cost which was the case earlier.

Pori also earns additional revenue by selling surplus water to 4 local farmers. Pori also shares that unlike the heavy diesel/electric pumps which were difficult to be handled can now be operated with a click of a button this has made it easier for women to be a part of the irrigation process. Pori feels quite independent in conducting irrigation of her field instilling a sense of confidence and self-worth in her. She also mentions that SwitchON Foundation helped her in providing the confidence to speak and follow up with the officials.

The relationship between Pori Giri and her plants is nurturing and for life time. It makes her feel extremely confident and assured to realize that the savings resulting from the extra income will take care of her children's education and marriage.

"The 2HP AC Submersible solar pump has enabled us to expand and enhance our nursery produce. We can easily irrigate where we have water availability all around the year"

Pori Giri

Satikeswar village

Contai, Purba Medinipur

VOICES FROM BENEFICIARIES

III- JOURNEY FROM SUPPORT TO MANAGING MANPOWER IN AGRICULTURE

Nilima Jana, is a proud farmer who showcases abundant produce in her farm along with her husband. Recalling a time of extreme heat, drying up of ponds and resultant crop damage in 2020, she was looking for installing a system which would ease out her life and help her to easily manage the irrigation activities. Earlier she used either diesel or residential electricity to run the pumps for irrigating her land which would shoot up her monthly electricity bill and expenses. Using electricity pumps was a manpower intensive process, since often large machines need to be carried on cycles traveling long distances. which compelled Nilima to take the help of male members of her family to carry out irrigation, restricting her to conduct farming activities independently. Moreover, before solar pump installation, she could only cultivate potato and paddy in her field and cropping season would majorly include kharif crops but after installing 2HP AC submersible solar pump usage the cropping season expanded throughout the year- Kharif, Rabi and Zaid.



Post solar pump installation, Nilima grows an enhanced variety of crops which includes seasonal vegetables, fruits and especially lemons and cashew nuts which have high market demand. The quality of crops is also better since she is able to continuously supply water to her crops. Her dream of expanding her cashew nuts business to a 4 bigha land has come true after irrigation has become easier to carry out and she is able to take out more time to manage her cashew cultivation. This is resulting in a rise in quantity and quality of Nilima's produce and has led to 3 times enhancement in her income by selling the daily produce as well as making new clients for selling her cashew nuts. This solar pump usage also gives Nilima the alternative to earn revenue through water selling where she sells water to 4 local farmers at INR 2000/acre. Nilima is a woman farmer who wishes to own an ever-growing business and plans to install one more solar pump in the near future.

"We are poor farmers, without the provision of collateral free loan, it would have been impossible for us to afford solar pump and eventually manage our cashew nuts business"

Nilima Jana

Panipur, Ram Nagar
Purba Medinipur

VOICES FROM BENEFICIARIES

IV- PUJA MALLIK, NADIA

Puja Mallik a rather reticent 26 years old woman at first seems to strike a conversation with difficulty. She lives with her two children, husband being the only earning member of the family and mother in law in Jatrapur village of Nadia district. The primary source of income for the family is agriculture where the family cultivates variety of crops such as mustard, paddy and jute etc. However the range of crops grown was not the same. This changed when in 2022, under the IWMI project, a 3 HP pump was installed helping Puja' s family to shift from electric pumps to solar water pumps. Post this, Puja and her family started to experience impacts which changed their lives.

Puja expanded her pond from 1 bigha to 2 bigha which has resulted from overcoming the fear of scarcity and limited supply of water. She also stated to expand her fish selling activity which started to fetch her INR 1 lakh from INR 30-40,000. She is variety of fish such as hybrid tilapia (monopia).

At present, the pond has around 12 quintal fish where weight of each fish roughly is 200 gms, bringing her a good amount of profit in addition with her income from selling agricultural produce (mustard, jute etc.)

Puja shares that operating electric pump to irrigate her land was extremely difficult for her where the electric bills would shot upto INR 3000 quarterly during summers where now she does not have to spend money on electricity leading her to save around INR 10,000.

“The best part is that I am able to pay the loan amount of the pump installed through the savings that I make as a result of saving on the electricity bills”



Since she has fragmented land, she is continuing to also use diesel pump to irrigate 4.5 bigha land which is 2-3 kms away from her house leading her to spend around INR 12000 to cultivate paddy, around INR 4000-4500 for jute and INR 3000 for mustard (3 months cost).

Puja feels more confident, as shared by her especially after her pond area got expanded. Now it is easier for her to manage the pond, conduct irrigation and feed fishes in the pond all by herself. Not only her, but her children are also able to operate and manage the pump as they say, “Switching on the pump is just a click away”. She also feels extremely easy to manage the pump and get a sense of assurance of having uninterrupted water supply.

Now she has plans to install solar pumps in other areas as well.

“A good result of having solar water pump installed has been the time that I can now devote to my family”- Puja Mallik

VOICES FROM BENEFICIARIES

V- CHANDANA GHOSH, NADIA

Chandana Ghosh is one of the most confident women one can find. She lives in Kakmari village of Dakshinpara II panchayat in Hanskhali block in Nadia district of West Bengal. At 51 years, Chandana comes across as a politically enlightened woman due to her past engagement as the ex- panchayat leader of her village breaking the limitations and barriers of age and is quite active in her life.

Chandana lives with 4 members in her family including her husband, two children and daughter in law. Sharing her son's recent wedding news excitingly, Chandana also shares that her daughter is currently pursuing her M.Sc. degree and is an athlete.

Her political understanding in the past and leadership qualities is what keeps her determined to manage the agricultural activities along with household chores. She travels from her home to the location of pump which is installed around 1.4 km away. Her total land area is divided into 17.5 bigha land on which a 3 HP pump is installed and the remaining 4.5 bigha is being irrigated with diesel pump which she is determined to solarise in the future.

The area of 17.5 bigha land also was earlier being irrigated with diesel pump where she was cultivating vegetables like cabbage, cauliflower, brinjal, cucumber, bottle gourd, ash gourd, pumpkin, jute, yam, potato, onion, pointed gourd, ridge gourd and flowers such as marigold, rajnigandha, etc. but she was not able to cultivate extremely water intensive crops like rice (boro variety) and sugarcane. But with the installation of solar water pump, she has been able to cultivate water intensive crops with ease.

In addition to this, Chandana earlier was not able to utilise entire area of her land (17.5 bigha) for cultivation due to soaring prices of diesel fuel which instilled a fear of risk in her of making losses for her agricultural produce. However, in the present scenario where solar energy has liberated her from expensive fuel charges, she is extremely relieved. In addition to this, irrigation carried out through diesel pumps was a fraught process since there was always a possibility of fuel being run out at odd hours and extra fuel would be required to restart the pump.

Chandana currently is involved in supervising the laborers in the field where this year she has been able to produce sugarcane on 1 bigha area and has ensured INR 1,40,000 income only from sugarcane crop. In addition to this, she is currently also engaged in livestock where she has two cows through which her annual earning is approx. INR 15000.

"In our village, the water level goes as down as 30-32 ft during summers and there is also erratic rainfall pattern, solar pumps have ensured that we are able to irrigate and cultivate without any stress and can now think of making profits"- Chandana Ghosh



VOICES FROM BENEFICIARIES

VI- JYOTSANA KARMAKAR, NADIA

Jyotsna Karmakar also fondly called as Jyotsna didi (elder sister) in her neighbourhood is in her mid 40s who hails from Bererpara village of Hanskhali block in Nadia district. She lives with 4 other members in her family. Jyotsana's husband Dhipal Chandra Karmakar is the only earning member of the family. Agriculture is the only source of income for the family. Jyotsana's life changed in 2019, when she got to know about the project implemented by SwitchON Foundation and IWMI as a result of which she applied for the installation of a 2 HP pump solar water pump. Jyotsana experienced the monthly income hike from Rs. INR 12000 to INR 20000. Due to the availability of water for irrigation, Jyotsana has been growing variety of crops like paddy, mustard, pulses and diverse vegetables. Jyotsana and her family have experienced the issue of erratic rainfall where it rains for only 3-4 months. Although her husband and son handle the operations of the pump, Jyotsana feels quite productive in managing irrigation and agricultural activities leading to the family's income enhancement. As a result of the project's intervention, Jyotsana has also come to know about the usage of sprinklers which has made the irrigation process quite efficient and less laborious. Her family earlier used diesel pumps which involved heavy cost due to substantial diesel prices whereas after solar pump installation her savings went up to INR 36000 annually due to zero cost spent on the fuel prices and the resultant savings. She is now interested in continuing irrigation through solar water pumps and also adopting organic farming practices in future.



"I am aware of farming patterns and water usage and use organic fertilizers. I have installed micro irrigation systems in agricultural activities to minimize water wastage."

Jyotsna Karmakar

VOICES FROM BENEFICIARIES

VII- MALATI SARKAR, NORTH 24 PARGANAS

Malati Sarkar, a 61 year old woman from North 24 Parganas got introduced to solar water pump in her life in December 2020 through IWMI project. Malati Sarkar, a confident woman and a grandmother lives with 8 other members of her family. The means of livelihood for the family are farming and business which is done on 8 bigha land is considered as agricultural land. Before installation of the solar pump they had diesel pumps which would make her spend INR 10000 annually which got drastically reduced to INR 3000 per annum. Now they seldom use the diesel pumps only when the solar pump does not work due to cloudy weather. Malati used to cultivate only paddy in 2.5 bighas and vegetables in 4.5 bighas but post installation of the solar pump the variety of crops has increased and they have started cultivating coriander in 2.5 bighas, mustard in 1 bigha, paddy in 3 bigha and variety of vegetables. She has started cultivation of yam and also experimented with pisciculture. After installation of this 1 HP pump monthly income increased from INR 15000 to INR 22000. In 2021, the area experienced hardly any rainfall which has discouraged Malati and her family to cultivate water intensive and profitable crops like rice, jute and sugarcane etc. But in the coming future Malati wants to apply for a bigger pump to ensure irrigation in other land areas to ensure more production. Solar pump has eased out her life where she does not have to lift water. In fact, her children can now also handle the operations of the pump. The diesel expenditure would soar up to INR 7500 quarterly which now is saved to support the education of the grandchildren.

"Since we have seen the benefit of a small pump, I now want to install a bigger pump to start cultivating new crops such as jute, rice, sesame and coriander"- Malati Sarkar





SECTION VI: UPDATED GANTT CHART/TIMELINE (2020-21)

Pre-Operative	Activities	Nov 2020	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	Jun 2021	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Total in 1 year
Pre-Operative																
1	Field Visits	5	8	10	10	10	10	10	10	10	5	5	5	5		103
2	Identification of 120 project sites	10	25	20	20	20	10	10								115
3	Setting up of Revolving Guarantee Fund	1														1
Implementation of 20 Pumps																0
Pre-operative																
1	Field Visits	5	8	10	10	10	10	10	10	10	5	5	5	5		103
6	Installation of 20 pumps			2	3	2	2	2					2	2	1	16
7	Capacity Building of WUGs			2	3	2	2	2	2	2	2	2	2	2	2	25
8	Ensuring 90% on time repayment						2	3		2	3					10
9	Monitoring and Evaluation												2	2	2	6
10	Operation & Maintenance (RMS)			2	3	2	2									9
11	Scale-Up Plan (Exposure Visit)			2	3	3	2	2	2	2	2	2	2	2	2	26
Project Wrap-Up																0

SECTION VI: UPDATED GANTT CHART/TIMELINE (2020-21)

Pre-Operative	Activities	Nov 2020	Dec 2020	Jan 2021	Feb 2021	Mar 2021	Apr 2021	May 2021	Jun 2021	Jul 2021	Aug 2021	Sep 2021	Oct 2021	Nov 2021	Dec 2021	Total in 1 year
12	Stakeholder Meets (Bank Sector and MFIs)															0
13	Progress Report						1						1			2
14	Financial Report			1			1			1			1			4
15	Voices from field													3		3
16	Final Documentation						1						1			2



World Water Day Celebration at Kalyan Krishi Vigyan Kendra, Purulia

UPDATED GANTT CHART/TIMELINE (JANUARY- SEPTEMBER 2022

Pre-Operative	Activities	Jan 2022	Feb 2022	Mar 2022	Apr 2022	May 2022	Jun 2022	Jul 2022	Aug 2022	Sep 2022	Total in 2 year
Pre-Operative											
1	Field Visits	5	10	5	7	8	5				40
2	Identification of 120 project sites										0
3	Setting up of Revolving Guarantee Fund										0
Implementation of 10 Pumps											0
6	Installation of 20 pumps	1	1		1						3
7	Capacity Building of WUGs										0
8	Ensuring 90% on time repayment	2			2						4
9	Monitoring and Evaluation										0
10	Operation & Maintenance (RMS)										0
11	Scale-Up Plan (Exposure Visit)	2	2	2	2	2	2	2			14
Project Wrap-Up										1	1
12	Stakeholder Meets			1							1
13	Progress Report			1				1			2
14	Financial Report (Quarterly & Half Yearly)	1			1			1			3
15	Voices from field						3				3
16	1 Final Documentation									1	1

CHALLENGES DURING PROJECT IMPLEMENTATION

Some of the external challenges faced in the implementation of the project are mentioned below-

- Land ownership in women's name is low- Women's contribution in agriculture is huge the land ownership structure is not favorable for women. The existing patriarchal norms make it even more difficult for women to take leadership and own productive farm assets in their name as women possess little or no control over financial decisions in the rural decisions. Therefore, these dynamics pose challenges to identify potential women beneficiaries. However, the awareness workshops have raised awareness about such issues in the villages.

CHALLENGES DURING PROJECT IMPLEMENTATION

- *Challenges with loan sanctions-* Many a times, some of the potential beneficiaries are part of former SHGs which have outstanding loan defaults. In such situations fresh loan sanctions become a challenge due to the low credit score in spite of the Guarantee Fund being in place.
- *Low level of capacities for knowledge and training among women farmers-* Women have shown lower levels of capacities when it comes to learning new technical skills related to maintenance and operations of solar water pumps.
- *Repayment challenge under the bank guarantee fund-* When it comes to repayment of the loans, women farmers primarily face certain challenges described below-
- *Major subsidy amount being spent on boring-* The subsidy amount received by the banks is often spent on boring process (personal expenditure) which leaves farmers with a low amount of remaining money for repayment of the loan.
- *Frequent climate induced disasters-* Last decade and especially the last two years have witnessed increased and frequent natural calamities have resulted in damaged crops due to which farmers experience more loss instead of profits (which are accounted for repayment of loans).
- *Delay in response from the bank-* In spite of the facility of guarantee fund provided to women farmers under the project, often the delay in response for loan applications by the banks and tedious process in the bank system results in harassment of the farmers. In some of the cases, repeated visits to bank officials and the resultant failures lead to demotivation among farmers and loss of interest to apply for loans.

REFLECTIONS AND LEARNING

Some of the learnings and reflections from the project are as follows-

- *Basic/advanced level training for women farmers-* One of the major highlighted points by women farmers was the need to receive the training on advanced level operationalization of solar pumps. This can be explored either separately or intertwining the training through ongoing training programs such as Urja Mitra training to engage with local solar energy companies/manufacturers to train these women as local service providers to further train more women farmers.
- *Women led Water User associations as platforms of change-* In the reporting period, one of the significant reflections and learnings have been that these water user associations formed by women farmers not only helped in community level water management, it has also served as a platform where women share their learnings and experiences. Thus, gauging the scope of such community platforms for management of water resources in West Bengal, further activities such as training members of these Water User Associations for water monitoring, water budgeting and crop planning can be thought of. These will strengthen women's agency for natural resource management and also strengthen such people's institutions.
- *Need to identify and integrate livelihoods avenues for women farmers-* Women farmers time and again have shared that lack of livelihoods avenues is the most pressing issue faced by them. The project in the next phase can focus on engaging women farmers in livelihoods opportunities which are local and can provide better incomes. These avenues can be implemented by channelising the water user groups developed through the existing project.

ANNEXURES

Table 1: Detail of activities between 01.10.2021 to 31.03.2022

Sl. No.	Activity	Date	Place	Stakeholders
1	3 stakeholder meeting on water	23 rd March 2022 and 22 nd March 2022	2 in Purulia and 1 in Kolkata	Dept. of Agriculture (Soil & Water Management), Kalyan Krishi Vigyan Kendra, Purulia, Members of Women Self Help Groups (SHGs), Representatives of NGOs and CSOs from Purulia
2	Women's Training	1 st October 2021 & 28 th January 2022	Purulia and Nadia	Women farmers, SwitchON Foundation
3	Exposure visits	1 st October 2021 & 28 th January 2022	Purulia and Nadia	Women farmers, SwitchON Foundation
4	Due vigilance visit by IWMI	20th June 2022	Contai, Purba Medinipur	IWMI and SwitchON Foundation

Table 2: List of attendees at World Water Day Event - 22nd March 2022

Sl No.	Name	Designation	Department
1	Shri. Sajal Kumar Ghosh	Director & Ex-Officio Secretary	Department of Agriculture
2	Prof. (Dr.) Asis Mazumdar	Professor	School Of Water Resource Engineering, Jadavpur University
3	Kaushik Kumar Pal	Joint Secretary	Non-Conventional and Renewable Energy Sources
4	Dr. Anadi Gayen	Regional Director	Central Ground Water Board (Eastern Region)
5	Mohan Sarkar	Student	Geography
6	Bidyut Maiti	Secretary	Moyna Vivekananda Mission
7	Sasanka Maity	Secretary	Moyna Ramkrishna Association
8	Soumyasri Maity	Secretary	Barbasudevapur Deshpran Pragati Sangha
9	Badal Maharana	Team Leader	Tagore Society for Rural Development
10	Dipankar Mahato	Data Manager	Kangsabati M.K.P.C Ltd.
11	Subhranka Maity	Director	Dikha Agra Farm Pvt. Ltd.
12	Amit Bag	Agriculture Expert	West Bengal Accelerated Development of Minor Irrigation Project (WBADMIP)
13	Kaushik Mondal	Asst. Secretary	SANDESHKHALI MAA SARODA WOMEN & RURAL WELFARE SOCIETY
14	Ashish Kumar Pramanik	Secretary	Kulpi Astha
15	Uday Sana	President	Chandpara scheduled caste and Tribal welfare association
16	Debi Prasad Halder	Project Manager	

Table 2: List of attendees at World Water Day Event - 22nd March 2022

SI No.	Name	Designation	Department
17	Rafikul Islam	Secretary	Rupantaree Welfare Society
18	Abdul Suddique Sardar	President	Rupantaree Welfare Society
19	Bibhuti Bhusan Saha	Scientist	CGWB,ER Kolkata
20	Arindam Maity	Member	Sarbaday Sangha
21	Subrata Maity	Secretary	Sarbaday Sangha
22	Sw. Vivek		
23	Mahuya Bhattacharya	Co-ordinator	CTRAN
24	Subir Das	Secretary	PANDUA & DADPUR VIVEKSANGHA
25	Md. Rahul Amin	Member	Panitar Pally Unnayan Samity
26	Sumit Mahata	TDC	LKP
27	Smt. Debatri Bagchi	Senior Geologist	State Water Investigation Directorate
19	Bibhuti Bhusan Saha	Scientist	CGWB,ER Kolkata
20	Arindam Maity	Member	Sarbaday Sangha
21	Subrata Maity	Secretary	Sarbaday Sangha
22	Sw. Vivek		
23	Mahuya Bhattacharya	Co-ordinator	CTRAN
24	Subir Das	Secretary	PANDUA & DADPUR VIVEKSANGHA
25	Md. Rahul Amin	Member	Panitar Pally Unnayan Samity
26	Sumit Mahata	TDC	LKP
27	Smt. Debatri Bagchi	Senior Geologist	State Water Investigation Directorate



Table 3: List of attendees at World Water Day Event - 23rd March 2022 (Project Director CADDC Office)

SI No.	Name	Designation	Department / SHG Name
1	Ms. Bijaya Mondal	Assistant Director of Agriculture	Block Administration
2	Sefali Mahato		Disha SHG
3	Bidyadhar Kalindi		PRADAN
4	Baby Mahato		Radharani SHG
5	Rabindranath Kuiry	Farmer	
6	Geeta Mahato		Ma Durga SHG
7	Baishakhi Soren		Golamala SHG
8	Bahamani Soren		Golamala SHG
9	Satyaranjan Soren		
10	Rita Mahato		Jhansi Rani SHG
11	Jyotsna Mahato		Jiban Deep SHG
12	Beni Madhab Mahata	Farmer	
13	Kunti Mahata		Binapani SHG
14	Phalguni Mahata	CEO	Kangsabati MKPC Ltd.
15	Budhuni Mura		
16	Chapala Laya		Supurdih, Uparpara Mahila Samity
17	Sasti Charan Kuiry	Farmer	Begunkodar
18	Beni Madhab Mahata	Farmer	Murguma
19	Malati Murai		Laxmibai Group
20	Shanti Ram Kuiry	Farmer	Begunkodar
21	Shibani Mahata		Mahamaya SHG
22	Basanti Mahata		Basanti Mahila Swanirbhar Dal
23	Malati Laya		Laxmibai Swanirbhar Dal
24	Bhairab Kuiry		
25	Sabani Tudu		Jaheraya Mahila Swanirvar Dal
26	Lalita Mandi		
27	Pratham Tudu	Farmer	
28	Gadadhar Mahata	Brindabanpur	
29	Bijay Kuiry	Begunkodar	
30	Kalani Mahata	Murguma	Jivan Deep
31	Dipali Mahata		Jhansi Rani SHG
32	Santoshi Mahata		Jiban Deep Mahila Samity
33	Ruma Kuiry		

Table 4: List of attendees at World Water Day Event - 23rd March 2022 (KALAYA Krishi Vigyan Kendra)

SI No.	Name	Designation	Department
1	Sanjit Kumar Mahanty	T.S.R.D L.I	
2	Brajagopal Mishra	Livelihood Expert	TSRD (NGO)
3	Nanigopal Mahata	Secretary	AGKS (NGO)
4	Kashinath Mahata	Secretary	TUMBA JHALDA GRAM UNNAYAN SAMITY
5	Bhabesh Ch. Mahata	President	Purulia Nari Jhargram Samity
6	Sunil Gop	Member	
7	Swapan Ch. Kumar	Secretary	Bannia Bengal Tiger Club
8	Rajen Singh	Program Coordinator	Lalpur Uttarayan
9	Golak Behari Mahata	Secretary	Lalpur Uttarayan
10	Laxmi Karmakar	Secretary	Maa Binapani Swanirbhar Dal
11	Basanti Mahata	Secretary	Bai Nishada Mayee Gramin Nari Bikash Samity
12	Nikita Roy Choudhuri	PhD Researcher	
13	Shyamali Choudhury	Student (M.A)	S.K.B University
14	Dipu Sarkar	Co-ordinator	Dalpur S.S.G.S Ashram
15	Suraj Kundu	Student/Secretary	Pratigya Foundation
16	Suparna Dey	Working President	Pratigya Foundation
17	D. Surajit Majhi	Member	Pratigya Foundation
18	Subrata Dutta	President	Pratigya Foundation
19	Antara Dutta	Office Stuff	Bari Nishadamayee Gramin Nari Bikash Samity
20	Phulchand Mahata	Secretary	
21	Rudrapratap Paul	Secretary	Kaira New Binapani Club
22	Dipak Karmakar	Trainer	Buglidih Young Club
23	Swapan Kumar Mahata	Secretary	Mudidih Adibasi Krishak Samity
24	Alok Mahata	Secretary	Buglidih Netaji Sangha
25	Chaina Mahata	Secretary	Maa Sarada Mahila Smaity
26	Jubarani MahATA	Secretary	Layadih parash Mahila Gosthi
27	Jeemuner Mahata	Secretary	Malthore Preetilata Mahila Smaity
28	Namita Mahata	Secretary	Malthore Sabuj Bangla Mahila Samity
29	Himadri Mahata	Secretary	Malthore Sonartory Mahila Samity
30	Supriya Rajwar	Secretary	Maa Annapurna SC Group
31	Padma Mahata	Secretary	Layadih Ma tara Mahila Samity
32	Somnath Mondal	Member	Amidih Gobindapur Janakalyan Samity
33	Lal Bahadur Singh	Secretary	Amidih Gobindapur Janakalyan Samity
34	Nakul Singh	Member	Amidih Gobindapur Janakalyan Samity
35	Nilkamal Das	Vice President	Puncha Agro Producer Company

Table 5 : Exposure Visit Details

SI No.	Type of campaign achieved	Date of achieved Campaign	Location
1	Exposure visit	2022-04-24	Pashchim Bardhaman
2	Exposure visit	2022-04-24	Bankura
3	Exposure visit	2022-04-24	Purulia
4	Exposure visit	2022-04-24	Bankura
5	Exposure visit	4/25/2022	Purba Medinipur
6	Exposure visit	4/25/2022	Purulia
7	Exposure visit	4/25/2022	Purulia
8	Exposure visit	4/25/2022	Hooghly
9	Exposure visit	4/25/2022	Bardhaman Sadar North
10	Exposure visit	4/25/2022	Bardhaman Sadar North
11	Exposure visit	4/25/2022	Medinipur East
12	Exposure visit	4/25/2022	Medinipur East
13	Exposure visit	4/25/2022	Pashchim Bardhaman
14	Exposure visit	5/1/2022	Bardhaman
15	Exposure visit	5/1/2022	Hooghly
16	Exposure visit	2022-05-05	Bankura
17	Exposure visit	5/5/2022	Bardhaman
18	Exposure visit	5/10/2022	Hooghly
19	Exposure visit	5/12/2022	Bardhaman
20	Exposure visit	5/13/2022	Purulia
21	Exposure visit	5/13/2022	Bankura
22	Exposure visit	5/16/2022	Bardhaman
23	Exposure visit	5/18/2022	Bankura
24	Exposure visit	5/19/2022	Nadia
25	Exposure visit	5/20/2022	Bardhaman
26	Exposure visit	5/21/2022	Purba Midnapur
27	Exposure visit	5/26/2022	Bankura
28	Exposure visit	5/31/2022	Purba Midnapur
29	Exposure visit	5/31/2022	Bardhaman
30	Exposure visit	6/1/2022	Paschim Midnapur
31	Exposure visit	6/2/2022	Bardhaman
32	Exposure visit	4/6/2022	Purulia

Table 6: Detail of women farmers where solar pumps have been installed

Sl. no	Name of Farmer	Block	Date of installation	District	Type of pump replaced	Type of pump installed	Water user group members
1	Alkarani Jana	Kolaghat	20.1.21	Purba Medinipur	Electric	2 HP AC Submersible	3
2	Jotsna Karmakar	Hanskhali	13.12.20	Nadia	Diesel	2 HP AC Surface	3
3	Kajal Biswas	Hanskhali	23.12.20	Nadia	Diesel	2 HP AC Surface	3
4	Nilima Jana	Ramnagar II	20.1.21	Purba Medinipur	Electric	2 HP AC Submersible	4
5	Renuka Biswas	Bagda	27.12.20	North 24 Parganas	Diesel	2 HP AC Surface	3
6	Malati Sarkar	Krishnana gar I	29.1.21	Nadia	Diesel	2 HP AC Surface	3
7	Pori Giri	Deshpran	8.2.21	Purba Medinipur	Electric	2 HP AC Submersible	3
8	Indra Jana	Pankura I	28.1.21	Purba Medinipur	Electric	2 HP AC Submersible	3
9	Bandana Pramanik	Kaliganj	1.10.21	Nadia	Diesel	2 HP AC Surface	3
10	Manju Rani Pal	Kanksha	30.5.21	Paschim Barddham an	Electric	2 HP AC Submersible	3



Table 6: Detail of women farmers where solar pumps have been installed

Sl. no	Name of Farmer	Block	Date of installation	District	Type of pump replaced	Type of pump installed	Water user group members
11	Sima Biswas	Krishnana gar-I	26.5.21	Nadia	Diesel	2 HP Surface	3
12	Sutapa Mondal	Contai I	20.5.21	Purba Medinipur	Bought water	2 HP AC Submersible	3
13	Kakoli Maity	Moyna	5.9.21	Purba Medinipur	Diesel	2 HP AC Submersible	3
14	Durga Sarkar	Krishnagar I	5.11.21	Nadia	Diesel	2 HP AC Surface	4
15	Dipti Hira	Bagda	5.6.21	North 24 Parganas	Diesel	2 HP AC Surface	4
16	Josna Das Adhikari	Narayangarh	01.02.22	Paschim Medinipur	Electric	3HP Submersible	3
17	Sangita Ghosh	Hanskhali	30.01.22	Nadia	Diesel	3HP Surface	4
18	Anjana Biswas	Hanskhali	04.02.22	Nadia	Diesel	3HP Surface	4
19	Manotosh Ghosh	Binpur II		Jhargram	Diesel	3HP Submersible	4
20	Josna Das Adhikari	Narayangarh	28.03.22	Paschim Medinipur	Electric	3HP Submersible	3

DUE VIGILANCE VISIT BY IWMI- 20TH JUNE 2022

On 20th June 2022, IWMI staff joined the SwitchON Foundation team for a vigilance visit in Purba Medinipur, West Bengal. The visit enabled an interaction between the IWMI team and the women farmers who are the beneficiaries under the project. The discussion with the women farmers led to better understanding of impacts of solar pump installation and present challenges faced by the women farmers.



PROGRESSIVE WOMEN FARMERS IDENTIFIED UNDER THE PROJECT ACROSS WEST BENGAL



Jyotsna Karmakar, Hanskhali, Nadia



Nilima Jana, Ramnagar II, Purba Midnapur



Malati Sarkar, Krishnanagar, Nadia



Alkarani Jana, Kolaghat, Purba Midnapur



Renuka Biswas, Bagda, North 24 Parganas



Kajol Biswas, Hanskhali, Nadia



Puja Mallik, Nadia

WOMEN FARMERS ARE PROUDLY SAYING

“



“I have been able to grow pomegranates this year with the support of reliable irrigation from solar pumps”

Nilima Jana

Purba Medinipur

“



“With solar pumps, we do not have to bear the cost of diesel anymore. The crop yield has improved and we can water crops whenever it is required”

Renuka Biswas

North 24 Parganas

“



“Since we have seen the benefit of a small pump, I now want to install a bigger pump to start cultivating new crops such as jute, rice, sesame and coriander”

Malati Sarkar

Purba Medinipur





Farmers Exposure Visit





ପ୍ରସ୍ତୁତକାରକ: ପୁନର୍ ବିକାଶ ପ୍ରସିଦ୍ଧି ଲିମିଟେଡ୍
ଫୋନ୍: ୯୮୨୭୨୦୧୭୭୧





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